

7 CONSULTATION

7.1 Key Points of Contact

External agencies, utilities, emergency service providers, and property owners along Mavis Road were contacted directly at key points during the study and requested to provide input to the study and feedback on the decision-making process. The key points of contact are listed in **Table 7-1**.

Initial notification of the study to property owners, agencies, utilities and Aboriginal Communities included a copy of the Notice of Study Commencement and a Survey / Response Form (a copy of the Notice and the Survey / Response Form is provided in **Appendix A**). The catchment area for property owners was defined as approximately 300 m on either side of Mavis Road within the study area. The local community was also notified through Ward 11 Councillor George Carlson's website / newsletters.

Members of the general public were notified of the study through notifications in the local newspapers and 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 at the key points of contact listed in **Table 7-1**.

Notices and study materials were also posted on the City of Mississauga website, with direction to the website provided in all notice materials.

Members of the general public who had not requested to be added to the project mailing list were still informed of key project milestones through newspaper notices and City website postings.

The comments received from the public are summarized in pertinent sections of the ESR and are included in **Appendix A**.

Table 7-1: Key Points of Contact

Date	Notification	Purpose
Notice of Study Commencement April 18, 2016	<ul style="list-style-type: none"> Letter and Survey sent to property owners – April 18, 2016 Letters and Response Forms sent to agencies and utilities –April 19, 2016 Letters and Response Forms sent to Aboriginal Communities April 18, 2016 City website – April 18, 2016 The Brampton Guardian, and The Mississauga News – April 21 and 28, 2016 	To introduce and invite participation in the study and to request any preliminary comments or pertinent information.
Public Information Centre # 1 June 14, 2016	<ul style="list-style-type: none"> Letter sent to property owners / mailing list, agencies, utilities and Aboriginal – May 30, 2016 City website – May 30, 2016 The Brampton Guardian, and The Mississauga News – May 31 and June 7, 2016 PIC Display materials posted on City website on June 16, 2016 	To notify and invite interested parties to attend the first Public Information Centre on June 14, 2016 to review information and provide input regarding: the problem and opportunities being addressed, the collection of background information, the evaluation of planning alternatives and early design concepts.
Public Information Centre # 2 November 9, 2016	<ul style="list-style-type: none"> Letter sent to property owners / mailing list, agencies, and utilities – October 24, 2016 Letter sent to Aboriginal – October 31, 2016 City website – October 27, 2016 The Brampton Guardian, and The Mississauga News – October 27 and November 3, 2016 PIC Display materials posted on City website on November 10, 2016 	To notify and invite interested parties to attend the second Public Information Centre on November 9, 2016 to review information and provide input regarding the Preliminary Preferred Design, including streetscape / landscape enhancements.
Notice of Study Completion June 1, 2017	<ul style="list-style-type: none"> Letters sent to property owners / mailing list May 31, 2017 Letters sent to agencies and utilities June 1, 2017 Letters sent to Aboriginal Communities June 1, 2017 City website – June 1, 2017 The Brampton Guardian, and The Mississauga News – June 1 and June 8, 2017 	To announce the completion of the Class EA Study and notify interested parties of the 30-calendar review period for the Environmental Study Report.

7.2 Aboriginal Community Engagement

Aboriginal communities with potential interest in the project were identified based on the Aboriginal Affairs and Northern Development Canada (AANDC) Consultation and Accommodation Unit (CAU) Aboriginal Treaty Rights Information System (ATRIS) databased. The following Aboriginal communities and organizations were identified having a potential interest in the study:

- ▶ Union of Ontario Indians
- ▶ Association of Iroquois & Allied Indians
- ▶ Metis Nation of Ontario
- ▶ Peel Aboriginal Network
- ▶ Credit River Metis Council
- ▶ Alderville First Nation
- ▶ Anishinabek Nation
- ▶ Beausoleil First Nation
- ▶ Chippewas of Georgina Island
- ▶ Chippewas of Mnjikaning (Rama)
- ▶ Curve Lake First Nation
- ▶ Hiawatha First Nation
- ▶ Mississaugas of Scugog Island
- ▶ Mississaugas of the New Credit
- ▶ Moose Deer Point First Nation
- ▶ Six Nations of the Grand River Territory
- ▶ Williams Treaty First Nations Process Coordinator (Karry Sandy-McKenzie)

The key points of contact and communication with Aboriginal communities are listed in **Table 7-2** and their responses are summarized in **Table 7-3** and are included in **Appendix A**.

The City remains committed to engagement of Aboriginal communities and will continue to provide information, invite feedback and the invitation to meet with communities throughout the Class EA review / approval process as well as future detailed design.

Table 7-2: Key Points of Contact with Aboriginal Communities

Milestone	Date	Purpose
Notice of Study Commencement	April 18, 2016	To introduce the study, ascertain whether or not the Aboriginal Community has an interest in the study, and request any preliminary comments or pertinent information. Individual, Aboriginal Community-specific response forms were provided along with the Notification Letter.
Public Information Centre 1 Notice	May 27, 2016	To notify and invite interested parties to attend the first Public Information Centre to review information and provide input regarding: the problem being addressed, the collection of background information and the alternatives being considered.
Public information Centre 1 Package	August 18, 2016	To provide the PIC 1 display panels as a package in order to assist the community in determining if they have an interest in the study. In addition to the PIC 1 displays, the Ministry of Tourism, Culture and Sport Archaeological Checklist was provided to all Aboriginal Communities. The Stage 1 Archaeological Assessment Report was provided to the all Aboriginal that had specially requested this information: Mississauga of the New Credit First Nation, Hiawatha First Nation, Mississaugas of Scugog Island First Nation and Curve Lake First Nation. All other communities were made aware that they could request this documentation at any time.
Public Information Centre 2 Notice	October 27, 2016	To notify and invite interested parties to attend the second Public Information Centre to review information and provide input regarding: the assessment and evaluation of alternatives and the Recommended Plan.
Public Information Centre 2 Package	November 2016	To provide the PIC 2 display panels as a package in order to assist the Aboriginal Community in determining if they have an interest in the study.
Study Update	May 2017	To provide an update on the study, identify the upcoming completion of the study is and confirm whether Aboriginal Communities required any additional information to review or understand the project.
Notice of Completion	June 2017	To announce the completion of the Class EA Study and notify interested parties of the 30-calendar review period for the Environmental Study Report which is made available on the City's website.

Table 7-3: Aboriginal Community Response Summary

Aboriginal Organization	Date	Summary
Hiawatha First Nation	Letter response to Notice of Commencement dated April 22, 2016	<p>Thank you for the information you sent to Hiawatha First Nation regarding the notice of study commencement Mavis Road CEA which is being proposed within Hiawatha First Nation's Traditional and Treaty Territories. Hiawatha First Nation appreciates that the City of Mississauga recognizes the importance of First Nations Consultation and that your office is conforming to the requirements within the Duty to Consult Process. The correspondence Hiawatha First Nation has received is not considered meaningful consultation but rather information sharing.</p> <p>As per the Hiawatha First Nation Consultation Protocol, your proposed project is deemed to have little, if any, impact on Hiawatha First Nation's traditional territory and/or rights. Please keep us apprised of any updates, archaeological findings, and/or of any environmental impacts, should they occur. Hiawatha First Nation requests you contact us if archaeological artifacts are found as we require our trained archaeological liaisons be present at the archaeological sites during the assessments. We also ask that you forward any archaeological reports to Hiawatha First Nation as they are completed. Any maps pertaining to the project should be sent to Hiawatha First Nation in a shape file.</p> <p>Hiawatha First Nation reserves the right to provide additional comment should further development result in additional potential impact on our traditional territory and rights. Please be aware that while we request to be kept apprised throughout all phases of this project, we may not always have representation at all stakeholders meetings.</p>
Mississaugas of Scugog Island First Nation	Response Form to Notice of Commencement August 22, 2016	<p>Aboriginal Response Form:</p> <p>There are areas of cultural significance within the Study Area.</p> <p>This treaty is situated within Treaty #13A and New Credit First Nation is the primary First Nation; however our concern amongst all the Mississauga First Nations is that of impact on any potential archaeological resources and on the environment. As the City of Toronto and the GTA expands it remains a constant concern that these two items are constantly under increased pressure.</p>
Curve Lake First Nation	Letter response to Notice of Commencement dated April 22, 2016	<p>The area in which your project is proposed is situated within the Traditional Territory of Curve Lake First Nation. Our First Nations Territory is incorporated within the Williams Treaty Territory and is the subject of a claim under Canada's Specific Claims Policy. We strongly suggest that you provide Karry Sandy-Mackenzie, William Treaty Claims Coordinator, with a copy of your proposal as your obligation to consult also extends to the other First Nations of the Williams Treaty.</p> <p>Although we have not conducted exhaustive research nor have we the resources to do so, Curve Lake First Nations Council is not currently aware of any issues that would cause concern with respect to our Traditional, Aboriginal and Treaty rights.</p> <p>Please note that we have particular concern for the remains of our ancestors. Should excavation unearth bone, remains or other such evidence of a native burial site or any Archaeological findings, we must be notified without delay. In the case of a burial site, Council remind you of your obligations under the Cemeteries Act to notify the representative whose members have a close cultural affinity to the interred person. As I am sure you are aware, the regulations further state that the presentative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.</p> <p>If any new, undisclosed or unforeseen issue should arise, that has potential for anticipated negative environmental impacts or anticipated impacts on our Treaty and Aboriginal rights, we require that we be notified regarding these as well.</p> <p>Thank you for recognizing the importance of consultation and respecting your duty to consult obligations as determined by the Supreme Court of Canada.</p>
Mississaugas of the New Credit First Nation	Letter response to Notice of Commencement dated May 12, 2016 Letter response to PIC 1 notice dated July 12, 2016 (same letter as response to Notice of Commencement)	<p>Email: Thank you for the notification sent to The Mississaugas of the New Credit First Nation (MNCFN) regarding the Mavis Road Class Environmental Assessment Notice of Public Information Centre #1. We have reviewed the document you have provided and determined that, at this time, MNCFN has a low level of concern about the project. Please see the attached letter for more information.</p> <p>Respectfully, we ask that you immediately notify MNCFN if there are any changes to the project as they may impact MNCFN's interests. Additionally, MNCFN requests a copy of all associated environmental and/or archaeological reports. These can be electronic copies, if you prefer. Furthermore, MNCFN employs Field Liaison Representatives who must be on location whenever any fieldwork for environmental and/or archaeological assessments is undertaken. If additional work is scheduled, please notify us as soon as possible so that we may work together to discuss and arrange for MNCFN's participation.</p> <p>Letter: Thank you for your notification on the Mavis Road Class Environmental Assessment Notice of Public Information Centre #1 dated June 3, 2016. The Mississaugas of the New Credit First Nation (MNCFN) has various treaty rights across its traditional territory, including the area contemplated by your project. For further information, please see our website, http://www.newcreditfirstnation.com/. MNCFN continues to exercise treaty rights which include, but are not limited to, rights to harvest, fish, trap and gather species of plants, animals and insects for any purpose including food, social, ceremonial, trade and exchange purposes. The MNCFN also has the right to use the water and resources from the rivers, creeks and lands across the MCNFN traditional territory.</p> <p>At this time, MNCFN does not have a high level of concern regarding the proposed project and therefore, by way of this letter, approves the continuation of this project. However, MNCFN requests that you continue to notify us about the status of the project. In addition, we respectfully ask you to immediately notify us if there are any changes to the project as they may impact MNCFN's interests and</p>

Aboriginal Organization	Date	Summary
		<p>that you please provide us with a copy of all associated environmental and archaeology reports. This includes, but is not limited to changes related to the scope of work and expected archaeological and environmental impacts.</p> <p>Additionally, MNCFN employs Field Liaison Representatives (“FLRs”) to act as official representatives of the community and who are answerable to MNCFN Chief and Council through the Department of Consultation and Accommodation. The FLRs’ mandate is to ensure that MNCFN’s perspectives and priorities are considered in the field and to enable MNCFN to provide timely, relevant, and meaningful comment on the Project. Therefore, it is MNCFN policy that FLRs are on location whenever any fieldwork for environmental and/or archaeological assessments are undertaken. It is expected that the proponent will cover the costs of this FLR participation in the fieldwork. Please also provide the contact information of the person, or consultant, in charge of organizing this work so they may facilitate the participation of the MNCFN FLRs.</p> <p>Nothing in this letter shall be construed as to affect the Aboriginal or Treaty rights and hence shall not limit any consultation and accommodation owed to MNCFN by the Crown or any proponent, as recognized by section 35 of the Constitution Act, 1982, of any other First Nation.</p> <p>MNCFN reserves the right in relation to any development project or decision, to decide whether it supports a project and to: comment to regulators, participate in regulatory processes and hearings, seek intervener funding or status, or to challenge and seek remedies through the courts.</p> <p>MNCFN expects all proponents to act according to the following best practices:</p> <ul style="list-style-type: none">• Engage early in the planning process, before decisions are made• Provide information in meaningful and understandable formats.• Convey willingness to transparently describe the project and consider any MNCFN concerns.• Recognize the significance of cultural activities and traditional practices of the MNCFN• Demonstrate a respect for MNCFN knowledge and uses of land and resources.• Understand the importance of youth and elders in First Nation communities.• Act with honour, openness, transparency and respect.• Be prepared to listen and allow time for meaningful discussion.
Chippewas of Rama First Nation	<p>Email response to PIC 2 notice dated November 3, 2016</p> <p>Email response to PIC 2 package dated November 3, 2016 (same response as PIC 2 Notice)</p>	<p>Thank you for your letter re: City of Mississauga – Mavis Road Class Environmental Assessment – Notice of Public Information Centre #2.</p> <p>Please be advised that we reviewed your letter. I have shared it with Council and we’ve forwarded the information to Karry Sandy McKenzie, Williams Treaties First Nation Process Co-ordinator/Negotiator. Ms. McKenzie will review your letter and take the necessary action if required. In the interim, should you wish to contact Ms. McKenzie directly, please do so at k.a.sandy-mckenzie@rogers.com</p>

7.2.1 Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

The Ministry of Environment and Climate Change (MOECC) response to the Notice of Study Commencement is discussed in **Section 7.3** and provided in **Appendix A**.

The MOECC response letter includes a preliminary assessment checklist to guide aboriginal engagement and identify concerns or potential for adverse impacts to traditional or treaty rights.

In addition to other interests, some main concerns of First Nation and Métis communities may pertain to established or asserted rights to hunt, gather, trap, and fish – these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to how lands and water are accessed, may be of concern to Aboriginal communities.

The response for provided to First Nation communities with the Notice of Commencement provided the following formation about the project, for context and clarity:

- ▶ Is within an urban / developed area;
- ▶ Is not located on Crown land;
- ▶ Will not change access to waterbodies; and
- ▶ Will not involve the clearing of forested land.

The completed MOECC assessment checklist is provided in **Table 7-4**.

On the basis of First Nation community responses to date, and the completion of the checklist, no specific concerns have been identified to date that would trigger a formal ‘Duty to Consult’ process. The City of Mississauga remains flexible to accommodate and address any triggers that may be identified in future, the project moves forward.

Table 7-4: Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

MOECC Checklist Item	Response
<p>Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area?</p> <p>The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.</p>	<p>As noted in Table 7-3, the following responses have been received which generally indicate a low level of concern and note interest in possible archaeological finds:</p> <p>Hiawatha: <i>As per the Hiawatha First Nation Consultation Protocol, your proposed project is deemed to have little, if any, impact on Hiawatha First Nation's traditional territory and/or rights.</i></p> <p>Mississaugas of Scugog Island: <i>This treaty is situated within Treaty #13A and New Credit First Nation is the primary First Nation; however our concern amongst all the Mississauga First Nations is that of impact on any potential archaeological resources and on the environment.</i></p> <p>Curve Lake: <i>Although we have not conducted exhaustive research nor have we the resources to do so, Curve Lake First Nations Council is not currently aware of any issues that would cause concern with respect to our Traditional, Aboriginal and Treaty rights.</i></p> <p>Mississaugas of the New Credit: <i>At this time, MNCFN does not have a high level of concern regarding the proposed project and therefore, by way of this letter, approves the continuation of this project.</i></p> <p>It is noted that all information provided to Williams Treaty First Nations has also been provided to Karry Sandy McKenzie, Williams Treaties First Nation Process Coordinator. A response has not been received to date.</p>
<p>Is your project occurring on Crown land, or is it close to a water body? Might it change access to either?</p>	No
<p>Is the project located in an open or forested area where hunting or trapping could take place?</p>	No
<p>Does the project involve the clearing of forested land?</p>	No
<p>Is the project located away from developed, urban areas?</p>	No
<p>Is your project close to, or adjacent to, an existing reserve?</p> <p>Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.</p>	No
<p>Will the project affect First Nations and/or Métis ability to access areas of significance to them?</p>	No
<p>Is the area subject to a land claim?</p> <p>Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about land claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.</p>	No
<p>Does the project have the potential to impact any archaeological sites?</p>	Very limited potential to impact archaeological sites. Stage 2 assessment is recommended in only a few locations. Natural areas associated with Fletcher's Creek and Credit River tributary are not impacted.

7.3 Technical Agencies and Utilities

The list of technical agencies was assembled based on previous City of Mississauga Class Environmental Assessment studies and Ministry of the Environment and Climate Change Government Review Team (GRT) list. External ‘agencies’ (including regulatory/review agencies, utilities and emergency service providers) were first notified of this Class EA study through written correspondence on April 18, 2016 which included a copy of the Notice of Study Commencement and a Response Form (a copy of the Notice and letter are provided in **Appendix A**). These agencies were:

- ▶ Ministry of Aboriginal Affairs
- ▶ Ministry of the Environment and Climate Change
- ▶ Infrastructure Ontario
- ▶ Ministry of Municipal Affairs and Housing
- ▶ Ministry of Natural Resources and Forestry
- ▶ Ministry of Tourism, Culture and Sport
- ▶ Ministry of Transportation
- ▶ 407 ETR
- ▶ Mississauga Cycling Advisory Council
- ▶ Mississauga Traffic Safety Council
- ▶ Dufferin-Peel Roman Catholic Separate School Board
- ▶ Region of Peel District School Board
- ▶ St. Marcellinus Secondary School
- ▶ St. Veronica Elementary School
- ▶ David Leeder Middle School
- ▶ Meadowvale Secondary School
- ▶ Meadowvale Village Public School
- ▶ Mississauga Secondary School
- ▶ Ray Lawson Public School
- ▶ Region of Peel Service (11 and 12 Divisions)
- ▶ Region of Peel Paramedic Services
- ▶ Mississauga Fire and Emergency Services
- ▶ Credit Valley Conservation (CVC)
- ▶ Hydro One Networks Inc.
- ▶ Hydro One Brampton
- ▶ Enbridge Gas Distribution Inc.
- ▶ Rogers Communication Inc.
- ▶ Telus Communications
- ▶ Bell Canada
- ▶ Trans Northern Pipeline Inc. (subsequently removed)
- ▶ Trans Canada Pipeline Ltd. (subsequently removed)

A summary of Agency comments received throughout the study and course of action taken by the Project Team, as appropriate, is provided in **Table 7-5**. Detailed comments or feedback of a more technical nature are provided in **Appendix A**.

