

# LAKESHORE EAST RAIL CORRIDOR EXPANSION (GUILDWOOD TO PICKERING) PROJECT ENVIRONMENTAL PROJECT REPORT

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Metrolinx

# **Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) Project Environmental Project Report**

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# Executive Summary

## Project Overview

Metrolinx is completing a Transit Project Assessment Process (TPAP) under *Ontario Regulation (O. Reg.) 231/08, Transit Projects and Metrolinx Undertakings*. The Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) (the Project) involves the addition of a third railway track and associated bridge modifications and grade separations on the Lakeshore East Rail Corridor between Guildwood GO Station and Pickering GO Station. The Study Area (shown in **Figure 1-1** of this EPR) is defined as the section of Lakeshore East Rail Corridor between Scarborough Golf Club Road (Mile 322.10) and Durham Junction (Mile 312.96).

The purpose of the Project is to improve accommodations on the Lakeshore East Rail Corridor as Metrolinx moves forward with the service expansions associated with Regional Express Rail (RER). Building on the 30-minute off-peak service introduced in June 2013, Metrolinx is moving forward with RER, a program that will provide new travel choices on the GO Transit network across the Greater Toronto and Hamilton Area (GTHA), including a 15-minute electrified service in core areas. As such, train movements will continue to increase on the Lakeshore East Rail Corridor as more frequent service is introduced.

This Environmental Project Report (EPR) documents the findings of the TPAP with respect to existing environmental conditions, potential effects assessment, associated mitigation and monitoring, stakeholder and public consultation, and commitments to future work.

## Study Process

This EPR was prepared in accordance with *O. Reg. 231/08, Transit Projects and Metrolinx Undertakings* (Transit Projects Regulation). By following the TPAP for certain approved projects, the Transit Projects Regulation exempts the proponent of the transit project from the requirements under Part II of the *Environmental Assessment (EA) Act*.

The TPAP is a proponent-driven, self-assessment process that provides a defined framework for the proponent to follow in order to complete the accelerated assessment of the potential environmental effects and decision-making within a 120-day regulated assessment timeline (shown in **Figure 2-1** of this EPR). Following this period, the regulation provides an additional 30-day public and agency review, and a further 35-day Ministry of Environment and Climate Change (MOECC) review.

Prior to the formal commencement of the TPAP, proponents are urged to undertake introductory activities and consultation through Pre-Planning Activities. The proponent initiates the TPAP by issuing the Notice of Commencement following completion of the Pre-Planning Activities and the regulated 120-day timeframe commences.

Further details describing the TPAP requirements, activities, and associated timelines are provided in **Section 2** of this EPR.

## Project Components

The main elements of the preferred design include the additional third track, modified bridge structures, culvert extensions, grade separations, and enclosed tunnel entrance/exit at Rouge Hill GO Station (shown in **Figure 3-1** of this EPR). More specifically, the proposed works will include:

- Addition of a third track between Guildwood and Pickering GO Stations;
- Widening of the Highland Creek Bridge, including adding a new track to either side of the bridge and replacing the current timber decking;
- Removal and replacement of Rouge River Bridge;
- Five (5) culvert widenings, including raising headwalls at Petticoat Creek; Grade separations at Scarborough Golf Club Road, Morningside Avenue, and Galloway Road;
- At-grade road closure of Poplar Road with addition of a non-vehicular pedestrian/cyclist grade separation, pending City of Toronto approval;
- Road closure at Chesterton Shores (access to Emergency Services vehicles only) with the addition of enclosed tunnel entrance/exit at Rouge Hill GO Station to facilitate pedestrian/cyclist access to the proposed East Tunnel, pending City of Toronto approval; and,
- Modifications at Rouge Hill GO Station.

Further details describing the project components and rationale of the preferred design are provided in **Section 3** of this EPR.

#### Assessment of Potential Effects and Proposed Mitigation Measures

The Project has the potential to create environmental condition changes that may result in both positive and negative effects. These condition changes have been considered through consultation with the public and stakeholders throughout the Pre-Planning and TPAP phases of the Project. Following identification of existing conditions, an assessment of potential effects and proposed mitigation measures is completed based on the following information:

- An assessment and evaluation of the potential effects that the Project may have on the environment;
- A description of any measures proposed to mitigate any negative effects that the Project may have on the environment; and,
- A description of the means to monitor or verify the effectiveness of the proposed mitigations to reduce or eliminate adverse effects

Below is a summary of the key findings of the effects assessment. Further details describing the potential effects and proposed mitigation measures are provided in **Section 5** of this EPR.

#### *Terrestrial Features*

Vegetation removal will be kept to a minimum and limited to within the construction footprint, where feasible. Silt fencing and/or protective tree fencing will be installed, where possible, and maintained to clearly define the construction footprint and prevent accidental damage to vegetation or intrusion to adjacent vegetated areas. If any true Butternuts are identified for removal, a butternut health assessment should be completed and protective measures will be applied for Butternuts identified within 50 m of the construction footprint but do not need to be removed. Further details describing potential construction effects and mitigation with respect to vegetation are provided in **Section 5.1.1** of this EPR.

There are three Provincially Significant Wetlands (PSWs) located within the Study Area: Highland Creek Wetland Complex, Rouge River Marshes Wetland Complex, and Frenchman's Bay Coastal Wetland Complex. Approximately 1.67 ha of wetland Ecological Land Classification (ELC) communities was identified as being potentially affected by vegetation removal with approximately 0.52 ha identified as unevaluated wetlands by the Ministry of Natural Resources and Forestry (MNR). Potential effects associated with vegetation removal and dewatering in wetlands generally include loss of hydrological function, loss of biodiversity and wildlife habitat, change or disruption of

substrates, and increased siltation. Metrolinx will consult with MRNF and Toronto and Region Conservation Authority (TRCA) during Detailed Design to determine mitigation and compensation measures for identified wetlands and to determine whether the unevaluated wetland complex west of Highland Creek should be evaluated for significance prior to construction. Further details describing potential construction effects and mitigation with respect to wetlands are provided in **Section 5.1.1** of this EPR.

A relatively large colony of Cliff Swallows with approximately 100 active nests was found under the pedestrian foot bridge crossing the Rouge River. Construction of Rouge River Bridge should be avoided during the breeding bird season (March 31 to September 1) to reduce potential effects on the Cliff Swallow colony. Where avoidance is not possible, appropriate nesting prevention and exclusion measures will be developed in consultation with applicable regulatory agencies. In addition, nest survey of bridges and culverts within the Study Area should be conducted prior to construction if it is anticipated to start during the breeding bird season, to ensure that no Species at Risk (SAR) bird species or migratory birds protected under the *Migratory Birds Convention Act (MBCA)* have nested on these structures since the 2014 field investigations. Further details describing potential construction effects and mitigation with respect to SAR are provided in **Section 5.1.1** of this EPR.

### *Aquatic Features*

All watercourse crossings in proximity to the proposed construction are susceptible to construction effects due to sedimentation and erosion and entry of deleterious materials due to machinery and vehicles. In-water works further increases the potential of these and other construction effects at Rouge River and Highland Creek. Potential effects to fish and fish habitat as a result of modifications to Highland Creek Bridge and Rouge River Bridge will be mitigated and will not result in serious harm to fish or fish habitat. It should be ensured that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.

The Rouge River area is identified as having Eastern Pondmussel distributions. As this species is provincially and federally designated as Endangered and is protected under the *Species At Risk Act*, Metrolinx will consult with Fisheries and Oceans Canada (DFO) during Detailed Design regarding SARA permit requirements at the Rouge River crossing. Alternatively, Eastern Pondmussel surveys and pre-construction relocation may potentially be required.

Further details describing potential effects and mitigation with respect to aquatic features are provided in **Section 5.1.2** of this EPR.

### *Stormwater Management and Drainage*

Metrolinx completed a fluvial geomorphological and hydraulic assessment along Highland Creek and in the vicinity of Highland Creek Bridge to identify potential scour and erosion issues. Overall, the assessment concluded that there are no significant effects anticipated with respect to fluvial geomorphology as a result of the Highland Creek Bridge widening. Further details describing the fluvial geomorphological and hydraulic assessment are provided in **Section 5.2** of this EPR.

An additional geotechnical assessment should be completed at the Petticoat Creek Culvert location to ensure embankment failure and washout will not occur under anticipated conditions.

In addition, the following considerations will be made with respect to stormwater management (SWM) and drainage implications as a result of proposed grade separations:

- Further assessment of SWM of Morningside Avenue and Galloway Road;
- Low impact development (LID) opportunities, where feasible, at Scarborough Golf Club Road and Morningside Avenue;
- Reduce potential effects to wetland adjacent to Galloway Road; and
- Regulatory flood limit encroachments and impacts to flooding at Scarborough Golf Club Road and Morningside Avenue.

A detailed flood control strategy will be developed during the Detailed Design phase of this Project. This strategy will include further assessment of the storm sewer network to determine appropriate mitigation for the major and minor systems at each grade separation.

Further details describing considerations to SWM and drainage are provided in **Section 5.2** of this EPR.

### *Groundwater*

Subsurface excavation below the water table may be required to allow for the construction of structural elements necessary for the modification and/or replacement of bridges and culverts at watercourse and road crossings within the Study Area. As a result, construction dewatering may be required to achieve dry working conditions. Construction dewatering activities have the potential to affect groundwater quantity, resulting in decreases in baseflow to watercourses, groundwater discharge to wetlands, yield of private water wells and groundwater flow patterns. Where construction dewatering and/or discharge of pumped water are required, Metrolinx will obtain the required permits and approvals from Ministry of Environment and Climate Change (MOECC) and/or the affected municipality, as required.

Since the third track will be constructed at the same grade as the existing rail, changes in groundwater flow patterns as a result of the Project is expected to be negligible. A Groundwater Management Plan describing appropriate areas/methods for discharge and identifying general and site specific mitigations measures and monitoring requirements will be developed and implemented.

Further details describing the requirements for dewatering and groundwater management are provided in **Section 5.3** of this EPR.

### *Surface Water and Soil Management*

Phase I and Phase II Environmental Site Assessments (ESAs) were previously completed for the Lakeshore East Rail Corridor and includes the Study Area. These investigations identified a number of existing site contamination issues attributed to the current and historical activities associated with the operation of a rail corridor. Potential effects due to the disturbance of existing contaminated sites and the release of contaminants could include reduction in soil quality due to accidental release of contaminants during operations.

Metrolinx will undertake a Phase I ESA investigation for additional lands required for the Project (both permanent and temporary) during the Detailed Design phase. Based on the findings of the Phase I ESA, additional Phase II ESAs may be required. All contaminated materials found during operation and maintenance activities will be handled in accordance with applicable provincial and federal legislation, regulations and standard procedures.

There is the potential for sediments to enter watercourses as a result of site clearing, stockpiling, cut/fill activities, excavation and construction activities. General construction activities and spills consisting of materials that constitute a contaminant have the potential to change soil quality through minor contaminant releases. An erosion and sediment control plan will be developed in consultation with TRCA, including spill provisions, and implementation the

prescribed mitigation will conform to recognized standard specifications such as Ontario Provincial Standards Specification (OPSS) and the requirements of the TRCA.

Further details describing the potential effects as a result of contamination and proposed mitigation are provided in **Section 5.4** of this EPR.

#### *Air Quality*

Emissions caused by construction activities will likely result in the creation of vapours and particulate matter and the potential inhalation of these contaminants by construction workers and nearby residents; however, emissions from construction activities are expected to be temporary. During operations, there will likely be multiple emission sources including locomotives (train operation and idling), road traffic inside GO Station parking lots, and road traffic on the public roads within the Study Area. The modelling results showed that for all pollutants, the maximum cumulative concentrations were below their respective standard, guideline or interim reference levels, with the exception of benzo(a)pyrene for the future condition. The future condition (year 2025) has shown a reduction in predicted contaminant concentrations relative to the current (year 2015) condition for all contaminants analyzed.

Negative effects can be effectively mitigated by implementing best practices for reduction of air emissions during construction and demolition activity. The air quality effects resulting from construction activities can be effectively mitigated through Project-specific mitigation measures. Further details describing the proposed air quality mitigation are provided in **Section 5.5** of this EPR.

#### *Noise and Vibration*

Temporary construction noise effects at all site locations are anticipated to be significantly higher than baseline levels at the most affected receptors. In addition, it is expected that some night-time construction activities will occur, although it will be avoided wherever possible. Noise from construction activities can be controlled in numerous ways, including operational restrictions, source mitigation measures, and receptor-based mitigation measures.

Significant operational noise and vibration effects are anticipated at one location within the Study Area (90 Morningside Avenue) as a result of future rail tracks being aligned closer to this point of reception. To reduce operational noise effects at this location, mitigation in the form of a noise wall is recommended. Further details describing noise and vibration mitigation during construction and operations, including specific consideration at 90 Morningside Avenue, are provided in **Section 5.6** of this EPR.

#### *Socio-Economic and Land Use*

The Study Area, mainly comprised of low-rise residential and institutional land uses, is subject to various local planning policies, including City of Toronto Official Plan, City of Pickering Official Plan, Durham Regional Official Plan, as well as the federal policies outlined in the Parks Canada Draft Management Plan for Rouge National Urban Park. Further details describing key socio-economic features and the existing character of the Study Area are provided in **Section 4.6** of this EPR.

It is anticipated that there will be direct and indirect economic benefits as a result of the Project during construction and post-construction. Construction activities are expected to result in additional employment opportunities, and provision of potential additional revenue opportunities to local businesses.

Temporary easements may be required during construction and affected property owners may be inconvenienced by construction activities. Given the preliminary nature of the design at this time, specific property requirements are yet to be determined. Specific locations will be confirmed during the Detailed Design and discussions will take place with the relevant property owners.

Further details describing the proposed socio-economic impacts are provided in **Section 5.7** of this EPR.

### *Traffic*

A Traffic Impact Study (TIS) was completed to assess the potential effects associated with traffic and transportation, specifically where road modifications are proposed as part of the Project (i.e., grade separations and road closures), including:

- Scarborough Golf Club Road;
- Morningside Avenue;
- Galloway Road;
- Poplar Road; and
- Chesterton Shores.

The TIS analyzed these locations based on potential construction effects and a worst-case scenario of the estimated future traffic conditions post-construction. Grade separations are proposed at Scarborough Golf Club Road, Morningside Avenue, and Galloway Road to improve traffic flow and rail operations.

Pending City of Toronto approval, Metrolinx proposes the permanent closure of Poplar Road to all vehicular traffic and Chesterton Shores to all traffic, with the exception of Emergency Services vehicles, at the Lakeshore East Rail Corridor as part of this Project. Approval for a non-vehicular pedestrian/cyclist grade separation at Poplar Road is also recommended. The TIS confirmed that there are insignificant effects to the operation of the road network surrounding Poplar Road as a result of the proposed closure. The decision to close Chesterton Shores was the result of a separate feasibility study completed by Metrolinx. One of the Project components, the enclosed tunnel entrance/exit to access Rouge Hill GO Station, is designed to mitigate pedestrian/cyclist traffic upon closure of Chesterton Shores and provide safe alternative access to the Waterfront Trail.

Public transit will likely be accommodated by realignment around the construction work zone with minimal effects to public transit service. Pedestrian activities will be retained on a sidewalk, where possible, as part of the re-alignment while cyclists have the option of using either the re-aligned sidewalk or a re-aligned traffic lane across the tracks during the construction activities. To mitigate the potential traffic effects during construction activities, a Traffic Staging and Management Plan will be developed prior to construction. Further details describing the results of the TIS and proposed traffic mitigation are provided in **Section 5.8** of this EPR.

### *Cultural Heritage*

A Cultural Heritage Screening Report (CHSR) completed for the Study Area identified potential direct impacts to five cultural heritage resources within the Study Area as a result of this Project. In addition, the property at 90 Morningside Avenue was later identified as potentially experiencing direct impacts as a result of property acquisition for a grade separation. It has since been determined that two of the resources will only experience indirect impacts, and as such, four cultural heritage resources within the Study Area are anticipated to experience direct impacts as a result of the Project. These potential impacts relate to possible demolition, removal and/or alteration of the following structures:

- Highland Creek Bridge;
- Rouge River Bridge;
- Petticoat Creek Culvert; and
- 90 Morningside Avenue.

A Cultural Heritage Evaluation Report (CHER) was completed for each of the above-noted structures to determine their cultural heritage value or interest. Based on the recommendations of the CHERs, Metrolinx Heritage Committee (MHC) identified Rouge River Bridge as a provincial heritage property of provincial significance and Highland Creek Bridge, and Petticoat Creek Culvert. as provincial heritage properties. The property at 90 Morningside Avenue was determined to be a Conditional Heritage Property, as it is not owned by Metrolinx.

A Heritage Impact Assessment (HIA) will be completed for each of these provincial heritage properties to minimize effects on heritage attributes. Further details describing the results of the CHERs and proposed mitigation are provided in **Section 5.9** of this EPR.

### *Archaeology*

A Stage 1 Archaeological Assessment (AA) completed for the Study Area determined that certain areas have potential for archaeological discoveries; therefore, a Stage 2 AA is recommended to be undertaken for these identified lands to document archaeological findings and mitigate potential effects as a result of the Project.

Should previously unknown or unassessed deeply buried archaeological resources be uncovered during construction activities, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act (OHA)*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *OHA*. In addition, consultation with relevant Indigenous communities will be initiated in the event that archaeological resources or human remains are discovered. Further details describing the proposed mitigation are provided in **Section 5.10** of this EPR.

### Consultation Process

Metrolinx offered a wide range of communication methods to the general public, review agencies, property owners, Indigenous communities and other interested groups and carried out the following activities to solicit comments and feedback on the Project:

- Project Website;
- Stakeholder Meetings;
- Public Meetings;
- Notifications/Newspaper Advertisements;
- E-mail Distribution List;
- Project E-mail; and
- Mailings.

The Project Website ([www.metrolinx.com/en/regionalplanning/rer/guildwood-pickering.aspx](http://www.metrolinx.com/en/regionalplanning/rer/guildwood-pickering.aspx)) was maintained to serve as a virtual library of materials presented at Public Meetings and other Project reports and documentation, as well as a posting location for Project notices. The Project Website also acted as a forum for the public to provide comment on the Project as an alternative to attending Public Meetings.

Three rounds of Public Meetings were held in locations in both the City of Toronto and City of Pickering. Public meetings were promoted through local newspaper advertisements and direct mailings and/or emails to local

residents, technical review agencies, identified stakeholder groups, and Indigenous communities. The Public Meetings provided an opportunity for the public to speak directly with Metrolinx and the study team. In this manner, the public was introduced to the Project and encouraged to provide comments on the assessment of existing environmental conditions and potential environmental effects within the Study Area. The results of these Public Meetings are summarized in **Section 6.1.3** and **Appendix C** of this EPR.

In addition, Metrolinx conducted stakeholder consultation and outreach through meetings and workshops with provincial and municipal review agencies, Indigenous communities, adjacent property owners, and community groups. Individual briefings were also held with City of Toronto and City of Pickering Councillors and other elected officials to provide progress updates pertaining to specific Project interests. The objective and outcomes of these stakeholder meetings are summarized in **Section 6.1.2** of this EPR.

Key milestones of the TPAP include the Notice of Commencement (July 7, 2016) and Notice of Completion (November 4, 2016), which inform stakeholders of the 120-day regulated assessment timeline commencement and subsequent study completion when the EPR is made available for stakeholder review and comment. These Notices were sent by email and addressed mail to the MOECC Special Project Officer, MOECC Environmental Approvals Branch Director, and MOECC Environmental Approvals Branch Regional Director. The Notices were also published in local newspapers and sent to stakeholders, including members of the public, by e-mail (where available) or registered mail.

#### Future Commitments and Monitoring

*O. Reg. 231/08* requires future commitments, including required permits and approvals, to be documented as part of the TPAP to facilitate project implementation in accordance with the project-specific mitigation measures and monitoring activities described in this EPR and in a manner that does not result in negative impact on matters of provincial interest related to the natural environment or to cultural heritage value or interest, or on constitutionally protected Indigenous or treaty rights. All applicable permits, licenses, approvals and monitoring requirements under environmental laws will be reviewed, confirmed and obtained by Metrolinx prior to the construction of the Project. A complete table of future commitments is provided in **Section 7.4** of this EPR.

As part of future commitments, an Addendum to the EPR may be required if Project developments result in any design variations from what was assessed in this EPR during the approvals, Detailed Design, and construction processes. The TPAP includes provisions in *O. Reg. 231/08* for proponents to make changes to a transit project after the Statement of Completion is submitted to the Director of the Environmental Assessment and Approvals Branch of the MOECC and the MOECC Regional Director. In compliance with *O. Reg. 231/08*, Metrolinx will prepare an addendum to the EPR if there is a proposed change to the Project that is inconsistent with the EPR after the Statement of Completion is issued. A change that is inconsistent with the EPR is generally defined as one for which the effects have not been accounted for in the EPR, either directly or through a contingency planning approach in which a worst case scenario has been contemplated and a protocol for addressing change has been included in the EPR. Further details describing the EPR addendum process and requirements are provided in **Section 7.3** of this EPR.

