EXECUTIVE SUMMARY

This report documents the Class Environmental Assessment (EA) Study undertaken by the Ontario Ministry of Transportation (MTO) to determine a long-term strategy to address the rehabilitation needs of the Queen Elizabeth Way (QEW) Credit River Bridge and to address the future requirements of the QEW from west of Mississauga Road to west of Hurontario Street.

Project Overview (Chapter 1)

The Queen Elizabeth Way (QEW) is Ontario's oldest freeway, dating back to the 1930s. The QEW is a critical component of the provincial highway network and is one of Ontario's most important transportation facilities in terms of commuter and trade traffic. The 250 m long Credit River Bridge is over 75 years old and recent investigations suggest that the bridge is in poor condition and in need of major repair.

To 'hold' the bridge for the short-term, MTO initiated a Rehabilitation Holding Strategy, independent of this EA Study (see **Section 1.4.1** for more information). The Rehabilitation Holding Strategy is presently under construction. The Credit River Bridge is being rehabilitated until a longer term rehabilitation strategy can be developed and initiated.

The purpose of this EA study was to address the following within the study limits:

- The long-term rehabilitation needs of the QEW Credit River Bridge; and,
- The future improvement needs and requirements for the QEW and the Mississauga Road Interchange.

Other studies and projects include improvements in the vicinity of the study area and are either underway or were recently completed. These studies are summarized in **Sections 1.4.1** to 1.4.4.

The Environmental Assessment Process (Chapter 2)

The study has followed the approved environmental planning process for Group "B" projects under the *Class Environmental Assessment for Provincial Transportation Facilities* (2000). This project addresses the Preliminary Design Phase and includes submission of a Transportation Environmental Study Report (TESR).

If concerns are raised during the 45-day TESR public and external agency review period that cannot be resolved through discussions with MTO, members of the public, interested groups or technical agencies may request the Minister of the Environment to issue a Part II Order (i.e. bump-up) for the project, thereby requiring an individual environmental assessment. The decision whether a Part II Order (i.e. bump-up) is appropriate or necessary rests with the Minister of the Environment. If no Part II Order requests are outstanding by the end of the 45-day review period, the project is considered to have met the requirements of the Class EA, and MTO may proceed to design and construct the project subject to resolving any commitments documented in this TESR during the subsequent design phases and obtaining any other outstanding environmental approvals.

QEW Credit River Bridge

Preliminary Design and Class Environmental Assessment Study Transportation Environmental Study Report

Under the federal CEAA 2012, an environmental assessment is required of "designated projects." The QEW Credit River study was reviewed by the Project Team against the "designated projects" list contained in the regulations and it was determined that the highway and bridge aspects of the study are not "designated" and therefore will not require federal assessment.

Consultation (Chapter 3)

An extensive stakeholder consultation program was undertaken to assist in the planning and impact assessment for this project. Throughout the duration of the study, those consulted included external agencies (including Provincial Ministries and Agencies, Federal Departments, and local Conservation Authority), municipalities, aboriginal communities and the public (including affected land owners, community / interest groups and the general public).

Numerous opportunities for input with these stakeholders was provided, including three rounds of Public Information Centres held at key points during the study process, three rounds of Community Workshops, stakeholder meetings, newspaper advertisements, access to a project website (www.qewcreditriverea.ca) with up-to-date study information, and direct contact with the Project Team via mail, email, phone or fax.

An overview of the consultation process as well as a summary of consultation events and activities undertaken at key study milestones is provided in **Chapter 3**.

Existing Conditions (Chapter 4)

The section of the QEW within the study area, from west of Mississauga Road to west of Hurontario Street, is currently operating as a 6-lane freeway in an urban setting, with an interchange at Mississauga Road. The posted speed for the freeway is 100 km/hr. The QEW in the study area passes through an urban residential area with local roads in very close proximity, including North and South Sheridan Way, Premium Way and Pinetree Way. Mississauga Road is the only QEW interchange and crossing road within the study area. Within the study limits there are two bridges, the Credit River Bridge and the Mississauga Road Overpass.

The QEW Credit River Bridge is over 75 years old; it was originally constructed as a four lane bridge in 1934; widened to six lanes in 1960; and last rehabilitated over 20 years ago in 1987. The existing 1936 bridge deck is in very poor condition; the concrete is delaminated, spalling, and scalling and requires immediate attention. Independent of this Class EA Study, MTO has initiated a Detail Design study, referred to as the Holding Strategy, to address the immediate and short-term rehabilitation needs of the QEW Credit River Bridge and is currently under construction. This immediate rehabilitation is intended to "hold" the bridge until the long-term plan, identified by this Class EA Study, can be implemented.