Table 7-5: Summary of Agency Comments

Agency	Comments	Response / Future Course of Action
Provincial Government Agencies		
Ministry of Aboriginal Affairs	<ul style="list-style-type: none">- No response	<ul style="list-style-type: none">- Keep informed
Ministry of the Environment and Climate Change	<ul style="list-style-type: none">- Response to Notice of Study Commencement on April 19, 2016, providing general comments on Areas of Interest including: Ecosystem Protection and Restoration, Surface Water, Groundwater, Air Quality, Dust and Noise, Contaminated Soils, Mitigation and Monitoring, Planning and Policy, Class EA Process, Aboriginal Consultation. The detailed letter is provided in Appendix A.	<ul style="list-style-type: none">- Keep informed- Ensure the Class EA process and ESR address the Areas of Interest- Incorporate the Preliminary Assessment Checklist for First Nation and Metis Community Interests and Rights into the ESR (Chapter 7)- Provide draft ESR for review
Infrastructure Ontario	<ul style="list-style-type: none">- Responses April 22 and June 1, 2016 to the Notice of Study Commencement<ul style="list-style-type: none">o From the information you have provided, it is unclear if you are proposing to use lands under the control of the Minister of Economic Development, Employment and Infrastructure (MEDEI lands) to support your proposed project.o Prior to MEDEI consenting to the use of MEDEI lands, the applicable environmental assessment, duty to consult Aboriginal peoples (if triggered) and heritage obligations will need to be met. In order for MEDEI to allow you access to MEDEI lands and to carry out proposed activities, MEDEI must ensure that provincial requirements and due diligence obligations are satisfied. These requirements are in addition to any such obligations you as the proponent of the project may have.o In order for MEDEI and IO to assist you to meet your required project timelines, please recognize that early, direct contact with IO is imperative. The due diligence required prior to the use of MEDEI lands for your proposed project, may include but may not be limited to the following:<ul style="list-style-type: none">▪ Procedural aspects of the Provincial Crown's Aboriginal Duty to Consult obligations – see Instruction Note 1▪ Requirements of the MOI Public Work Class Environmental Assessment – see Instruction Note 2▪ Requirements of the Ministry of Tourism Culture and Sport (MTCS) Standards and Guidelines for Consultant Archaeologists– see Instruction Note 3▪ Requirements of the MTCS Standards and Guidelines for the Conservation of Provincial Heritage Properties Consultant Archaeologists – see Instruction Note 4- The detailed letter is provided in Appendix A.- Response to PIC 1 Notice on June 1, 2016 noting similar aspects of the previous letters.	<ul style="list-style-type: none">- Based on the Recommended Plan (Chapter 6), no impacts to IO lands have been identified. This should be confirmed during detailed design. Where impacts to IO lands (e.g., disposition, easements etc.) may be identified, consultation with IO will be required in order to confirm and complete the Public Works Class EA requirements. This process will be triggered in detailed design, as appropriate.
Ministry of Municipal Affairs and Housing	<ul style="list-style-type: none">- No response	<ul style="list-style-type: none">- Keep informed
Ministry of Natural Resources and Forestry	<ul style="list-style-type: none">- No response to formal study notices- Provided project-specific information related to Species at Risk upon request from study team	<ul style="list-style-type: none">- Keep informed- Provide draft ESR for review
Ministry of Tourism, Culture and Sport	<ul style="list-style-type: none">- Response to Notice of Commencement received May 19, 2016 outlining MTCS areas of interest including: Archaeological Resources, Built Heritage and Cultural Heritage Landscapes.	<ul style="list-style-type: none">- Keep informed- The Stage I Archaeological Assessment has been submitted to MTCS for Registration.- A Cultural Heritage Evaluation Report has been completed as part of the EA process. The findings and mitigation recommendations are documented in these reports and summarized in the Environmental Study Report.

Agency	Comments	Response / Future Course of Action
Ministry of Transportation	<ul style="list-style-type: none"> - Feedback received with respect to the Mavis Road design between Highway 401 and Courtneypark Drive West. Design review related to this is provided in Appendix I 	<ul style="list-style-type: none"> - Keep informed - Provide Draft Environmental Study Report for Review and Comment - Include appropriate commitments to future work in EA documentation to ensure continued consultation during detailed design and permitting
407 ETR	<ul style="list-style-type: none"> - Meetings with MTO / 407 ETR were held throughout the study. Design alternatives for the highway 407 Bridge are documented in Appendix Meeting Minutes are provided in Appendix H 	<ul style="list-style-type: none"> - Keep informed - Provide Draft Environmental Study Report for Review and Comment - Include appropriate commitments to future work in EA documentation to ensure continued consultation during detailed design and permitting.
Municipalities		
City of Brampton	<ul style="list-style-type: none"> - Notice of Study Commencement Form response received on April 20, 2016 requesting to be kept informed 	<ul style="list-style-type: none"> - Keep informed
District School Boards and Student Services		
Dufferin-Peel Roman Catholic Separate School Board	<ul style="list-style-type: none"> - Email response provided April 22, 2016 with updated contact - Email response April 28, 2016 requested to be kept informed 	<ul style="list-style-type: none"> - Keep informed
Region of Peel District School Board	<ul style="list-style-type: none"> - Notice of Study Commencement Form response received on April 19, 2016 - Please keep the Board informed of the status of the project and provide any information you have available so that the Board may monitor its progress and provide comments as necessary 	<ul style="list-style-type: none"> - Keep informed
Peel Public Health	<ul style="list-style-type: none"> - No response 	<ul style="list-style-type: none"> - Keep informed
Emergency Service Providers		
Region of Peel Service	<ul style="list-style-type: none"> - No response 	<ul style="list-style-type: none"> - Keep informed
Region of Peel Paramedics	<ul style="list-style-type: none"> - Response to Notice of Commencement received on May 31, 2106. - Please be advised that our interest in the study and any subsequent construction or development is limited to being kept aware of any closures, detours or hazards that would limit or impede access to the area or those areas of the community which would require our response to traverse through the study/construction area. Please ensure that we are advised well in advance so that we can disseminate the information on alternate routes or anticipated delays. 	<ul style="list-style-type: none"> - Keep informed
Fire Department	<ul style="list-style-type: none"> - No response 	<ul style="list-style-type: none"> - Keep informed
Conservation Authority		
Credit Valley Conservation	<ul style="list-style-type: none"> - Letter received July 12, 2016 outlining concerns regarding the watercourse, floodplain, valley slope, municipal greenlands, fish habitat and EA objectives (letter provided in Appendix A). 	<ul style="list-style-type: none"> - Keep informed - Provide draft ESR - Include appropriate commitments to future work in EA documentation to ensure continued consultation during detailed design and permitting

7.4 Ministry of Transportation and 407ETR

Consultation with the Ministry of Transportation (MTO) and 407ETR was undertaken independently of the broader agency consultation given the specific technical and design interests of these agencies. **Table 7-6** provides a general summary of meeting dates and content however, a significant component of the consultation with these agencies was through written correspondence and the preparation and review of various design briefs and memoranda, which are included in **Appendices H** and **I**. The correspondence records and the Recommended Plan reflect an iterative process to reach agreement-in-principle on the design of Mavis Road in the vicinity of the Highway 401 interchange and the design of the Highway 407 Bridge.

Table 7-6: Meeting Summary – Ministry of Transportation and 407 ETR

Attendees	Date	Summary
407ETR	November 2, 2016	<p>Meeting to review the preliminary preferred design at the Highway 407 Interchange including:</p> <ul style="list-style-type: none"> • Modifications to on-ramps • Strategy for widening the Highway 407 Bridge, including accommodation of active transportation facilities <p>Widening the structure to the east was proposed by MMM at this meeting due to clearance restrictions to the west. 407ETR noted that widening the structure to the west instead would be preferred as there is significantly more space available to the west to accommodate a widened structure (i.e. less constrained). In particular, modifying the larger North to East (N-E) loop ramp (85 m radius) to the west would be preferred to modifying the smaller South to West (S-W) loop ramp (60 m radius) to the east. As a result, the 407ETR asked that MMM evaluate other structure widening approaches and cross-sections that would accommodate widening the structure to the west.</p> <p>This meeting was followed up with a design brief (memorandum in Appendix H) to address 407ETR comments on the design.</p>
	March 23, 2017	<p>Follow-up meeting to discuss the design brief developed after the November 2, 2016 meeting. The memo contained an evaluation of widening alternatives for the Mavis Road / Highway 407 crossing structure, and recommended widening to the west as the preferred alternative. Full details of this evaluation are provided in Appendix H.</p>
MTO	November 30, 2016	<p>Meeting with MTO to get feedback on proposed improvements as they pertain to the Mavis Road / Highway 401 interchange at the south extent of the Study Area.</p> <p>Prior to the meeting, MMM provided MTO with a copy of the draft plan for review, noting that proposed improvements to the Mavis Road / Courtney park</p>

Attendees	Date	Summary
		<p>Drive and Sombrero Way intersection included an additional Southbound left-turn lane and a lengthened northbound left-turn lane, which would require minor lane realignments on Mavis Road approaching the Highway 401 interchange.</p> <p>MTO noted their Traffic Section will need to review the proposed lane realignments, and that maintaining the existing tangent alignment would be ideal. To better manage these impacts MTO requested that MMM explore alternative designs through this intersection.</p> <p>Following the meeting, MMM developed a design option with a shortened northbound left-turn lane and issued a technical memo to MTO for their review that included a summary of the various constraints and design process associated with the proposed intersection configuration. (refer to memo in Appendix I)</p>
	February 23, 2017	<p>Follow-up meeting with MTO to discuss their comments on the technical memo and alternative design issued after the previous meeting. MTO noted general agreement with the proposed design.</p>

7.5 Public Consultation

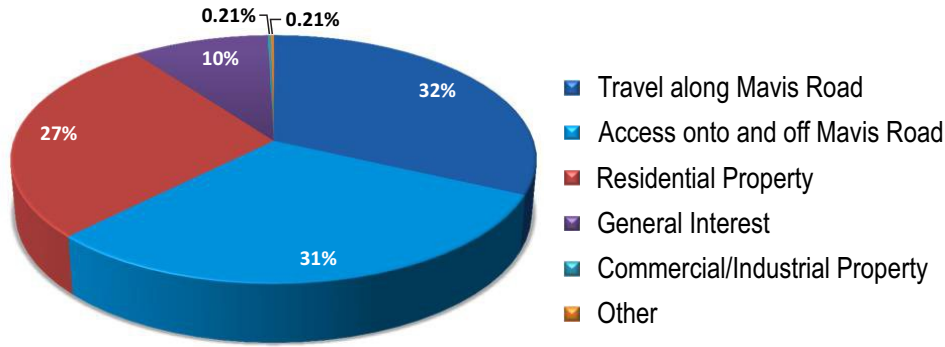
7.5.1 Notice of Commencement Survey

A Notice of Study Commencement Survey was made available to the public between April 21 and June 3, 2016 through the City's website (and hardcopy by request). The survey was also distributed directly to residents within the direct mailing catchment area. The survey is provided in **Appendix A**. The purpose of the survey was to:

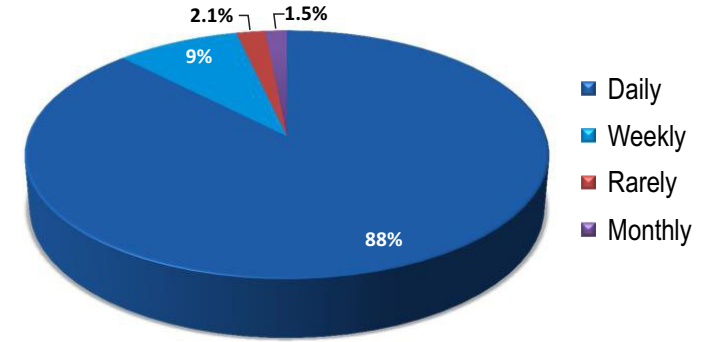
- ▶ Particular interests of respondents relative to Mavis Road and its operations;
- ▶ Understand how respondents used Mavis Road in terms of origin / destination, time of day, mode of travel;
- ▶ Determine the aspects of Mavis Road most important to respondents (e.g. cycling, streetscape, traffic signal timing, improved road capacity / travel time etc.).

A total of 220 survey responses were received, the results of which are summarized on **Exhibit 7-1**.

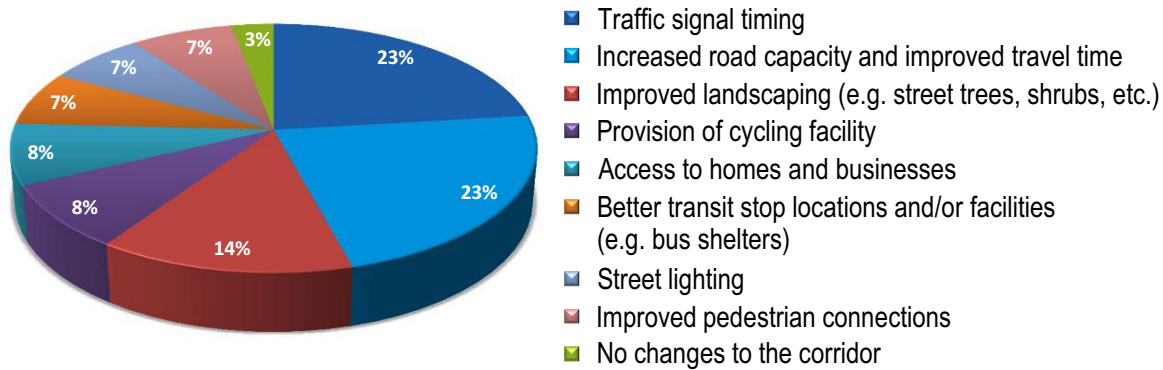
Area of Interest



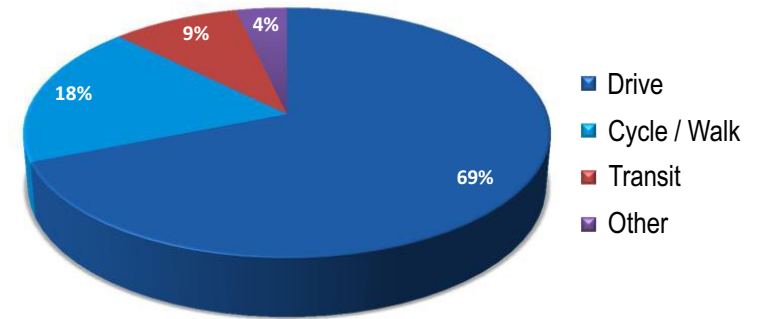
How often do you use Mavis Road between Courtneypark Drive West and Highway 407?



What elements / aspects are most important to you?



How do you use the corridor?



7.5.2 Public Information Centre 1

The first Public Information Centre (PIC 1) was held on June 14, 2016 at David Leeder Middle School (6900 Gooderham Estate Boulevard, Mississauga) from 5:30 p.m. to 8:00 p.m. The purpose of the PIC was to review and receive public input on the background information, need and justification, planning alternatives, preliminary street design concepts, and next steps for improvements to the Mavis Road corridor.

Thirty-one (31) people signed in at the PIC. Attendees included local residents / property owners, City of Mississauga Ward 11 Councillor George Carlson, and staff from the City of Mississauga and Region of Peel. The PIC materials were made available on the City's website the day after the PIC.

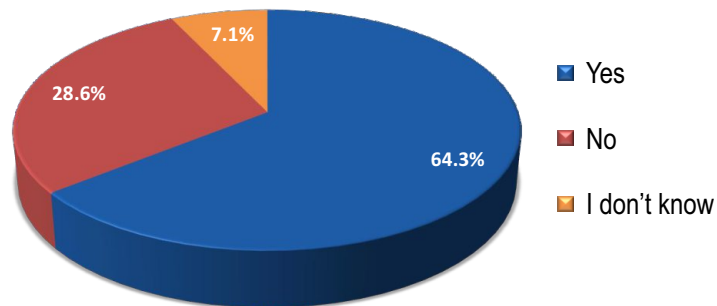
7.5.2.1 Comments Received

A total of 16 comments were received via: email (2), hard copy at the PIC (3), and through an online survey (11). Written comments that were received are provided verbatim in **Table 7-7** along with the Project Team's response. Sensitive information such as names and contact information have been removed.

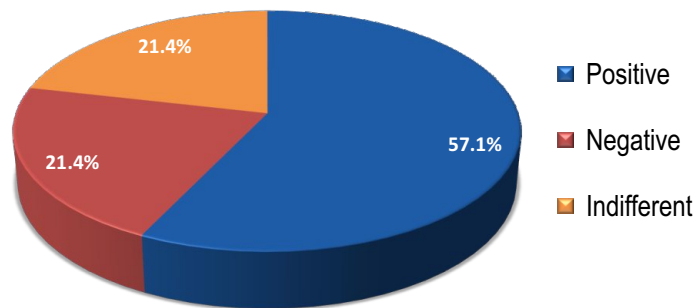
7.5.2.2 Survey and Results

A multiple choice survey was provided online and in hard copy at the PIC for members of the public to fill out. The purpose of the survey was to solicit feedback on the specific materials presented at PIC 1 including: the problems and opportunities; the alternative solutions; and design concepts. The survey is provided in **Appendix A** and results are summarized on **Exhibit 7-2**.

Does the Problem and Opportunity Statement capture the factors that are either key issues or areas of improvement within the study corridor?



What are your initial thought on the design concepts for Mavis Road?