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## Glossary of Terms

|                 |  |
|-----------------|--|
| AA              | Archaeological Assessment  |
| ANSI            | Area of Natural and Scientific Interest  |
| AODA            | Accessibility for Ontarians with Disabilities Act  |
| AREMA           | American Railway Engineering and Maintenance-of-Way Association. AREMA is the organization that represents the engineering function of the North American railroads.   |
| BTEX            | benzene, toluene, ethylbenzene and xylenes   |
| CDEO            | Chief Design Excellence Officer  |
| CEAA            | Canadian Environmental Assessment Act  |
| CHER            | Cultural Heritage Evaluation Report  |
| CHSR            | Cultural Heritage Screening Report   |
| CO              | Carbon Monoxide  |
| dba             | A-weighted decibels. An expression of the relative loudness of sounds in air as perceived by the human ear   |
| DBH             | Diameter at Breast Height  |
| Detailed Design | The Detailed Design phase of a project is defined as the last design stage before system implementation phase including software and hardware development starts   |
| DRM             | Design Reference Manual  |
| EA              | Environmental Assessment   |
| EASR            | Environmental Activity and Sector Registry   |
| ECA             | Environmental Compliance Approval  |
| EI              | Exposure Index – an indication for cross product of rail movements and vehicle movements   |
| ELC             | Ecological Land Classification   |
| EMS             | Emergency Medical Services   |
| EPR             | Environmental Project Report. The proponent is required to prepare an Environmental Project Report to document the Transit Project Assessment Process followed, including but not limited to: a description of the preferred transit project, a map of the project, a description of existing environmental conditions, an assessment of potential impacts, description of proposed mitigation measures, etc. The EPR is made available for public review and comment for a period of 30 calendar days. This is followed by a 35-day Minister's Decision Period. |
| ESA             | Environmentally Significant Area or Environmental Site Assessment  |
| FTA             | Federal Transit Administration   |
| GHG             | Greenhouse Gas   |
| GTHA            | Greater Toronto and Hamilton Area  |
| HIA             | Heritage Impact Assessment   |
| Hydro One       | Hydro One Incorporated delivers electricity across the province of Ontario. Hydro One has four subsidiaries, the largest being Hydro One Networks. They operate 97% of the high voltage transmission grid throughout Ontario.  |
| LID             | Low impact development   |

## Glossary of Terms

|                          |  |
|--------------------------|--|
| LIO                      | Land Information Ontario   |
| MDL                      | Method detection limits  |
| MDRP                     | Metrolinx Design Review Panel  |
| Minister                 | Minister of the Environment and Climate Change   |
| Mitigation Measure       | Actions that remove or alleviate, to some degree, the negative effects associated with the implementation of an alternative  |
| MNRF                     | Ministry of Natural Resources and Forestry   |
| MOECC                    | Ministry of the Environment and Climate Change   |
| MHC                      | Metrolinx Heritage Committee   |
| MPH                      | miles per hour   |
| MTCS                     | Ministry of Tourism, Culture and Sport   |
| MTO                      | Ministry of Transportation   |
| NO <sub>2</sub>          | Nitrogen Dioxide   |
| NO <sub>x</sub>          | A generic term for the mono-nitrogen oxides NO and NO <sub>2</sub>   |
| Notice of Commencement   | The Proponent is required to prepare and distribute a Notice of Commencement, which “starts the clock” for the 120-day portion of the transit project assessment process. Proponents must prepare and distribute a Notice of Commencement to indicate that the assessment of a transit project is proceeding under the transit project assessment process. Proponents must complete their documentation (the Environmental Project Report) of the transit project assessment process within 120 days of distributing the Notice of Commencement.   |
| Notice of Completion     | The Notice of Completion must be given within 120 days of the distribution of the Notice of Commencement (not including any “time outs” that might have been taken). The Notice of Completion of Environmental Project Report signals that the Environmental Project Report has been prepared in accordance with section 9 of the regulation and indicates that the Environmental Project Report is available for final review and comment (for 30 calendar days). Following the 30-day public review period, there is a 35-day Minister’s decision period.  |
| NPA                      | Navigation Protection Act  |
| NWPA                     | Navigable Waters Protection Act  |
| <i>O. Reg.</i>           | <i>Ontario Regulation</i>  |
| Overhead Catenary System | The Overhead Catenary System (OCS) is comprised of: <ol style="list-style-type: none"> <li>1. The aerial supply system that delivers 2x25 kV traction power from traction power substations to the pantographs of Metrolinx electric trains, comprising the catenary system messenger and contact wires, hangers, associated supports and structures including poles, portals, head spans and their foundations), manual and/or motor operated disconnect switches, insulators, phase breaks, section insulators, conductor termination and tensioning devices, downguys, and other overhead line hardware and fittings.</li> <li>2. Portions of the traction power return system consisting of the negative feeders and aerial static wires, and their associated connections and cabling.</li> </ol> |
| Overhead Structure       | A structure that allows a road to cross over a railway underneath  |
| Overpass                 | A structure that allows a railway to cross over a road or watercourse underneath   |
| OWES                     | Ontario Wetland Evaluation System  |

## Glossary of Terms

|                       |  |
|-----------------------|--|
| OWRA                  | <i>Ontario Water Resources Act</i>   |
| PAHs                  | polyaromatic hydrocarbons  |
| PCBs                  | polychlorinated bi-phenyls   |
| Permanent Slow Orders | A slow order or Permanent Slow Order (PSO) is a local speed restriction on a rail line which is set below the tracks normal speed limit  |
| PHCs                  | petroleum hydrocarbons   |
| PM <sub>2.5</sub>     | fine particulate matter  |
| Potential Effect      | A possible or probable effect of implementing a particular alternative   |
| PPV                   | peak particle velocity. The maximum speed of a particular particle as it oscillates about a point of equilibrium that is moved by passing wave   |
| Preliminary Design    | The design of a proposed project to a level that demonstrates that the project is buildable within the given parameters of the design scope  |
| Proponent             | A person who carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking  |
| PSW                   | Provincially Significant Wetland   |
| PTTW                  | Permit to Take Water   |
| PWQO                  | Provincial Water Quality Objectives  |
| Receptor              | 'Receptor' or 'point of reception' generally refers to any point on the premises of a person where sound or vibration is received which originated from somewhere else. Examples of receptors or points of reception include: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residence, hospitals, camp grounds, noise sensitive buildings such as schools and places of worship. |
| RER                   | Regional Express Rail  |
| ROW                   | Right-of-Way   |
| RMS                   | Root Mean Squared. A statistical measure defined as the squared root of the mean of the squares of a sample.   |
| SAR                   | Species at Risk. The plants and animals at risk of disappearing from Ontario, and how we protect and recover them. Or, the acronym for Sodium Adsorption Ratio.  |
| SARA                  | Federal Species at Risk Act. The purposes of the Species at Risk Act (SARA) are to prevent wildlife species in Canada from disappearing, to provide for the recovery of wildlife species that are extirpated (no longer exist in the wild in Canada), endangered, or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened.      |
| Screening             | The process of applying criteria to a set of alternatives in order to eliminate those that do not meet minimum conditions or requirements  |
| SCP                   | Strategic Conservation Plan  |
| Spur                  | A railroad track that diverges from the main track to service a specific location or industry  |
| SWM                   | stormwater management  |
| TAC                   | Technical Advisory Committee   |
| TPAP                  | Transit Project Assessment Process. The transit project assessment process is defined in Sections 6 – 17 in <i>O. Reg. 231/08</i> :<br>Transit projects and Metrolinx Undertakings. Proponents must complete the prescribed  |

## Glossary of Terms

steps of the transit project assessment process within specified time frames. The process allows for a six month assessment process whereby potential environmental effects of the transit project are identified, assessed and documented. The proponent must issue a Notice of Completion within 120 days of issuing the Notice of Commencement.

|      |   |
|------|---|
| TRCA | Toronto and Region Conservation Authority |
| USRC | Union Station Rail Corridor               |
| VOCs | Volatile Organic Compounds                |
| ZOI  | Zone of Influence                         |

# 1. Introduction

## 1.1 Project Overview

Metrolinx is completing a Transit Project Assessment Process (TPAP) under *Ontario Regulation (O. Reg.) 231/08 – Transit Projects and Metrolinx Undertakings*. The Project involves the addition of a third railway track and associated bridge modifications and grade separations on the Lakeshore East Rail Corridor broadly between Guildwood GO Station and Pickering GO Station. This is currently a two-track section of the rail corridor and presents an operational challenge to increasing service and maintaining service reliability. Furthermore, the addition of a third railway track will support future service expansions as part of the transformational Regional Express Rail (RER) program. Key structures, including the removal and replacement of Rouge River Bridge and widening of Highland Creek Bridge, have been designed to accommodate a temporary fourth track during construction to allow for continued operation of the rail service. Protection for a potential future fourth railway track has also been accommodated in the design of these key structures.

The 'Big Move', the Regional Transportation Plan for the Greater Toronto and Hamilton Area (GTHA), identifies the need for a significant increase in rail service across the entire GO Transit network. To this end, Metrolinx will introduce RER over the next 10 years – an expanded service that will provide new travel choices on the GO Transit network across the GTHA, including a 15-minute, two way, all day transit service on five GO lines with electrified service in core areas. Future RER service will provide more frequent, faster and higher capacity service by upgrading its existing fleet to include electric propulsion. RER will mean an improved service, shorter travel times for passengers and lower operating costs.

Expanded and improved rail service across the GO Transit network will mean passengers have more options and reduced travel times during weekdays, evenings and on weekends. More people will make GO Transit their transportation of choice – meaning fewer cars congesting our road networks, less time spent commuting and cleaner air.

## 1.2 Purpose of the Transit Project

The Lakeshore East Rail Corridor is the second busiest of GO Transit's seven corridors within the GTHA. Every weekday, the corridor accommodates 88 GO train trips carrying a total of approximately 55,000 passengers. Building on the 30-minute off-peak service introduced in June 2013, Metrolinx is moving forward with RER, a program that will provide new travel choices on the GO Transit network across the GTHA, including a 15-minute electrified service in core areas. Train movements will therefore continue to increase on the Lakeshore East Rail Corridor as more frequent service is introduced.

Despite its importance to the wider GO Transit network, no additional track infrastructure has been built on the two-track section between Guildwood GO Station and Pickering GO Station since GO Transit launched in 1967. A third track is required to relieve an immediate capacity bottleneck and ensure reliable service, while it is an important enabler for any future service increases associated with RER and electrification.

To date, all at-grade crossings on the Lakeshore East Rail Corridor have been removed, with the exception of the section between Scarborough Golf Club Road in the City of Toronto and Rodd Avenue in the City of Pickering. The only remaining at-grade crossings in the entire Lakeshore East Rail Corridor are within the Study Area for this TPAP. Potential solutions to address this, including grade separations, road closures and safety enhancements, have been explored through this TPAP. Grade-separations serve to separate cars, pedestrians and cyclists from train traffic, improving travel speed and capacity of the roadway, minimizing delays and reducing the risk of collisions. This is of primary importance for roads that accommodate high traffic volumes and speeds, like those

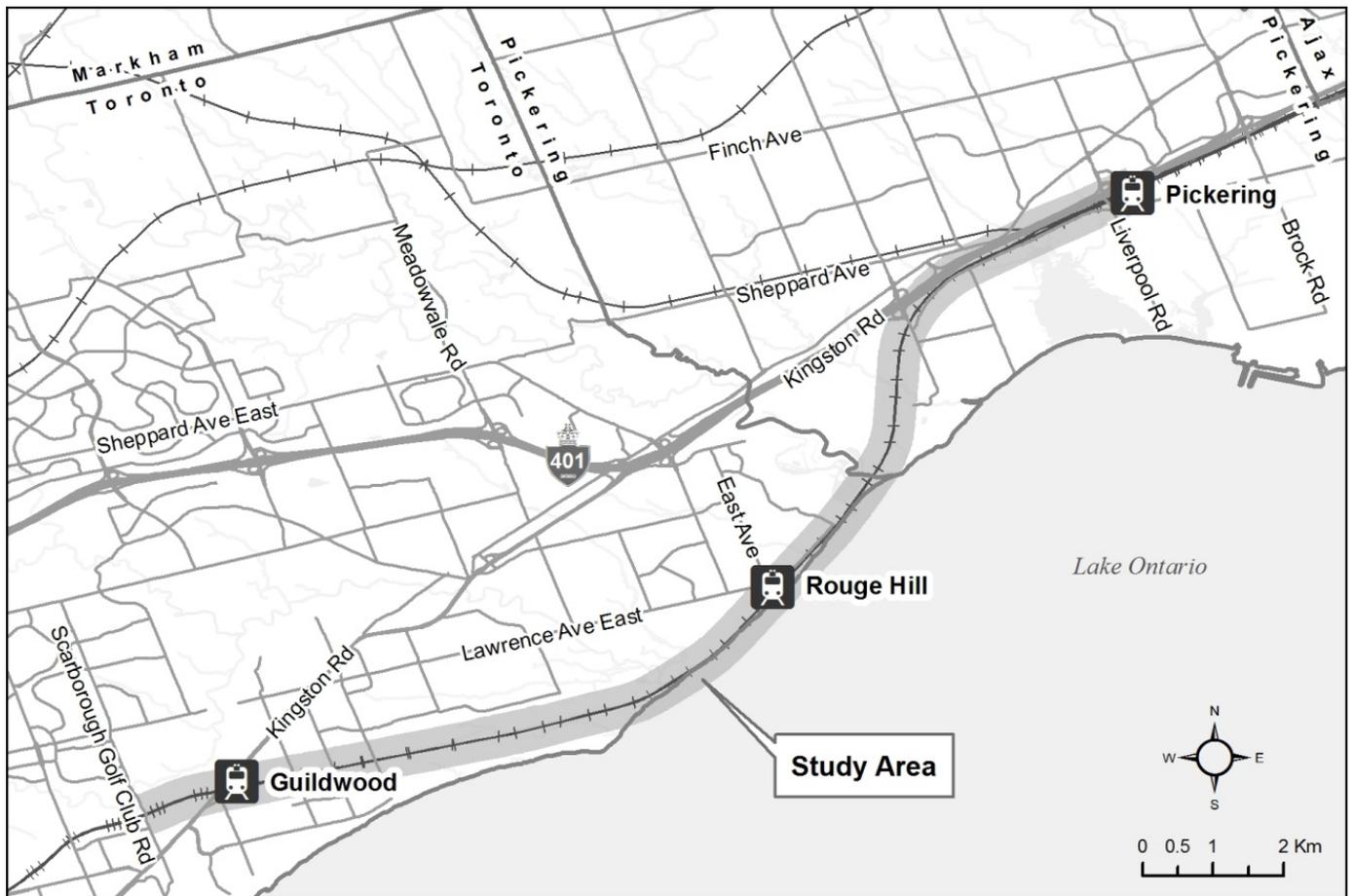
found at Scarborough Golf Club Road, Galloway Road and Morningside Avenue. For roads with lower traffic volumes and where other nearby routes are available, as is found at Poplar Road and Chesterton Shores, road closures are considered to be more appropriate to achieve the same objectives.

Metrolinx would like to remove all at-grade crossings within its GO rail network to ensure service reliability and eliminate any possible interactions with road traffic.

### 1.3 Description of the Study Area

**Figure 1-1** shows the Lakeshore East Rail Corridor encompassing the existing rail right-of-way (ROW) from Union Station in the City of Toronto to Oshawa GO Station. The Study Area for this TPAP includes the section of the rail corridor broadly between Guildwood GO Station and Pickering GO Station, more specifically from Scarborough Golf Club Road (Mile 322.10) to Durham Junction (Mile 312.96).

**Figure 1-1: Study Area**



To complete specific environmental and technical studies required for this TPAP, the Study Area was extended beyond the existing rail right-of-way to account for environmental features that may be potentially affected by the proposed Project. Other specific Study Areas delineated for these studies are noted in **Table 1-1** below and **Section 4** of this EPR.

**Table 1-1: Study Areas by Discipline**

| Technical Reports                         | Assessment Area   |
|---|---|
| <b>Natural Environment</b>                | <p>Terrestrial: Approximately 300 m on either side of the existing rail corridor.</p> <p>Aquatic: 50 m upstream and 50 m downstream of each watercourse crossing.</p>   |
| <b>Tree Inventory</b>                     | 6 m on either side of the existing rail corridor.   |
| <b>Air Quality</b>                        | 300 m on either side of the existing rail corridor.   |
| <b>Noise and Vibration</b>                | <p>Noise: Operational noise typically assessed 3 m from the building of an identified noise sensitive receptor, 2 m above local ground surface.</p> <p>Vibration: Operational vibration assessed at sensitive properties at a location 5 m to 10 m from the building foundation in a parallel direction to the tracks, 0.3 m below local ground surface.</p>  |
| <b>Socio-Economic and Land Use</b>        | 300 m on either side of the existing rail corridor.   |
| <b>Traffic</b>                            | <p>Study Area #1 was defined as an area bounded by Lawrence Avenue East to the north, Morningside Avenue to the east, and Markham Road to the west (<b>Appendix B6</b>, Figure 1a). Kingston Road for the portion west of Galloway Road and Guildwood Parkway for the portion east of Galloway Road formed the southern boundary of Study Area #1.</p> <p>Study Area #2 was defined as an area bounded by Lawrence Avenue East to the north, Beechgrove Drive to the east, Manse Road to the west, and Lake Ontario to the south.</p>                                 |
| <b>Cultural Heritage</b>                  | 300 m from the track centerline.  |
| <b>Archaeology</b>                        | <p>300 m from the track centerline.</p> <p>Research information drawn from MTCS Archaeological Sites Databased (ASDB) for a listing of registered archaeological sites within a 1 km radius, reports of previous archaeological assessment within 50 m.</p>   |
| <b>Stormwater Management and Drainage</b> | <p>The Stormwater Management and Drainage Report Study Area was restricted to the existing rail corridor and approximately 50 m north and south of each proposed grade separation. Catchment areas for the culvert hydrology and hydraulic assessment extended up to 200 m outside of the Study Area where culverts received runoff from external drainage. Hydrology and Hydraulic assessments were also completed at Highland Creek, Rouge River and Petticoat Creek crossings which receive runoff from areas more than 20 km from the existing rail corridor.</p> |

## 1.4 Existing Rail Infrastructure

The existing Lakeshore East Rail Corridor runs in an east-west direction from the Union Station Rail Corridor (USRC) in the west to the Oshawa GO Station in the east, along the Metrolinx-owned Kingston and GO Subdivisions.

The Study Area for this EA includes the section of the Lakeshore East Rail Corridor broadly between Scarborough Golf Club Road and Durham Junction (to the west of Pickering GO Station), which has two in-service railway tracks. To accommodate additional capacity and achieve service improvements, Metrolinx intends to increase the number of mainline tracks in this section to three with provisions for a potential future fourth track on bridge structures.

Within the Study Area, the rail corridor intersects with a number of municipal roads in the City of Toronto and City of Pickering. In total, there are eight (8) at-grade crossings within the Study Area, all of which fall within the City of Toronto with the exception of Rodd Avenue within the City of Pickering:

- Scarborough Golf Club Road;
- Galloway Road;
- Poplar Road;
- Morningside Avenue;
- Manse Road;
- Beechgrove Drive;
- Chesterton Shores; and
- Rodd Avenue.

Existing infrastructure within the Study Area, including at-grade crossings, bridges and culverts is shown in **Figure 1-2**.

Additionally, the rail corridor crosses a total of ten (10) watercourses within the Study Area, is also shown in **Figure 1-2**. The Highland Creek Bridge, within the City of Toronto, is located at Mile 318.50 and currently carries two railway tracks. The masonry of the substructure dates back to 1892 and was constructed as part of the double tracking of the corridor to replace an earlier railway bridge. The 1892 steel superstructure was replaced with a deck plate girder structure in c1903. This bridge has been maintained and is in active use. The Rouge River Bridge, which straddles the boundary between the City of Toronto and City of Pickering, is located at Mile 316.10 and currently carries two railway tracks. The existing bridge with masonry superstructure and steel deck truss and beam superstructure dates to 1898, while supplementary abutments were added in 1902. It was also constructed as part of the double tracking of the corridor and replaced an earlier railway bridge. The bridge has also been maintained and is in active use. Numerous culverts are located throughout the Lakeshore East Rail Corridor within the Study Area, including in locations such as Petticoat Creek in the City of Pickering.

Guildwood GO Station and Rouge Hill GO Station are also located within the Study Area (Pickering GO Station is located just beyond the Study Area limits to the east) and provide commuters with access to the GO Transit service.