The study area is located within the City of Mississauga, in the Regional Municipality of Peel. Existing land uses within the study area consist of residential areas (primarily low density residential) along the north and south sides of the QEW, recreational facilities (Mississauga Golf and Country Club) and 'open space' and 'greenbelt' largely associated with the Credit

River Valley. Since lands surrounding the QEW are designated low-density development and are quite developed, future land use will remain similar to the present use with minor infill where possible.

The City of Mississauga's Cycling Master Plan (September 2010) identifies future possible cycling / pedestrian crossings of the Credit River at both Queensway and the north side of the QEW, as well as a cycling / pedestrian crossing of the QEW at Stavebank Road. City staff have been working with the MTO to explore opportunities for cycling and pedestrian connections within the study area and are in the early stages of assessing the feasibility of various options. These crossings are not within the scope of this Class EA Study, but the MTO has committed to and is working with City staff to not preclude any proposed crossing initiatives within the study area that the City may undertake.

The QEW crosses three watercourses within the study limits: the Credit River, Stavebank Creek and Kenolli Creek. Overland flows, generally, drain in a southerly direction towards Lake Ontario. The existing roadway drainage system consists primarily of open ditches, culverts, ditch inlets, catch basins and storm sewers.

Key designated natural features within the study area include the Credit River Marshes Provincially Significant Wetland Complex, Credit River Marshes Regionally Significant Life Science Area of Natural and Scientific Interest, Stavebank Oak Woods Environmentally Sensitive Area, and the City of Mississauga Natural Areas Survey sites "CRR8" (north of the QEW) and "CRR9" (south of the QEW). In addition to the designated natural environmental features listed above, Significant Wildlife Habitat has been identified within the Credit River valley associated with potential hibernacula for several species of turtles, including two Species at Risk: Snapping Turtle and Northern Map Turtle. In total, 12 Species of Conservation have been identified in the lower Credit River. These include ten wildlife species (Snapping Turtle, Northern Map Turtle, Eastern Milksnake, Eastern Ribbonsnake, Great Egret, Black-crowned Night-heron, Chimney Swift, Barn Swallow, Monarch, River Bluet) and two plant species (Virginia Lungwort, Butternut).

No actual site contamination was identified within the study area. Areas determined to have high and medium potential for site contamination were identified including the QEW right-of-way, Mississauga Road Interchange, and the hydro corridor.

Noise Sensitive Areas were identified in the study limits, and consist mainly of single-unit homes, located north and south of the QEW. Existing noise barriers are located along both sides of the QEW along the entire project limits with a break at the Credit River Bridge crossing and the Mississauga Road interchange.

Fifteen registered archaeological sites are located within a one kilometer radius of the study area. Given the presence of the Credit River, a major navigational corridor, and several tributaries, as well as the numerous registered sites in the vicinity of the study corridor, the probability of locating cultural materials within the study corridor is considered high.

In addition, the study area contains numerous cultural heritage landscapes and built heritage resources. The primary built heritage resources are bridges and residential structures. The

Credit River Bridge has been evaluated under the Ontario Heritage Bridge Guideline (OHBG) (January 2008) and has been determined to be a candidate for inclusion on the Ontario Heritage Bridge List (Heritage Assessment of the QEW Etobicoke Creek and Credit River Bridges, November 2008. Archaeologix Inc. Historica Research Limited).

Within the study limits there are 175,000 vehicles per day (upwards of 195,000 vehicles in the summer) using the QEW, and specifically from Erin Mills Parkway to Mississauga Road, is the slowest section of the QEW Mississauga corridor in the morning peak period eastbound traffic. Even during weekends, the QEW is operating at capacity. The collision frequency in the project limits lies above the provincial average.

The major utilities located within the study area include Bell Canada, Enbridge Consumers Gas, Enersource Hydro Mississauga, Hydro One, Rogers Cable and Trans-Northern Pipelines Inc. In addition, there are existing municipal utilities, watermains and sanitary sewers along local roads.

Further details on the existing study area conditions are provided in **Chapter 4**.

Purpose and Rationale for the Undertaking (Chapter 5)

The QEW is a critical element in the Greater Toronto Area (GTA) transportation network, and is one of Ontario's most important transportation facilities, for trade, commuter and tourism traffic and connects the GTA to Niagara and the US border. The QEW Credit River Bridge is a critical piece of infrastructure within the QEW network. To address the long-term rehabilitation needs of the QEW Credit River Bridge, the existing bridge deck requires rehabilitation or replacement.