Rate the Alternative Solutions

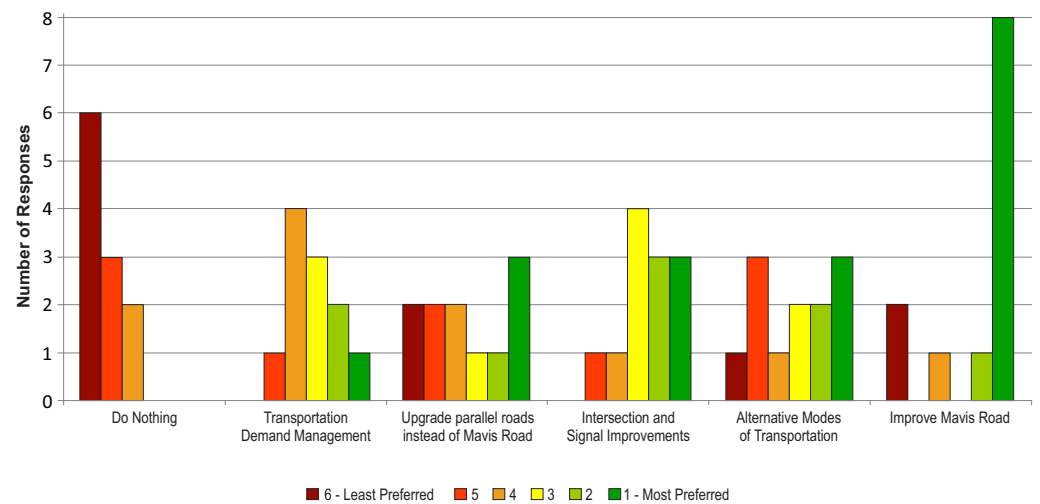


Table 7-7: Summary of Written Comments and Responses from Public Information Centre 1

Source	Comment	How the Comment was Addressed / Excerpted Response
Mississauga Resident Comment Sheet Received via Email	<p>The following are the things I would like to see in the Meadowvale Village community:</p> <ul style="list-style-type: none">• Adding electric bike charging stations, including rentals.• Adding Canoe & kayaking as a public transportation alternative that is wheelchair Accessible with entry points to the Credit River to connect the Port Credit area / Lakeshore project.• Gating Meadowvale Village to discourage throughways.• Better signage to identify throughways, entries, dead ends, historical significance. Large Bike maps.• Adding a visual piece i.e. 3D Printed sculpture or water feature with fountain at the corner of Mavis and south of Derry Road to highlight the historical relevance of the Village.• See through Sound barriers with art from the surrounding schools.• Timed traffic lights. Especially at the Courtney park area• Paved bike trails for electric bikes and wheelchairs.• Wheelchair Accessible parks, benches, tables. Rest stops.• Sculpture of AJ Cason. Sculpted evergreens. Prominent trees/landscaped gardens.• Additional crossing guards at the school zones especially on Gooderham Estate Blvd.• Pedestrian overpass over Mavis for the high-schools.• A round about at Mavis and Derry Road.• Increased bus service or an LRT.	<p>You have provided ideas on a number of different topics. Our Project Team will consider your comments that relate to the Mavis Road Class EA Study. In addition, the City will consider your comments that are related to broader initiatives such as recreational opportunities and other aspects related to the Meadowvale Village community.</p> <p>I wanted to respond to a couple of items that may be helpful to you:</p> <ul style="list-style-type: none">• Increased Bus Service or an LRT – I encourage you to have a look at the MiWay5 Mississauga Transit Plan (2016-2020) that is planning changes to routes and service. As you may be aware, an LRT is proposed on Hurontario Street which runs parallel to Mavis Road. http://www.mississauga.ca/portal/miway• Paved bike trails for electric bikes and wheelchairs – The Project team is looking at completing the Multi-Use Trail system along Mavis Road as part of the Class EA study. Our recommendations and draft plans will be available this fall at the next Public Information Centre.• Additional streetscape features, such as street trees, will be reviewed and our recommendations will be available at the next Public Information Centre.
Mississauga Resident Comment Sheet Received via Email	<p>Study Area</p> <ul style="list-style-type: none">• How will the Mavis Road improvements be implemented outside of the City of the Mississauga boundary, particularly the section of Mavis Road within the City of Brampton as well as the bridge crossing Highway 407? <p>Timing of Mavis Road Improvements</p> <ul style="list-style-type: none">• As much of the Mavis Road improvements should be implemented during the summer months when traffic movements are less due to the school summer holiday period.• Mavis Road improvements should not be allowed during nighttime hours (23:00 - 7:00), weekends and holidays in order to reduce impacts to nearby residents. <p>Scope of Mavis Road Improvements</p> <ul style="list-style-type: none">• With Mavis Road likely being expanded from four (4) to six (6) lanes, will there be separate lanes for left turns along with separate stopping area for transit buses? <p>Traffic Enforcement</p> <ul style="list-style-type: none">• Given that the Mavis Road improvements will be implemented after the 2nd Line Bridge over Highway 401 is removed, it is reasonable to anticipate an increased level in traffic, particularly within the neighbourhoods west of Mavis Road. The level of traffic enforcement within these neighbourhoods should be significantly increased throughout the entire Mavis Road improvement process. The traffic enforcement program should focus on speeding/aggressive driving and stop-sign/pedestrian crosswalk compliance. The City of Mississauga and Region of Peel should also focus their efforts on deterring speeding and aggressive driving within these neighbourhoods by installing more stop signs, speed bumps and photo radar especially given that there are several schools located within this area.• Prior to and during the Mavis Road improvements, traffic enforcement efforts should be placed along Mavis Road near Courtneypark Drive to ensure that vehicles aren't stopping in live lanes (e.g. high school students exiting vehicles), which adversely affects traffic flow along Mavis Road. <p>Landscaping</p> <ul style="list-style-type: none">• Landscaping along roads within the City of Mississauga is typically quite poor. The Mavis Road improvements are a wonderful opportunity to showcase and implement state-of-the-art and effective landscaping methods.• All trees and shrubs that are planted should be native species.• Given the proximity of homes to Mavis Road and the projected increase in traffic if Mavis Road is expanded to six (6) lanes, landscaping efforts should focus on establishing tree screens to shield residents adjacent to Mavis Road. A mixture of coniferous and deciduous trees along with shrubs should be implemented to provide an effective tree screen.	<p>Study Area</p> <p>Improvements to the Mavis Road corridor outside of the City of Mississauga (i.e. the 407ETR interchange to Ray Lawson Boulevard) are being directly coordinated with Region of Peel and 407ETR. The design and function of the road will generally remain the same throughout, and any associated costs or constraints will be coordinated with the respective jurisdiction.</p> <p>Timing of Mavis Road Improvements</p> <p>With respect to construction timing, roadwork in the City of Mississauga is typically planned for the summer months, though other factors and constraints may influence this. As the project progresses through the detail design phase, details such as construction phasing and scheduling will be determined further.</p> <p>Scope of Mavis Road Improvements</p> <p>The scope of improvements being considered includes intersection improvements such as adding new turn lanes, lengthening existing turn lanes, and possibly queue jump lanes for transit. These design elements and decisions will be made over the next few months and the preliminary design plan that includes all recommended improvements will be presented at Public Information Centre # 2, in the fall of 2016.</p> <p>Traffic Enforcement</p> <p>The Project Team has noted the concerns raised related to traffic on residential streets adjacent to Mavis Road- particularly as it relates to the removal of the Second Line bridge over Highway 401. Vehicle speeds are an enforcement issue, however proposed improvements to Mavis Road will help improve travel times and safety through the area and discourage the use of side streets.</p> <p>City staff conducted a Neighbourhood Traffic Study in 2014 as a separate supporting study to the Second Line West Class EA study for the proposed pedestrian/cyclist bridge. The traffic study reviewed the existing traffic conditions, assessed the anticipated future conditions following removal of the Second Line West vehicle bridge. The study reviewed public comments collected at a 2011 public meeting held by the City, and comments from the two PICs in 2014 held for the pedestrian/cyclist bridge Class EA study.</p> <p>Based on the City's review, it was evident that many of the concerns expressed by the public were related to the existing traffic operations in the morning and afternoon rush hours. The City was able to immediately address some of the concerns that were identified such as:</p> <ul style="list-style-type: none">• improving the signal timing at the Sombrero Way / Mavis Road intersection• rerouting of some of the school bus routes from Sombrero Way• improving the design of the west leg of Sombrero Way/ Mavis Road intersection• a program of monitoring vehicle speeds in cooperation with the Region of Peel Police

Source	Comment	How the Comment was Addressed / Excerpted Response
	<ul style="list-style-type: none">At the PIC#1 meeting, myself and other local residents expressed concerns with the high speed of vehicles and the presence of transport trucks driving east on Old Derry Road towards Mavis Road. Unbeknownst to these drivers, Mavis Road cannot be accessed from Old Derry Road. This issue is likely a result of poor signage in combination with a direct line of sight to Mavis Road. To address the line of sight issue, the establishment of a tree screen along the west side of Mavis Road near where Old Derry Road terminates should be considered. <p>Transit</p> <ul style="list-style-type: none">Better pathway connectivity to bus shelters needs to be established. Currently, there are no sidewalks along Old Derry Road linking to the bus shelter on the west side of Mavis Road. Providing greater connectivity to this bus shelter should be considered as part of this project.Will the Mavis Road improvements be able to accommodate bus stopping areas outside of live lanes?	<p>A comprehensive list of the public's comments and the corresponding City response are included in the report on the City's website. As noted above, the City analyzed the potential traffic volume and travel pattern changes associated with the upcoming removal of the bridge considering the traffic conditions today and in the future. In general, the analysis indicates that traffic volumes within the study area for the future scenarios (i.e. with and without the vehicle bridge) would be similar with a marginal increase associated with the removal of the bridge. With the removal of the bridge, traffic will re-distribute e.g., northbound through and right turn traffic on Second Line as well as left turn traffic from Sombrero Way will no longer be travelling along this section of the network. As an example, it is expected that there will be an increase of approximately 60 vehicles during the morning rush hour in the eastbound direction on Sombrero Way, which represents on average 1 additional vehicle per minute. However, there will also be a decrease of approximately 80 vehicles during the morning rush hour in the westbound direction on Sombrero Way, which represents on average 1 less vehicle per minute.</p> <p>The City will continue to monitor traffic conditions, including when the vehicle bridge has been removed by the MTO. It is assumed that the drivers' behavioral adjustments to road network changes will take time; therefore, the City will review the traffic patterns approximately 6 months following the removal of the vehicle bridge. The City will implement appropriate mitigation measures, if required, through a consultation process with the public.</p> <p>Landscaping</p> <p>Your detailed comments with respect to landscaping are noted and will be considered carefully. A landscape design plan will be developed for Mavis Road during the Class EA study. Details such as median and boulevard plantings, signage, and pavement markings will be considered during this process. Your specific comments relating to truck traffic on Old Derry Road has been noted.</p> <p>Transit</p> <p>One of the goals of this EA Study is to promote alternative modes of transportation along Mavis Road. As a result, methods of improving accessibility for existing transit infrastructure along the corridor are being explored. The Project Team also recognizes concerns raised by the community related to bus stops slowing traffic along Mavis Road. Widening the roadway from 4 to 6 lanes should reduce the delays associated with bus stops, and while the option of including bus bays at high volume locations may be explored it is typically not preferred by transit operators due the difficulty of re-entering traffic.</p>
Mississauga Resident Comment Sheet received at PIC 1	<p>Traffic is because of school (drop-off/pickups). No traffic issues during summer holidays.</p> <ul style="list-style-type: none">Conduct study during summer holidaysDedicated bike trail NOT on roadPromote students to bike to school and backIncreased public transit + discount/free for studentsSchools provide bus services in a larger areaPromote parents to let children take alternative methods of transportBefore expanding Mavis- expand 407 bridge FIRST - or Mavis project is USELESS <p>Initial opinion on the design concepts for Mavis Road is positive.</p> <p>Estimated cost and timing of solution were missing from the PIC.</p>	<ul style="list-style-type: none">The traffic assessment work being undertaken as part of this study follows a standard approach that considers peak traffic volumes during the morning and afternoon rush hour, over the period of a year.The provision of a paved off-road Multi-Use Trail along the Mavis Road corridor for pedestrians and cyclists is being explored in order to promote Active Transportation and improve safety, accessibility, and connectivity in the City of Mississauga trail network.Following completion of the Class EA Study, the detailed design and tender documents must be prepared based on funding approval by City Council. Construction will then commence on that basis. Construction staging and timing would be determined as part of the detailed design.Preliminary costs will be developed during the next phase of the study as the design is developed.Increased public transit service, student fare pricing, and improved school bus service are outside the scope of this study; however, improvements to transit facilities/infrastructure and accessibility are being considered. For additional information related to transit, please visit the MiWay website at: http://www.mississauga.ca/portal/miway. You may be interested in MiWay5, the update to the City's transit service plan which contains information about route restructuring: http://www.mississauga.ca/portal/miway/miwayfive. MiWay is hosting a series of information sessions in October to review year two of our Five Year Service Plan and how they are expanding service on the Mississauga Transitway in 2017. Information is available at the 'miwayfive' link provided above.
Mississauga Resident Comment Sheet received at PIC 1	<p>Expand the lanes between Ray Lawson Boulevard and Courtneypark Drive on Mavis Road.</p> <p>Initial opinion on the design concepts for Mavis Road is positive.</p>	<p>The Alternative Solution and Recommended Plan reflect the intent to provide additional traffic capacity on Mavis Road. The design concepts including a multi-use trail have been detailed to form part of the Recommended Plan.</p>
Mississauga Resident Comment Sheet received at PIC 1	<p>Mavis Road might be operating beyond capacity during rush hours between Eglinton and Burnhamthorpe.</p> <p>The results of the survey are more or less what I expected, however there was not enough background information for the results of "Area of Interest".</p>	<ol style="list-style-type: none">An explanation as to why the Environmental Assessment Act takes authority for a transit issue - As a municipal infrastructure project, this study is being undertaken in accordance with the Municipal Class EA (under the Ontario Environmental Assessment Act, as you have noted). This is the appropriate/applicable process for general municipal infrastructure projects, including transit. We note that the study extends beyond transit to include road and intersection capacity improvements and active transportation (cycling and walking). The existing and proposed transit

Source	Comment	How the Comment was Addressed / Excerpted Response
	<p>Indifferent about the initial design concepts for Mavis. Missing from the PIC#1 displays:</p> <ol style="list-style-type: none">1. An explanation as to why the Environmental Assessment Act takes authority for a transit issue.2. An explanation for the changes in the bus network3. The average load for each of the buses that run through Mavis Road.4. How alterations to Mavis Road might affect travel to the closest southern zone, Heartland <p>Additional comments: You're doing a good job for the public</p>	<p>network information was provided at the Public Information Centre as background/context to the transportation network.</p> <ol style="list-style-type: none">2. An explanation for the changes in the bus network – MiWay is leading the changes to the bus network. You may be interested in the MiWay Five Year Service Plan (2016-2020), the update to the City's transit service plan which contains information about route restructuring etc.: http://www.mississauga.ca/portal/miway/miwayfive. MiWay is hosting a series of information sessions in October 2016 to review year two of the Five Year Service Plan and how they are expanding service on the Mississauga Transitway in 2017 - information is available at the link provided.3. The average load for each of the buses that run through Mavis Road - We have contacted MiWay for information related to ridership on the routes that operate on Mavis Road. During the morning peak period, there is an approximately 10 to 15 people on a bus per trip and approximately 15 to 20 people during the afternoon peak period.4. How alterations to Mavis Road might affect travel to the closest southern zone, Heartland - Again, please refer to the MiWay 5 Plan and contact MiWay directly through their website for questions related directly to transit operations.
Mississauga Resident Comments received via online survey	<p>If you are going to increase the number of lanes (which is good), where is that space going to come from?</p>	<p>Through the design process, the possible requirement of additional property will be identified. It is anticipated that the improvements to Mavis Road can largely be accommodated within the existing road right-of-way, given the existing wide median that is present in many sections. In some areas, such as intersections, additional property may be required to accommodate new turning lanes. The Study team will consider design measures to minimize the property impacts, for example, retaining walls.</p> <p>The Recommended Plan has minimized property impacts to the extent possible by utilizing existing median and boulevard areas to accommodate the widening, sidewalk and multi-use trail.</p>
Mississauga Resident Comments received via online survey	<p>Does the problem and opportunity statement capture the factors that are either key issues or areas of improvement within the study corridor? "Traffic" as used in this statement seems to refer only to cars, and other modes are only an afterthought. Mavis bus ridership has been increasing faster than the city average for the past decade and buses are overcrowded even on weekends. The strategic plan foresees no road widening for private cars and doubling of transit ridership; the way to achieve this is not to increase capacity for cars but to allow transit to bypass congestion!</p> <p>Most preferred alternative: Alternative Modes of Transportation Least preferred alternative: Improve Mavis Road</p> <p>Additional comments on the Alternative Solutions: Again, "improve" seems to refer only to cars, while everything else is just an "alternative". This is why I put it in last place. I do wholeheartedly support additional/lengthened turn lanes as well as bus and bike infrastructure! Parallel roads/streets should be upgraded *in addition* to Mavis, and mostly to bolster "alternative" modes.</p> <p>You can tell from the wording in the notice of commencement that this is meant to be a widening project.</p> <p>Initial opinion of the design concepts: Negative. Loss of the grassed median, which adds considerably to the beauty of the street and is rare on our arterials. No provision for prioritizing buses. Cycling infrastructure is shown as a boulevard trail, and intersections along these (outside of Toronto's newly built ones) are usually all but safe.</p> <p>Missing from the PIC displays: Intersection treatments (turn lanes, queue jumps, cross rides). Stormwater management. Signal timings and control improvements.</p>	<p>The Recommended Solution presented at PIC 1 included three aspects: 1) intersection improvements; 2) alternative modes of transportation; and 3) improving Mavis Road, which as you have pointed out includes widening the road. The City will be moving forward in the study to create a design that reflects all of these aspects.</p> <p>While the City plans on widening Mavis Road to 6 lanes to provide for future capacity (for cars, trucks and transit vehicles), the design is also incorporating an expanded Multi-Use Trail to provide for continuous active transportation opportunities along Mavis Road, including across Highway 407. The Multi-Use Trail will serve users along Mavis Road and will link to other routes identified in both the City and the Region Cycling Master Plans. In addition to intersection improvements (new and increased turn lanes etc.), the opportunity to provide transit priority measures (queue jump lanes) is being considered. Your comment regarding the loss of the grassed median is noted. The design of the improvements will consider the balance of providing opportunities for landscaping and street aesthetics with the potential additional property requirements.</p> <p>A preliminary design plan will be presented at Public information Centre # 2, planned for fall 2016. Some of the elements you noted as missing from the PIC displays (e.g. intersection treatments) will be part of the design presented at that time. These aspects were not presented at Public Information Centre # 1 because they were not yet complete.</p> <p>The Recommended Plan illustrates all aspects of the design.</p>
Mississauga Resident Comments received via online survey	<p>Adding two lanes (one on each side) will help improve the traffic conditions. LRT network to other suburbs may also help as most of the traffic on Mavis is going on 401 East towards Toronto / Etobicoke / Vaughan / York / Downtown etc. Also, increasing lanes on McLaughlin and Mississauga Rd to distribute the traffic may reduce pressure on Mavis.</p>	<p>The Alternative Solution and Recommended Plan reflect the intent to provide additional traffic capacity on Mavis Road. The design concepts including a multi-use trail have been detailed to form part of the Recommended Plan.</p>
Mississauga Resident Comments received via online survey	<p>It appears other solutions like developing McLaughlin Road and diverting traffic have not been considered</p> <p>Widening of McLaughlin Road and adding an exit on 401 from McLaughlin road is not considered.</p>	<p>This recommendation considered all applicable Region and City policies, broader transportation network planning of Region of Peel and City of Mississauga transportation planning activities consider how all parts of the interconnected road and transit network function on regional and city-wide scales. Directing improvement efforts to only certain road corridors will not support broader transportation network function.</p>