- ### Legend
- Mile Marker Post
  - Bridge
  - Culvert
  - Existing Overpass Bridge
  - Existing At-Grade Road Crossings
  - Rail Section With Only Two Existing Tracks
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
  - Ontario Railway Network
  - Municipal Boundary



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## Existing Infrastructure

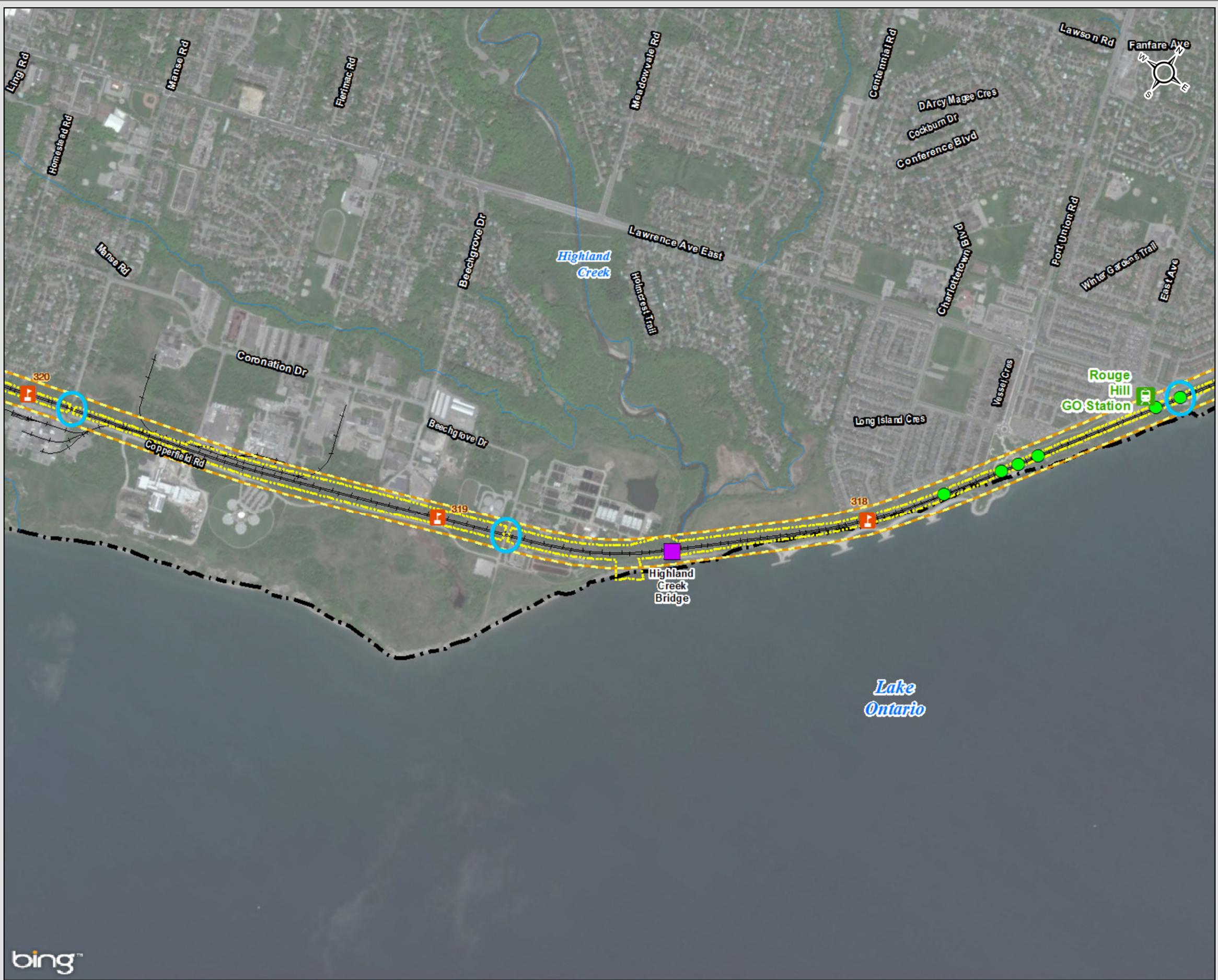
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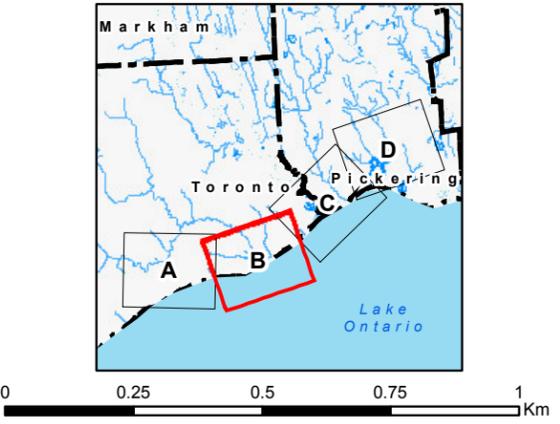
Figure 1-2A

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- Legend**
- Mile Marker Post
  - Bridge
  - Culvert
  - Existing Overpass Bridge
  - Existing At-Grade Road Crossings
  - Rail Section With Only Two Existing Tracks
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
  - Ontario Railway Network
  - Municipal Boundary



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**Existing Infrastructure**

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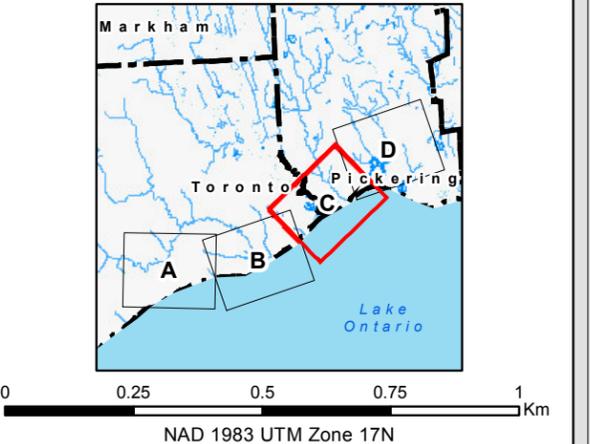
Figure 1-2B

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- Legend**
- Mile Marker Post
  - Bridge
  - Culvert
  - Existing Overpass Bridge
  - Existing At-Grade Road Crossings
  - Rail Section With Only Two Existing Tracks
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**Existing Infrastructure**

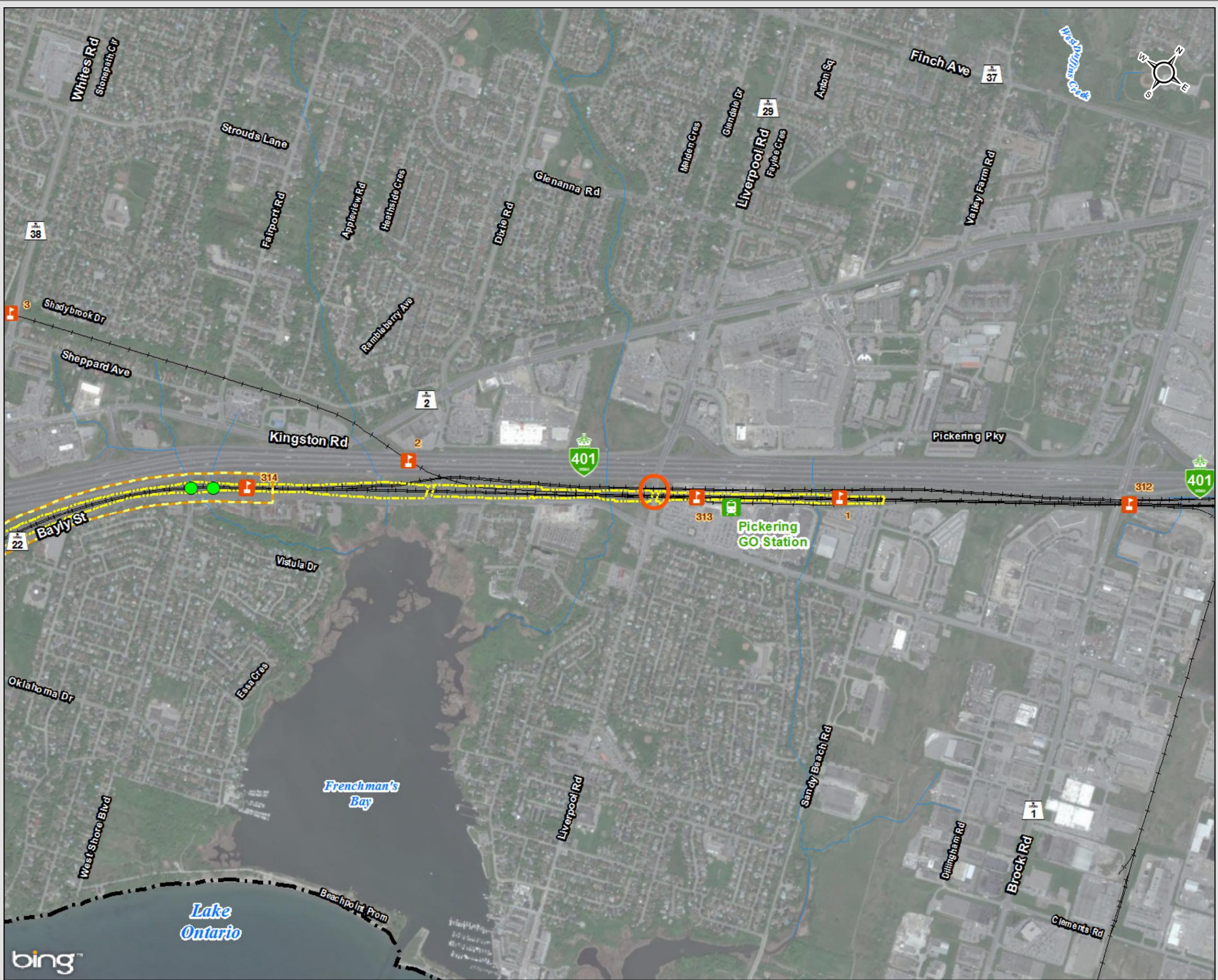
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Figure 1-2C

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- Legend**
- Mile Marker Post
  - Bridge
  - Culvert
  - Existing Overpass Bridge
  - Existing At-Grade Road Crossings
  - Rail Section With Only Two Existing Tracks
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
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  - Municipal Boundary



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**Existing Infrastructure**

December 2016



Figure 1-2D

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## 1.6 Overview of Environmental Project Report

**Table 1-2** below summarizes the information that is required to be included in the Environmental Project Report (EPR) as applicable to this Project and as specified in pages 33-34 of the *Guide to Ontario's TPAP* (Ministry of Environment and Climate Change (MOECC), 2014), and the associated section of the EPR where it has been addressed.

**Table 1-2: Summary of EPR Requirements**

| EPR Requirement  | Section of EPR   |
|--|------------------|
| A statement of the purpose of the transit project and a summary of any background information relating to the project.   | Section 1        |
| A final description of the transit project including a description of the preferred design method.   | Section 3        |
| A map showing the site of the transit project.   | Section 1        |
| A description of the local environmental conditions at the site of the transit project.  | Section 4        |
| A description of all studies carried out, including a summary of all data collected or reviewed and a summary of all results and conclusions.  | Sections 4 and 5 |
| The assessments, evaluation and criteria for any impacts of the preferred design method and any other design methods that were considered once the project's transit project assessment process commenced.   | Section 5        |
| A description of any proposed measures for mitigating any negative impacts the transit project might have on the environment.  | Section 5        |
| If mitigation measures are proposed, a description of the proposal for monitoring or verifying the effectiveness of the mitigation measures.   | Sections 5 and 7 |
| A description of any municipal, provincial, federal, or other approvals or permits that may be required.   | Sections 5 and 7 |
| A consultation record including: a description of the consultations and follow up efforts carried out with interested persons, including Indigenous communities; a list of the interested persons, including Indigenous communities who participated in the consultations; summaries of the comments submitted by interested persons; summary of any discussions with Indigenous communities including discussions of any potential impacts of the transit project on constitutionally protected Aboriginal or treaty rights, and copies of all written comments submitted by Indigenous communities; and, a description of what the proponent did to respond to concerns expressed by interested persons. | Section 6        |

## 2. Study Process

### 2.1 Transit Project Assessment Process (TPAP)

This EPR was prepared in accordance with *O. Reg. 231/08, Transit Projects and Metrolinx Undertakings* (Transit Projects Regulation). By following the TPAP for certain approved projects, the Transit Projects Regulation exempts the proponent of the transit project (i.e., Metrolinx) from the requirements under Part II of the *EA Act*.

The TPAP is a proponent-driven, self-assessment process that provides a defined framework for the proponent to follow in order to complete the accelerated assessment of the potential environmental effects and decision-making within a 120-day regulated assessment timeline. Following this period, the regulation provides an additional 30-day public and agency review, and a further 35-day MOECC review.

Proponents are urged to undertake introductory activities and consultation through Pre-Planning Activities prior to the commencement of the TPAP. Following completion of the Pre-Planning Activities, the proponent initiates the TPAP by issuing the Notice of Commencement. It is at this point that the regulated 120-day timeframe commences.

The prescribed steps of the TPAP are outlined in **Figure 2-1**.

#### 2.1.1 Pre-Planning Activities

The Pre-Planning Activities of this Project involved the following main activities designed to lead to the issuance of the Notice of Commencement.

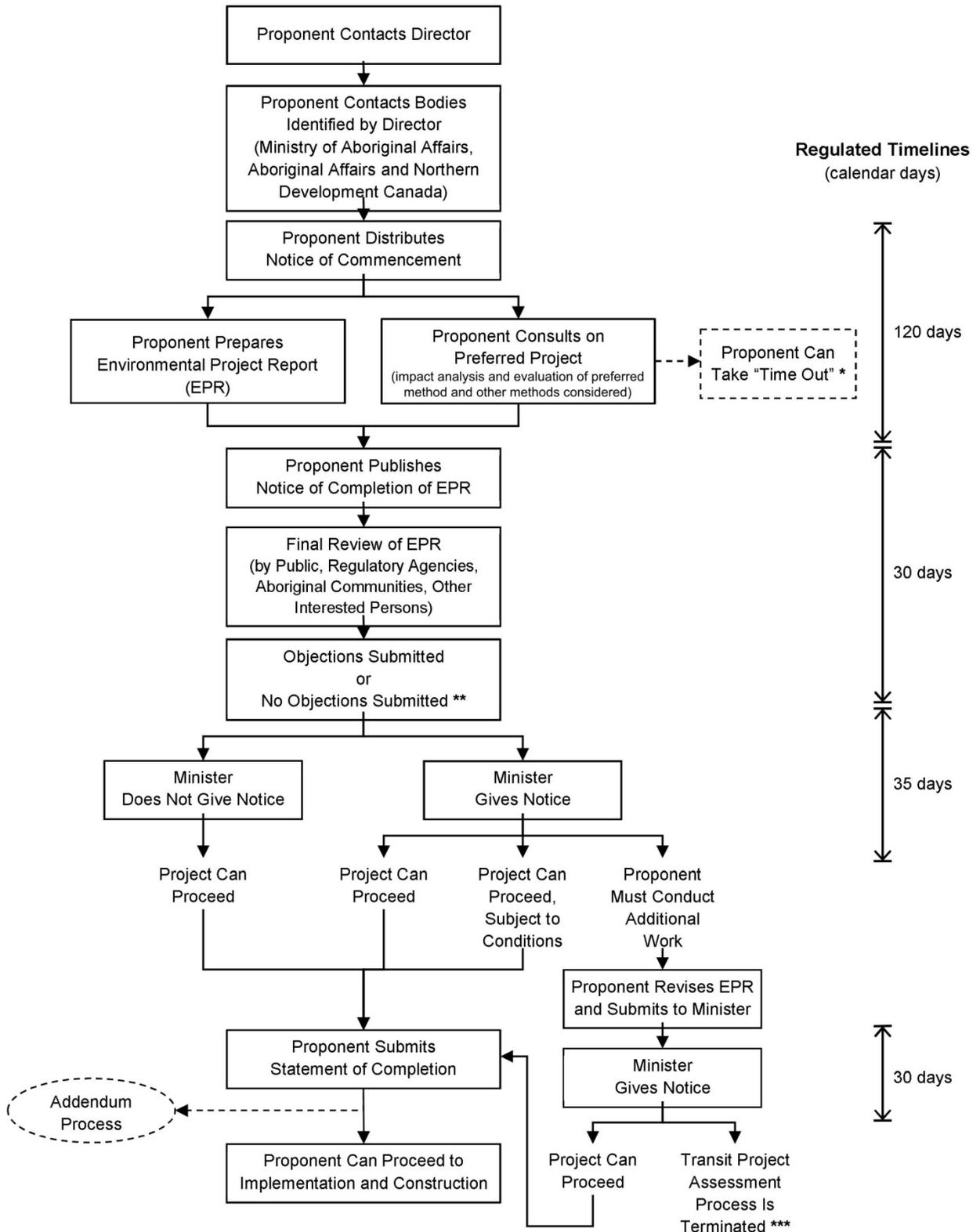
##### 2.1.1.1 Existing Environmental Conditions

The existing environmental conditions within the overall Study Area and within discipline-specific Study Areas were established as part of the Pre-Planning Activities. Each of the primary environmental factors was assessed by practitioners using industry standard techniques. Studies were undertaken to document the existing environmental conditions in the following areas:

- **Natural Environment**
  - Terrestrial ecology
  - Aquatic ecology
  - Soils and Groundwater
- **Socio-economic Environment**
  - Land use
  - Noise and vibration
  - Air quality
  - Utilities
- **Stormwater Management**
  - Stormwater quality
  - Stormwater quantity
  - Flood Plains

- **Cultural Environment**
  - Archaeology
  - Cultural heritage
- **Traffic and Transportation**
  - Traffic impact study

**Figure 2-1: Transit Project Assessment Process**



### 2.1.1.2 Public and Stakeholder Consultation

Consultation for this Project occurred in two (2) main stages – prior to the Notice of Commencement for the TPAP (including the release of the draft Environmental Project Report for technical agency review); and following the Notice of Commencement of the TPAP. To build strong relationships and get a complete understanding of local issues in the surrounding communities, and to ensure communities stay engaged and informed, Metrolinx has consulted with the public and a range of stakeholders prior to officially commencing the TPAP. The consultation program followed by Metrolinx is outlined in further detail in **Section 6**.

Pre-Planning consultation activities were conducted to inform Indigenous communities and technical review agencies of the Project. This included, but was not limited to, meetings with representatives from the City of Toronto, City of Pickering, Region of Durham, TRCA, Parks Canada, Ministry of Transportation (MTO), local utility companies, local community groups, local businesses, and elected officials.

Metrolinx implemented a Stakeholder Engagement Strategy that included web-based information, e-mail communications, proactive outreach to community groups, and public meetings. Three rounds of Public Meetings were held in locations in both the City of Toronto and City of Pickering. Public meetings were promoted through local newspaper advertisements and direct mailings and/or emails to local residents, technical review agencies, identified stakeholder groups, and Indigenous communities. The Public Meetings provided an opportunity for the public to speak directly with Metrolinx and the study team. In this manner, the public was introduced to the Project and encouraged to provide comments on the assessment of existing environmental conditions and potential environmental effects within the Study Area.

### 2.1.2 Key Steps of the TPAP

Metrolinx will issue the Notice of Commencement to commence the TPAP. The TPAP defines a series of activities that allows the process to be completed within approximately six months. These activities involve the following steps:

- Contact with the MOECC;
- Issue Notice of Commencement of the TPAP;
- Assessment process and consultation with the public and stakeholders;
- Issue Notice of Completion of the EPR (within 120 days of the Notice of Commencement);
- Provide 30 days for the public, review agencies, Indigenous communities and other interested persons to review the EPR;
- Provide 35 days for the Minister of the Environment and Climate Change to review the EPR; and
- Proponent submits a Statement of Completion.

It is important to note that *O. Reg. 231/08* provides a process by which the proponent may take a ‘time out’ during the 120-day TPAP consultation and documentation process. This may be used only when issues arise during the 120-day period concerning a potential negative impact on a matter of provincial importance or a constitutionally protected Aboriginal or treaty right. If a time out is taken, then notice of this must be provided to the Director and Regional Director of the MOECC and posted on the Project website. Once the issue has been addressed, the proponent may resume the TPAP by notifying the Director and Regional Director of the MOECC.

### 2.1.3 Environmental Project Report (EPR)

The documentation of the TPAP, as provided in this EPR, will be submitted to MOECC within 120 days of publishing the Notice of Commencement. This EPR documents the existing environmental conditions within the

Study Area, the potential environmental effects of the Project, recommended mitigation measures, the consultation process followed, and future commitments for the Project.

#### **2.1.4 Objection Process**

The submission of this EPR and the issuance of the Notice of Completion triggers the 30-day public and agency review period. During this time, if members of the public, regulatory agencies, Indigenous communities, or other interested persons have concerns about this transit Project, objections can be submitted to the Minister. After the 30-day review period has ended, any objections received will not be considered, and the Minister has 35 days within which certain authority may be exercised.

Persons wishing to submit an objection for the Minister to consider should provide the following information:

- Name, mailing address, organization or affiliation (where applicable), daytime telephone number, e-mail address (where possible);
- Contact details of the proponent including name address and telephone number;
- Brief description of the proponent's proposed undertaking;
- Basis for why further study is required, including identification of any negative impacts that relate to a matter of provincial importance or a constitutionally protected Aboriginal or treaty right that was not identified in the proponent's EPR; and
- Summary of how the person(s) objecting have participated in the Project's consultation process.

Whether or not there is public objection, the Minister may act within the 35-day period to issue one of the following three notices to the proponent:

- Notice to proceed with the transit project as planned in its EPR;
- Notice that requires the proponent to take further steps, which may include further study or consultation; or
- Notice allowing the proponent to proceed with the transit project subject to conditions.

The Minister may give notice allowing the proponent to proceed with its transit project but can only take action if there is potential for a negative impact on a matter of Provincial importance that relates to the natural environment or has cultural heritage value or interest, or on a constitutionally protected Aboriginal or treaty right. If the Minister issues a notice to proceed with the transit project as planned, or if they do not act within the 35-day period, Metrolinx will issue a Statement of Completion and proceed to implementation. The Statement of Completion will indicate that Metrolinx intends to proceed with the transit project in accordance with either:

- The EPR;
- The EPR subject to conditions set out by the Minister; or
- The revised EPR.

The construction or implementation of the transit project subject to the TPAP cannot begin until the requirements of the process have been satisfied.

## 3. Project Description

The Preferred Design of the Project is provided in **Appendix A**. The main elements of the preferred design are detailed in this section and include the additional third track, modified bridge structures and grade separations.

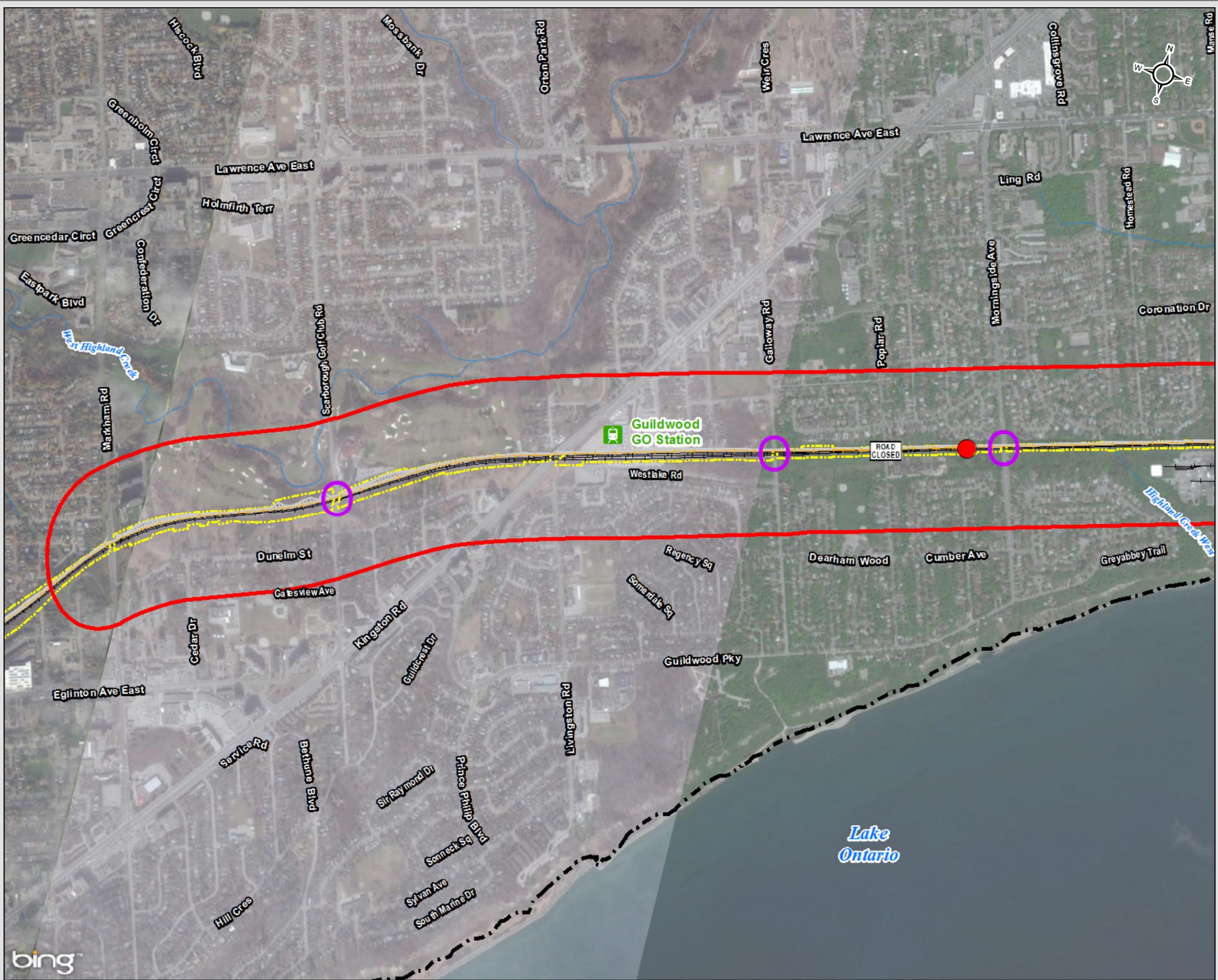
### 3.1 Project Overview

Metrolinx is evaluating expanding and improving the Lakeshore East Rail Corridor between Guildwood to Pickering GO Stations in the City of Toronto and Region of Durham. The proposed works will include:

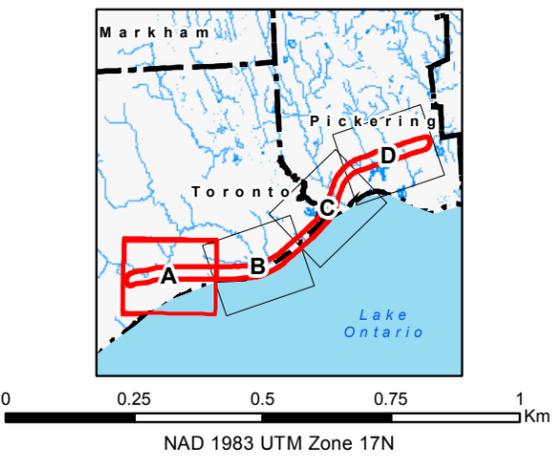
- Addition of a third track between Guildwood and Pickering GO Stations;
- Widening of the Highland Creek Bridge, including adding a new track to either side of the bridge and replacing the current timber decking;
- Removal and replacement of Rouge River Bridge;
- Five (5) culvert widenings, including raising headwalls at Petticoat Creek;
- Grade separations at Scarborough Golf Club Road, Morningside Avenue, and Galloway Road;
- At-grade road closure of Poplar Road with addition of a non-vehicular pedestrian/cyclist grade separation, pending City of Toronto approval;
- Road closure at Chesterton Shores (access to Emergency Services vehicles only) with the addition of enclosed tunnel entrance/exit at Rouge Hill GO Station to facilitate pedestrian/cyclist access to the proposed East Tunnel, pending City of Toronto approval; and,
- Modifications at Rouge Hill GO Station.