The QEW Credit River Bridge is over 75 years old; it was originally constructed as a four lane bridge in 1934; widened to six lanes in 1960; and last rehabilitated over 20 years ago in 1987. The existing 1936 bridge deck is in very poor condition; the concrete is delaminated, spalling, and scalling and requires immediate attention. Independent of this Class EA Study, MTO has initiated a Detail Design study, referred to as the Holding Strategy, to address the immediate and short-term rehabilitation needs of the QEW Credit River Bridge and is currently under construction. This immediate rehabilitation is intended to "hold" the bridge until the long-term plan, identified by this Class EA Study, can be implemented.

To address the long-term rehabilitation needs of the QEW Credit River Bridge, the existing bridge deck requires rehabilitation or replacement. The existing bridge deck is approximately 29 m wide; carrying 6 lanes with no median shoulders and very narrow outside shoulders. No roadway elements (i.e., lane width, shoulders, barriers) on the existing bridge deck meet current standards. As a result, there is no additional width on the existing bridge deck to maintain all 6-lanes of traffic staging and a working zone for construction of rehabilitation/replacement. Therefore, it is not possible to maintain the existing six lanes across the Credit River Bridge while rehabilitating/replacing the existing bridge deck.

The section of the QEW within the study area, from west of Mississauga Road to west of Hurontario Street, is an urban cross-section. Through the Mississauga Road Interchange and

across the Credit River Bridge there is little to no median shoulders, and the outside shoulders are less than 1.5 m wide across the Credit River Bridge.

The existing Mississauga Road Interchange is an unconventional buttonhook configuration and many of the interchange elements do not conform to current MTO geometric design standards. Even though the north side of the interchange was reconfigured in the late-1990's, the ramps on the south side remain unchanged - the length of the two existing eastbound on-ramps is well below current standards due to the close proximity of Mississauga Road and the Credit River Bridge.

Therefore, as part of addressing the long term needs of the QEW Credit River Bridge, there is an opportunity to address the existing geometric deficiencies and local operational issues on the QEW mainline and Mississauga Road Interchange.

The purpose of the study is to address the existing bridge and transportation problems within the study limit, while at the same time supporting the province's opportunities to establish an integrated multi-modal network in support of the Growth Plan for the Greater Golden Horseshoe.

Alternatives and Evaluation (Chapter 6)

The assessment and evaluation of planning and preliminary design alternatives consisted of the following key steps:

- Identification of the problems and opportunities within the study area (see Chapter 5.0);
- Identification of assessment factors and criteria to be used in evaluating the alternatives (see **Exhibit 6-16**);
- Assessment of alternatives to the undertaking, to establish an approach most appropriate to address the overall problem;
- Development of a long list of alternative methods (bridge and interchange);
- Assessment and evaluation of short-listed alternative methods (bridge / mainline and interchange); and,
- Selection of an overall preferred alternative.

The assessment of bridge and mainline alternatives was carried out in a step-wise manner. A long list of bridge alternatives considered three basic approaches: 1) Twinning to the North; 2) Twinning to the South; and 3) Widening to the existing bridge. Bridge replacement alternatives were screened out from further consideration as they did not achieve cultural heritage objectives. A preferred alternative was selected from each of the three categories and then combined with the required QEW mainline alignment improvements. The combination bridge/mainline alternatives were then compared against one another to identify an overall technically preferred bridge/mainline alternative. The Mississauga Road Interchange improvement alternatives were evaluated independently.

Transportation Environmental Study Report

Based on the assessment and evaluation, **North Twinning (NT-3)** is the technically preferred bridge / mainline alternative because:

- From a Socio-Economic perspective, North Twinning (NT-3) is preferred because the mainline results in the least direct and indirect impacts to properties.
- From a Cultural perspective, North Twinning (NT-3) is preferred since the bridge results in the least direct impacts to built heritage and aesthetics.
- From a Natural Environment perspective, North Twinning (NT-3) is preferred since the bridge does not have piers in the Credit River and has low impacts to less sensitive/lower quality vegetation communities.

Interchange Alternative 1E (Operational Improvements) is the technically preferred interchange alternative because:

- It minimizes impacts to the natural, cultural and social environments; and,
- It improves operations at the lowest cost.

As noted above, the assessment and evaluation of alternatives included a multi-staged review of Alternatives to the Undertaking and Alternative Methods. The assessment and evaluation process is described in detail throughout **Chapter 6**.