Source	Comment	How the Comment was Addressed / Excerpted Response
	<p>Please do NOT add Cycling/Biking Lanes on the Mavis road as these will slow down the traffic. And most importantly, at the Turns, it will become very difficult, if there are separate Bike or pedestrian lanes across Mavis Road.</p> <p>If at all needed, Second Line West (which runs parallel to the Mavis Road) should be developed to have the bike/walking lanes.</p>	<p>The function of Mavis Road has been considered in the context of other north-south road corridors (including McLaughlin Road) as well as improvement to the transit network including the future Hurontario Light Rail Transit project. Mavis Road is designated as an Arterial Road in the City of Mississauga and is intended to carry large volumes of traffic through the City. While widening of adjacent roadways such as McLaughlin Road might alleviate traffic demands on Mavis Road in the short-term, doing so would not improve long-term operations or safety on Mavis Road, and would not provide the opportunity to improve transit and cycling / pedestrian activities on Mavis Road. As a result, this is not being carried forward as part of the preferred alternative solution within this Class EA Study. Any future improvements contemplated for McLaughlin Road would be considered as part of a separate Class EA study.</p> <p>An interchange at Highway 401 is precluded by Ontario highway design standards and the close proximity of the Mavis Road and Hurontario Street interchanges. An interchange is not being considered by the City or by the Ontario Ministry of Transportation.</p> <p>The City's Official Plan identifies a long term transportation network and sets out policies to guide the implementation of the vision for a 'multi-modal' city, recognizing the need to accommodate movement of commercial goods, vehicle trips, and active transportation (pedestrian and cycling). The consideration for cycling and pedestrian activities is considered in all City projects, to support Official Plan policies. Given the number of schools along Mavis Road and the surrounding residential community, an expanded Multi-Use Trail (off-road cycling facility) is being considered as part of this Study.</p> <p>In terms of broader transportation network planning, the City of Mississauga is in the process of developing a Transportation Master Plan to guide planning and implementation of transportation network improvements in the future. This process is open to public participation. The process kicked off with a transportation forum in November 2015 called Mississauga Moves. You may review the project activity and email the TMP team directly via the website: http://www.mississaugamoves2015.ca/</p> <p>Moving Mississauga (2011) is an interim transportation strategy used to guide the City's transportation planning policy. This document lists a number of transportation initiatives (some of which are underway or have now been completed). This document may be viewed at: http://www.mississauga.ca/file/COM/ Moving_Mississauga_Report.pdf</p> <p>Lastly, the City has numerous other transportation-related efforts now underway to introduce improvements. Information about these studies can be found at: http://www.mississauga.ca/portal/residents/roads</p>
Mississauga Resident Comments received via online survey	<p>Instead of Mavis Road, we should consider widening of McLaughlin Road. Widening of McLaughlin Road will bring much more benefits (for the same price) than widening Mavis Road. Also an exit on McLaughlin at Highway401 is needed.</p> <p>Mavis Road widening is more expensive and will yield less benefits. Widening of Mavis Road appears to be a pre-assigned conclusion, we need to consider all the alternatives before we spend money. OR extension of Old Derry road (towards EAST) up to Derry road can be considered as well.</p>	<p>As you have noted, the recommended solution to improve Mavis Road was presented at the Public Open House. This recommendation considered all applicable region and City policies, broader transportation network planning Region of Peel and City of Mississauga transportation planning activities consider how all parts of the road and transit network function on regional and city-wide scales. Directing improvement efforts to only certain road corridors will not support broader transportation network function.</p> <p>The function of Mavis Road has been considered in the context of other north-south corridors (including McLaughlin Road) as well as improvement to the transit network including the future Hurontario Light Rail Transit project. Mavis Road is designated as an Arterial Road in the City of Mississauga and is intended to carry large volumes of traffic through the City. While widening of adjacent roadways such as McLaughlin Road might alleviate traffic demands on Mavis Road in the short-term, doing so would not improve long-term operations or safety on Mavis Road, and would not provide the opportunity to improve transit and cycling / pedestrian activities on Mavis Road. As a result, this is not being carried forward as part of the preferred alternative solution within this Class EA Study. Any future improvements contemplated for McLaughlin Road would be considered as part of a separate Class EA study.</p> <p>An interchange at Highway 401 is precluded by Ontario highway design standards and the close proximity of the Mavis Road and Hurontario Street interchanges. An interchange is not being considered by the City or by the Ontario Ministry of Transportation.</p> <p>In terms of broader transportation planning and program priorities, the following discussion is offered to provide information relating to the City's planning process.</p> <ul style="list-style-type: none">• The City's Official Plan identifies a long term transportation network and sets out policies to guide the implementation of the vision for a 'multi-modal' city, recognizing the need to accommodate movement of commercial goods, vehicle trips, and active transportation (pedestrian and cycling). City staff monitors traffic and road conditions and identify potential issues and/or the need for further study in particular areas on a regular basis. Recommendations for road

Source	Comment	How the Comment was Addressed / Excerpted Response
		<p>improvements, need for additional studies and priorities are developed by City staff as part of the 10-year Capital Plan which is updated annually. In developing the capital plan, City staff considers the overall coordination of transportation projects, for example where road improvements may compliment a planned transit project. Road operations and maintenance aspects are also considered, for example where the need for road resurfacing/reconstruction or installation of major underground utilities has been identified, a Class EA study may be initiated to assess current and future traffic conditions and confirm short and long-term needs, in an effort to coordinate other road improvements that may be required. Ultimately the 10-year Capital Plan is presented to Council for consideration and approval. Mavis Road is one of several road studies currently underway within the City and is part of a broader transportation program that includes transit, pedestrian and cycling components.</p> <ul style="list-style-type: none">• In terms of broader transportation network planning, the City of Mississauga is in the process of developing a Transportation Master Plan to guide planning and implementation of transportation network improvements in the future. This process is open to public participation. The process kicked off with a transportation forum in November 2015 called Mississauga Moves. You may review the project activity and email the TMP team directly via the website: http://www.mississaugamoves2015.ca/• Moving Mississauga (2011) is an interim transportation strategy used to guide the City's transportation planning policy. This document lists a number of transportation initiatives (some of which are underway or have now been completed). This document may be viewed at: http://www.mississauga.ca/file/COM/_Moving_Mississauga_Report.pdf• Lastly, the City has numerous transportation-related efforts now underway to introduce improvements. Information about these studies can be found at: http://www.mississauga.ca/portal/residents/roads
Mississauga Resident Comments received via online survey	This should have been done long time ago, there is a traffic pileup every day on Mavis north of 401 up to 407, please have project started and completed ASAP	The Alternative Solution and Recommended Plan reflect the intent to provide additional traffic capacity on Mavis Road.

7.5.3 Public Information Centre 2

The second Public Information Centre (PIC) was held on November 9, 2016 at David Leeder Middle School (6900 Gooderham Estate Boulevard, Mississauga) from 6:00 p.m. to 8:00 p.m. The purpose of PIC 2 was to present and receive public input on:

- ▶ Study background and need for improvements to Mavis Road;
- ▶ The Recommended Planning Alternative based on feedback from PIC 1; and
- ▶ The Preliminary Preferred Design including road widening approach, intersection improvements, pedestrian and cycling facilities, tree inventory assessment, and streetscape design concepts.

Twenty-two (22) people signed-in at the PIC. Attendees included local residents / property owners, City of Mississauga Ward 11 Councillor George Carlson, and staff from the City of Mississauga and Region of Peel. The PIC materials were made available on the City's website the day after the PIC.

7.5.3.1 Comments Received

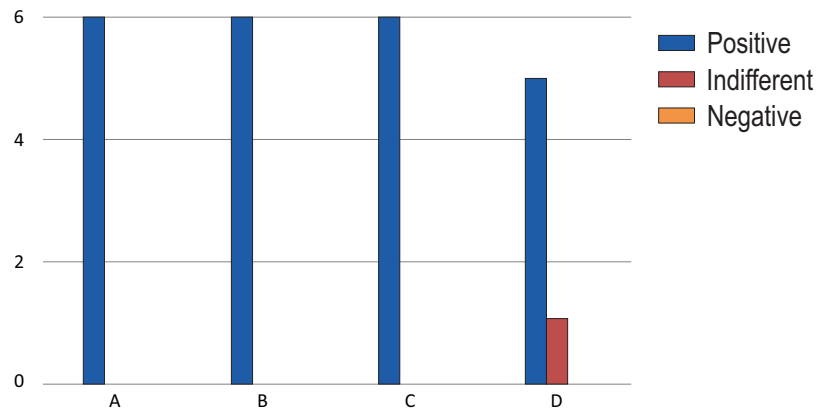
A total of 7 comments were received via: email (1), hard copy at the PIC (2), and through an online survey (4). Written comments that were received are provided verbatim in **Table 7-8** along with the Project Team's response. Sensitive information such as names and contact information have been removed.

7.5.3.2 Survey and Results

A multiple choice survey was provided online and in hard copy at the PIC for members of the public to fill out. The purpose of the survey was to solicit feedback on the specific materials presented at PIC 2 including the Preliminary Preferred Design and streetscape concepts. The survey is provided in **Appendix A** and results are summarized on **Exhibit 7-3**.

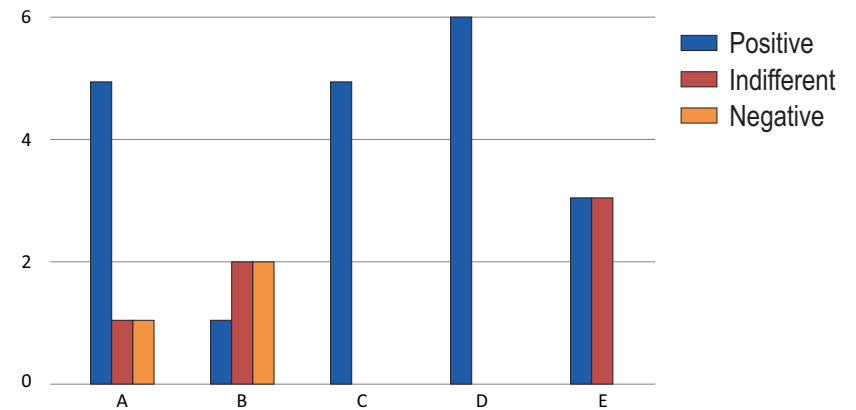
What is your overall opinion on the following proposed improvements to Mavis Road?

- A. Widening of Mavis Road from 4 to 6 lanes
- B. Intersection and Signal Improvements
- C. Multi-use trail along the west side of Mavis Road
- D. Improved pedestrian/cyclist connectivity over Highway 407 and new connections to adjacent neighbourhoods



What is your overall opinion on the following proposed improvements to Mavis Road?

- A. Provision of dual left-turn lanes in the north and southbound directions
- B. Removal of the channelized right-turns
- C. Transit Queue Jump Lane in southbound direction
- D. Extended Multi-Use Trail and enhanced landscape concept
- E. Changes to transit stop locations



Given the effort to avoid property impacts, the landscaping plan has focused in on some key areas and opportunities. Do you like the concepts that were presented?

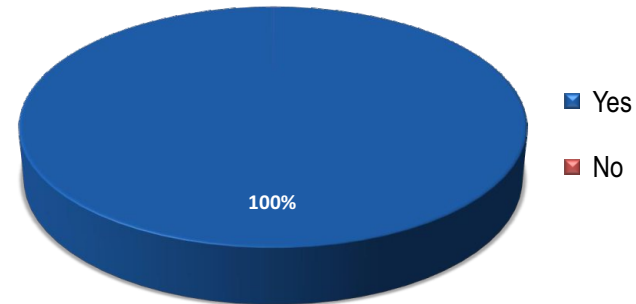


Table 7-8: Summary of Written Comments and Responses from Public Information Centre 2

Source	Comment	How the Comment was Addressed / Excerpted Response
Mississauga Resident Comment Sheet received at PIC 2	<ul style="list-style-type: none">It would be nice to connect the MUT to the trails along Fletchers Creek.Traffic flow challenges on Sombrero need to be addressed.	Additional multi-use trail connections may be considered by the City of Mississauga in future. A traffic analysis was completed as part of this EA Study to assess existing and future intersection operations along Mavis Road and a new intersection configuration at Sombrero Way is proposed that balances the need for improvements with the desire to avoid impacting private properties and residences along Sombrero Way.
Mississauga Resident Comment Sheet received at PIC 2	<ul style="list-style-type: none">Mavis Road is dangerous to cross – signalization will be important for pedestrians.Good that the active transportation corridor is separated from traffic.Southbound onto Courtneypark Drive not necessary for dual lanes.Turning from northbound Mavis Road onto Sombrero Way is a nightmare. Traffic is impeded due to excessive parking on Courtneypark Drive.Re: landscape plan comments: More trees the better.Pedestrian access from Mavis Road into Fletchers Creek is needed.What is the timing? There are increased pressures right now because of traffic bypassing the construction on the 401.	Your comments regarding traffic signals for pedestrian crossings have been noted by the Project Team. Within the Study Area, a variety of improvements aimed at improving traffic operations and pedestrian safety along Mavis Road are being proposed. These include changes to signal timing, the provision of off-road active transportation facilities, moving crosswalks to reduce crossing distances for pedestrians and improving visibility and safety. Regarding the Mavis Road / Sombrero Way intersection, the Project Team appreciates your feedback about current issues and operations in this area. A safety review for Mavis Road and intersections within the study corridor was undertaken as part of this study in order to recommend improvements where the safety of pedestrians, cyclists, and drivers are a concern. Operational and safety improvements for the Mavis Road / Sombrero Way intersection recommended in this safety review were presented in the preliminary preferred design presented at PIC#2, and include extending the northbound left turn storage lane from 80 m to 180 m and the provision of a second southbound left turn lane. This additional southbound left turn lane will improve traffic operations and better accommodate future traffic volumes along Mavis Road. Other improvements to lane configurations at this intersection (e.g. on Sombrero Way) were reviewed by the Project Team but were ultimately set aside due to the significant impacts to private properties that would have resulted. Your comments regarding the parking related traffic delays on Courtneypark Drive have been forwarded to the City's Traffic Operations Department. The feasibility of providing pedestrian access from Mavis Road into the Fletchers Creek valley will be considered in the subsequent design phase. However this access will likely have significant impacts to the natural features in the valley. Following the completion and approval of the Environmental Assessment Study, the detailed design and tender documents must be prepared based on funding approval by City Council. Construction will then commence based on funding approval from Council. Exact construction timing/duration will be determined as part of the detailed design process.
Mississauga Resident Comments received via email	<ul style="list-style-type: none">I am supportive of the proposed multi-use trail on the west side of Mavis along with a proposed access point to the trail at the east end of Old Derry Road. I have been discussing with the City of Mississauga about the construction of a new sidewalk spanning along Old Derry Road from Gooderham Estate to the east end of Old Derry Road. I know that this sidewalk is outside of the scope of the Mavis Road EA; however, I think that the City needs to seriously consider constructing a sidewalk along this stretch of Old Derry Road to connect the proposed multi-use trail along Mavis with the existing trails and sidewalks within the Meadowvale Village community.For the proposed vegetation plan, I am supportive of the planting of columnar tree species as they create an ideal break in visual line of sight and propose less risk associated with falling/breaking tree limbs over sidewalks, trails and roads.	In the Fall of 2016, the City's Active Transportation Section notified the adjacent residents regarding installing a sidewalk along Old Derry Road between Gooderham Estate Boulevard and Mavis Road. The majority of residents were not supportive of implementing sidewalks; therefore the City will not be pursuing implementation. Your positive feedback on proposed plantings along Mavis Road has been noted. With respect to your comments on the streetscape plan at the Mavis Road and Derry Road intersection, the proposed permanent access shaft shown at this location is part of the Region of Peel's wastewater diversion project, and you are correct to note it will be located on southeast corner of the intersection. Related display materials can be found on the City of Mississauga's website at: http://www.mississauga.ca/portal/residents/mavisroadea
Mississauga Resident Comments received via online survey	Key Survey Response Highlights: Opinion on the removal of the channelized right-turns at Derry: Negative Overall opinion on study: positive Comments: Add a mix of different aged trees. Not just youngest trees that take years to grow.	Your comments regarding plantings along the corridor have been noted by the Project Team. While we understand the importance of having mature trees in a community, it is standard practise to balance immediate results against costs to provide the best landscape possible in the long-term. The City will strive to provide a variety of tree sizes where feasible. With respect to the removal of channelized right-turns at the Mavis Road and Derry Road intersection, a traffic safety analysis was conducted as part of this EA study to assess existing and future intersection operations along Mavis Road. Due to the curvature of Derry Road through this intersection, it was concluded that motorist sightlines are less suitable to safely accommodate the higher-speed yield movements using channelized right-turns. In order to provide better safety for drivers and pedestrians, standard non-channelized right-turn movements that require vehicles to come to a full stop are being proposed.
Mississauga Resident Comments received via online survey	Information presented was excellent! Thank you. I love the idea that the green space around Mavis and Derry will be developed into something nice! Great work! There should be an advanced green at Crawford Mill Ave.	A traffic analysis was completed as part of this EA Study to assess existing and future intersection operations along Mavis Road. As a result of this analysis, the provision of an advanced green in both the northbound and southbound directions at the Mavis Road and Crawford Mills Avenue intersection is being proposed.
Mississauga Resident Comments received via online survey	Key Survey Response Highlights: Opinion on the removal of the channelized right-turns at Derry: Negative Overall opinion on study: positive	A traffic safety analysis was conducted as part of this EA study to assess existing and future intersection operations along Mavis Road. Due to the curvature of Derry Road through this intersection, it was concluded that motorist sightlines are less suitable to safely accommodate the higher-speed yield movements using channelized right-turns. In order to provide better safety for drivers and pedestrians, standard non-channelized right-turn movements that require vehicles to come to a full stop are being proposed.