**Figure 3-1** illustrates the location of the proposed works.

These Project components are discussed in detail in the sections below.



- ### Legend
- Proposed Grade Separation
  - Proposed Road Closures
  - Proposed Bridge Modification
  - Proposed Culvert Extension
  - Proposed Enclosed Tunnel Entrance/Exit
  - Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
  - Proposed Rail Alignment
  - Proposed Grading/Ditch/Retaining wall
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
  - Ontario Railway Network
  - Municipal Boundary



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## Project Components

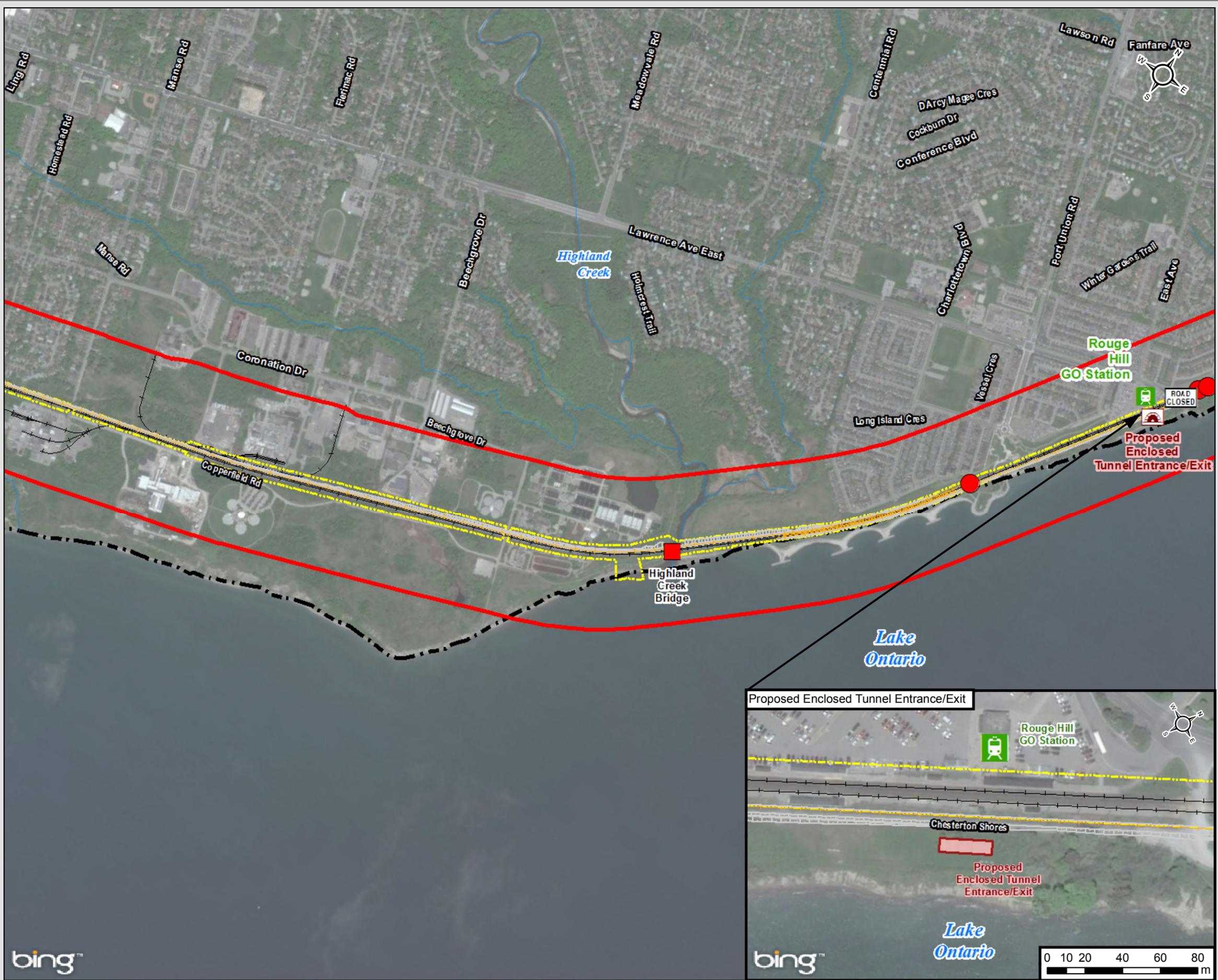
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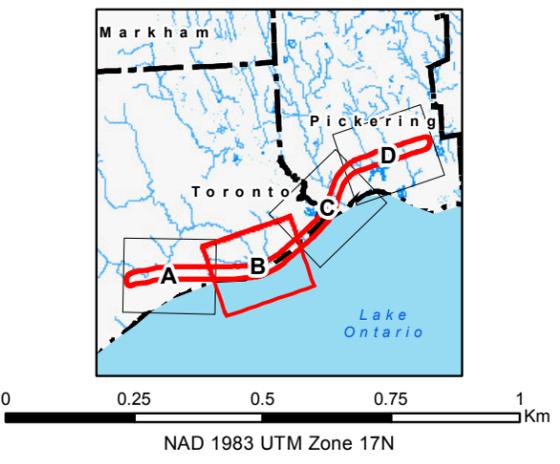
Figure 3-1A

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- ### Legend
- Proposed Grade Separation
  - Proposed Road Closures
  - Proposed Bridge Modification
  - Proposed Culvert Extension
  - Proposed Enclosed Tunnel Entrance/Exit
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## Project Components

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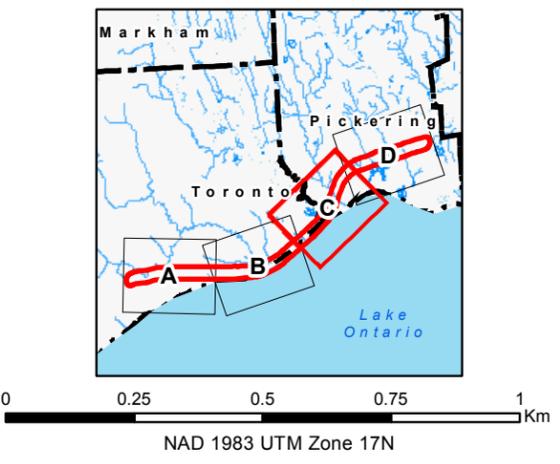


Figure 3-1B

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- ### Legend
- Proposed Grade Separation
  - Proposed Road Closures
  - Proposed Bridge Modification
  - Proposed Culvert Extension
  - Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
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## Project Components

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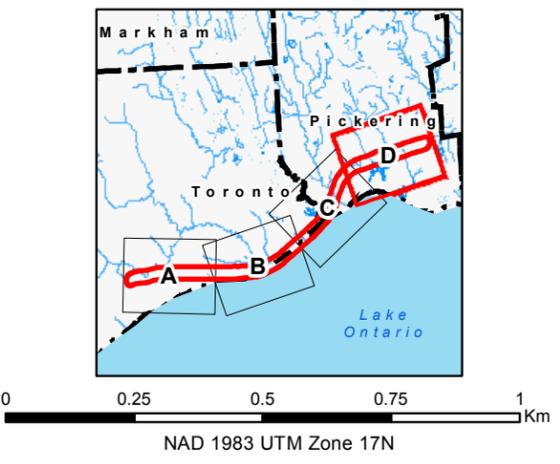
Figure 3-1C

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- ### Legend
-  Proposed Grade Separation
  -  Proposed Road Closures
  -  Proposed Bridge Modification
  -  Proposed Culvert Extension
  -  Proposed Enclosed Tunnel Entrance/Exit
  -  Proposed Enclosed Tunnel Entrance/Exit
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  -  Ontario Railway Network
  -  Municipal Boundary



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MetroLinx Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) Project  
Environmental Project Report

## Project Components

October 2016



Figure 3-1D

Map Document: (P:\0315654\400-Technical\02-Environmental\Assessment (TPAP)\GIS\IMXD\0315654\_P\ProjectComponents\_EPR.mxd) 2016-10-27 8:35:20 PM

## 3.2 Key Design Criteria

A number of key design criteria were assumed in developing the preferred design, in consultation with the Metrolinx Design Reference Manual (DRM) and relevant City of Toronto road design standards.

Various stakeholder consultation activities including meetings, site visits and workshops took place throughout Pre-Planning and TPAP phases of the Project. These stakeholder consultation activities included the following: site visits with TRCA to discuss potential effects to watercourses; workshops with the City of Toronto, Parks Canada and TRCA to discuss proposed infrastructure modifications such as the Chesterton Shores Alternative Crossing; Technical Advisory Committee (TAC) meetings with City of Toronto to discuss infrastructure modifications such as road closures and grade separation profiles; and, meetings with the City of Pickering to discuss proposed infrastructure modifications such as culvert extensions. All stakeholder input provided at the above mentioned meetings, workshops and site visits were thoroughly documented and used to help inform the preferred design of the Project.

### 3.2.1 Track Spacing and Clearances

Track spacing between the new third track and the existing mainline tracks will be offset by a minimum of 13 feet (ft.) (3.96 metres (m)). In general, the new third track alignment is designed to match the existing mainline track vertical profile to provide a constant horizontal offset. At GO Stations which contain island platforms, track centres will be at 35 ft. (10.67 m). Clearances to the overhead catenary system (OCS) poles will be set at a nominal 2.90 m from centreline of track to face of OCS pole. The clearance envelope for all structures over or beside the new tracks will be set as per the Metrolinx DRM.

### 3.2.2 Design Speed

The design has been developed based on zone speeds for the Lakeshore East Rail Corridor (**Table 3-1**). However, there are multiple Permanent Slow Orders (PSO) along the corridor (**Table 3-2**) where local speed restrictions apply below the rail corridor's normal speed limit.

**Table 3-1: Lakeshore East – Zone Speeds**

| Approximate Location   | Mileage | Passenger (MPH) | Passenger (km/h) | Freight (MPH) | Freight (km/h) |
|------------------------|---------|-----------------|------------------|---------------|----------------|
| Durham Junction        | 313.00  | 95              | 153              | -             | -              |
| East of Highland Creek | 318.40  | 90              | 145              | -             | -              |
| Highland Creek         | 318.50  | -               | -                | 65            | 105            |
| USRC                   | 332.40  | -               | -                | 60            | 97             |

**Table 3-2: Lakeshore East – PSO**

| Approximate Location                                   | Mileage         | Passenger (MPH) | Passenger (km/h) | Freight (MPH) | Freight (km/h) |
|--|-----------------|-----------------|------------------|---------------|----------------|
| East of CN Liverpool Station – West of Durham Junction | 312.60 – 314.00 | 90              | 145              | 65            | 105            |
| West of Durham Junction – West of Rouge River          | 314.00 – 316.80 | 85              | 137              | 65            | 105            |
| East of Chesterton Shores – East of Highland Creek     | 317.80 – 318.40 | 90              | 145              | 65            | 105            |
| East of Highland Creek – East of Manse Road            | 318.40 – 319.60 | 75              | 121              | 60            | 97             |

### **3.2.3 Trackwork**

The rail used for the Project will be 136 lb continuous welded rail for both mainline and special trackwork. Mainline track will be constructed on concrete ties, while crossings and turnouts will be constructed on wood ties. Where concrete ties adjoin wood ties, a set of hardwood transition ties will be installed. In addition, concrete ties will be installed on all new tracks including bridge decks. Existing tracks overtop of existing bridge structures which are currently using wood ties will remain as wood ties along the new or existing bridge structures.

### **3.2.4 Interlocking, Crossovers and At-Grade Track Crossings**

All railway crossovers will be located on horizontal and vertical tangents and will be positioned to allow the greatest flexibility for train movement between tracks. Track crossings of roads will be constructed with rubber rail seals on both field and gauge sides of the rail including a flangeway suitable for both passenger and freight wheel flanges.

### **3.2.5 Retaining Walls and Grading**

Grading for the new third track will be designed with the intent to minimize property impact. In general, a standard 2:1 side slope will be provided with a 1 m flat bottom ditch (in cut sections). Where the standard grading impacts the property line, a reinforced side slope of 1:1.5 will be provided to reduce the amount of land required to tie back to the original ground surface without impacting the property line. During Detailed Design, property easements will be investigated to create embankments required beyond the rail corridor. Where easements are not feasible, retaining walls will be constructed. In areas where standard grading is not possible without impacting the property line, retaining walls will be used to reduce the overall track footprint, avoid additional property requirements and retain the track structure (fill sections) or adjacent land (cut sections).

### **3.2.6 Electrification Enabling Works**

The track and grading design accommodates the proposed Overhead Catenary System (OCS) pole layout locations, in addition to other electrification requirement, for future electrification of the Lakeshore East Rail Corridor. In addition, work will commence prior to the start of the grading for the third track design. These enabling works will progress by temporarily relocating all underground utilities to allow for the grading of the third track. The third track grading work will contain an underground ductbank to accommodate for electrification and underground utilities within the rail corridor. Therefore, once the grading and ductbank construction is complete, all relocated ducts will be placed back within the newly constructed ductbanks.

## **3.3 Preferred Track Alignment**

The preferred track alignment takes into account the existing track configuration, the future rail service operations and speeds required, the availability of the existing rail corridor right-of-way, and a desire to minimize potential impacts to adjacent property to accommodate the additional third track.

A detailed review of this section of the rail corridor indicated that to best run the rail service from the GO Subdivision onto the Kingston Subdivision at Durham Junction (at the eastern end of the Study Area), the track should be added to the north side of the existing tracks moving westwards. Starting from the western end of the Study Area, it was determined that the additional third track should be an extension of the existing third track on the south side moving eastwards. As such, a track shift is required to enable the connection between the new tracks. This track shift will require a substantial distance to be achieved. The preferred location for this track shift is through the mainline curve at Mile 318.0 of the Kingston Subdivision. This is located approximately halfway between the Highland Creek bridge crossing and Rouge Hill GO Station.

**Appendix A1** presents the preferred track alignment and should be referenced when considering the descriptions provided in **Sections 3.3.1 to 3.3.3** below.

### **3.3.1 Durham Junction to Petticoat Creek**

At Durham Junction, two tracks from the GO subdivision tie in from the north into the two existing Lakeshore East GO (Kingston Sub) corridor tracks to the south. The northern-most track along the GO subdivision runs along the north side of the existing tracks and becomes the new third track travelling westward.

As the track moves towards the existing Whites Road grade separation, additional grading is required along the north side of the corridor to accommodate the new third track. As the track enters the curve underneath the existing Whites Road and Granite Court grade separations, the two existing tracks are required to shift to the north. To accommodate the relatively short distance between the two structures, a single smooth curve which extends through both structures for approximately 1 km is provided. This may be refined during Detailed Design to minimize the shift of the existing tracks.

During Detailed Design, property easements will be investigated to create embankments. Where easements are not feasible, retaining walls will be constructed. Where possible, ditches will be provided between track and the retaining walls. Otherwise, a drainage system will be required to catch any overland flow from the top of the embankment and within the trackway. As the track approaches Petticoat Creek, where easements are not possible, retaining walls will be extended along the embankment of the creek to accommodate the additional third track trackbed structure.

Durham Junction to Petticoat Creek is shown on Sheets CT-001 to CT-005 in **Appendix A1**.

### **3.3.2 Petticoat Creek to Rouge Hill GO Station**

West of Petticoat Creek, where easements are not feasible, retaining walls may be required adjacent to the third track due to the relatively close proximity of the property line to the north. As the tracks cross Rodd Avenue at-grade and the property line extends towards the north, larger cut and fill sections are required towards Rouge River Bridge.

At Rouge River, the ultimate alignment will contain two additional tracks constructed on the new bridge structure and located immediately south of the existing Rouge River Bridge structure, meaning the bridge will accommodate four tracks. Accommodation for a fourth track is required at proposed grade separations, as well as Highland Creek Bridge and Rouge River Bridge, to function as a temporary detour track. This will enable the proposed works to be built within the Lakeshore East Rail Corridor and will result in fourth track grading to be developed to facilitate the detour track. This will require the existing tracks to shift south approaching Rouge River Bridge. East and west of the Rouge River Bridge, the tracks will shift back to match the current track alignment. As a result of the track shift to the south, structural retaining walls will be required to minimize the effect to the existing structures and southern lands towards Lake Ontario. Additional property may be required from adjacent lands to the south if it is determined through further consultation that a structural wall is not aesthetically pleasing in this location.

As the track travels towards Rouge Hill GO Station, two crossovers (one leading and one trailing) are provided through the tangent section of track between the curve west of Rouge River and Rouge Hill GO Station. Under a separate project, the northern platform at Rouge Hill GO Station is to be converted into an island platform to accommodate the third track. As the third track enters Rouge Hill GO Station, a reverse curve is provided to extend the track spacing through the new island platform. In order to maintain maximum operating speed of 95 mph (passenger) and 65 mph (freight), the reverse curves must be long enough to allow sufficient spiral length.

In total, the reverse curves require approximately 470 m of track. To accommodate the widening of the tracks, additional property will be required.

Petticoat Creek to Rouge Hill GO Station is shown on Sheets CT-005 to CT-008 in **Appendix A1**.

### **3.3.3 *Rouge Hill GO Station to Galloway Road***

The track exits Rouge Hill GO Station with a reverse curve to narrow the track spacing (mirrored to the reverse curve east of Rouge Hill GO Station).

Following the reverse curve, the track enters a track shift to the south. The track shift occurs through a large curve between Rouge Hill GO Station and Highland Creek. Through the curve, each track is re-aligned to the south by a distance of one track spacing. From this point westward, the new third track will travel along the south side of the corridor towards Galloway Road. As the track continues towards Highland Creek, retaining walls are proposed along the south side of the corridor. This is due to the significant fill required and the sudden drop in grade adjacent to Lake Ontario. Additional property may be required from adjacent lands to the south if it is determined through further consultation that a structural wall is not aesthetically pleasing in this location.

West of Highland Creek, the track continues westward along the south side of the corridor through an at grade crossing at Beechgrove Drive and without any requirement for retaining walls until the track approaches Manse Road, where the property boundary narrows towards the track. At this location approximately 270 m of gravity retaining walls will be required to the east of Manse Road and 95 m to the west. These gravity walls are retaining walls that rely solely on their own weight to stand up.

The tracks remain tangent through an at-grade crossing at Manse Road followed by a future grade separation structure at Morningside Avenue.

West of Morningside Avenue, a new crossover will be installed while the existing crossovers at this location will remain.

The third track continues west towards Galloway Road where the track ties into the existing third track to the east of Galloway Road. The third track expansion will add an additional left hand turnout to provide a full crossover while maintaining a continuous track.

Rouge Hill GO Station to Galloway Road is shown on Sheets CT-008 to CT-0018 in **Appendix A1**.

The potential environmental effects associated with the preferred track alignment and associated works are discussed in **Section 5** of this EPR.

## **3.4 Preferred Grade Separations and Road Closures**

### **3.4.1 *Overall Rationale for Grade Separations and Road Closures***

All at-grade crossings on the Lakeshore East Rail Corridor have been removed, with the exception of the section between Scarborough Golf Club Road in the City of Toronto and Rodd Avenue in the City of Pickering. The only remaining at-grade crossings in the entire Lakeshore East Rail Corridor are located within the Study Area for this TPAP. Potential solutions to address this, including grade separations and road closures, have been explored through this TPAP. It is Metrolinx's goal to remove all at-grade crossings within its GO rail network in order to maintain service levels.

Grade separations serve to separate cars, pedestrians and cyclists from train traffic, improving travel time and capacity of the roadway, minimizing delays and reducing the risk of collisions. This is of primary importance for roads that have high traffic volumes and speeds, like those found at Scarborough Golf Club Road, Galloway Road and Morningside Avenue. For roads with lower traffic volumes and where there are other available routes, such as Poplar Road and Chesterton Shores road closures, with a potential non-vehicular pedestrian/cyclist grade separation at Poplar Road, are considered to be more appropriate to achieve the same objectives.