Description of the Recommended Plan (Chapter 7) and Potential Environmental Effects, Mitigation Measures, and Commitments to Future Work (Chapter 8)

The Recommended Plan includes building a new North Twin Credit River Bridge (Steel or Concrete) and rehabilitation of the existing Credit River Bridge. In addition, the Recommended Plan would include the following features:

- Improvements to the current six basic lanes of the QEW mainline highway crosssection to current geometric design standards.
- Improvements to and reconfiguration of the existing Mississauga Road Interchange and ramps, including extension of the Mississauga Road eastbound on-ramp as an auxiliary lane to the Hurontario Street eastbound off-ramp.
- Replacement of the Mississauga Road Overpass to accommodate the proposed Credit River Bridge and QEW Mainline improvements.
- QEW drainage and stormwater management improvements including two new ponds at Mississauga Road and on the east side of the Credit River, north of the QEW.
- Minor realignment of short sections of Mississauga Road and Premium Way to accommodate proposed QEW improvements.
- Property requirements from 4 properties along the corridor

- Highway illumination, extension of high mast lighting to the west of the Mississauga Road Interchange and ER light poles on the new North Twin and rehabilitated existing Credit River Bridges.
- Relocation of affected utilities.

Two design options for the new North Twin Bridge are being carried forward to Detail Design:

Bridge Design Options

- Option 1: Steel Girder Bridge; and
- Option 2: Concrete Segmental Box Girder Bridge.

Within the study limits, the QEW has noise walls on both the north and south sides, except at the Credit River Bridge. Based on the results of the noise analysis, the Recommended Plan includes 5 m tall transparent noise barriers to be installed on the south side of the existing Credit River Bridge and the north side of the new Credit River Bridge i.e., on the north and south sides of the QEW crossing of the Credit River. For the purposes of this EA, noise mitigation is recommended to be implemented as part of the long-term strategy. Section 8.2.3 provides further information on the noise analysis, the recommendations and the design concept of the noise walls.

The Recommended Alternative is described in detail throughout **Chapter 7** and is shown on **Exhibit 7-1**. Potential environmental effects, recommended mitigation and commitments to further works for the Recommended Alternative are outlined in detail in **Chapter 8**. The potential impacts of all of the design and access options have been considered to the extent possible given the level of design information available at this stage.

Other Approval Requirements (Chapter 9)

In addition to MTO Class EA approval, there are a number of other provincial, federal, municipal and utility approvals/permits required to implement the Recommended Plan.

A number of provincial approvals/endorsements from the following ministries and government agencies will be necessary for the Recommended Plan:

- Ministry of the Environment
- Ministry of Tourism, Culture and Sport
- Infrastructure Ontario and Hydro One Networks

To date, no federal permits or approvals are anticipated to be required for this project. Based on feedback from federal agencies, it has been determined that the only potential federal approval requirement would occur if a *Fisheries Act* authorization is required. The watercourse crossings will be reviewed in accordance with the MTO/DFO/OMNR Fisheries Protocol (2006) during Detail Design, as the valley access and construction

QEW Credit River Bridge

Preliminary Design and Class Environmental Assessment Study Transportation Environmental Study Report

methods will need to be factored into the risk assessment. If an authorization under the Federal Fisheries Act is required, this will be obtained prior to construction.

Undertakings of the Province are exempt from many of the typical municipal approvals, however MTO's policy is to adhere to the intent of specific municipal permit and approval requirements.

Property acquisition will be required from the City of Mississauga. The Ministry will negotiate the transfer of all necessary properties during the Detail Design phase.

Contact has been made and discussions have taken place with all potentially affected utility companies/authorities within the study corridor. The Recommended Plan requires a number of utilities to be relocated. During subsequent design phases, formal notification and consent will be obtained from relevant authorities including Hydro One, Enersource Hydro Mississauga, Trans-Northern Pipelines Inc., City of Mississauga and the Region of Peel.

The approval requirements are documented in full in **Chapter 9**.

Class EA Principles (Chapter 10) and Next Steps (Chapter 11)

A detailed summary of how the principles of the Class EA were addressed in this project is included in **Chapter 10**.

Following the filing of the TESR and Environmental Clearance for utility relocation, right-of-way designation and property aquisition, MTO may proceed to the Detail Design stage as outlined in the MTO's Class Environmental Assessment for Provincial Transportation Facilities (2000).

A Design and Construction Report (DCR) will be prepared during Detail Design to address all issues which were outstanding at the end of Preliminary Design and identified during Detail Design.