8 PROPOSED MITIGATION AND COMMITMENTS TO FURTHER WORK

Many of the environmental concerns related to this project have been mitigated through the process by which the Recommended Plan was developed, as described in **Chapters 4 and 5** of this ESR. The potential impacts and proposed mitigation measures are described in this chapter. This section provides a detailed list of specific commitments to be carried forward to detailed design and implementation.

Specific mitigation measures have been selected and committed to by the City of Mississauga to address potential impacts. It is recommended that these commitments, summarized in **Table 8-4**, be incorporated into the construction contract packages so that contractors are aware of these requirements when preparing their tender submission.

Monitoring of construction activities must ensure that all environmental standards and commitments for construction are met. The City of Mississauga and the Region of Peel will work with the Ministry of the Environment and Climate Change, the Credit Valley Conservation Authority, the Ministry of Transportation, and other authorities, during detail design and prior to the start of construction to ensure that the proposed works are acceptable and to obtain required permits.

Environmental monitoring will be combined with construction supervision to include periodic site visits and inspections throughout the course of the work (e.g., confirm the proper placement and maintenance of all erosion and sediment control measures).

8.1 Socio-Economic Environment

8.1.1 Land Use

Section 3.1 provides an overview of current and future land uses within the study area. The property impacts are described in more detail in **Section 8.1.2**, below.

The Recommended Plan is consistent with the policy / planning context and the transportation assessment summarized in **Chapter 2** of the ESR. Previous construction of Mavis Road within the study area anticipated a future widening by providing reserved median and boulevard areas to accommodate future expansion.

The planning and build out of the surrounding community allowed for Mavis Road to function as an arterial road, intended to move higher volumes of traffic by limited accesses and keeping development located back from the road right-of-way. In most cases, residential areas are separated from Mavis Road by local streets.

The Recommended Plan will complement surrounding residential areas and enhance the use of the Mavis road corridor by improving pedestrian / cycling opportunities and by providing more pedestrian/ cycling accesses from adjacent neighbourhoods / streets (described in **Section 8.1.2**, below).

8.1.2 Property

As discussed in **Chapter 6**, the Recommended Plan has been developed such that property impacts have been minimized to the extent possible. However, the Recommended Plan will still result in the need to private property in two locations and easements in other locations. The preliminary property impacts are summarized in **Table 6-9**.

Small portions of two properties will need to be severed and purchased to accommodate the Recommend Plan:

- ▶ West side of Mavis Road from Station 11+852 to 11+922 – impacted property is a privately owned townhouse/condominium strata (770 Othello Court) located in the northwest quadrant of the Mavis Road / Derry Road West intersection. The impact involves the reduction of the landscaped boulevard adjacent to the intersection, the relocation of the existing property line fence and removal of adjacent trees. It may be feasible to reduce or avoid this property impact by reducing or eliminating the boulevard separating the multi-use path from the roadway. However, this will not be determined until detailed design and the completion of the utility relocation plan.
- ▶ West side of Mavis Road from Station 12+840 to 12+980 – Impacted property is a privately owned townhouse/condominium strata located 7360 Zinnia Place, adjacent to Mavis Road. The impact is limited to a reduction in the boulevard / common area between Zinnia Place and Mavis Road, and the removal of mature landscape plantings.

The Recommended Plan will also result in encroachments into City of Mississauga, Region of Peel and MTO properties in 13 locations. One MTO parcel is located at Station 13+680 to 13+760 adjacent to the Highway 407 N-W on-ramp. Although the full parcel will be impacted, it is not known whether this will be a purchased by the Region of Peel or if MTO will retain the property and issue an easement. The Region of Peel will determine the appropriate course of action (property purchase or easement) of the MTO property, in consultation with MTO during detailed design.

The Recommended Plan will result in the need for easements at four private properties in order to accommodate grading, remove landscape plantings where roots will be

impacted by adjacent construction activity and reconstruct a noise barrier. Again, the City of Mississauga and Region of Peel will work closely with property owners during detailed design to confirm impacts and develop mitigation measures.

8.1.2.1 Contaminated Property

The portions of properties that will be impacted are part of condominium developments. The property impacts will involve removal / relocation of fence lines and some landscape features. Other property impacts are associated with City of Mississauga owned lands. Easements will likely be required on MTO lands.

Due to the nature of the property being impacted, the risk of contamination is deemed to be negligible. A Phase 1 ESA has not been undertaken during the Class EA study. The City may choose to undertake a Phase 1 ESA during detailed design.

8.1.3 Access

Existing access locations to collector streets, commercial businesses, institutions etc. are not anticipated to change with the Recommend Plan.

Mississauga Station 121 (Fire Station) will continue to have full access. A gap in the raised median will be maintained in this location.

Access for pedestrians and cyclists to Mavis Road will be enhanced through the proposed addition of mid-block access points at:

- ▶ Golden Farmer Way (Stations 11+190 and 11+350);
- ▶ Tassel Crescent (Station 11+700);
- ▶ Macbeth Heights (Station 12+360); and
- ▶ Magistrate Terrace (Station 12+930).

8.1.4 Noise

As part of the Class EA Study, a noise assessment was conducted to assess the potential increase in noise level to noise sensitive areas as a result of the proposed improvements to Mavis Road between Courtneypark Drive West to the Ray Lawson Boulevard. Within the study area, the lands on either side of Mavis Road are primarily residential with a mix of multi-unit townhomes, semi-detached homes and single family homes; some of these homes have existing noise wall/developer barriers in place. The noise assessment was undertaken based on a selection of 26 representative private residential homes within the study area, some with existing noise barriers in place. These residential homes located

adjacent to Mavis Road were selected to represent the potential noise impact to noise sensitive areas in proximity to Mavis Road.

The Noise Memorandum is provided in **Appendix M** and summarized below.

8.1.4.1 Methodology

Noise levels are predicted in decibels in the A-weighted dBA scale, which best approximates the human perception of sound over a specified time period. An increase of 2 to 3 decibels in noise levels is considered to be just perceivable to the average person. It should be noted that a 3 dBA increase in noise equates to a doubling of traffic volumes.

Provincial Noise Guidelines

Since roadway sound levels vary over time, the noise descriptor used in Ontario to assess noise is the equivalent sound level, L_{eq} . L_{eq} is identified as the continuous sound level, which has the same energy as a time varying sound level over a specified time period. For the purposes of assessing municipal roadway noise, L_{eq} is calculated on the basis of the 16 hour daytime period, 7:00 a.m. to 11:00 p.m.

Based on the Ontario Ministry of Transportation (MTO)/Ministry of the Environment and Climate Change (MOECC) Noise Protocol, where an existing roadway is proposed to be modified / widened adjacent to a Noise Sensitive Area (NSA), MOECC requires that the future noise levels without the proposed improvements be compared to the future noise level with the proposed improvements. The assessment is done at the outdoor living area (typically backyards) of each NSA. The provision of noise mitigation is to be investigated should the future noise level with the proposed improvements result in a greater than 5 dBA increase over the future noise level without the proposed improvements. If noise mitigation is provided, the objective is a minimum 5 dBA reduction. Mitigation will attempt to achieve levels as close to, or lower than, the objective level as is technically, economically and administratively feasible.

City of Mississauga Guidelines

In addition to the MTO/MOECC noise protocol, City of Mississauga Policy 09-03-03, Noise Attenuation Barriers on Major Roadways (April 2011) was also applied to the noise assessment since Mavis Road is under the jurisdiction of the City of Mississauga. A copy of the City of Mississauga Noise Policy can be found in **Appendix M**. The City of Mississauga Noise Policy identifies responsibilities for construction of noise attenuation barriers and is divided into four categories:

1. Noise attenuation barriers in existence at the time of approval of this policy that are to be replaced, as part of a replacement program;
2. Noise attenuation barriers to be constructed after approval of this policy, as part of new development;
3. New noise barriers to be constructed after approval of this policy, where none currently exist, as part of a retrofit program; and
4. Noise attenuation barriers to be constructed after approval of this policy of a capital works project.

For the purpose of the noise analysis carried out for this Class EA study, guidelines under the Capital Works Project Category (#4) were applied in determining noise level predictions and modelling. This section of the policy states *“Noise barriers may be constructed by the City in conjunction with a road widening project if no noise attenuation barriers exist, and the proposed additional lanes of traffic are found to adversely affect the daytime noise level beyond the established criteria (refer to the “Installation Criteria” section of this policy for the applicable criteria.) (See installation criteria below) If the Installation Criteria are satisfied, the City may elect to pre-install a noise attenuation barrier up to three years prior to the scheduled road widening.”*

Furthermore, the installation criteria in the above noted policy is as follows; *“Installation of new noise attenuation barriers is subject to the following:*

- ▶ *The noise level must be greater than 60 dBA (Leq daytime). (Leq means “equivalent sound level” and daytime means 7:00 am to 11 pm. Leq daytime means daytime average.)*
- ▶ *The residential area must be adjacent to arterial and major collector roads, as designated by the Official Plan. Retrofit or replacements will not be considered adjacent to freeways or railway tracks, as they are not under the jurisdiction of the City.*
- ▶ *Barriers must be installed on a complete block to ensure their effectiveness.”*

The STAMSON 5.0 computer modelling program, which is approved for use in Ontario by the MOECC, was used to assess existing and future noise levels on Mavis Road. This program is used to predict noise levels generated from the road at the outdoor living areas (typically backyards) of NSA's.

8.1.4.2 Analysis

Two scenarios were calculated:

- ▶ future noise levels without proposed roadway improvements (Year 2041)¹⁰
- ▶ future noise levels with proposed roadway improvements (Year 2041)

The following table summarizes the main assumptions and factors used in the analysis.

Table 8-1: Factors Used in Noise Analysis

Factor	Assumptions
Noise Descriptor	L_{eq} (16 hr)
Posted Speed	<ul style="list-style-type: none">- Mavis Road from Ray Lawson Boulevard to 407 ETR<ul style="list-style-type: none">○ 70 km/hr Future No Build○ 70 km/hr Future Build- Mavis Road from 407 ETR to Courtneypark Drive West<ul style="list-style-type: none">○ 70 km/hr Future No Build○ 60 km/hr Future Build
Traffic Volumes AADT	<p>Mavis Road from Ray Lawson Boulevard to Derry Road West:</p> <ul style="list-style-type: none">- Existing (2015) / Future without improvements<ul style="list-style-type: none">○ Northbound – 20,234○ Southbound – 20,076- Future with improvements (2041)<ul style="list-style-type: none">○ Northbound – 26,960○ Southbound – 26,740 <p>Mavis Road from Derry Road West to Courtneypark Drive West:</p> <ul style="list-style-type: none">- Existing (2015) / Future without improvements<ul style="list-style-type: none">○ Northbound – 23,138○ Southbound – 20,076- Future with improvements (2041)<ul style="list-style-type: none">○ Northbound – 30,143○ Southbound – 36,420

¹⁰ It should be noted that existing (2015) traffic volumes on Mavis Road were used to represent the future without widening of Mavis Road scenario as Mavis Road is currently operating at or near capacity

Factor	Assumptions
Truck Percentages (Medium / Heavy)	Mavis Road from Ray Lawson Boulevard to Derry Road West: <ul style="list-style-type: none"> - Medium Trucks – 1.5 % - Heavy Trucks– 1.5 % Mavis Road from Derry Road West to Courtneypark Drive West: <ul style="list-style-type: none"> - Medium Trucks – 2.1 % - Heavy Trucks– 2.1 %
Receptor Height	1.5 m above the ground
Noise Barrier	Existing developer barriers were taken into consideration in noise calculations. Existing barriers were assumed to be 2.0 m in height as a worst case scenario (i.e. minimum height wall) for locations where no wall heights were available.

8.1.4.3 Noise Sensitive Areas

There are existing residential houses abutting both sides of Mavis Road within the study area. Several were selected to be included in the noise calculations as representatives to these residential houses on both sides of Mavis Road. The selected receiver locations are summarized in **Table 8-2**.

8.1.4.4 Results

Noise levels were calculated at the selected receiver locations for the future with and without improvements scenarios. **Table 8-3** summarizes the predicted daytime noise levels at Receivers 1 to 26, as well as the potential changes in future noise levels.

STAMSON output sheets for existing and future noise levels for Receivers 1 to 26 for the alternatives can be found in **Appendix M**.

8.1.4.5 Findings

The findings of the noise assessment are as follows:

- ▶ The projected noise levels in Year 2041 at Receivers 1 to 26 without improvements to Mavis Road are calculated to range from 55.6 to 61.4 dBA.
- ▶ The projected noise levels in Year 2041 at Receivers 1 to 26 with improvements to Mavis Road are calculated to range from 55.6 dBA to 61.8 dBA.
- ▶ The maximum potential increase in noise level between the future (2041) without improvements and the future (2041) with improvements at the 26 receiver locations was calculated to be less than 5 dBA.

- ▶ Since the potential increases in the projected noise levels are less than 5 dBA, the consideration of noise mitigation based on MTO/MOECC Noise Protocol is not warranted.
- ▶ Receiver 21 has predicted noise levels of greater than 60 dBA for both future (2041) without and with improvements. However, per the City of Mississauga Policy 09-03-03, Noise Attenuation Barriers on Major Roadways (April 2011) for Capital Projects, no mitigation is warranted at this location as this receiver already have an existing 2.2 m high noise barrier in place (see Section 2.0 Methodology - City of Mississauga Guidelines).

8.1.4.6 Conclusions

The conclusions of the noise assessment for the Mavis Road improvements are as follows:

- ▶ The difference between the projected future (2041) noise levels with and without the proposed improvements to Mavis Road were determined to be less than 5 dBA.
- ▶ Therefore, the consideration of noise mitigation is not warranted based on MTO/MOECC Noise Protocol.
- ▶ While Receivers 21 had predicted noise levels of greater than 60 dBA under future (2041) with and without improvement conditions, there is an existing noise wall in place. Therefore, it does not warrant further mitigation based on the City of Mississauga's Policy and Procedure for Noise Attenuation Barriers on Major Roadways (April 2011) for Capital Road Projects.

Table 8-2: Receiver Locations

Receiver #	Location	Characteristic of Property in Relation to Mavis Road	Type of Residential Unit	Existing Noise Wall/Developer Barrier?
1	7471 Magistrate Terrace	Side lot	Multi-Unit Townhomes	Yes
2	7356 Zinnia Place	Side lot	Detached Homes	Yes
3	7512 Magistrate Terrace	Frontage*	Semi-detached Homes	No
4	7271 Dime Cres	Side lot	Detached Homes	Yes
5	745 Salinger Court	Side lot	Detached Homes	Yes
6	7250 Dime Crescent	Frontage*	Detached Homes	No
7	7233 Dime Crescent	Side lot	Detached Homes	Yes
8	741 Macbeth Heights	Side lot	Detached Homes	Yes
9	Avocado Crescent	Frontage*	Semi-detached Homes	No
10	701 Macbeth Heights	Frontage*	Semi-detached Homes	No
11	780 Avocado Crescent	Side lot	Detached Homes	Yes
12	694 Macbeth Heights	Side lot	Detached Homes	Yes
13	7080 Magistrate Terrace	Frontage*	Semi-detached Homes	No
14	770 Othello Court	Frontage*	Multi-Unit Townhomes	No
15	7155 Magistrate Terrace – Unit 38	Side lot	Semi-detached Homes	Yes
16	6992 Haines Artist Way	Frontage*	Semi-detached Homes	No
17	6905 Tassel Crescent	Frontage*	Semi-detached Homes	No
18	6896 Tassel Crescent	Side lot	Semi-detached Homes	Yes
19	845 Golden Farmer Way	Side lot	Semi-detached Homes	Yes
20	6577 Song Bird Crescent	Frontage*	Semi-detached Homes	No
21	789 Golden Farmer Way	Side lot	Detached Homes	Yes
22	6321 Western Skies Way	Side lot	Detached Homes	Yes
23	761 Brass Winds Place	Side lot	Detached Homes	Yes
24	760 Sombrero Way	Side lot	Detached Homes	Yes
25	84 Rollingwood Dr	Side lot	Multi-Unit Townhomes	Yes
26	Cedar Lake Crescent	Frontage*	Detached Homes	No

*Frontage on parallel roadway to Mavis Road

Table 8-3: Summary of Calculated Noise Levels

Receiver #	Receiver Location	Characteristic of Property in Relation to Mavis Road	Existing Noise Wall in Place (Yes/No)**	Project Noise Level dBA Leq (16)			Noise Mitigation Measures to be Considered Per City of Mississauga Policy
				Future (2041) Without Improvements	Future (2041) With Improvements	Difference in Noise Level with Improvements	
1	7471 Magistrate Terrace 12+900 RT	Side lot	Yes	59.3	59.4	0.1	No
2	7356 Zinnia Place 12+857 LT	Side lot	Yes	56.0	56.0	0.0	No
3	7512 Magistrate Terrace 12+825 RT	Frontage*	No	56.8	56.6	-0.2	No
4	7271 Dime Crescent 12+737 LT	Side lot	Yes	55.6	55.6	0.0	No
5	745 Salinger Court 12+695 RT	Side lot	Yes	58.0	57.8	-0.2	No
6	7250 Dime Crescent 12+642 LT	Frontage*	No	58.4	58.0	-0.4	No
7	7233 Dime Crescent 12+556 LT	Side lot	Yes	56.5	56.0	-0.5	No
8	741 Macbeth Heights 12+463 RT	Side lot	Yes	56.9	57.0	0.1	No

Receiver #	Receiver Location	Characteristic of Property in Relation to Mavis Road	Existing Noise Wall in Place (Yes/No)**	Project Noise Level dBA Leq (16)			Noise Mitigation Measures to be Considered Per City of Mississauga Policy
				Future (2041) Without Improvements	Future (2041) With Improvements	Difference in Noise Level with Improvements	
9	Avocado Crescent 12+356 LT	Frontage*	No	57.3	56.9	-0.4	No
10	701 Macbeth Heights 12+339 RT	Frontage*	No	58.0	57.6	-0.4	No
11	780 Avocado Crescent 12+235 LT	Side lot	Yes	59.8	59.4	-0.4	No
12	694 Macbeth Heights 12+231 RT	Side lot	Yes	59.5	59.3	-0.2	No
13	7080 Magistrate Terrace 12+060 RT	Frontage*	No	58.3	57.8	-0.5	No
14	770 Othello Court 12+005 LT	Frontage*	No	58.7	58.5	-0.2	No
15	7155 Magistrate Terrace – Unit 38 11+873 RT	Side lot	Yes	59.4	59.4	0.0	No
16	6992 Haines Artist Way 11+655 LT	Frontage*	No	58.4	59.0	0.6	No
17	6905 Tassel Crescent 11+611 RT	Frontage*	No	59.7	60.0	0.3	No

Receiver #	Receiver Location	Characteristic of Property in Relation to Mavis Road	Existing Noise Wall in Place (Yes/No)**	Project Noise Level dBA Leq (16)			Noise Mitigation Measures to be Considered Per City of Mississauga Policy
				Future (2041) Without Improvements	Future (2041) With Improvements	Difference in Noise Level with Improvements	
18	6896 Tassel Crescent 11+498 RT	Side lot	Yes (2.2 m)	60.0	60.0	0.0	No
19	845 Golden Farmer Way 11+398 LT	Side lot	Yes (2.4m)	59.2	59.7	0.5	No
20	6577 Song Bird Crescent 11+275 RT	Frontage*	No	59.5	59.8	0.3	No
21	789 Golden Farmer Way 11+143 LT	Side lot	Yes (2.2 m)	61.4	61.8	0.4	No (has an existing noise wall)
22	6321 Western Skies Way 11+060 RT	Side lot	Yes	59.7	59.8	0.1	No
23	761 Brass Winds Place 10+640	Side lot	Yes (2.4 m)	58.9	59.2	0.3	No
24	760 Sombrero Way 10+454	Side lot	Yes	57.6	58.7	1.1	No
25	84 Rollingwood Dr 13+515	Side lot	Yes	56.0	56.9	0.9	No
26	Cedar Lake Crescent 13+742	Frontage*	No	59.2	58.6	-0.6	No

8.1.5 Vibration

The potential of vibration impacts are described qualitatively in this section as there are no current City of Mississauga, provincial or federal guidelines, standards or protocols for assessing vibration.