Previous feasibility studies and studies completed for this TPAP (including the Traffic Impact Study in **Appendix B6**) show that the at-grade crossings found at Scarborough Golf Club Road, Galloway Road and Morningside Avenue support the need for the construction of an underpass at each location within an underpass (i.e., a grade separation where the railway line stays at its current elevation, and the roadway is lowered to pass underneath).

Although an underpass may be more complex to build, it is preferred to an overpass (i.e., a grade separation where the roadway is raised to pass over the railway line) as it is easier for road users to navigate, has less property impact, is less visually intrusive, and has a smaller overall footprint. This is due to the fact that the vertical clearance required for vehicles to pass under the tracks is less than the vertical clearance needed for vehicles to pass over the tracks.

The planned grade separations will provide a number of benefits to road users and the local community. Traffic flow will improve as vehicles, pedestrians and cyclists will be separated from train traffic, the area will be quieter without the need for warning bells and crossing signals, and local air quality may improve as cars will no longer need to idle at the crossings.

### 3.4.2 Grade Separations

Grade separations are proposed at the following three locations (see **Figure 3-1**):

- Scarborough Golf Club Road (shown on Sheet CT-021 in **Appendix A1**);
- Morningside Avenue (shown on Sheets CT-016 and CT-019 in **Appendix A1**); and
- Galloway Road (shown on Sheets CT-018 and CT-020 in **Appendix A1**).

#### 3.4.2.1 Scarborough Golf Club Road

Scarborough Golf Club Road is a two-lane arterial collector road with a high volume of traffic and an active at-grade crossing. Both previous and current studies have identified this crossing as a priority to be grade separated. At this location the road currently crosses three railway tracks with a sidewalk on the east side and no bike lanes. The grade separation will be designed to meet the current City of Toronto road design standards and will accommodate future electrification enabling works. The future Lakeshore East Rail Corridor at this location will continue to have three tracks but the grade separated structure will protect for a potential future fourth track.

A grade separation (road underpass) of Scarborough Golf Club Road was approved in a previous Environmental Assessment (EA) completed by the previous City of Scarborough (now City of Toronto) in 1989. This design has been used as the basis for the current design work; however there are key differences, most notably in the need to use current City of Toronto road design standards.

Based on a 2012 feasibility study completed by Metrolinx, the Exposure Index (EI) for Scarborough Golf Club Road (or cross product of rail movements and vehicle movements) is 956,500 – the highest EI within the Study Area. An EI value of 200,000 is the typical threshold for considering the need for a grade separation.

The preferred design of Scarborough Golf Club Road shows an 8% grade profile from the current 6% with a reduced road speed from 50 mph to 40 mph to minimize overall effects to adjacent landowners and improve safety. Scarborough Golf Club Road has a steep road grade north of the current at-grade crossing, making an underpass more ideal. An overpass in this location would be more challenging to build, more costly and could create safety issues.

#### 3.4.2.2 *Galloway Road*

Galloway Road is a two-lane collector road with a significant amount of traffic travelling in both north and south directions. Based on the 2012 feasibility study undertaken by Metrolinx, this crossing is a priority for a grade separation with an EI of 260,000 – also above the threshold value for recommending a grade separation. At this location the road currently crosses three railway tracks with no sidewalks or bike lanes. The grade separation will be designed to meet the current City of Toronto road design standards and will accommodate future electrification enabling works. The future Lakeshore East Rail Corridor at this location will continue to have three tracks but the grade separated structure will protect for a potential future fourth track.

The preferred design of Galloway Road shows a 6.55% grade profile from the current 6% with a reduced road speed from 50 mph to 40 mph to minimize overall effects to adjacent landowners and improve safety.

#### 3.4.2.3 *Morningside Avenue*

Morningside Avenue is a four-lane arterial road with high traffic volumes and an active at-grade crossing. Based on the 2012 feasibility study undertaken by Metrolinx, the EI for Morningside Avenue is 618,000 – the second highest in the Study Area and therefore a priority for a grade separation. At this location the road currently crosses two railway tracks, with a sidewalk on the east side and no bike lanes. The grade separation will be designed to meet the current City of Toronto road design standards and will accommodate future electrification enabling works. The Lakeshore East Rail Corridor at this location will have an additional third track but the grade separated structure will protect for a potential future fourth track.

#### 3.4.2.4 *Construction Staging of the Grade Separations*

Construction of the new grade separations will be coordinated to minimize any potential impacts to drivers, cyclists and pedestrians in the area. Construction at Scarborough Golf Club Road and Morningside Avenue is planned to begin in 2017 and last for approximately three years. During construction, one lane each way will remain open on both roads to ensure ongoing access for vehicles, pedestrians, cyclists and local transit.

During the construction of the grade-separated structure, the Galloway Road crossing will be closed to vehicular traffic; however rail services will be maintained. Unlike Scarborough Golf Club Road and Morningside Avenue, the Galloway Road crossing must be closed to vehicular traffic during construction to avoid considerable disruption to the existing rail switches in this specific location. This work is planned to commence after construction is complete at both Scarborough Golf Club Road and Morningside Avenue in 2020. In addition, a pathway will be maintained for pedestrians and cyclists.

The potential effects associated with the proposed grade separations are discussed in **Section 5** of this EPR.

The preferred design of the proposed grade separations is provided in **Appendix A2**.

### 3.4.3 **Road Closures**

Another option for removing at-grade crossings is to close the road crossing. This is typically considered when traffic volumes are low and other available routes exist nearby, as is the case at both Poplar Road and Chesterton

Shores in Scarborough. A number of site-specific conditions exist at Poplar Road and Chesterton Shores that make a road closure a good option to eliminate the at-grade crossing.

#### 3.4.3.1 *Poplar Road*

Poplar Road is considered to be an ideal candidate for a road closure. There is low traffic volume on this road, and it is near to Galloway Road and Morningside Avenue, both of which are proposed to be grade separated. Metrolinx is proposing a non-vehicular grade separation upon closure, pending approval from City of Toronto, to potentially maintain pedestrian and cyclist access at the crossing.

To minimize potential effects to local residents and businesses, Poplar Road is proposed for closure in approximately 2023 upon completion of the planned Morningside Avenue and Galloway Road grade separations. Traffic will be rerouted to Galloway Road and Morningside Avenue.

The closure of Poplar Road and the rerouting of vehicle traffic to Galloway Road and Morningside Avenue will be beneficial to nearby residents and travellers alike; the neighbourhood will be quieter without through-traffic and travellers will be able to move more easily through the general area as both Galloway Road and Morningside Avenue will be grade separated, meaning that vehicles will not be impeded by the increased GO service.

The permanent closure of Poplar Road at-grade may cause disturbances to pedestrians and cyclists, as they will be required to use adjacent routes such as Galloway Road and Morningside Avenue. Metrolinx recognizes this potential and will work with the City of Toronto during the Detailed Design phase to explore solutions, including a potential pedestrian/cyclist grade separation.

The closure of Poplar Road will be designed to meet current City of Toronto road design standards.

Poplar Road is shown on Sheet CT-017 in **Appendix A1**.

#### 3.4.3.2 *Chesterton Shores*

Chesterton Shores, although widely used by pedestrians and cyclists to access the Waterfront Trail, currently has restricted vehicle traffic. The road is currently closed to general vehicular traffic but may be accessed by authorized Emergency Services and maintenance vehicles.

Since visitors to the Port Union Waterfront Park are able to access the trail by other nearby routes – including through the Rouge Hill GO Station pedestrian tunnel, at the Port Union Village Common Park, and at the Rouge River – it is proposed that this road be closed to all traffic (including pedestrians and cyclists) in order to remove the at-grade crossing. At this location future upgrades to Rouge Hill GO Station will require wider track spacing, which in turn increases the crossing distance for pedestrians and cyclists. With the increased number of train movements, there would be an increased safety risk to pedestrians and cyclists at this specific location.

Recognizing the importance of access to the area south of the Lakeshore East Rail Corridor for recreational purposes and Emergency Services, a separate feasibility study has been completed by Metrolinx to explore potential solutions for the closure of Chesterton Shores. The addition of an enclosed tunnel entrance/exit will allow pedestrians and cyclists to use the improved pedestrian tunnel at Rouge Hill GO Station, which will be upgraded to provide safe access as part of future improvement works at this station. City of Toronto, TRCA, and Parks Canada were consulted regarding the enclosed tunnel entrance/exit through a series of workshops to receive design feedback and to ensure that solutions are developed that allow for unhindered access for Emergency Services, including improved access at the Rouge River and maintaining access at the Port Union Village Common Park tunnel. Metrolinx will prepare an EPR addendum for the proposed enclosed tunnel

entrance/exit to address potential environmental effects and stakeholder concern related to its design. The final design will take into account the natural setting of its location to minimize environmental effects, such as effects on public enjoyment of the space, and effects on TRCA property. TRCA and other key stakeholders will continue to be engaged through the design process to address stakeholder concerns.

Chesterton Shores is shown on Sheet CT-009 in **Appendix A1**.

The potential effects associated with the proposed road closures are discussed in greater detail in **Section 5** of this EPR.

#### **3.4.4 Other At-Grade Crossings**

Unique circumstances exist at the other at-grade crossings found along the Lakeshore East Rail Corridor within the Study Area – namely at Manse Road (shown on Sheet CT-015 in **Appendix A1**) and Beechgrove Drive (shown on Sheet CT-013 in **Appendix A1**) in the City of Toronto, and Rodd Avenue in the City of Pickering (shown on Sheet CT-006 in **Appendix A1**). Although the intent is to eventually remove all at-grade crossings within the GO rail network, these crossings require further study as there is no simple way to address the existing at-grade crossing. Although Manse Road, Beechgrove Drive and Rodd Avenue have at-grade crossings, the existing low level of vehicle traffic does not warrant grade separation at this time. These roads, however, cannot be closed as they are either the only access points to local neighbourhoods (in the case of Rodd Avenue) or for local industry (in the case of Manse Road and Beechgrove Drive).

Metrolinx will undergo a separate process to identify options for addressing these at-grade crossings. In the meantime, Metrolinx will continue to conduct safety audits and make any necessary improvements at these crossings to ensure that a high standard of safety is maintained; even with the increased GO service.

### **3.5 Bridges**

To accommodate the addition of a third track, Highland Creek Bridge and Rouge River Bridge need to be modified as part of this Project. This work will be done in a way that recognizes the importance of the surrounding natural area and the heritage attributes of the bridge, and minimizes impacts on neighbouring properties.

While three tracks are required for the Project, Metrolinx will design the structures to accommodate four tracks at each of the Rouge River and Highland Creek bridges to ensure that both bridges can support staging train service, while also protecting for a potential future fourth track. The temporary fourth track is required for rail diversion for construction staging at key locations, such as the Rouge River and Highland Creek watercourse crossings in order to maintain train service operations.

. Expansion of Highland Creek Bridge will involve construction of a new deck onto each side the an existing bridge, and strengthening the pier expansion in the middle of Highland Creek. The existing Rouge River Bridge will be demolished and replaced with a new bridge that will accommodate up to four tracks. The replacement bridge will include a large deck truss span to reflect the design of the original bridge.

#### **3.5.1 Highland Creek Bridge**

The Highland Creek Bridge, a provincial heritage property<sup>1</sup>, has been in-service for over 117 years. To accommodate the planned rail corridor expansion and ensure ongoing safety, Metrolinx will add new tracks and

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<sup>1</sup> The Highland Creek Bridge was identified by Metrolinx as a provincial heritage property (of local significance) on April 10, 2015. Provincial heritage property means real property, including buildings and structures on the property, that has cultural heritage value or interest and that is owned by the Crown in right of Ontario or by a prescribed public body; or that is occupied by a ministry

replace the timber decking on the existing bridge. In recent years, stabilization work has been undertaken by Metrolinx to the existing pier in order to reduce movement.

A Heritage Impact Assessment for Highland Creek Bridge has been prepared. The design of the bridge will take into consideration the recommendations of the HIA. A number of options were considered to determine how best to add the new tracks. It was determined that the best option is to expand the current bridge to include a new track on either side of the existing tracks.

Expanding the existing supporting structures (i.e., the piers and abutments), rather than building a new bridge, was shown to have the least impact to the adjacent parkland and neighbouring properties, and will result in fewer visual changes to the heritage attributes of this bridge. In comparison to the Rouge River Bridge, discussed below, it was also determined that the existing structure could be more easily worked around during construction.

Highland Creek Bridge is shown on Sheet CT-012 in **Appendix A1**. The preferred design of the proposed Highland Creek Bridge is provided in **Appendix A2**.

### 3.5.2 Rouge River Bridge

The Rouge River Bridge, a provincial heritage property of provincial significance<sup>2</sup>, has been in-service for 117 years and the current steel is nearing the end of its lifespan and needs to be replaced. An assessment of the structural integrity of this bridge was undertaken which determined that the steel member within the main double track truss could not be refurbished satisfactorily to withstand an extended life of service. To accommodate the planned rail corridor expansion and conduct the required rehabilitation works, Metrolinx will remove and replace the existing two-track bridge with a wider bridge that can accommodate four tracks.

In 2015, a Cultural Heritage Evaluation Report (CHER) was completed for the Rouge River Bridge. The CHER determined that the structure was a Provincial Heritage Property of Provincial Significance.

Under the Standards and Guidelines for the Conservation of Provincial Heritage Properties, the consent of the MTCS Minister must be obtained before removing or demolishing a Provincial Heritage Property of Provincial Significance, subject to heritage impact assessment and community engagement.

A Heritage Impact Assessment (HIA) was prepared to assess and document the alternative options that were considered for the Rouge River Bridge and why demolition of the existing bridge is the only viable option. The HIA has been submitted to MTCS and forms part of Metrolinx Application for MTCS Minister's consent.

Additionally, in consultation with TRCA and Parks Canada, Metrolinx recognized Port Union Waterfront Park as a gateway to Rouge National Urban Park, which attracts many visitors each year and would, therefore, benefit from improved public access. In addition, City of Toronto noted limitations with respect to Emergency Services vehicle access underneath the existing bridge. As a result, Metrolinx has determined the preferred design is to widen the Rouge River Bridge to improve access to Port Union Waterfront Park.

Rouge River Bridge is shown on Sheet CT-007 in **Appendix A1**. The preferred design of the proposed Rouge River Bridge is provided in **Appendix A2**.

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*or a prescribed public body if the terms of the occupancy agreement are such that the ministry or public body is entitled to make the alterations to the property that may be required under these heritage standards and guidelines (Standards and Guidelines for Conservation of Provincial Heritage Properties dated April 28, 2010, prepared pursuant to Section 25.2 of the Ontario Heritage Act).*

<sup>2</sup> *The Rouge River Bridge was identified by Metrolinx as a provincial heritage property of provincial significance on April 10, 2015. Provincial heritage property of provincial significance means provincial heritage property that has been evaluated using the criteria found in Ontario Heritage Act O. Reg. 10/06 and has been found to have cultural heritage value or interest of provincial significance.*

### 3.6 Culverts

There are 26 existing culverts crossing the rail corridor within the Study Area. In general, the majority of culverts do not require any modifications. However, as a result of adding the new third track and a fourth track for temporary rail diversion for construction staging at key locations, such as the Rouge River and Highland Creek watercourse crossings in order to maintain train service operations, the following culverts need to be extended to accommodate the extra width and grading of the track:

- Mile 315.20 (east of Petticoat Creek) (shown on Sheet CT-005);
- Mile 317.10 (east of Chesterton Shores);
- Mile 317.15 (east of Chesterton Shores);
- Mile 317.75 (west of Port Union pedestrian rail underpass (shown on Sheet CT-010)); and
- Mile 320.50 (west of Morningside Avenue)

In addition, and as identified in the Cultural Heritage Screening Report (CHSR) which is detailed in **Appendix B8**, the Petticoat Creek Culvert is a built heritage resource. The existing stone arch culvert presently has two tracks crossing over it at the mid-point of the culvert. Owing to the length of this existing culvert, the effort to accommodate the third track expansion to the north in this location will be limited to raising the current headwall over this culvert on the north side. This raised headwall will support the new third track grade works and will keep the grading effort from directly affecting the watercourse in this location. The existing culvert does not require any further modifications or expansion to achieve the third track expansion in this location.

A map showing all watercourse crossings within the Study Area, including culverts, is provided in **Figure 3-1**.

### 3.7 Stations

Guildwood GO Station and Rouge Hill GO Station are located within the Study Area (Pickering GO Station is located just beyond the Study Area limits to the east). As Guildwood GO Station currently accommodates a third track, modifications are only required at Rouge Hill GO Station to accommodate the new third track. Rouge Hill GO Station currently operates as two side-loading platforms with the existing two tracks running between the two platforms. With the addition of a new third track, the northern-most platforms will be extended to become an island platform. Modifications to Rouge Hill GO Station will result in a permanent loss of parking space, as additional area is required to accommodate the third track.

The layout and design of Rouge Hill GO Station will be completed through a separate study completed by Metrolinx. Consequently, additional coordination work will be required during Detailed Design.

A map showing the GO Stations within or adjacent to the Study Area is provided in **Figure 3-1**.

### 3.8 Rouge Hill GO Station – Enclosed Tunnel Entrance/Exit

The need for the proposed enclosed tunnel entrance/exit was first discussed in the Port Union Waterfront Improvement Project and EA Study undertaken by TRCA in 1999 (TRCA, 1999). As part of this Project, the main objective of the proposed enclosed tunnel entrance/exit is to maintain safe pedestrian and cyclist access to the Waterfront Park Trail following the closure of Chesterton Shores. Construction of this enclosed tunnel entrance/exit will result in the closure of the existing at-grade access to the south platform. The enclosed tunnel entrance/exit will serve as a new access point to the East Tunnel connecting the proposed New Service Building at Rouge Hill GO Station. The proposed New Service Building and East Tunnel are not part of this Project.

In addition to improved pedestrian and cyclist access and safety, the proposed enclosed tunnel entrance/exit will be designed in compliance with the Accessibility for Ontarians with Disabilities Act (AODA) and as compact as possible to minimize impact. The proposed enclosed tunnel entrance/exit will not render any negative visual effects to Port Union Waterfront or the Lake Ontario Shoreline due to the implementation of a transparent, yet bird-friendly, design.

The enclosed tunnel entrance/exit is proposed to be constructed south of the existing south platform and the proposed New Service Building with a setback of approximately 53 m from the Lake Ontario Shoreline. The new access will occupy a total footprint of approximately 192 sq. m with a proposed construction footprint of approximately 233 sq. m. The proposed enclosed tunnel entrance/exit will not require realignment of the existing path.

Metrolinx consulted with City of Toronto, TRCA, and Parks Canada through a series of stakeholder workshops during the TPAP to receive design feedback regarding the enclosed tunnel entrance/exit and to ensure that solutions are developed that allow for unhindered access for Emergency Services, including improved access at the Rouge River and maintaining access at the Port Union Village Common Park tunnel.

Metrolinx will prepare an EPR addendum for the proposed enclosed tunnel entrance/exit to address potential environmental effects and stakeholder concern related to its design. The final design will take into account the natural setting of its location to minimize environmental effects, such as effects on public enjoyment of the space, and effects on TRCA property. TRCA and other key stakeholders will continue to be engaged through the design process to address stakeholder concerns.

The enclosed tunnel entrance/exit is shown on Sheet CT-009 in **Appendix A1** and the renderings are provided in **Figures 3-2A & 3-2B** (also provided in **Appendix A2**).

**Figure 3-2A: Enclosed Tunnel Entrance/Exit – Structure**



**Figure 3-2B: Enclosed Tunnel Entrance/Exit – Access Ramp and Staircase**



## 4. Existing Conditions

This section of the EPR describes the Study Area in the context of the Lakeshore East Rail Corridor and the natural, socio-economic and cultural environments and provides the baseline, including approved land use plans, against which the effects of the project have been measured.

Information on the following components is presented in the sections below and is supplemented with detailed technical reports provided in **Appendix B**:

- Natural Environment;
- Soils and Groundwater;
- Rail Corridor Contamination;
- Air Quality;
- Noise and Vibration;
- Land Use and Planning;
- Traffic and Transportation;
- Utilities; and
- Cultural Environment.

### 4.1 Natural Environment

Desktop and field investigations were completed to characterize the existing natural environment conditions within the Study Area, including the presence of terrestrial and aquatic features. The following sections summarize the key natural environment features identified through these desktop and field investigations. A more detailed Natural Environment Existing Conditions and Environmental Impact Assessment Report is provided in **Appendix B1**. Additionally, a Tree Inventory and Preservation Plan was completed in support of these investigations and this report is included in **Appendix B2**.

#### 4.1.1 *Methods*

The Study Area for the natural environment assessment incorporated features within approximately 300 m of the existing Lakeshore East Rail Corridor within the Guildwood to Pickering segment, and were identified based on information obtained from a variety of sources, including the Ministry of Natural Resources and Forestry (MNRF), municipalities, Toronto and Region Conservation Authority (TRCA), and other relevant background documents. Correspondence was also initiated with MNRF and TRCA in early 2014 and throughout 2015 and 2016 to request additional information pertaining to natural heritage features and recent Species at Risk (SAR) records relevant to the Study Area.

Several field investigations were completed throughout 2014 and 2015 to assess the various components of the terrestrial and aquatic ecosystems that may potentially be affected by the Project. These included the following surveys:

- Site reconnaissance;
- Amphibian call surveys;
- Breeding bird surveys;
- Ecological Land Classification (ELC) surveys;
- Tree inventory;
- Vascular plant inventories; and
- Fish habitat features.

Additionally, all trees 10 cm in diameter at breast height (DBH) or larger within the Lakeshore East Rail Corridor, as well as all trees located on private property within 6 m of the Lakeshore East Rail Corridor, were included in the tree inventory completed in summer 2015. For trees within the City of Toronto, all trees that are 10 to 29 cm DBH and situated within close proximity to each other were inventoried as tree polygons, and all trees that are 30 cm DBH or larger were located individually (as per City of Toronto Tree Protection By-Law). For trees within the City of Pickering, all trees that are 10 to 24 cm in DBH and situated within close proximity to each other were inventoried as tree polygons, and all trees that are 25 cm DBH or larger were located individually (as per City of Pickering Tree Protection By-law).

#### **4.1.2 Designated Features**

The following sections document the key terrestrial features within the Study Area identified through desktop and field investigations.

##### *4.1.2.1 Provincial Policy Statement - 2014*

The proposed work will require the consideration of federal, provincial, regional and local policies, legislation and regulations. The following sections outline the legislation, policies and regulations relevant to natural heritage features and functions as they relate to the proposed project.

The *Provincial Policy Statement (PPS)* is issued under the authority of the *Planning Act*. It provides direction on matters of provincial interest related to land use planning and development, and promotes the provincial planning system. The current PPS came into effect on April 30, 2014, replacing the 2005 PPS, and applies to planning decisions made on or after that date.

The PPS recognizes the complex inter-relationships among economic, environmental and social factors in planning and embodies good planning principles. It includes enhanced policies on key issues that affect our communities, such as:

- The efficient use and management of land and infrastructure;
- Protection of the environment and resources; and
- Ensuring appropriate opportunities for employment and residential development, including support for a mix of uses.

The PPS guides towards growth within settlement areas away from significant or sensitive resources and areas that may pose a risk to public health and safety. Furthermore, it recognizes that the wise management of development may involve directing, promoting or sustaining growth. It states that land use must be carefully managed to accommodate appropriate development to meet the full range of current and future needs, while achieving efficient development patterns.

The PPS states that the Province's natural heritage resources, water, agriculture lands, mineral resources, and cultural heritage and archaeological resources provide important environmental, economic and social benefits. The wise use and management of these resources over the long-term is a key provincial interest. Through the PPS, the Province wants to ensure that its resources are managed in a sustainable manner to protect essential ecological processes and public health and safety, minimizing environmental and social impacts to meet long-term needs.

Section 1.6.6 of the PPS notes that "when planning for corridors and rights-of-ways for significant transportation infrastructure facilities, consideration will be given to the significant resources in Section 2.0: Wise Use and

Management of Resources”. Section 2.0 of the PPS outlines the significant resources including wetlands, woodlands, valleylands and wildlife habitat.

4.1.2.2 *Natural Heritage Reference Manual*

The Natural Heritage Reference Manual (2010) (NHRM) was created to compliment the 2005 PPS by providing technical guidance for implementing its natural heritage policies. Although not yet updated to reflect changes adopted in the 2014 PPS, it still functions as an important tool for those involved in development and review of policy documents, review and approval of development applications, and matters before provincial boards and tribunals. The NHRM is organized by specific natural heritage policies and provides basic guidance materials in the main sections, supported by more technical material in its appendices. The NHRM provides criteria in which to evaluate natural heritage features for their significance as well as recommendations for mitigation. Natural heritage features covered under the NRHM include:

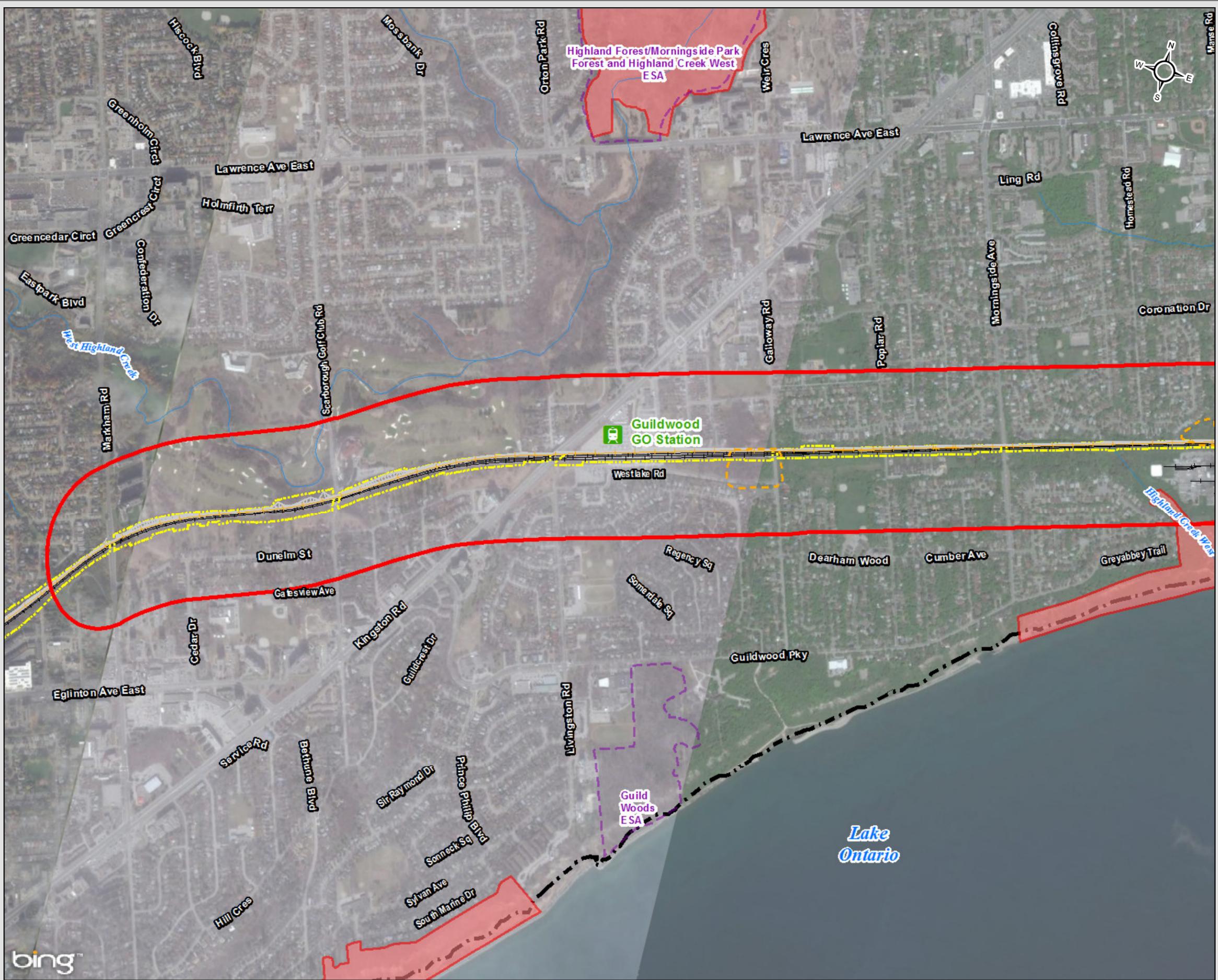
- Significant Habitat of Endangered and Threatened Species;
- Significant Wetlands and Significant Coastal Wetlands;
- Significant Woodlands;
- Significant Valleylands;
- Significant Wildlife Habitat;
- Significant Areas of Natural and Scientific Areas, and
- Fish Habitat.

4.1.2.3 *Areas of Natural and Scientific Interest (ANSI)*

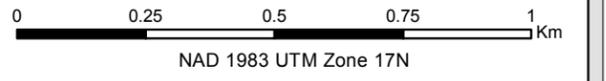
**Table 4-1** describes the Areas of Natural and Scientific Interest (ANSI) occurring within the Study Area, as documented by MNRF’s Natural Resource Values Information System (NRVIS). The locations of these ANSI are provided in **Figure 4-1**.

**Table 4-1: ANSI within the Study Area**

| ANSI Name                            | Area Type    | Significance         | ANSI Description (where available)  |
|--------------------------------------|--------------|----------------------|---|
| <b>Rouge River Valley</b>            | Life Science | Provincial           | Located south of Steeles Avenue and extends to Lake Ontario. It is within the future Rouge National Urban Park and consists of mature mixed and deciduous upland, lowland forests and woodlands, various wetlands, savannahs and dry meadows, which support a biodiversity of plant and wildlife species. |
| <b>East Point Bluffs</b>             | Life Science | Regional             | No information available.   |
| <b>Frenchman’s Bay Coastal Marsh</b> | Life Science | Provincial Candidate | No information available.   |



- Legend**
- Greenbelt Boundary
  - Areas of Natural and Scientific Interest (ANSI)
  - Provincially Significant Wetland
  - Environmentally Significant Area (ESA)
  - TRCA Regulation Limit
  - Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
  - Proposed Rail Alignment
  - Proposed Grading/Ditch/Retaining wall
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
  - Ontario Railway Network
  - Municipal Boundary



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Environmental Project Report

**Terrestrial Features**

October 2016



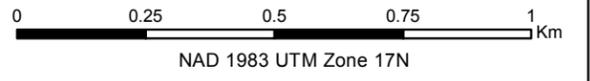
Figure 4-1A

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- Legend**
- Greenbelt Boundary
  - Areas of Natural and Scientific Interest (ANSI)
  - Provincially Significant Wetland
  - Environmentally Significant Area (ESA)
  - TRCA Regulation Limit
  - Proposed Enclosed Tunnel Entrance/Exit
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**Terrestrial Features**

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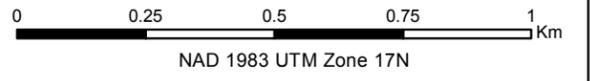
Figure 4-1B

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- Legend**
- Greenbelt Boundary
  - Areas of Natural and Scientific Interest (ANSI)
  - Provincially Significant Wetland
  - Environmentally Significant Area (ESA)
  - TRCA Regulation Limit
  - Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
  - Proposed Rail Alignment
  - Proposed Grading/Ditch/Retaining wall
  - Lakeshore East Rail Corridor
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**Terrestrial Features**

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Figure 4-1C

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- Legend**
- Greenbelt Boundary
  - Areas of Natural and Scientific Interest (ANSI)
  - Provincially Significant Wetland
  - Environmentally Significant Area (ESA)
  - TRCA Regulation Limit
  - Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
  - Proposed Rail Alignment
  - Proposed Grading/Ditch/Retaining wall
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
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  - Municipal Boundary



0 0.25 0.5 0.75 1 Km  
NAD 1983 UTM Zone 17N

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**Terrestrial Features**

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Figure 4-1D

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4.1.2.4 *Environmentally Significant Areas (ESAs)*

**Table 4-2** describes the Environmentally Significant Areas (ESAs) occurring within the Study Area, as documented by MNR's NRVIS as well as the City of Toronto Official Plan Map 12: Environmentally Significant Areas and Policies (as amended by OPA 262). The locations of these ESAs are provided in **Figure 4-1**.

**Table 4-2: ESAs within the Study Area**

| ESA Name                      | ESA Description (where available)   |
|-------------------------------|---|
| <b>East Point</b>             | Approximately 46.6 ha in size located along the waterfront. Contains patchy open areas associated with active bluffs and gullies, which represent the east end of the Scarborough Bluffs. Also supports high biodiversity, including 37 significant flora species and 2 significant fauna species as well as 74 locally significant species as identified by the TRCA. Consists of 30 vegetation communities, of which nine are considered to be significant.   |
| <b>Rouge River Marsh</b>      | Approximately 64.4 ha in size located along the slopes of the Rouge River floodplain at the river mouth. It encompasses portions of the future Rouge National Urban Park. Contains high quality marsh habitat with abundant standing water that is surrounded by deciduous forest. There are 79 significant flora species, 6 significant fauna species and 157 locally significant species, as identified by the TRCA, recorded within this ESA. Also contains significant foraging area for colonial waterfowl and is one of the few breeding habitat for amphibians in the City of Toronto. |
| <b>Petticoat Creek Forest</b> | No information available.   |

4.1.2.5 *Future Rouge National Urban Park*

The Study Area intersects with the future Rouge National Urban Park, Canada's first national urban park and therefore a new type of federal protected area. The Parks Canada Draft Management Plan for Rouge National Urban Park is the guiding document for the future management of lands in this area, once the lands are transferred from the TRCA to Parks Canada. The future park is approximately 7,900 ha and is located in the eastern sector of the Greater Toronto Area (GTA). The park has a high biodiversity of plant and wildlife species, including numerous locally rare species and Species at Risk. It also contains a rare and native Carolinian and mixed-woodland forests, wetlands, meadows and aquatic ecosystems (Parks Canada, 2014). The future Rouge National Urban Park receives new protection under its designation and includes the prohibition of removing natural plants on all lands, as well as provides full protection under the federal *Species at Risk Act* (SARA). Any effects to SAR within these boundaries, once under Parks Canada's jurisdiction, will require permitting under SARA.

4.1.2.6 *Greenbelt Plan – Protected Countryside*

A small portion of the Study Area falls within the Natural Heritage System of the Protected Countryside under the Greenbelt Plan, specifically where the existing Lakeshore East Rail Corridor crosses the Rouge River. Significant natural heritage, hydrological and/or landform features and functions are protected from development as described in Section 3.2.2 of the *Greenbelt Plan*. Given this is an existing Lakeshore East Rail Corridor with a demonstrated need for improvements in the form of increased service and resulting widening, and given it crosses Natural Heritage System components, planning, design and construction practices shall strive to minimize negative impacts and disturbance on the features or their related functions, and shall also strive to maintain connectivity, in accordance with Section 4.2 of the *Greenbelt Plan*. The mitigation recommendations provided within the Impact Assessment portion of this document take into consideration and adopt approaches to meet this requirement.

#### 4.1.2.7 *City of Toronto Official Plan – Natural Heritage System*

Map 9 of the City of Toronto Official Plan (2015) identifies that portions of the Natural Heritage System and Inventory are located within the Study Area. As described in Section 3.4 of the Official Plan, the following features compose the Natural Heritage System and Inventory: significant landforms and physical features, watercourses and hydrological features, valley slopes, riparian zones, terrestrial natural habitat types, significant aquatic features, species of concern and significant biological features that are subject to the Provincial Policy Statement (2014). Policy 3.4.10 indicates development is generally not permitted in the Natural Heritage System; typically a Natural Heritage Impact Study (NHIS) would be submitted to City of Toronto for review and approval. This EPR, along with the Natural Environment Report, reviews the proposed project development to evaluate and determine potential adverse effects on the Natural Heritage System. The contents of the EPR and Natural Environment Report comprise an NHIS and therefore, the City of Toronto requirement is met.

#### 4.1.2.8 *Ravine and Natural Feature Protection By-law – City of Toronto*

Portions of the Study Area also fall under the Ravine and Natural Feature Protection By-law (Chapter 658 of the Municipal Code) including the Rouge River on either side of the Lakeshore East Rail Corridor, which is enforced by the City of Toronto and protects natural features that are vulnerable to degradation due to removal of trees, changes in grade or lack of management. As such, if a healthy tree of any size is injured or destroyed, fill is placed or dumped and grade is altered within this regulated area for the proposed Project, Metrolinx will work with the Municipality or the TRCA, as appropriate, to mitigate the effect(s).

It is understood that the Ravine and Natural Feature Protection By-law also provides for the protection of Heritage Trees as identified as by Trees Ontario. A screening of the Heritage Trees identified by Trees Ontario on the Forests Ontario website indicated that there are no Heritage Trees in the Study Area.

#### 4.1.2.9 *Terrestrial Natural Heritage Target System - Toronto and Region Conservation Authority*

The TRCA provided the limits of natural cover and their Terrestrial Natural Heritage System (TNHSS) which contains the target system. Portions of the Study Area, including the Lakeshore East Rail Corridor, fall within the target system, which was developed by the TRCA to identify natural features and areas that need to be protected and expanded within their jurisdiction in order to protect ecological functions and biodiversity (TRCA, date unknown). Valley and stream corridors, wetlands, woodlands and meadows are key components of this target system (TRCA, date unknown). The TRCA also sets targets for improving the quality, integrity, quantity and connectivity of terrestrial natural features within the system.

#### 4.1.2.10 *TRCA Regulated Areas*

The Study Area is located within the overall jurisdiction of TRCA. Under Section 28 of the *Conservation Authorities Act* (1998), Regulated Areas are established where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. Any proposed development, interference or alteration within a Regulated Area will be discussed with TRCA.

### **4.1.3 *Naturalized Areas and Vegetation Communities***

#### 4.1.3.1 *Ecological Land Classification Communities*

Naturalized areas in close proximity and adjacent to the existing rail corridor are represented by a variety of communities including deciduous forests, mixed forest, deciduous swamps, meadow marshes, shallow water aquatic communities, cultural thickets, cultural woodlands and cultural old field meadows. However, cultural

thickets, cultural woodlands and cultural old field meadows are the most common type of community located in close proximity to the rail corridor within the Study Area. All vegetation communities investigated in 2014 showed some level of invasion by non-native species while those communities closest to the Lakeshore East Rail Corridor showed the highest level of invasion. A detailed description of each of the 15 communities investigated in the field in 2014 is provided below and the locations of these are mapped in **Appendix B1**.

These vegetation communities that were investigated in the field are listed below:

**Site 1**

- ▶ Buckthorn Deciduous Shrub Thicket (THDM2-2)

**Site 2**

- ▶ Fresh-Moist Mixed Meadow Ecosite (MEMM4)
- ▶ Fresh-Moist Manitoba Maple Deciduous Woodland (WODM5-3)
- ▶ Dry-Fresh Sugar Maple Deciduous Forest (FODM5-1)
- ▶ Fresh - Moist Green Ash Hardwood Lowland Deciduous Forest (FODM7-2)
- ▶ Dry-Fresh Mixed Meadow (MEMM4)

**Site 3**

- ▶ Dry-Fresh Poplar Deciduous Forest (FODM3-1)

**Site 7**

- ▶ Mid-Age Speckled Alder Mineral Deciduous Thicket Swamp (SWTM1-1)

**Site 8**

- ▶ White Birch-Poplar Mineral Deciduous Swamp (SWDM4-3)
- ▶ Duckweed Floating-leaved Shallow Aquatic (SAF1-3)
- ▶ Fresh – moist Poplar Deciduous Woodland (WODM5-1)

**Site 9**

- ▶ Mid-aged Fresh–Moist Poplar Deciduous Woodland (WODM5-1)

**Site 10**

- ▶ Fresh-Moist Mixed Meadow (MEMM4)

**Site 11**

- ▶ Green Ash-Buckthorn Woodland (WODa)

**Site 4**

- ▶ Fresh-Moist Mixed Meadow (MEMM4)
- ▶ Dry-Red Osier Dogwood - Sumac Deciduous Thicket (THDa)

**Site 5**

- ▶ Sumac Deciduous Thicket (THDb)
- ▶ Fresh-Moist Mixed Meadow (MEMM4)

**Site 6**

- ▶ Fresh-Moist Manitoba Maple Deciduous Woodland (WODM5-3)
- ▶ Cattail Mineral Shallow Marsh (MASM1-1)
- ▶ Fresh-Moist Mixed Meadow (MEMM4)

**Site 12**

- ▶ Green Ash Mineral Deciduous Swamp (SWDM2-2)
- ▶ Mixed Mineral Meadow Marsh (MAMM1-16)
- ▶ Rush Graminoid Mineral Meadow Marsh (MAMM1-13)

**Site 13**

- ▶ Buckthorn Deciduous Shrub Thicket (THDM2-2)
- ▶ Fresh-Moist Green Ash Hardwood Lowland Deciduous Forest (FODM7-2)

**Site 14**

- ▶ Fresh-Moist White Cedar – Hardwood Mixed Forest (FOMM7)

**Site 15**

- ▶ Smooth Brome Graminoid Meadow (MEGM3-5)
- ▶ Fresh – Moist Poplar Deciduous Woodland (WODM5-1)

4.1.3.2 *Provincially Significant Wetlands (PSW)*

**Table 4-3** describes the Provincially Significant Wetlands (PSW occurring in the Study Area, as documented by MNR through the Ontario Wetlands Evaluation System for Southern Ontario (OWES). The locations of these PSWs are provided in **Figure 4-1**.