Within the study area, lands on either side of Mavis Road are primarily residential with a mix of multi-unit townhomes, semi-detached homes and single family homes. There are no existing land use which are considered to be highly sensitive to vibration impact (e.g. sensitive equipment such as electron microscopes, or laboratory with sensitive scientific equipment, etc.).

The main source of vibration from Mavis Road would be from trucks and transit vehicles along the corridor. However, vehicles with pneumatic tires generally do not create significant levels of vibration except at very short distances. As such, vibration levels at the adjacent land uses are not expected to be perceptible. Based on the truck percentage assumptions applied in the noise analysis, only an average of 2% of total traffic volumes are trucks within the study area. Mississauga Transit Route 61 (Monday to Sunday service) and Route 61A (Monday to Friday service only) also operate on Mavis Road with frequency between 20 minutes to 30 minutes.

Construction Vibration

Some construction activities associated with the widening of Mavis Road may at times create vibration levels that are perceptible at nearby land uses. However, the vibration levels produced by the anticipated construction activities will not be large enough to cause structural damage.

The widening of Mavis Road will be within the existing right-of-way (i.e. towards the median between Courtneypark Drive and Twain Avenue, and widen into the existing boulevard from Twain Avenue northerly). It is expected that the potential for vibration impacts to adjacent lands as a result of the widening of Mavis Road will be minimal during construction and no impacts are expected due to operations.

Based on the Recommended Plan, vibration generated by the Highway 407 Bridge construction is not anticipated however, there will be some noise from demolition. Extension of the bridge foundations requires excavation of earth and then placing reinforcing steel and concrete for the footings. Construction of the other components is typical forming, rebar and concrete. For the bridge widening, existing barrier wall, part of deck and part of wingwalls will need to be removed, so noise from jackhammers and other

construction equipment is anticipated, the duration of which would be approximately 1 to 2 weeks.

Construction noise and vibration issues will be further reviewed during detailed design when construction methodology and schedule is fully developed.

8.1.6 Air Quality

8.1.6.1 Air Quality Assessment

An air quality assessment was completed in support of the Class EA study. Analyses were undertaken for both the Region of Peel and City of Mississauga portions of the study area. The report is provided in **Appendix N** and summarized in this section.

Local Air Quality

The main objective of the study was to assess the local air quality impacts due to the proposed widening of Mavis Road to six lanes between Courtneypark Drive West and the Ray Lawson Boulevard. The worst-case impacts due to roadway vehicle emissions were assessed for two scenarios: 2015 Existing (or No Build/NB) and 2041 Future Build (FB). The two scenarios include the following activities:

- ▶ 2015 Existing (NB): Existing traffic volumes on Mavis Road and arterial roads for the existing alignment.
- ▶ 2041 Future Build (FB): Projected vehicle volumes on Mavis Road and arterial roads for the proposed widened alignment.

The assessment was performed using U.S. EPA approved vehicle emission and air dispersion models to predict worst-case impacts at representative sensitive receptor locations. Land uses which are defined as sensitive receptors for evaluating potential air quality effects are:

- ▶ Health care facilities;
- ▶ Senior citizens' residences or long-term care facilities;
- ▶ Child care facilities;
- ▶ Educational facilities;
- ▶ Places of worship; and
- ▶ Residential dwellings.

Fifty-eight sensitive receptors were evaluated to represent worst-case impacts surrounding the project area. All receptors represented residential and school locations surrounding the roadway.

Representative worst-case impacts were predicted through dispersion modelling at the sensitive receptors closest to the roadway. This is due to the fact that contaminant concentrations disperse significantly with downwind distance from the roadway resulting in reduced contaminant concentrations. At approximately 500 m from the roadway, contaminant concentrations from motor vehicles generally become indistinguishable from background levels. The maximum predicted contaminant concentrations at the closest sensitive receptors will usually occur during weather events which produce calm to light winds (< 3 m/s). During weather events with higher wind speeds, the contaminant concentrations disperse much more quickly.

Greenhouse Gas Emissions

The air quality assessment also included an assessment of total greenhouse (GHG) emissions due to the project, and an overview of construction impacts. To meet these objectives, the following scenarios were considered:

- ▶ 2015 Existing – Assess the existing air quality conditions at representative receptors. Predicted contaminant concentrations from the existing roadway were combined with hourly measured ambient concentrations to determine the combined impact.
- ▶ 2041 Future Build – Assess the future air quality conditions for the proposed roadway improvements. Predicted contaminant concentrations from the proposed roadway improvements were combined with hourly measured ambient concentrations to determine the combined impact.

Summary of Results

The following conclusions and recommendations are a result of this assessment.

- ▶ The maximum combined concentrations for the future build scenario were all below their respective MOECC guidelines or CWS, with the exception of annual PM_{2.5}, PM₁₀, TSP and annual benzene. Note that for each of these contaminants, background concentrations alone were 100% of the guideline or more.
- ▶ Frequency Analysis determined that there were no additional days on which exceedances of PM₁₀ occurred and only 6 additional days for TSP between the

2015 Existing and 2041 Future Build scenarios, which is less than 1% of the time.

- ▶ Overall, maximum predicted concentrations are similar between the 2015 Existing and 2041 Future Build scenarios, with little or no increase occurring as a result of the project.
- ▶ Mitigation measures are not warranted, due to the small number of days which are expected to exceed the guideline.
- ▶ Total GHG emissions were predicted to decrease in the study area. Overall, there was a 21% decrease in total GHG emissions predicted between the Existing and Future Build scenarios.

8.1.6.2 Air Quality Policy

Clean Air Peel is a Region of Peel is a strategy that includes a number of air quality improvement activities or initiatives which range in size and type. Through the strategy, the Region is pursuing initiatives to manage emissions and greenhouse gases on a regional basis. More information may be found at the Region of Peel website:

<http://www.peelregion.ca/health/cleanairpeel/>

The City of Brampton is committed to ensuring the environmental health of its residents and is working to improve Brampton's air quality through a number of programs as highlighted on the City's website at:

<http://www.brampton.ca/EN/residents/Environment/Pages/Air.aspx>

Brampton's recent Transportation Master Plan Update (TMPU) specifically discusses regional air quality in the context of the growing / expanding and multi-modal transportation network.

8.1.6.3 Air Quality during Construction

During construction of the roadway, dust is the primary contaminant of concern. Other contaminants including NO_x and VOC's may be emitted from equipment used during construction activities. Due to the temporary nature of construction activities, there are no air quality criteria specific to construction activities. However, the Environment Canada "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" document provides several mitigation measures for reducing emissions during construction activities. Mitigation techniques discussed in the document include material wetting or use of chemical suppressants to reduce dust, use of wind barriers, and limiting exposed areas which may be a source of dust and equipment washing. It is recommended

that these best management practices be followed during construction of the roadway to reduce any air quality impacts that may occur. It is noted that MOECC recommends that non-chloride dust suppressants be applied. MOECC also recommends referring to the following publication in developing dust control measures: *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Report prepared for Environment Canada. March 2005.*

8.2 Cultural Environment

8.2.1 Archaeological Resources

As discussed in **Section 3.2.1**, a Stage 1 Archaeological Assessment was undertaken in support of the Mavis Road Class EA study. The report is included in **Appendix C**.

Based on the Stage 1 assessment, the following recommendations are made:

- ▶ The portions of the study corridor located along Mavis Road that have been previously disturbed by road work and traffic and utility infrastructure do not hold archaeological potential and require no further assessment. Additionally, the portions of the study corridor that are currently comprised of subdivisions and residential roads no longer hold archaeological potential and require no further assessment.
- ▶ The remainder of the study corridor contains archaeological potential and requires a Stage 2 archaeological assessment prior to any ground disturbing activities:
 - Since the remainder of the study corridor is located primarily within over grown grasslands and down steep slopes, access by plough is severely restricted and is not feasible. The two small areas of manicured grass located south of Derry Road appear to be small parkettes, and so ploughing is also not feasible within these areas. Finally, manicured lawn of a residential property is located west of Mavis Road, and south of Ray Lawson Boulevard, and cannot be ploughed. As a result, it is recommended that the portions of the study corridor containing archaeological potential be subject to a test pit survey as per Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists (MTCS 2011:31).

The Stage 1 Report in **Appendix C** provides mapping of areas considered to be undisturbed that may be subject to a Stage 2 assessment (Map 9). The Recommended Plan successfully avoids most of these areas by remaining largely within the existing road

right-of-way, minimizing property impacts and avoiding works at Fletcher's Creek and the Credit River tributary. Only a few areas remain as being required for Stage 2 assessment:

- ▶ Southeast and southwest portions of the Derry Road West intersection;
- ▶ Around the Highway 407 eastbound on-ramp; and
- ▶ Along the west side of Mavis Road where culvert modification may be required (Culvert C7).

This mapping should be reviewed in the context of the future detailed design to confirm where additional Stage 2 work is required.

The Project Team received confirmation on October 6, 2016 that the Stage 1 Archaeological Assessment Report for the Mavis Road Class EA has been entered into the Ontario Public Register of Archaeological Reports without technical review (MTCS Project Information Number P018-0776-2016, MTCS File Number 0004639).

8.2.2 Heritage Resources

As discussed in **Section 3.2.2**, a cultural heritage resource assessment was carried out to identify built heritage resources and cultural heritage landscapes within the study area. The Cultural Heritage Assessment Report (CHAR) is provided in **Appendix D**.

The Recommended Plan does not result in any impacts to built heritage resources or cultural heritage landscapes because:

- ▶ There are no listed or designated properties located on the Mavis Road study corridor on the City of Mississauga Heritage Register or the City of Brampton's Municipal Register of Cultural Heritage Resources Designated under the Ontario Heritage Act.
- ▶ The Mavis Road study corridor is not included in the City of Mississauga Cultural Heritage Landscape Inventory.
- ▶ The Meadowvale Heritage Conservation District (HCD) is located to the west of Mavis Road at Second Line West and Old Derry Road.
- ▶ No individual cultural heritage landscapes or built heritage resources of 40 years of age and older were identified. The Meadowvale Cemetery on Mavis Road was opened in 1981.

8.3 Natural Environment

As discussed in **Chapters 5 and 6** and **Section 8.1** of this ESR, the Recommended Plan has remained largely within the existing road right-of-way by utilizing reserved median and boulevard space to achieve the widening. Property is only required in a few areas (**Section 8.1.2**).

As such, the Recommended Plan is not likely to directly impact any of the aquatic natural features within the study area.

There may be some encroachment of vegetation along the embankments of Mavis Road for grading to accommodate the widening of Mavis Road in some sections. In most cases these are landscape / planted trees rather than natural features. Impacts to these trees are addressed in the Tree Management Plan, **Appendix E**, prepared as part of the Class EA study.

Plant species of conservation concern will not be directly impacted by works in the right-of-way. Wildlife species of conservation concern foraging in the right-of-way may be temporarily displaced by the works, however ample habitat exists adjacent to the right-of-way and this impact is considered negligible.

The existing Fletcher's Creek Bridge will accommodate the Recommended Plan therefore there are no direct impacts to Fletcher's Creek and valley. As such, the two SAR regulated under the ESA (2007), Redside Dace and Butternut, which are within Fletcher's Creek and its riparian corridor, respectively, are not anticipated to be directly impacted and no permitting under the ESA (2007) is required.

Potential impacts to the natural features within the study area are limited to indirect impacts associated with construction activities, such as inadvertent disturbance to the retained natural vegetation or the potential transport of deleterious substances (i.e. sediment, fuel, lubricants) into Fletcher's Creek and the Tributary of Credit River. However, these indirect impacts can be mitigated with the implementation of standard construction practices during the proposed works as outlined below.

8.3.1 Mitigation Measures

The following mitigation measures are recommended to avoid or minimize the potential effects of the project activities to natural environmental features and functions. These measures are preliminary in nature and will be refined and further developed during detailed design, and then incorporated in the Contract documents.

- ▶ Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- ▶ Wash, refuel and service machinery and store fuel and other materials from the machinery in such a way as to prevent any deleterious substances from entering Fletcher's Creek or the Tributary of the Credit River.
- ▶ Fording of Fletcher's Creek and machinery into the valleyland is not permissible.
- ▶ The Contractor shall control erosion and sediment caused by their construction methods and operations including but not limited to stockpiles, access and service roads, storage and work areas, and non-designated disposal areas to meet all legislative requirements to prevent entry of sediment into Fletcher's Creek or the Tributary of the Credit River and prevent any migration of sediment beyond the study area.
- ▶ Erosion and sediment control (ESC) measures should be installed prior to commencing construction activities.
- ▶ The construction access, work areas, and associated requirements for removal of vegetation will be minimized to the extent required for the construction activities.
- ▶ Re-stabilize and re-vegetate exposed soil surfaces as soon as possible using approved native seed mixes appropriate to the site conditions.
- ▶ As nesting migratory birds are protected under the Migratory Bird Convention Act (MBCA, 1994), the following measures should be implemented:
 - Ensure that timing constraints are applied to avoid all vegetation clearing (including grubbing) during the breeding bird season (approximately April 1 to August 31). It should be noted that occasionally bird species will precede (e.g., late March nesting) or exceed (e.g., September) the approximate breeding bird season window. The Contractor shall not destroy active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the ESA (2007). When these nests are encountered, the Contract Administrator must be contacted.
 - If a nesting migratory bird is identified within or adjacent to the construction site and the construction activities are such that continuing construction in that area would result in a contravention of the MBCA (1994) or ESA (2007), all activities will stop and the Contract Administrator / Environment Canada will be contacted to discuss mitigation options, and/or to obtain direction from MNRF for species listed under the ESA (2007).

- In the event that a SAR bird is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified. The Contract Administrator will then contact the MNRF SAR Biologist for direction, as these animals are protected under the ESA (2007).
- ▶ In the event that an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified.
- ▶ In the event that a wildlife SAR or possible wildlife SAR is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified. The Contract Administrator will then contact the MNRF SAR Biologist for direction, as these animals are protected under the ESA (2007).

Agency Consultation, Clearance and/or Approvals

- ▶ The Region of Peel will continue to consult with CVC to address any potential permitting requirements, particularly with respect to culvert modifications at CV7.
- ▶ The DFO self-assessment process will be followed to assess the culvert modifications required at CV7. It is likely that DFO review will not be triggered, however this will be confirmed in detailed design.
- ▶ The City and Region will continue to consult with MNRF. Given that works at Fletcher's Creek Bridge are not required, a permit under the Endangered Species Act (2007) is not likely to be required from MNRF.
- ▶ All relevant construction and monitoring conditions set out in permits / approvals will be adhered to.

8.4 Tree Management Plan

A tree inventory and management plan was prepared as part of the Class EA study. The Tree Management Plan is provided in **Appendix E**.

8.4.1 Summary of Recommendations for Tree Preservation / Removal

Trees selected for retention should be protected with tree protection fencing at the dripline or as far from the dripline as the proposed limit of grading allows. No construction activity is permitted within the tree protection zone.

Based on the proposed limit of grading and construction works, a total of 145 trees are required to be removed, including 6 dead standing trees. A total of 65 trees will be impacted by grading and construction works within the critical root zone.

In addition, dead trees and trees in poor condition (e.g. topped leaders, considerable dieback) should be considered for removal and where possible, replaced with appropriate native species. If the design allows, plantings should be considered in areas where street trees were previously removed. Best efforts should be made during the detailed design phase to retain all trees located on private property and trees that are in fair to good condition. Through the use of appropriate mitigation measures, tree protection and sensitivity to the tree preservation, tree removals may be kept to a minimum.

Ray Lawson Boulevard to Highway 407

- ▶ Tree numbers: G106-G110, T31
- ▶ As noted above, information on trees located north of Highway 407 was obtained from as-built drawings provided by the Region of Peel and aerial photography/street imagery dated June 2016 available online. No field survey was conducted for these trees.
- ▶ Trees recommended for retention: G106, G107 (Retain 14), G108, G109 (Retain 11), G110 (Retain 9), T31
- ▶ A total of 46 trees are recommended for retention and preservation. Of these trees, 3 will be impacted by grading and construction works within the critical root zone.
- ▶ Trees recommended to be removed: G107 (Remove 5), G109 (Remove 11), G110 (Remove 15)
- ▶ Proposed grading works will require the removal of 31 trees. Refer to Tree Management Plan for specific tree impacts within groupings.

Highway 407 to Twain Avenue / Knotty Pine Grove

- ▶ Tree numbers: 1-31, 80-110, G1-G11, G41-G56, T30
- ▶ Trees along this block of Mavis Road consist of one woodlot grouping (G1) beside the Highway 407 on-ramp, 171 planted native and non-native street trees and 7 trees located away from the street. There are 14 dead trees. The woodlot grouping is in fair to good condition, contains a mature Sugar Maple and should be protected if grading allows.