**Table 4-3: Provincially Significant Wetlands Within the Study Area**

| PSW Name  | ESA Description  |
|---|--|
| <p><b>Highland Creek Wetland Complex</b></p>          | <p>Occurs at the river mouth of Highland Creek situated entirely within the Highland Creek Valley. Consists of four wetlands, of which the existing Lakeshore East Rail Corridor runs adjacent and in close proximity to one of these wetlands where it crosses Highland Creek. The entire PSW includes palustrine and lacustrine wetlands and is 12.94 hectares (ha) in size. It is predominately comprised of deciduous swamps, cattail marshes and graminoid marshes that are hydrologically connected to each other. The wetland that is located adjacent to the existing rail corridor is described as a lacustrine tall shrub swamp that is approximately 0.21 ha in size. This PSW is considered to have high species richness due to the presence of 266 plant species. Furthermore, lacustrine wetlands are considered rare in this Ecodistrict. The OWES evaluation report identifies 13 locally significant plant species. Two species of provincially significant birds were observed in this PSW, including Black-crowned Night-Heron and Caspian Tern. However these observed species were considered to be visitors from Tommy Thompson Park. Snapping Turtle, a species designated as special concern under the Endangered Species Act (ESA), has been recorded in this wetland complex. However, no Endangered or Threatened species have been identified in this wetland complex. This PSW supports wildlife movements for amphibians, reptiles and other wildlife between the wetlands within the complex and to and from upland areas in the Highland Creek Valley.</p>  |
| <p><b>Rouge River Marshes Wetland Complex</b></p>     | <p>Located at the river mouth of the Rouge River in the City of Toronto and the City of Pickering and is situated entirely within the Rouge River Valley. The existing Lakeshore East Rail Corridor runs adjacent and parallel to this PSW where it crosses the Rouge River. The entire wetland complex is approximately 55.67 ha in size and is primarily lacustrine but also includes riverine and palustrine wetlands types. It is predominately comprised of deciduous swamps, cattail marshes and graminoid marshes, and open water aquatic communities that are all hydrologically connected. This wetland is considered to have high species richness due to the presence of 416 plant species. Furthermore lacustrine wetlands are considered rare in this Ecodistrict. The OWES evaluation report identified 17 provincially significant, 2 regionally significant and 54 locally significant species within this wetland. The OWES evaluation report also indicated the presence of the following significant wildlife:</p> <ul style="list-style-type: none"> <li>• Fourteen species of provincially significant birds were observed; however nearly all were migrants or visitors with only the Least Bittern, a species designated as Threatened under the ESA, and the provincially significant Black-crowned Night-Heron noted as nesting in the wetland complex.</li> <li>• One Threatened reptile SAR, Blanding’s Turtle, was recorded in the wetland, which also contains Critical Habitat for one Endangered mussel, the Eastern Pondmussel as well as three Special Concern reptile species including Map Turtle, Snapping turtle and Milksnake.</li> </ul> <p>Also supports wildlife movements for amphibians, reptiles and other wildlife from wetlands within the complex along the Rouge River Valley.</p> |
| <p><b>Frenchman’s Bay Coastal Wetland Complex</b></p> | <p>Located along the Lake Ontario Shoreline in the City of Pickering. The existing Lakeshore East Rail Corridor runs adjacent to this PSW. The entire wetland complex is 64.83 ha in size and contains mostly lacustrine wetland with small riverine wetland components. The wetland complex is dominated by cattail marsh and open water aquatic communities. Herbaceous marshes, graminoid marshes and thicket swamps are less common. The complex is considered a waterfowl staging area which is significant in this Ecoregion. The wetland complex supports 279 different plant species 242 bird species (of which 72 are breeding) and 11 reptile species. The wetland complex supports 27 significant species, including the following:</p> <ul style="list-style-type: none"> <li>• One regionally significant plant species, Wheat Sedge;</li> <li>• 19 locally significant plant species;</li> <li>• Breeding habitat for SAR including Endangered and Threatened species, Least Bittern, designated as Threatened, and American Eel, designated as Endangered;</li> <li>• One non-breeding record of Blanding’s turtle, designated as Threatened;</li> <li>• Three non-breeding record of special concern species, including Snapping turtle, Bald Eagle and Black Tern; and</li> <li>• One provincially significant bird species, Black-crowned Night-Heron.</li> </ul> <p>Also supports wildlife movements for amphibians, reptiles and other wildlife from wetlands within the complex and to and from nearby surrounding uplands and also beyond the wetland complex along tributary streams north to the forests and wetlands of Iroquois Beach and further north to Oak Ridges Moraine.</p>   |

#### 4.1.3.3 Tree Inventory

The tree inventory documented a total of 647 individual trees and 54 tree polygons situated within the Study Area. A total of 377 trees and 36 tree polygons reside within the City of Toronto. A total of 270 trees and 18 tree polygons reside within the City of Pickering. A tree polygon is used to describe a situation where trees 10 to 29 cm in diameter (in the City of Toronto) and 10 to 24 cm (in the City of Pickering) are situated within close proximity to each other. The tree inventory included a visual assessment to determine species, DBH and condition. A variety of species were observed as shown below:

- Silver, Manitoba, Norway, Sugar and Red Maple
- Black Locust
- European Hornbeam
- Butternut and hybrid Butternut
- White Birch
- Kentucky Coffee Tree
- Willow species
- Little-leaf Linden
- Elm cultivar
- White and Siberian Elm
- Green Ash
- Shademaker Honey Locust
- Eastern Cottonwood
- Trembling Aspen
- Juniper species
- Black Walnut
- European Alder
- White, Austrian and Scots Pine
- White, Norway and Blue Spruce
- Catalpa species
- Eastern White Cedar
- Sweet, Black and Pin Cherry
- Apple species
- Hackberry
- Balsam Poplar
- Bur and Red Oak
- Russian Olive
- European Larch
- Balsam Fir

#### 4.1.4 Wildlife and Wildlife Habitat

##### 4.1.4.1 Amphibians

One potentially suitable amphibian breeding habitat with standing water was identified during the site reconnaissance survey and has been classified as White Birch-Poplar Mineral Deciduous Swamp and Duckweed Floating-leaved Shallow Aquatic (between Copperfield Road and the railway tracks). However, based on the results of the amphibian surveys, this potentially suitable breeding habitat is not significant due to the lack of amphibians heard calling at this location (two American Toads). The enclosed tunnel entrance/exit was added to NER Study Area in October 2016; however the footprint of this new infrastructure does not contain suitable amphibian breeding habitat. The enclosed tunnel entrance/exit will be addressed in an EPR addendum.

##### 4.1.4.2 Breeding Birds

A total of 52 bird species were recorded within the Study Area during the June and July 2014 breeding bird surveys as shown in **Table 4-4**.

**Table 4-4: Results of Breeding Bird Surveys at 15 Sites**

| Common Name        | Scientific Name              | Number of Individuals Recorded on Each Survey |           | S-ran k <sup>1</sup> | L-ran k <sup>2</sup> | COSSARO<br>(Protected Under ESA if THR/END) | COSEWIC | Protected under MBCA <sup>3</sup><br>(yes/no) |
|--------------------|------------------------------|---|-----------|----------------------|----------------------|---|---------|---|
|                    |                              | 16-Jun-14                                     | 10-Jul-14 |                      |                      |   |         |   |
| Alder Flycatcher   | <i>Empidonax alnorum</i>     | 1   |           | S5<br>B              | L4                   | -   | -       | Yes   |
| American Crow      | <i>Corvus brachyrhynchos</i> |   | 1         | S5<br>B              | L5                   | -   | -       | No  |
| American Goldfinch | <i>Carduelis tristis</i>     | 2   | 1         | S5<br>B              | L5                   | -   | -       | Yes   |
| American Redstart  | <i>Setophaga ruticilla</i>   | 1   | 1         | S5<br>B              | L4                   |   |         |   |

### 3. Migratory Birds Convention Act

**Table 4-4: Results of Breeding Bird Surveys at 15 Sites**

| Common Name              | Scientific Name                   | Number of Individuals Recorded on Each Survey |                  | S-rank <sup>1</sup> | L-rank <sup>2</sup> | COSSARO<br>(Protected Under ESA if THR/END) | COSEWIC         | Protected under MBCA <sup>3</sup><br>(yes/no) |
|--------------------------|-----------------------------------|---|------------------|---------------------|---------------------|---|-----------------|---|
|                          |                                   | 16-Jun-14                                     | 10-Jul-14        |                     |                     |   |                 |   |
| American Robin           | <i>Turdus migratorius</i>         | 1   | 1                | S5<br>B             | L5                  | -   | -               | Yes   |
| Baltimore Oriole         | <i>Icterus galbula</i>            |   | 2                | S4<br>B             | L5                  | -   | -               | Yes   |
| Bank Swallow             | <i>Riparia riparia</i>            | 10  | 50<br>(flyovers) | S4<br>B             | L4                  | Threatened                                  | Threatened      | Yes   |
| Barn Swallow             | <i>Hirundo rustica</i>            |   | 1 (Flyover)      | S4<br>B             | L4                  | Threatened                                  | Threatened      | Yes   |
| Belted Kingfisher        | <i>Megaceryle alcyon</i>          | 1   |                  | S4<br>B             | L4                  | -   | -               | Yes   |
| Black-capped Chickadee   | <i>Poecile atricapillus</i>       | 1   | 1                | S5                  | L5                  | -   | -               | Yes   |
| Blue Jay                 | <i>Cyanocitta cristata</i>        |   | 1                | S5                  | L5                  | -   | -               | No  |
| Blue-grey Gnatcatcher    | <i>Poliptila caerulea</i>         |   | 1                | S4<br>B             | L4                  | -   | -               | Yes   |
| Brown-headed Cowbird     | <i>Molothrus ater</i>             | 1   | 1                | S4<br>B             | L5                  | -   | -               | No  |
| Canada Goose             | <i>Branta canadensis</i>          | 1   |                  | S5                  | L5                  | -   | -               | Yes   |
| Carolina Wren            | <i>Thryothorus ludovicianus</i>   | 1   |                  | S4                  | L4                  | -   | -               | Yes   |
| Cedar Waxwing            | <i>Bombycilla cedrorum</i>        | 1   |                  | S5<br>B             | L5                  | -   | -               | Yes   |
| Chipping Sparrow         | <i>Spizella passerina</i>         | 1   |                  | S5<br>B             | L5                  | -   | -               | Yes   |
| Cliff Swallow            | <i>Petrochelidon pyrrhonota</i>   | Numerous                                      | Numerous         | S4<br>B             | L4                  | -   | -               | Yes   |
| Common Grackle           | <i>Quiscalus quiscula</i>         | 2   | 1                | S5<br>B             | L5                  | -   | -               | No  |
| Downy Woodpecker         | <i>Picoides pubescens</i>         |   | 1                | S5                  | L5                  | -   | -               | Yes   |
| Eastern Kingbird         | <i>Tyrannus tyrannus</i>          |   | 1                | S4<br>B             | L4                  |   |                 | Yes   |
| Eastern Wood Pewee       | <i>Contopus virens</i>            | 1   |                  | S4<br>B             | L4                  | Special Concern                             | Special Concern | Yes   |
| European Starling        | <i>Sturnus vulgaris</i>           | 3   | 4                | SN<br>A             | L+                  | -   | -               | No  |
| Gray Catbird             | <i>Dumetella carolinensis</i>     | 1   | 1                | S4<br>B             | L4                  | -   | -               | Yes   |
| Great Blue Heron         | <i>Ardea herodias</i>             |   | 1                | S4                  | L3                  | -   | -               | Yes   |
| Great Crested Flycatcher | <i>Myiarchus crinitus</i>         | 1   |                  | S4<br>B             | L4                  |   |                 | Yes   |
| Great Crested Flycatcher | <i>Myiarchus crinitus</i>         | 1   |                  | S4<br>B             | L4                  | -   | -               | Yes   |
| House Finch              | <i>Carpodacus mexicanus</i>       |   | 1                | SN<br>A             | L+                  |   |                 |   |
| House Sparrow            | <i>Passer domesticus</i>          | 3   | 3                | SN<br>A             | L+                  | -   | -               | No  |
| House Wren               | <i>Troglodytes aedon</i>          | 1   | 2                | S5<br>B             | L5                  |   |                 | Yes   |
| Indigo Bunting           | <i>Passerina cyanea</i>           | 1   |                  | S4<br>B             | L4                  |   |                 | Yes   |
| Killdeer                 | <i>Charadrius vociferus</i>       | 1   | 1                |                     | L5                  | -   | -               | Yes   |
| Mallard                  | <i>Anas platyrhynchos</i>         | 1   | 1                | S5                  | L5                  |   |                 | Yes   |
| Merlin                   | <i>Falco columbarius</i>          |   | 1                | S5<br>B             | L2                  |   |                 | No  |
| Mourning Dove            | <i>Zenaidura macroura</i>         | 1   |                  | S5                  | L5                  | -   | -               | Yes   |
| Northern Cardinal        | <i>Cardinalis cardinalis</i>      | 1   | 1                | S5                  | L5                  | -   | -               | Yes   |
| Northern Flicker         | <i>Colaptes auratus</i>           |   | 1                | S4<br>B             | L4                  | -   | -               | Yes   |
| Northern Rough-winged    | <i>Stelgidopteryx serripennis</i> | 1   |                  | S4                  | L4                  | -   | -               | Yes   |

**Table 4-4: Results of Breeding Bird Surveys at 15 Sites**

| Common Name             | Scientific Name                  | Number of Individuals Recorded on Each Survey |             | S-rank <sup>1</sup> | L-rank <sup>2</sup> | COSSARO<br>(Protected Under ESA if THR/END) | COSEWIC         | Protected under MBCA <sup>3</sup><br>(yes/no) |
|-------------------------|----------------------------------|---|-------------|---------------------|---------------------|---|-----------------|---|
|                         |                                  | 16-Jun-14                                     | 10-Jul-14   |                     |                     |   |                 |   |
| Swallow                 |                                  |   |             | B                   |                     |   |                 |   |
| Peregrine Falcon        | <i>Falco peregrinus</i>          |   | 1 (Flyover) | S3<br>B             | L4                  | Special Concern                             | Special Concern | No  |
| Red-eyed Vireo          | <i>Vireo olivaceus</i>           | 1   |             | S5<br>B             | L4                  | -   | -               | Yes   |
| Red-tailed Hawk         | <i>Buteo jamaicensis</i>         |   | 1           | S5                  | L5                  | -   | -               | No  |
| Red-winged Blackbird    | <i>Agelaius phoeniceus</i>       | 32  | 21          | S4                  | L5                  | -   | -               | No  |
| Rock Pigeon             | <i>Columba livia</i>             | 1   |             | SN<br>A             | L+                  | -   | -               | No  |
| Savannah Sparrow        | <i>Passerculus sandwichensis</i> |   | 1           | S4<br>B             | L4                  | -   | -               | Yes   |
| Song Sparrow            | <i>Melospiza melodia</i>         | 4   | 6           | S5<br>B             | L5                  | -   | -               | Yes   |
| Tree Swallow            | <i>Tachycineta bicolor</i>       | 1   |             | S4<br>B             | L4                  | -   | -               | Yes   |
| Warbling Vireo          | <i>Vireo gilvus</i>              | 1   | 1           | S5<br>B             | L5                  | -   | -               | Yes   |
| White-breasted Nuthatch | <i>Sitta carolinensis</i>        |   | 1           | S5                  | L4                  | -   | -               | Yes   |
| Willow Flycatcher       | <i>Empidonax traillii</i>        | 1   |             | S5<br>B             | L4                  | -   | -               | Yes   |
| Wood Duck               | <i>Aix sponsa</i>                | 5   |             | S5                  | L4                  | -   | -               | Yes   |
| Yellow Warbler          | <i>Setophaga petechia</i>        | 2   | 3           | S5<br>B             | L5                  | -   | -               | Yes   |

The enclosed tunnel entrance/exit to the south of Rouge Hill GO Station was added to NER Study Area in October 2016; as such, the footprint of this new infrastructure it did not receive breeding bird surveys in 2014. The enclosed tunnel entrance/exit will be addressed in an EPR addendum.

#### 4.1.4.3 Terrestrial Species at Risk (SAR)

Species at Risk (SAR) with the potential of occurring in the Study Area were identified through background literature review, MNR consultation, and habitat assessments completed in conjunction with the field investigations. This included screening the preferred habitat of each SAR known to occur in the vicinity of the Study Area against the existing habitat conditions observed during the field investigations. **Table 4-5** highlights SAR with potentially suitable habitat within the Study Area.

**Table 4-5: SAR with Potentially Suitable Habitat within the Study Area**

| Species              | Committee on the Status of Species at Risk in Ontario (COSSARO) Status | Potential Habitat Location and Species Presence  |
|----------------------|--|--|
| Butternut            | Endangered   | Multiple Butternut trees were identified; however many of these appear to be hybrid.   |
| Yellow-breasted Chat | Endangered   | The naturalized area west of Beechgrove Drive and also along the forested floodplains of Highland Creek may be potential habitat. This species was not observed during the breeding bird surveys. There are no records of this species from the 2005 Ontario Breeding Bird Atlas or from NHIC. Therefore, this species is unlikely to occur within the Study Area. |
| Bank Swallow         | Threatened   | Sand banks along the Lake Ontario Shoreline are potentially suitable habitat for this species. A colony of Bank Swallows was recorded in a sand bank along the Waterfront Trail and east of Lawrence Avenue East during the breeding bird surveys. Although approximately 85 burrows were observed, not all of these were inhabited by Bank                        |

**Table 4-5: SAR with Potentially Suitable Habitat within the Study Area**

| Species  | Committee on the Status of Species at Risk in Ontario (COSSARO) Status | Potential Habitat Location and Species Presence   |
|--|--|---|
|  |  | Swallows and only 10 individuals were observed at the time of the breeding bird surveys.  |
| Dense Blazing Star                                 | Threatened   | According to the MNR, this species occurs in one of the unevaluated wetlands near Highland Creek, location not specified by MNR.  |
| Eastern Wood Pewee                                 | Special Concern  | Fragmented patches of deciduous forests within the Study Area could provide suitable habitat for this species. One Eastern Wood-Pewee was observed in a deciduous woodlot on the north side of Lawrence Avenue East and west of Ridgewood Road during the breeding bird surveys. This woodlot may be suitable breeding habitat for this species but since it is located across the road from the rail corridor, it will not be potentially impacted by the Project. |
| Eastern Musk Turtle                                | Special Concern  | Portions of the Highland Creek may be suitable habitat for this species. Historical records indicate presence within Rouge River and Rouge Marsh as well. No recent surveys by other parties have been undertaken for this species in these areas, and Eastern Musk Turtle was not observed during the AECOM field investigations.  |
| Golden-winged Warbler                              | Special Concern  | Fragmented patches of deciduous forest could provide suitable habitat for this species. This species was not observed during the field investigations.  |
| Hooded Warbler                                     | Special Concern  | Forested portions of the Rouge River, Highland Creek and Petticoat Creek could provide suitable habitat. This species was not observed during the field investigations.   |
| Milksnake  | Special Concern (federally, NAR provincially)                          | Cultural meadows, thickets and deciduous forests identified within the Study Area which fall within future Parks Canada land may provide habitat for this species. This species was not observed during the field investigations.   |
| Northern Map Turtle                                | Special Concern  | Potentially suitable habitat may be present within the floodplains of the Rouge River. This species was not observed during the field investigations.   |
| Snapping Turtle                                    | Special Concern  | Potentially suitable habitat may be present within the floodplains of the Rouge River and Highland Creek. This species was not observed during the field investigations.  |
| Blanding's Turtles ( <i>Emydoidea blandingii</i> ) | Threatened   | Critical habitat has been identified as present within the Rouge Marsh area, and presence is likely particularly with the releases of young in 2015 and 2016 by TRCA and Toronto Zoo to bolster local populations. This habitat however is located outside of the Lakeshore East Rail Corridor and across a pedestrian walking trail; no effects due to construction/operations are anticipated. This species was not observed during the field investigations.     |
| Wood Thrush  | Special Concern  | Forested portions of the Rouge River, Highland Creek and Petticoat Creek may provide habitat for this species. This species was not observed during the field investigations.   |
| Little Brown Myotis ( <i>Myotis lucifugus</i> )    | Endangered   | Potentially suitable habitat may be available within forest and/or swamp communities along or adjacent to or overlapping the Lakeshore East Rail Corridor. This species was not observed during the field investigations.   |
| Northern Myotis ( <i>Myotis septentrionalis</i> )  | Endangered   | Potentially suitable habitat may be available within forest and/or swamp communities along or adjacent to or overlapping the Lakeshore East Rail Corridor. This species was not observed during the field investigations.   |
| Tri-coloured Bat ( <i>Perimyotis subflavus</i> )   | Endangered   | Potentially suitable habitat may be available within forest and/or swamp communities along or adjacent to or overlapping the Lakeshore East Rail Corridor. This species was not observed during the field investigations.   |
| Eastern Small-footed Bat ( <i>Myotis leibii</i> )  | Endangered   | Potentially suitable habitat may be available within forest and/or swamp communities along or adjacent to or overlapping the Lakeshore East Rail Corridor. This species was not observed during the field investigations.   |

Although several Barn Swallows and one Peregrine Falcon were observed within the Study Area during the breeding bird season, nesting sites for these species were not identified within the immediate rail corridor in the Study Area. Given that the Study Area is surrounded by residential and commercial buildings, it is likely that these

species may be nesting in the vicinity but outside of the immediate Study Area. The rail bridges over Highland Creek and Rouge River did not contain any swallow nests.

### 4.1.5 Fish and Fish Habitat

#### 4.1.5.1 Existing Watercourse Crossings

A total of ten watercourse crossings were identified within the Study Area and are mapped on **Figure 4-2**. Existing conditions and fish species and habitat for each of the ten watercourse crossings are described below in **Table 4-6**. Additional details and a photographic log of each watercourse crossing is provided in **Appendix B1**.