- ▶ Trees recommended for retention: 1-26, 80-102, G1-G10, G11 (Retain 1), G41-G46, G47 (Retain 3), G48, G49 (Retain 2), T30
- ▶ A total of 125 trees are recommended for retention and preservation. Of these trees, 49 will be impacted by grading and construction works within the critical root zone.
- ▶ Trees recommended to be removed: 27-31, 103-110, G11 (Remove 2), G47 (Remove 1), G49 (Remove 1), G50-G56
- ▶ Proposed grading works will require the removal of 53 trees. Refer to Tree Management Plan specific tree impacts within groupings.

Twain Avenue / Knotty Pine Grove to Kaiser Drive / Envoy Drive

- ▶ Tree numbers: 32-41, 55-79, G12-G20, G32-G40, T1-T2
- ▶ Trees along this block of Mavis Road consist of 98 planted native and non-native street trees and 17 trees located off of the street. There are also three sections of cut stumps where rows of street trees have been removed.
- ▶ Trees recommended for retention: 32-35, 37-41, 55-79, G12-G20, G32-G40, T1-T2
- ▶ A total of 114 trees are recommended for retention and preservation.
- ▶ Trees recommended to be removed: 36
- ▶ It is recommended that 1 Ash tree (tree number 36) showing heavy dieback and evidence of Emerald Ash Borer should be removed.

Kaiser Drive / Envoy Drive to Derry Road West

- ▶ Tree numbers: 42-54, G21-31, T3-T18, T29
- ▶ Trees along this block of Mavis Road consist of 83 planted native and non-native street trees and 10 trees located off of the street. There are 8 dead trees.
- ▶ Trees recommended for retention: 53, 54, G21-G25, G26 (Retain 8), G27-31, T3-T18, T29
- ▶ A total of 78 trees are recommended for retention and preservation. Of these trees, 2 will be impacted by grading and construction works within the critical root zone.
- ▶ Trees recommended to be removed: 42-52, G26 (Remove 4)
- ▶ Proposed grading works will require the removal of 15 trees. Refer to Tree Management Plan for specific tree impacts within groupings.

Derry Road West to Novo Star Drive / Crawford Mill Avenue

- ▶ Tree numbers: 170-225, G25, G95-G101, T19, T20, T28
- ▶ Trees along this block consist of one grouping on public property (G25 – 16 trees) that contains native species planted by a local organization, as well as 88 planted native and non-native street trees and 15 trees located off of the street. There are 7 dead trees.
- ▶ Trees recommended for retention: 170-200, 206-225, G25, G93-G101, T19, T20, T28
- ▶ A total of 114 trees are recommended for retention and preservation. Of these trees, 2 will be impacted by grading and construction works within the critical root zone.
- ▶ Trees recommended to be removed: 201-205
- ▶ Proposed grading works will require the removal of 5 trees.

Novo Star Drive / Crawford Mill Avenue to Western Skies Way / Craig Carrier Court

- ▶ Tree numbers: 145-169, 226-250, G68-72, G85-G92, G102-G104, T21, T22, T26, T27
- ▶ Trees along this block of Mavis Road consist of 116 planted native and non-native street trees and 37 trees located off of the street. There are 17 dead trees.
- ▶ Trees recommended for retention: 145-169, 226-250, G68-72, G85-G92, G102-G104, T21, T22, T26, T27
- ▶ All trees located within this area are recommended for retention and preservation.
- ▶ Trees recommended to be removed: none.
- ▶ No tagged trees or trees in groupings are recommended for removal. However, dead trees and trees in poor condition (e.g. topped leaders, considerable dieback) should be considered for removal and where possible, replaced with appropriate native species.

Western Skies Way / Craig Carrier Court to Courtneypark Drive West

- ▶ Tree numbers: 111-144, G58-G67, G73-G84, T23-T25
- ▶ Trees along this block of Mavis Road consist of 7 groupings of naturalized native and non-native trees in Fletcher's Flats green space (G60-G64 and G74-G75 – approximately 60 trees), 86 planted native and non-native street trees and 39

trees located off of the street. There are several dead Ash trees in grouping G64, as well as 3 dead trees located on Mavis Road and 2 dead trees.

- ▶ Trees recommended for retention: 111-134, G58-G67, G73, G74 (Retain 8), G75-G79, G80 (Retain 1), G81 (Retain 1), G84, T23
- ▶ A total of 145 trees are recommended for retention and preservation. Of these trees, 9 will be impacted by grading and construction works within the critical root zone.
- ▶ Trees recommended to be removed: 135-144, G74 (Remove 5), G80 (Remove 5), G81 (Remove 8), G82, G83, T24, T25
- ▶ Proposed grading works will require the removal of 40 trees. In addition, it is recommended that the dead Ash trees in the meadow groupings should be removed and consideration should be given to enhancement of the meadow area through the planting of native species.

8.4.2 Tree Management Process

8.4.2.1 Tree Removals

Removals should be marked in the field by a consulting arborist prior to any cutting or stumping taking place. Removals will be based on proposed roadway widening limits and tree health condition.

8.4.2.2 Tree Protection Fencing

The following guidelines will apply to the installation of tree protection fence:

- ▶ A site meeting will be held with the contractor and consulting arborist to review the staked layout for the temporary tree protection fence to confirm the clearing limits and the installation location.
- ▶ A site inspection will take place to inspect the installed tree protection fencing and, if in accordance with the Arborist Report and Tree Management Plans, issue a certification letter to the City of Mississauga for their review and approval.
- ▶ All of the tree protection measures are to be installed and approved prior to commencement of site grading. Periodic inspection and maintenance of the tree protection measures will be required throughout construction.
- ▶ During the detailed design phase it is recommended that consideration is given to adding silt fabric to existing chain link fencing on public property where tree protection fencing is required, in place of standard tree protection fencing. This

will reduce the amount of disturbance to the critical root zone of trees recommended for preservation.

- ▶ To avoid root zone impacts on trees to be retained, excavated material will not be stored against the tree protection barrier. The temporary protection fence is to be maintained throughout the entire construction period. No equipment storage, flushing of fuel, washing of construction equipment, and storage of spoil or construction debris is to occur behind the temporary protection fence.

8.4.2.3 Monitoring Plan

Construction

- ▶ Upon completion of initial grading, a site inspection will be undertaken by a consulting arborist to monitor tree protection fencing, unintended damage, pruning needs and hazard trees.
- ▶ Inspections will be undertaken by a consulting arborist to ensure that the tree preservation measures are maintained during construction.

Post-Construction

- ▶ The temporary protection fence will be removed last after review and approval by a consulting arborist once all construction has ended, soils are stabilized and all equipment has been removed.

8.4.3 Tree Preservation Strategies

The survival rates for trees which are in proximity to construction are dependent on the resultant changes to a variety of environmental and anthropogenic factors. These construction activities bring about changes to environmental features of the existing microclimate including winds, temperature, soil moisture, available sunlight, soil quality, and the level of the water table. Increased human activities may also damage the structure and/or physiology of the trees. The full effects of the damage may not appear until several years after its occurrence. Thus, it is essential that both vegetative clearing and preservation methods follow the guidelines below and those generally accepted as keeping with good horticultural and construction practices. The guidelines are subject to adjustments deemed reasonable and appropriate considering the proximity and number of trees involved and the site-specific servicing requirements.

8.4.3.1 General Notes

The following is a list of practical considerations for the construction phase of the project that applies to all trees that may be impacted by construction.

- ▶ Prior to the commencement of tree removals, all limits of the locations of the tree protection fencing must be clearly staked in the field and approved by the Contract Administrator. All trees within the tree protection zone must be left standing. The tree removals must be coordinated to be completed outside of the migratory bird nesting season.
- ▶ All removals must be felled into the work area to ensure that damage does not occur to the trees within the tree protection zone.
- ▶ Upon completion of the tree removals, all felled trees are to be removed from the site, and all brush chipped. All brush, roots and wood debris must be shredded into pieces that are smaller than 25 mm in size to ensure that any insect pests that could be present within the wood are destroyed. This work must be completed outside of the migratory bird nesting season.
- ▶ The City of Mississauga is within the EAB Regulated area covering most of southern Ontario. The removal and disposal of Ash (*Fraxinus* sp.) is subject to the Canadian Food and Inspections Agencies (CFIA) regulations. As mandated by the Canadian Food Inspection Agency a prohibition of movement will be issued for properties where the emerald ash borer (EAB) has been confirmed. This measure prohibits the movement of regulated materials outside of the regulated area. Regulated materials include: ash trees (whole or parts), ash nursery stock, ash logs and branches, ash lumber, wood, packaging materials with an ash component, ash wood or bark, ash wood chips or bark chips, firewood from all tree species. EAB regulated articles moving out of a regulated area must be accompanied by a Movement Certificate issued by the CFIA. All vehicles used to transport regulated articles must be cleaned of debris prior to loading at origin and prior to departure from the receiving facility. The required treatment will depend upon the regulated article transported, but may include sweeping or power washing. Should it be necessary to dispose of materials on site methods of disposal include incineration or deep burial. For more information about transporting regulated articles and disposal contact your local CFIA office
- ▶ Tree protection fencing must be constructed and installed as per the details on the approved Tree Management Plan. Upon installation of the fencing, the Contractor will contact the Contract Administrator to review and approve the fencing and its location prior to commencement of any grading work.
- ▶ Areas within the tree protection zone are not to be used for any type of storage (e.g. storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located

within the tree protection zone or dripline of trees designated for preservation within or adjacent to the construction zone.

- ▶ No grade changes shall occur within the tree protection zone unless approved as part of this report. In the event that any grade changes may occur, either as a cut or fill situation, the Contract Administrator must be notified prior to such work occurring to ensure that all precautions to preserve the tree can be made.
- ▶ Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Further, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees.
- ▶ In the event that it is necessary to remove additional limbs or portions of trees, after construction has commenced, to accommodate construction, the Contract Administrator is to be informed and under their direction the removal is to be executed carefully and in full accordance with arboricultural techniques, by a certified arborist.

8.4.3.2 Pruning Practises

- ▶ All limbs damaged or broken during the course of construction should be pruned cleanly, utilizing by-pass secateurs in accordance with approved horticultural practices. Should there be a potential risk of transfer of disease from infected to non-infected trees, tools must be disinfected after pruning each tree by dipping in methyl hydrate. This practice is particularly important during periods of tree stress and when pruning many members of the same genera, within which a disease could be spread quickly (i.e., Verticillium Wilt on Maples or Fireblight on genera of the Rosacea family).
- ▶ During excavation operations in which the root area is affected, the Contractor is to prune all exposed roots cleanly. Pruned root ends are to be neatly and squarely trimmed and the area is to be backfilled with clean native fill as soon as possible to prevent desiccation and promote root growth. The exposed roots should not be allowed to dry out, and the Contractor shall discuss watering of the roots with a consulting arborist so that the roots shall maintain optimum soil moisture during construction and backfilling operations, yet so not to interfere with construction operations. Backfilling must be with clean uncontaminated topsoil from an approved source. Texture must be coarser than existing soils, and to come into clean contact with existing soils (remove air pockets, sod, etc.)
- ▶ All pruning cuts should be made to a growing point such as a bud, twig or branch, cut just outside the branch collar (the swollen area at the base of the

branch that sometimes has a bark ridge), and perpendicular to the branch being pruned rather than as close to the trunk as possible. This minimizes the size of the wound. No stubs should be left. Poor cut location, poor cut angle and torn cuts are not acceptable.

- ▶ Tree roots should not be excavated within the critical structural rooting area. This is the minimum area of the root system necessary to maintain vitality or stability of the tree. Typically this area extends to the dripline of the tree. The severing of one root can cause approximately 5-20% loss of the root system. A reduction of this area by greater than 30% can pose stability concerns for the tree.
- ▶ Extensive pruning is best completed before plants break dormancy. Pruning should be limited to the removal of no more than one third (1/3) of the total bud and leaf bearing branches. Pruning should include the careful removal of:
 - deadwood,
 - branches that are weak, damaged, diseased and those which will interfere with construction activity,
 - secondary leaders of conifers,
 - trunk and root suckers,
 - trunk waterspouts, and
 - tight V-shaped or weak crotches (included unions).
- ▶ The Contractor must report immediately any damage to trees such as broken limbs, damage to roots, or wounds to the main trunk or stem systems so that the damage can be assessed immediately.
- ▶ The tree protection fencing will be maintained until all construction is completed, soils are stabilized and all of the equipment has been removed from the site.

8.4.3.3 Tree Protection Zone

- ▶ Tree preservation measures, including the establishment of the Tree Protection Zone (TPZ) shall apply to the individual trees denoted for preservation on the Tree Management Plan, as well as all vegetated areas noted for retention.
- ▶ Trees located within the study area that are to be preserved will have tree protection fencing installed at the dripline to establish a tree protection zone. All trees located on adjacent properties shall be preserved unless otherwise stated in this report.

- ▶ No grade changes shall occur within the tree protection zone. In the advent that grade changes occur either as a cut or fill situation, the Contract Administrator must be notified so that precautions to preserve the tree can be determined prior to the placement of fill or excavation activities.
- ▶ Every precaution must be taken to prevent damage to trees and protect root systems from damage, compaction and contamination resulting from the construction to the satisfaction of the Contract Administrator.
- ▶ Trees that require pruning to permit construction activities have been identified in this Arborist Report. In the event that it is necessary to remove additional limbs or portions of trees, after construction has commenced, to accommodate construction, the Contract Administrator is to be informed and under their direction the removal is to be executed carefully and in full accordance with arboricultural techniques, by a certified arborist.
- ▶ Any damage to trees such as broken limbs, damage to roots, or wounds to the main trunk or stem systems are to be reported to a consulting arborist so that the damage can be assessed immediately and mitigation can be promptly implemented.

8.5 Drainage and Stormwater Management

Section 6.4 presents the stormwater management (SWM) and drainage requirements associated with the Recommended Plan, including potential opportunities for Low Impact Development (LID) measures to be confirmed in detailed design. **Exhibits 6-8 to 6-11** illustrate the main SWM and drainage elements.

The overall objective of the stormwater management measures is to ensure that from a drainage perspective the Recommended Plan is designed to avoid or minimize impacts on water quality, erosion and flood risk in the receiving watercourses.

Relevant standard construction mitigation measures will ensure that surface water quality is protected during construction. These measures have been outlined above in **Section 8.3** since they contribute to the protection of terrestrial and aquatic habitats and focus mainly on erosion and sediment control.

8.6 Groundwater

Given that the area is completely urban with no residential areas reliant on groundwater for water supply, it is unlikely that unused and unreported water wells may be encountered during construction. Any unused water wells within the construction footprint must be

abandoned as per O. Reg. 903, as amended by O. Reg. 372/07, prior to any further work where they are located.

The proposed works associated with the Recommended Plan will involve below-grade construction works associated with the Highway 407 bridges expansion. The need for dewatering will be further assessed during detailed design. If groundwater dewatering is required during future construction, then future dewatering activities will be conducted in accordance with the specified control procedures. A Permit to Take Water (PTTW) will be obtained from MOECC if the cumulative amount of water taken for all activities exceeds 50,000 L/day as per the Ontario's Water Taking Regulation (O. Reg. 387/04 made under the Ontario Water Resources Act).

As discussed in **Chapter 6**, road drainage will be accommodated in the existing storm sewer system. The Stormwater Management Plan discussed in **Chapter 6** will ensure that all road runoff from the roadways and the interchange ramps will be controlled for quantity and quality to mitigate potential impacts (i.e., interrupt contaminant pathways) to groundwater.

During construction, drainage will be appropriately managed to avoid potential contamination of groundwater through infiltration of potential contaminants.

Best management practices (BMPs) will be implemented by the Contractor to prevent fuel lubricants and fluid spills resulting from construction activities, and manage any unanticipated occurrences that could result in impacts to groundwater.

8.7 Management of Materials

It is anticipated that road construction will not result in the generation of significant quantities of excess soil. The Highway 407 Bridge works will generate some waste construction material.

Section 6.3 of this ESR summarizes the findings of the geotechnical investigation related to soil contamination. In general, visual and olfactory examination of the soil samples recovered from the field investigation program revealed no unusual staining or odours indicative of hydrocarbon impact or other contamination.

To provide a preliminary evaluation of the environmental quality of the soils potentially requiring disposal during construction, six samples recovered from the boreholes were submitted to AGAT Laboratories Limited for analysis of selected parameters outlined in Ontario Regulation 153/04 (as amended by O.Reg. 511/09) and O.Reg. 558/00. The sample locations and material types and results of the analyses are provided in the mine report in **Appendix J**.

Based on the available subsurface information and the analytical results of selected samples, excess soil from the project may generally be classified as a “non-subject waste” in accordance with O.Reg. 558/00 and disposed of at a suitable receiving site or reused on-site as general fill.

Additional analytical testing will be required during detailed design to further assess the requirements for re-use or disposal of excavated and construction waste materials when further details of the project are established.

Where excavation of existing pavement structures is required, asphalt should be removed separately from granular materials and recycled at an approved recycling facility or disposed of appropriately off-site. Asphalt should not be mixed with excess excavated soil; fill receivers may not accept excess excavated soils if it contains asphalt. Excavated granular material may be reused on site for general fill purposes subject to geotechnical approval.

Activities related to the movement, storage or removal of soils / excess materials will be completed in accordance with the MOECC's current guidance document titled Management of Excess Soil – A Guide for Best Management Practices (2014).

8.8 Utilities

As noted in **Chapters 3 and 6**, consultation with utilities will be required during detailed design.

8.9 Permits and Approvals

Following the successful completion of the Municipal Class EA process documented in this ESR, all EA requirements will have been met. Other approval requirements will be addressed for the project during detailed design which may include:

- ▶ Ontario Heritage Act requirements for Archaeological Clearance;
- ▶ Notifications/permissions from respective utilities with facilities in the area;
- ▶ Permits / Approvals from 407ETR and MTO; and
- ▶ A permit from CVC would be required prior to any development/site alteration within the CVC regulated areas (O.Reg. 160/06).

A permit under the Endangered Species Act (2007) is not expected to be required.

The Canadian Environmental Assessment Act (CEAA) does not apply for this project.

8.10 Construction Monitoring

Mitigation measures shall be implemented and maintained through on-site inspections by City of Mississauga and Region of Peel staff that will ensure that the natural, social, and economic environments are not impacted by the construction activities and/or that impacts are minimized. The inspection staff will also ensure that items such as sedimentation controls and appropriate signage are maintained throughout construction.

8.11 Summary of Mitigation Measures and Commitments to Further Work

Table 8-4 summarizes the identified concerns and the proposed mitigation measures and commitments to future work based on the identified environmental sensitivities and the proposed works.

Table 8-4: Summary of Mitigation Measures and Commitments to Further Work

Mitigation Measures and Commitment to Further Work	
Property	<ol style="list-style-type: none"> 1. Impacts to private property will be confirmed during detailed design. The City of Mississauga and Region of Peel will consult with affected property owners on an individual basis during detailed design. A legal survey may be required to correct discrepancies in property mapping sources. 2. Property acquisition, in accordance with the City of Mississauga's procedures, will occur in advance of construction during detail design, following the completion of this Class EA study. 3. Permission to enter or temporary easements for grading will be required at several locations throughout the corridor. Exact grading limits will be finalized in detailed design and the City will contact property owners well in advance of construction to seek permission to grade on private lands. 4. The City will work with property owners in the implementation of the Tree Management Plan and Landscape / Streetscape Plan to mitigate impacts associated with removal of trees and landscape features on affected properties 5. Based on the Recommended Plan no impacts to IO lands have been identified. This should be confirmed during detailed design. Where impacts to IO lands (e.g., disposition, easements etc.) may be identified, consultation with IO will be required in order to confirm and complete the Public Works Class EA requirements. This process will be triggered in detailed design, as appropriate. 6. Due to the nature of the properties being impacted, the risk of contamination is deemed to be negligible. A Phase 1 ESA has not been undertaken during the Class EA study. The City may choose to undertake a Phase 1 ESA during detailed design.
Access	<ol style="list-style-type: none"> 7. To the extent possible, access to adjacent properties will be maintained during construction. 8. Existing access locations to collector streets, commercial businesses, institutions etc. are not anticipated to change with the Recommend Plan. 9. Mississauga Station 121 (Fire Station) will continue to have full access. A gap in the raised median will be maintained in this location. 10. Access for pedestrians and cyclists to Mavis Road will be enhanced through the proposed addition of mid-block access points at: <ul style="list-style-type: none"> o Golden Farmer Way (Stations 11+190 and 11+350); o Tassel Crescent (Station 11+700); o Macbeth Heights (Station 12+360); and o Magistrate Terrace (Station 12+930).
Noise and Vibration	<ol style="list-style-type: none"> 11. There are no anticipated increases in noise levels at all receiver locations as a result of the Recommended Plan since it is expected to alleviate some of the traffic demand off of existing roads, which are the main noise sources at all receiver locations. 12. Since the potential increases in the projected noise levels are less than 5 dBA, the consideration of noise mitigation based on MTO/MOECC Noise Protocol is not warranted.

Mitigation Measures and Commitment to Further Work

13. Receiver 21 has predicted noise levels of greater than 60 dBA for both future (2041) without and with improvements. However, per the City of Mississauga Policy 09-03-03, Noise Attenuation Barriers on Major Roadways (April 2011) for Capital Projects, no mitigation is warranted at this location as this receiver already have an existing 2.2 m high noise barrier in place (see Section 2.0 Methodology - City of Mississauga Guidelines).
14. Based on the Recommended Plan, vibration generated by the Highway 407 Bridge construction is not anticipated however, there will be some noise from demolition. Extension of the bridge foundations requires excavation of earth and then placing reinforcing steel and concrete for the footings. Construction of the other components is typical forming, rebar and concrete. For the bridge widening, existing barrier wall, part of deck and part of wingwalls will need to be removed, so noise from jackhammers and other construction equipment is anticipated, the duration of which would be approximately 1 to 2 weeks. Similarly, road construction activities are not anticipated to generate vibration however, general construction noise is expected.
15. Construction noise and vibration issues will be further reviewed during detailed design when construction methodology and schedule is fully developed.
16. Construction activities will conform to the City of Mississauga Noise Control By-Law 360-79, amended 2008 (the By-Law). In the Contract Documents, there shall be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-laws is the responsibility of the City for all work done by Contractors.
17. All equipment shall be properly maintained to limit noise emissions. As such, all construction equipment will be operated with effective muffling devices that are in good working order.
18. The Contract Documents will contain a provision that any initial noise complaint will trigger verification that the general noise control measures agreed to be in effect.
19. In the presence of persistent noise complaints, all construction equipment will be verified to comply with MOECC NPC-115 guidelines. In the presence of persistent complaints and subject to the results of a field investigation, alternative noise control measured during construction may be required, where reasonably available. In selecting appropriate noise control and mitigation measures, consideration will be given to the technical, administrative and economic feasibility of the various alternatives.

Air Quality

20. Mitigation of local and regional effects are not warranted due to the small number of days which are expected to exceed the guideline.
21. During construction, vehicles/machinery and equipment will be in good repair, equipped with emission controls, as applicable, properly maintained and operated within regulatory requirements.
22. A minimal number of machines operating in any one area shall be carefully considered during construction activities.
23. Water and dust suppressants (non-chloride) will be applied during construction to protect air quality due to dust.
24. Refer to Environment Canada "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" for mitigation measures for reducing emissions during construction activities. Mitigation techniques discussed in the document include material wetting or use of chemical suppressants to reduce dust, use of wind barriers, and limiting exposed areas which may be a source of dust and equipment washing. It is recommended that these best management practices be followed during construction of the roadway to reduce any air quality impacts that may occur.

Mitigation Measures and Commitment to Further Work

25. It is noted that MOECC recommends that non-chloride dust suppressants be applied. MOECC also recommends referring to the following publication in developing dust control measures: Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Report prepared for Environment Canada, March 2005.

Heritage

26. The Stage 1 Report in **Appendix C** provides mapping of areas considered to be undisturbed that may be subject to a Stage 2 assessment (Map 9). The Recommended Plan successfully avoids most of these areas by remaining largely within the existing road right-of-way, minimizing property impacts and avoiding works at Fletcher's Creek and the Credit River tributary.
27. Only a few areas remain as being required for Stage 2 assessment. This mapping should be reviewed in the context of the future detailed design to confirm where additional Stage 2 work is required.
- Southeast and southwest portions of the Derry Road West intersection;
 - Around the Highway 407 eastbound on-ramp; and
 - Along the west side of Mavis Road where culvert modification may be required at CV7.
28. Since the remainder of the study corridor is located primarily within over grown grasslands and down steep slopes, access by plough is severely restricted and is not feasible, it is recommended that the portions of the study corridor containing archaeological potential be subject to a test pit survey as per Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists (MTCS 2011:31).
29. No excavations shall take place within the study area prior to the Ministry of Tourism, Culture and Sport confirming in writing that all archaeological licensing and technical review requirements have been satisfied.
30. There are no built heritage resources / cultural heritage landscapes. Therefore no further work is required.

Natural Environment

The following mitigation measures are recommended to avoid or minimize the potential effects of the project activities to natural environmental features and functions. These measures are preliminary in nature and will be refined and further developed during detailed design, and then incorporated in the Contract documents.

31. Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
32. Wash, refuel and service machinery and store fuel and other materials from the machinery in such a way as to prevent any deleterious substances from entering Fletcher's Creek or the Tributary of the Credit River.
33. The construction access, work areas, and associated requirements for removal of vegetation will be minimized to the extent required for the construction activities.
34. Re-stabilize and re-vegetate exposed soil surfaces as soon as possible using approved native seed mixes appropriate to the site conditions.
35. As nesting migratory birds are protected under the Migratory Bird Convention Act (MBCA, 1994), the following measures should be implemented:
- Ensure that timing constraints are applied to avoid all vegetation clearing (including grubbing) during the breeding bird season (approximately April 1 to August 31). It should be noted that occasionally bird species will precede (e.g., late March nesting) or exceed (e.g., September) the

Mitigation Measures and Commitment to Further Work

- approximate breeding bird season window. The Contractor shall not destroy active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the ESA (2007). When these nests are encountered, the Contract Administrator must be contacted.
- If a nesting migratory bird is identified within or adjacent to the construction site and the construction activities are such that continuing construction in that area would result in a contravention of the MBCA (1994) or ESA (2007), all activities will stop and the Contract Administrator / Environment Canada will be contacted to discuss mitigation options, and/or to obtain direction from MNRF for species listed under the ESA (2007).
36. In the event that a SAR bird is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified. The Contract Administrator will then contact the MNRF SAR Biologist for direction, as these animals are protected under the ESA (2007).
37. In the event that an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified.
38. In the event that a wildlife SAR or possible wildlife SAR is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified. The Contract Administrator will then contact the MNRF SAR Biologist for direction, as these animals are protected under the ESA (2007).
- Agency Consultation, Clearance and/or Approvals
39. The Region will continue to consult with CVC to address any potential permitting requirements, particularly with respect to culvert modifications at CV7.
40. The DFO self-assessment process will be followed to assess the culvert modifications required at CV7. It is likely that DFO review will not be triggered, however this will be confirmed in detailed design.
41. The City and Region will continue to consult with MNRF although it is noted that, given that works at Fletcher's Creek Bridge are not required, a permit under the Endangered Species Act (2007) is not likely to be required from MNRF.

Sediment and Erosion Control

42. Sediment and erosion control will adhere to the guidelines established by the Greater Golden Horseshoe Area Conservation Authorities Erosion and Sediment Guideline for Urban Construction.
43. The potential erosion adjacent to Fletcher's Creek valley will be reviewed during detailed design.
44. Appropriate sediment and erosion control measures must be maintained during and following construction until all disturbed areas have been stabilized.
45. The contractor will identify a contingency plan for accidental sediment release.
46. In addition to the installation of silt fencing, other measures to reduce or eliminate sediment loading into the adjacent natural features includes temporary siltation ponds, riprap swales and hay-bale check dams can be installed prior to construction activities. Similarly, to mitigate dust deposition, a dust suppressant can be applied to areas of exposed soils to reduce or eliminate dust generation.

Streetscape Plan and Tree Management Plan

47. Review / update tree management plan based on detailed design. Implement detailed tree protection strategies and mitigation.

Mitigation Measures and Commitment to Further Work

48. Implement all applicable City of Mississauga and Region of Peel tree management standards and mitigation measures as outlined in the Tree Management Plan (Appendix E), and summarized in Section 8.4 of this ESR including measures related to Tree Management Process (removals, protection fencing and monitoring) and Tree Preservation Strategies (general practices, pruning practices, and implementation of a tree protection zone).
49. Review the Streetscape Concept and develop the final Streetscape Plan and details for implementation. The Streetscape Concept has been conservative in identifying areas of tree planting. Once the locations of hydro poles and light poles have been determined in detailed design, there may be additional opportunities for tree planting that should be included in the final Streetscape Plan.
50. Consult with affected property owners, as appropriate, in the development of streetscape and landscape design details.
51. The function of the tree/vegetation to be removed will be considered as part of the Planting Plan replaced with plantings of similar functionality.
52. A Tree Protection Zone (TPZ) will be established prior to construction to protect the remaining trees. Root damage will be minimized to the extent possible. Tree protection fencing will be constructed along the limits of the TPZ to ensure protection of trees and their root zones.
53. Tree protection fencing requirements will be illustrated in construction drawings and will in place and approved by the consultant prior to any construction activity on site.
54. No activity will be allowed within the tree protection fence area. Equipment will not be driven over root zones, no materials will be stockpiled near trees, and foot traffic will be limited (especially during rainy periods when soil is more prone to compaction).
55. Designated laydown areas will be installed away from natural heritage features that are being retained to prevent disturbance caused by construction equipment.
56. If roots are severed, they will be cut cleanly with sharp pruning tools. Exposed roots will be protected from drying.
57. Root pruning will occur prior to the start of construction and under the supervision of a Certified Arborist.
58. Any roots severed during construction will be cut cleanly to minimize decay and entry points for disease.
59. Limbs and/or branches will be pruned prior to construction, where it is expected that they could be damaged or interfere with construction, under the supervision of the contract administrator.
60. Trees will be cut and felled so as not to damage adjacent vegetation. Exposed roots will be cut cleanly where damaged and covered with soil. Damaged branches of trees to be retained will be cut off cleanly.
61. Existing grape vine will be monitored and managed as required to prevent damage to remaining and/or new trees.

Drainage and Stormwater Management

62. The Culvert CV7 outlet (west side of Mavis Road) will need to be modified to accommodate the extension of multiuse path. A culvert extension can likely be avoided by the use of wing wall or head wall. This needs to be confirmed during the detail design phase. Any works at CV7 will be isolated from the main flow and conducted 'in the dry' using flow passage systems including cofferdams. Any dewatering operations at CV7 or Highway 407 Bridge will be directed onto a suitable vegetated area at least 30 m away from watercourses, or into a sediment settling basin or filter bag which will allow sediments to

Mitigation Measures and Commitment to Further Work

settle out prior to discharging to the watercourse. The discharge point for dewatering activities shall be suitable so as not to create additional erosion or sediment related impacts.

63. Existing stormwater management facilities have adequate pool, storage volume to accommodate minor increases in road runoff.
64. The existing storm sewer systems and stormwater management facilities have capacity to accommodate the nominal increases in runoff from the additional impervious areas. However, there are some Low Impact Development (LID) measures that may be considered during detailed design in an effort to offset the minor increase in runoff and provide for stormwater management in terms of water balance requirement within the City's right-of-way. The feasibility of LID measures, or other viable alternatives to achieve the runoff volume reduction targets, will be further explored during detailed design phase.
65. New or re-constructed ditches will be properly stabilized using vegetation or rock protection depending on slope. Rip rap or other clean granular stabilizing materials free of fines, will be installed at outlets and spillways.
66. A permit from Credit Valley Conservation (CVC) will be obtained prior to any development/site alteration for works situated within areas regulated by CVC under Ont. Regulation 160/06.

Groundwater Resources

67. The need for a Permit to Take Water (PTTW) will be reviewed relative to detailed design of the Highway 407 Bridge, and appropriate documentation prepared in support of a possible PTTW permit.
68. Due to the nature of property impacts (encroachment), it is unlikely that relict or unreported water wells will be encountered during construction.
69. The Stormwater Management Plan will ensure that all road runoff from Mavis Road will be controlled for quantity and quality to mitigate potential impacts (i.e., interrupt contaminant pathways) to groundwater.
70. BMPs will be implemented by the Contractor to prevent impacts to groundwater.
71. Appropriate dewatering measures will be implemented to manage any groundwater encountered during grading activities, and dewatering discharge water will be filtered as necessary to prevent transport of sediment to natural surface water receptors.

Geotechnical and Materials Management

72. Preliminary pavement design recommendations to be confirmed in detailed design.
73. Excavation for open cut installation of municipal services within urban sections of roadway will primarily extend through the existing roadway pavement structure and embankment fill, and into native sandy silty clay till and localized sand deposits. Use of a hydraulic excavator should be suitable for trench excavation within these materials. All temporary excavations must be carried out in accordance with the current Occupational Health and Safety Act (OHSA) of Ontario and local regulations. Groundwater is not expected to pose construction issues during excavation of relatively shallow trenches. Where space restrictions preclude excavation of inclined slopes, installation may be carried out using a trench box or temporary shoring. If the trench depth exceeds 6 m, the support system must be designed specifically for this project by an experienced Professional Engineer.

Mitigation Measures and Commitment to Further Work

74. For preliminary design purposes, use of a similar foundation system is recommended for the widened portion of the bridge, comprising extension of the existing spread footings at the same founding level and designed using the same resistance values as the existing foundation units.
75. It is anticipated that road construction will not result in the generation of significant quantities of excess soil. The Highway 407 Bridge works will generate some waste construction material. Based on the available subsurface information and the analytical results of selected samples, excess soil from the project may generally be classified as a “non-subject waste” in accordance with O.Reg. 558/00 and disposed of at a suitable receiving site or reused on-site as general fill. Additional analytical testing will be required during detailed design to further assess the requirements for re-use or disposal of excavated materials when further details of the project are established.
76. Where excavation of existing pavement structures is required, asphalt should be removed separately from granular materials and recycled at an approved recycling facility or disposed of appropriately off-site. Asphalt should not be mixed with excess excavated soil; fill receivers may not accept excess excavated soils if it contains asphalt. Excavated granular material may be reused on site for general fill purposes subject to geotechnical approval.
77. Activities related to the movement, storage or removal of soils / excess materials should be completed in accordance with the MOECC’s current guidance document titled Management of Excess Soil – A Guide for Best Management Practices (2014).
78. In summary, detailed geotechnical investigation will be required to confirm the subsurface conditions and recommendations. This work should include:
 - additional boreholes within the existing roadway pavement and widening areas to confirm the existing pavement thicknesses, subgrade conditions and preliminary pavement design recommendations;
 - deflection testing (FWD) of the existing roadway if sections of the existing pavement are to be rehabilitated;
 - additional boreholes at the proposed Highway 407 Bridge and any retaining walls or fill embankments to confirm geotechnical recommendations for foundation and embankment design;
 - further assessment of dewatering requirements and the need for a PTTW; and
 - chemical testing to evaluate excess material disposal.

Utilities / Municipal Services / Construction

79. The utilities information noted is based on mark-ups / information received from the agencies. Therefore, the location of all plant and specific relocation strategies must be established through direct field investigation, during detailed design.
80. Relocation or mitigation of affected utilities will occur through consultation with the affected utility providers in the subsequent detailed design phase.
81. Coordinate detailed design and construction phasing with planned services works (Region of Peel, utility companies, and 407ETR / MTO).
82. Utility improvement works and/or relocations shall be co-ordinated to minimize service disruptions where possible through liaison and contract requirements.

Ministry of Transportation and 407ETR

83. The design of the Highway 407 Bridge will be confirmed during detailed design in consultation with 407ETR and MTO.
84. Illumination requirements in the vicinity of the Highway 407 Bridge will be confirmed in consultation with 407 ETR and MTO during detailed design.

Mitigation Measures and Commitment to Further Work

85. All permits / approvals will be obtained from MTO and 407ETR.

Construction Monitoring

86. Mitigation measures shall be implemented and maintained through on-site inspections by the City of Mississauga staff who will ensure that the natural, social, and economic environments are not impacted by the construction activities and/or that impacts are minimized. The inspection staff will also ensure that items such as sedimentation controls and appropriate signage are maintained throughout construction.
87. Appropriate signage shall be implemented to identify detour routes at the time of temporary roadway/sidewalk closures.
88. In addition, closure events and restricted access to local residents and/or businesses shall be minimized to the greatest extent possible to facilitate vehicle and pedestrian movement during construction.