**Table 4-6: Watercourse Crossings within the Study Area**

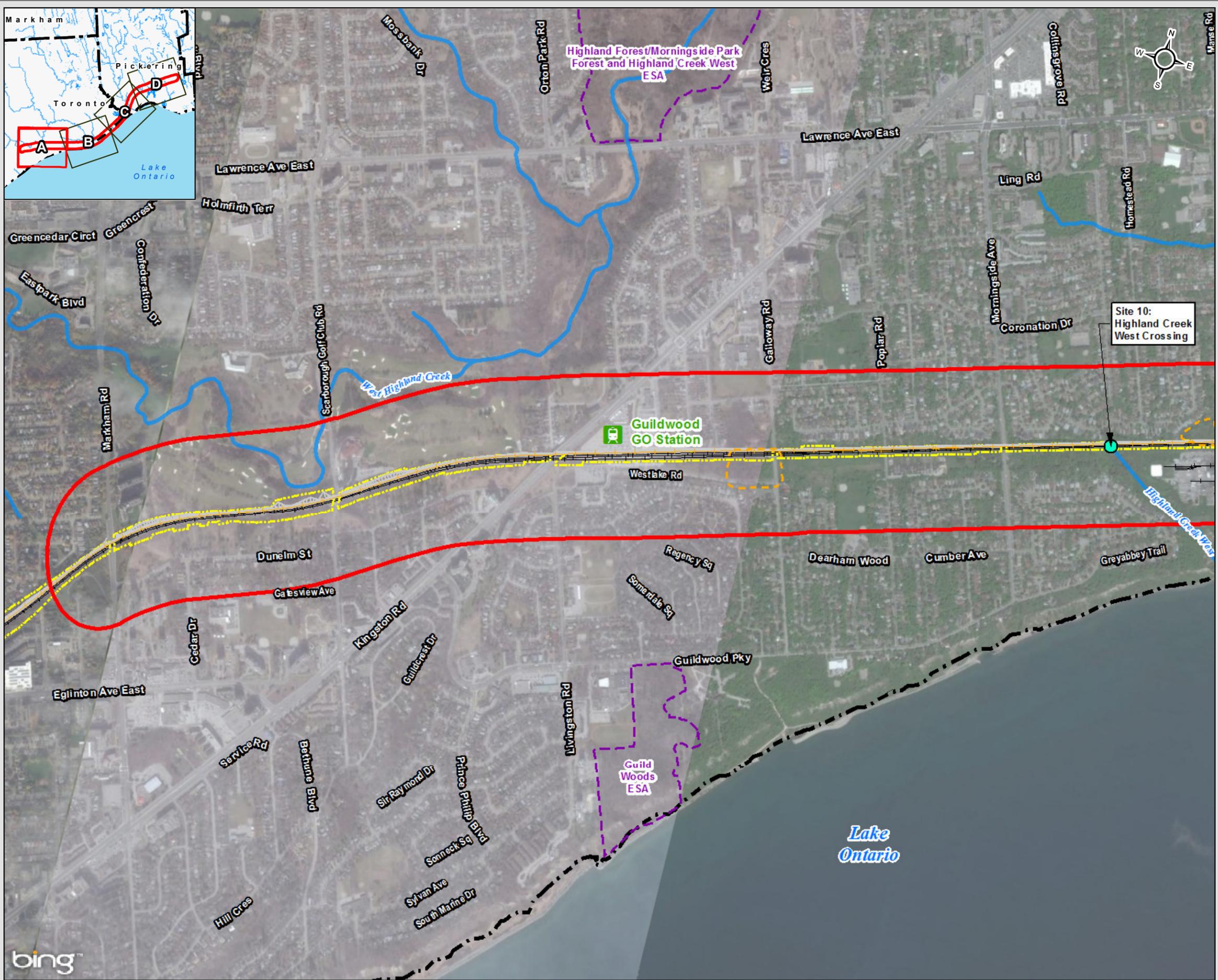
| Watercourse Name                           | Summary Description from 2014 Field Investigations  | Fish Species & Habitat<br><i>(from MNRF and TRCA historical records)</i>   |
|--|---|--|
| <b>Frenchman’s Creek (east crossing)</b>   | <ul style="list-style-type: none"> <li>Two large attached concrete box culverts with a depth of approximately 20 cm.</li> <li>During low flow conditions a 30 cm deep sand deposit within the culvert may create a barrier for fish passage; however, small fish were able to pass.</li> <li>The creek appears to be enclosed from north of the Highway 401 to the culvert on the south side of Bayly Street.</li> </ul>  | <ul style="list-style-type: none"> <li>Historical catches of White sucker, Bluntnose minnow, Fathead minnow, Creek chub, and Blacknose dace.</li> <li>These species do not have any particular sensitivities and can inhabit a variety of waters as tolerance ranges from intermediate to high.</li> <li>The habitat at the site was able to provide the fish community food, cover, and possible spawning.</li> </ul> |
| <b>Frenchman’s Creek (centre crossing)</b> | <ul style="list-style-type: none"> <li>Two circular concrete culverts at the north end of the concrete box culvert beneath the north side of Kingston Road, under the tracks and outlets at Bayly Street.</li> <li>Circular concrete culverts are perched (the east culvert perched 10 cm more than the west) and create a barrier to fish passage upstream.</li> </ul>   | <ul style="list-style-type: none"> <li>Historical catches of White sucker, Bluntnose minnow, Fathead minnow, Creek chub, and Blacknose dace.</li> <li>These coolwater forage fish species are common in most areas of Ontario. They range from moderately intolerant to tolerant and can inhabit a variety of waters.</li> </ul>   |
| <b>Dunbarton Creek</b>                     | <ul style="list-style-type: none"> <li>Enclosed from just north of the tracks to north of Bayly Street. At the outlet is a large concrete box culvert which is substantially perched (3.5 m), therefore creating flow with a steep gradient.</li> <li>The banks in the downstream section are very steep (10 m high), and eroding. Tree roots are showing and some trees have fallen.</li> <li>The water has a turbid appearance. The debris in the water is likely providing some cover and a possible riffle area downstream, however, it may be considered a barrier to passage at times.</li> </ul>   | <ul style="list-style-type: none"> <li>Historical catches of White sucker, Bluntnose minnow, Fathead minnow, Creek chub, and Blacknose dace. These species do not have any particular sensitivity and can inhabit a variety of waters as their tolerance is fairly high.</li> </ul>  |
| <b>Amberlea Creek</b>                      | <ul style="list-style-type: none"> <li>Flows above ground under a round corrugated steel pipe (CSP) culvert less than 1 m in diameter.</li> <li>The creek is approximately 45 cm in water depth and flows through a deciduous forest which provides dense shade from the large trees and some overhanging herbaceous vegetation along the riparian area.</li> <li>There is a moderate amount of woody debris available for cover, as well as large boulders. Some of the large debris creates strong riffles that may create barrier to fish passage upstream. No aquatic macrophytes were observed in the creek, although minimal algae was observed.</li> </ul> | <ul style="list-style-type: none"> <li>No fish species records were provided for this location.</li> </ul>   |
| <b>Petticoat Creek (centre crossing)</b>   | <ul style="list-style-type: none"> <li>Becomes enclosed directly south of the tracks where it flows into a small round culvert (approximately 1 m in diameter) and ranged from 5 to 15 cm in depth.</li> <li>The substrate consists of sand and silt with some muck present.</li> <li>The water appears turbid and slight staining was observed, possibly from iron. Woody debris is available for cover, as it flows directly through a wooded area south of the tracks. Under low flow conditions there may be barriers present in this small watercourse due to some debris jams.</li> </ul>   | <ul style="list-style-type: none"> <li>No fish species records were provided for this location.</li> </ul>   |

**Table 4-6: Watercourse Crossings within the Study Area**

| Watercourse Name                            | Summary Description from 2014 Field Investigations  | Fish Species & Habitat<br><i>(from MNRF and TRCA historical records)</i>   |
|---|---|--|
|   | <ul style="list-style-type: none"> <li>A small round culvert observed to be an outlet to the small creek is located southwest of the creek and was lined with river stone. A second culvert, possibly a storm sewer, is located west of the creek and was dry.</li> </ul>   |  |
| <b>Rouge River</b>                          | <ul style="list-style-type: none"> <li>Crossing consists of a large clear span steel rail bridge with no piers in the water.</li> <li>The river is approximately 30 to 35 m wide at this location.</li> <li>Stone abutments are observed at the shore on either side of the bridge.</li> <li>A smaller pedestrian bridge is located north of the rail bridge. The abutments of the pedestrian bridge are approximately 3 to 4 m from the water's edge and not constraining the flow of the river.</li> <li>North of the pedestrian bridge is a cattail marsh, known as the Rouge River Marsh.</li> <li>The watercourse in this section appears natural in form with large meanders and forested banks present.</li> <li>The flow was slow to moderate. Downstream of the bridge is the outlet to Lake Ontario. There is a small sand peninsula located south of the bridge crossing towards the lake Ontario opening that may be partially underwater during high flow.</li> </ul>  | <ul style="list-style-type: none"> <li>Historical fish records (1980-2010) from the TRCA show a diverse community of warm to coldwater fish species named in Table 3-23 of <b>Appendix B1</b>.</li> <li>Northern pike requires rich submerged vegetation to carry out its life processes, including the ambushing of prey and protection of young.</li> <li>Lake chub typically prefers cooler waters; however, it can survive in moderate temperatures.</li> <li>Tadpole maddom typically inhabits slow moving streams and rivers. They also prefer habitat with turbid water, a soft mud, sand or gravel bottom, and thick vegetation.</li> <li>Trout-perch and Smallmouth bass prefer clear to slightly turbid water with sandy and gravelly bottoms and they will avoid shallow soft-bottomed areas. Therefore, disruption or altering of the substrate may influence the ability for this species to carry out their life processes.</li> <li>Although the fish records are historical, these species may still exist in the water body.</li> </ul> |
| <b>Unnamed Tributary at Lawrence Avenue</b> | <ul style="list-style-type: none"> <li>A large round concrete culvert (approximately 1.5 m in diameter).</li> <li>The creek flows underground from the culvert at Lawrence Avenue to south of the tracks.</li> <li>Direct access to the creek is not feasible, as banks are very steep, however, it sounded like a perched culvert was creating a high gradient flow which may be creating a barrier for fish passage upstream.</li> <li>The creek was approximately 1 m wetted width, and 5 to 10 cm in depth.</li> <li>The substrate consists of sand, gravel, silt and cobble, which was creating riffles in the shallow water.</li> <li>The banks appear stable, with a variety of overhanging shrubs. Woody debris was observed in the water, which under the observed low flow conditions may create a barrier to fish passage.</li> <li>The creek flows through a forested area so there is plenty of natural shade north of the culvert.</li> <li>A pumping station is located directly east of the creek.</li> </ul> | <ul style="list-style-type: none"> <li>No historical fish species records were provided for this location.</li> </ul>  |
| <b>Highland Creek (main crossing)</b>       | <ul style="list-style-type: none"> <li>A large rail bridge with an abutment at each shore and one large pier in the water.</li> <li>The creek is approximately 20 m wide in this location.</li> <li>The flow was slow to moderate and the substrate appeared to be sandy, with very little aquatic macrophytes present.</li> </ul>  | <ul style="list-style-type: none"> <li>No fish were observed during the site visit</li> <li>Historical (1989) fish records from the MNRF show catches of the following species: Alewife, Bluntnose minnow, White sucker, Blacknose dace, Three-spine stickleback (<i>Gasterosteus aculeatus</i>), Fathead minnow, Emerald shiner, Brook stickleback (<i>Culaea inconstans</i>), Northern redbelly dace (<i>Phoxinus eos</i>), Longnose dace (<i>Rhinichthys cataractae</i>), Creek chub, and Mottled sculpin (<i>Cottus bairdii</i>).</li> <li>The Northern redbelly dace has specific habitat requirements which include water supplied by clear, cool springs or seeps, absence of strong currents, and effective cover such as undercut banks and dense vegetation.</li> <li>The Mottled sculpin prefers cool, clear streams; however, it will tolerate warmer bodies of water.</li> <li>Although records of these species are historical, there is a possibility they are present within the watershed.</li> </ul>                                   |
| <b>Highland Creek</b>                       | <ul style="list-style-type: none"> <li>A large low lying area was identified; however, no</li> </ul>  | <ul style="list-style-type: none"> <li>No historical fish species records were provided for this</li> </ul>  |

**Table 4-6: Watercourse Crossings within the Study Area**

| Watercourse Name                          | Summary Description from 2014 Field Investigations   | Fish Species & Habitat<br><i>(from MNRF and TRCA historical records)</i>  |
|---|--|---|
| <b>(centre crossing)</b>                  | culvert was evident. The area on both the north and south sides of Copperfield Road had standing water. There is a variety of vegetation including grasses, reeds, shrubs, and minimal woody debris, however; no flow was identified.  | location.   |
| <b>Highland Creek<br/>(west crossing)</b> | <ul style="list-style-type: none"> <li>• Creek flows underground for approximately 200 m then outlets just north of Nelson Street, past Blakerton Parkette</li> <li>• Small CSP culvert observed just south of the tracks.</li> <li>• Creek was dry during field investigations</li> </ul> | <ul style="list-style-type: none"> <li>• No historical fish species records were provided for this location.</li> </ul> |



**Legend**

- Watercourse Crossing Site
- Mussel SAR Protected Under SARA
- Fish SAR Under Consideration for Listing on Schedule 1 of SARA (Endangered, Threatened)
- Found or Proposed Critical Habitat for Mussel SAR
- Environmentally Significant Area (ESA)
- TRCA Regulation Limit
- Proposed Enclosed Tunnel Entrance/Exit
- Study Area (300m Buffer)
- Proposed Rail Alignment
- Proposed Grading/Ditch/Retaining wall
- Lakeshore East Rail Corridor
- GO Stations
- Watercourse
- Ontario Railway Network
- Municipal Boundary

0 0.25 0.5 0.75 1 Km

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Metrolinx Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) Project  
 Environmental Project Report

**Aquatic Features**

October 2016



Figure 4-2A

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- ### Legend
- Watercourse Crossing Site
  - Mussel SAR Protected Under SARA
  - Fish SAR Under Consideration for Listing on Schedule 1 of SARA (Endangered, Threatened)
  - Found or Proposed Critical Habitat for Mussel SAR
  - Environmentally Significant Area (ESA)
  - TRCA Regulation Limit
  - Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
  - Proposed Rail Alignment
  - Proposed Grading/Ditch/Retaining wall
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
  - Ontario Railway Network
  - Municipal Boundary



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## Aquatic Features

October 2016



Figure 4-2B

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### Legend

- Watercourse Crossing Site
- Mussel SAR Protected Under SARA
- Fish SAR Under Consideration for Listing on Schedule 1 of SARA (Endangered, Threatened)
- Found or Proposed Critical Habitat for Mussel SAR
- Environmentally Significant Area (ESA)
- TRCA Regulation Limit
- Proposed Enclosed Tunnel Entrance/Exit
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- Lakeshore East Rail Corridor
- GO Stations
- Watercourse
- Ontario Railway Network
- Municipal Boundary

0 0.25 0.5 0.75 1 Km

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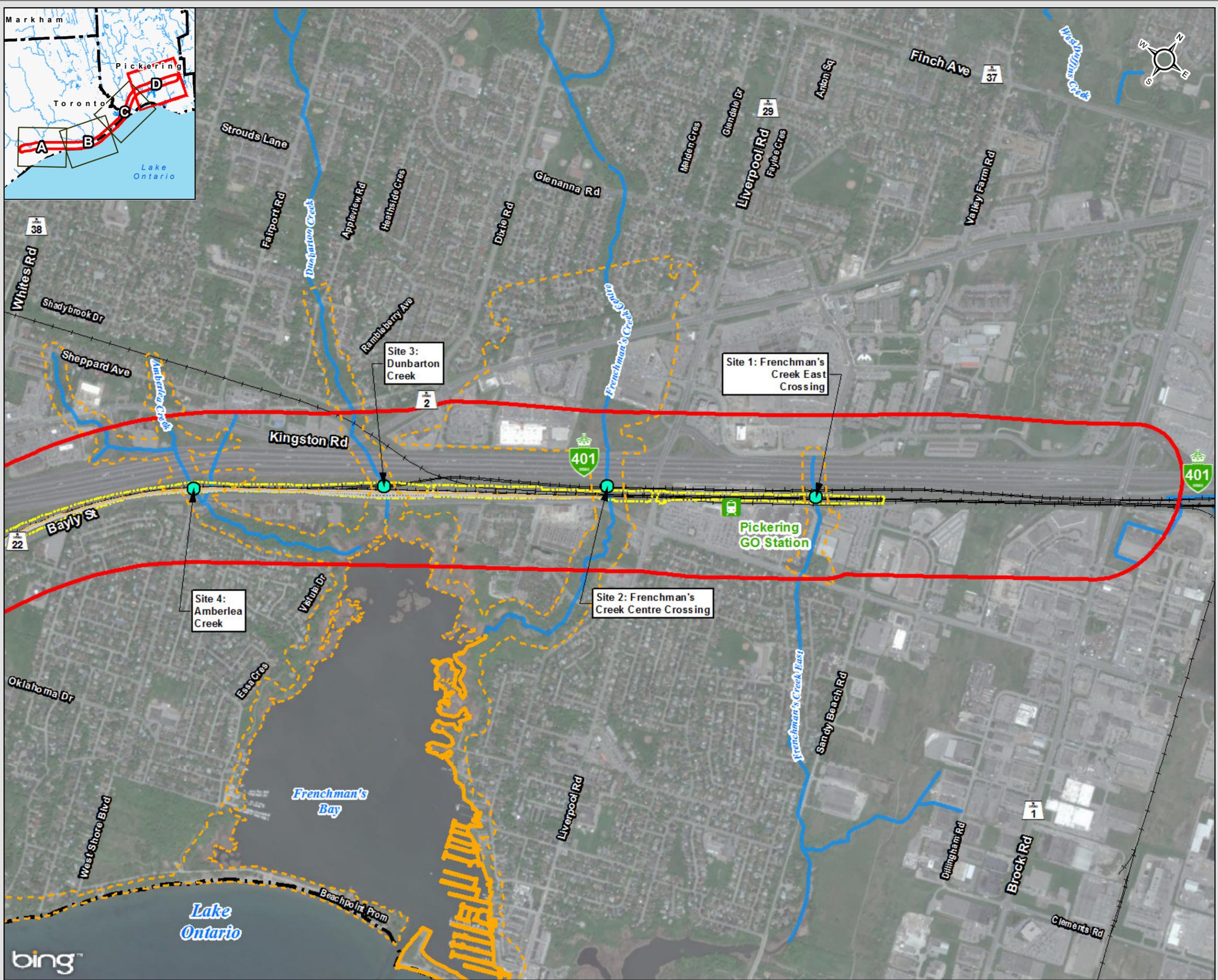
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## Aquatic Features

October 2016

Figure 4-2C

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- ### Legend
- Watercourse Crossing Site
  - Mussel SAR Protected Under SARA
  - Fish SAR Under Consideration for Listing on Schedule 1 of SARA (Endangered, Threatened)
  - Found or Proposed Critical Habitat for Mussel SAR
  - Environmentally Significant Area (ESA)
  - TRCA Regulation Limit
  - Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
  - Proposed Rail Alignment
  - Proposed Grading/Ditch/Retaining wall
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
  - Ontario Railway Network
  - Municipal Boundary

0 0.25 0.5 0.75 1 Km

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## Aquatic Features

October 2016



Figure 4-2D

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#### 4.1.5.2 Aquatic SAR

The segment of Rouge River between the rail crossing and Lake Ontario is identified as having known Eastern Pondmussel distributions and is also critical habitat for this species. Eastern Pondmussel is provincially and federally designated as Endangered and is protected under Schedule 1 of SARA. However, while there are localized areas that may be suitable for the Eastern Pondmussel to inhabit, there are not ideal conditions as the river is typically faster flowing than the species required and much of the shoreline has been hardened with armour stone.

American eel was caught in the Rouge River as recent as 2010 (TRCA, 2011). American eel is considered provincially as Endangered but has no federal status. American eel are a coolwater species that prefer lakes, ponds, rivers and creeks less than 15 m deep with muddy bottoms and close cover. Habitat use of the Rouge River at the rail crossing by American eel is unknown as it has a sandy bottom and its shoreline has been hardened.

Lake Sturgeon is designated as provincially as Special Concern but federally has no status and is known to occur within TRCA's regulatory limits. However, the main watercourses within the Study Area do not provide suitable habitat for Lake Sturgeon as they are too small and too degraded.

Redside Dace is designated provincially as Endangered and federally as Special Concern, and was last observed within the Study Area in 1972, which is considered a historical record. It is not likely that the immediate crossing areas provide suitable habitat for Redside Dace, as armour stone has been placed in many areas for stabilization and has since created hard shorelines with little riparian vegetation, minimal pool habitat, and a sand substrate.

## 4.2 Soils and Groundwater

### 4.2.1 Methods

A review of available background data and information was completed to characterize the general soils and groundwater of the Study Area as it relates to wider physiographic and hydrogeological regimes. This included information available from the Ontario Geological Survey (OGS), MOECC water well records, and the MNRF Groundwater Information Network.

### 4.2.2 Soils

The Study Area is within the Iroquois Plain physiographic region, a low lying area that was formed by the former shoreline and lake bottom of Lake Iroquois which drained at the end of the last glacial period. The region borders the western and northern shoreline of present day Lake Ontario from St. Catharines to Trenton. The topography of the region is generally flat and low lying.

Within the Study Area, the Iroquois Plain is comprised of the physiographic landforms; sand plains and clay plains, and occasionally drumlins. The sand plains cover the portion of the Study Area west of Highland Creek and just north of Frenchman's Bay. The remainder of the Study Area is within the clay plain, with the exception of an area of drumlins near Bay Ridges just east of Port Union. Highland Creek and Rouge River have spread sand into the old lake bed to build the sand plain.

### 4.2.3 Groundwater

The surficial geology of the Study Area is characterized by a stone poor sandy silt till in the western portion of the Study Area, which is then inter-fingered with massive to well laminated fine-textured glaciolacustrine silt and clay deposits several times along the length of the Study Area. At Highland Creek, the Rouge River and Petticoat Creek, modern alluvial deposits of clay, silt, sand, and gravel are present for various lengths of the Study Area (approximately 180 m, 500 m and 100 m respectively). The hydraulic conductivity of the deposits is expected to vary significantly between the till, glaciolacustrine, and modern alluvial deposits.

The bedrock within the Study Area is mapped as shale limestone, dolostone and siltstone from the upper Ordovician era. Bedrock is generally shale encountered at depths ranging from 10 m to 20 m in the eastern portion of the Study Area and 20 m to 40 m to the west.

Groundwater in the area is anticipated to flow south towards Lake Ontario with local variation; particularly in proximity to creeks and rivers. The shallow groundwater ranges from 4 m to 15 m in depth.

The quality of the shallow groundwater is likely quite variable and impacted by adjacent industries and development. Based on the heavily urbanized nature of the area and its proximity to Lake Ontario, it is unlikely that there is human use of the groundwater resources with the potential exception of irrigation wells.

## 4.3 Rail Corridor Contamination Overview

### 4.3.1 Methods

Phase I and Phase II Environmental Site Assessments (ESAs) were completed by SPL Beatty in 2011, as part of due diligence activities for the Lakeshore East Rail Corridor, from the Don Valley Parkway in the City of Toronto, to Frenchman's Bay in the City of Pickering. It should be noted that Metrolinx will undertake a Phase I ESA investigation for additional lands required for the Project (both permanent and temporary) during Detailed Design. Based on the findings of the Phase I ESA, a Phase II ESA may be required.

### 4.3.2 Phase I ESA

The Phase I ESA consisted of a review of current and historical information to identify existing or former activities that have the potential for environmental concern. Specifically, a desktop review of background information (i.e., city directories, historical Fire Insurance Plans, aerial photographs and records) and visual site reconnaissance were carried out. In addition, EcologERIS database records for the Study Area were reviewed by SPL.

In general, the potential for environmental concern within the Study Area was identified based on current and historical activities associated with the operation of a rail corridor (i.e., maintenance activities, historical spills and releases, adjacent industrial and commercial land uses and associated activities). Waste disposal was also noted in the vicinity of the Study Area. As such, subsurface investigations (i.e., Phase II ESA) were recommended for selected portions of the Study Area.

### 4.3.3 Phase II ESA

Based on the findings of the Phase I ESA for the whole Lakeshore East Rail Corridor, 80 boreholes were advanced in selected locations throughout the corridor, 40 of which were completed as groundwater monitoring wells. In total, 35 boreholes were advanced within Guildwood to Pickering, 24 of which were completed as groundwater monitoring wells, to investigate soil and groundwater conditions in areas where the potential for environmental concern was identified. It should be further noted that no boreholes were advanced east of Mile 315.95 (i.e., at Rodd Avenue) as part of the Phase II ESA<sup>4</sup>.

Soil and groundwater samples collected at the time of the field program were submitted for laboratory analyses of a variety of parameters, including volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), metals and inorganics, polychlorinated biphenyls (PCBs), petroleum hydrocarbons (PHC) fractions F1 to F4 and benzene, toluene, ethylbenzene and xylenes (BTEX). The results of the analyses were compared to Table 3 of the MOECC's "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", for an Industrial/Commercial/Community property use. The results of the soil analyses indicated exceedances of the MOECC Table 3 Standards for selected metals, PAH and VOC parameters and Sodium Adsorption Ratio as shown in **Table 4-7**.

**Table 4-7: Summary of Soil and Groundwater Exceedances within the Study Area**

| Location/Mile        | Description   | SPL Borehole Reference No. | Parameter                                | Medium              |
|----------------------|---|----------------------------|--|---------------------|
| 320.95 – 321.12      | West of Galloway Road   | P26 BH11-1                 | Bromomethane                             | Soil                |
| 320.86 – 320.94      | East of Galloway Road, adjacent to former location of kerosene tank | P27 BH 11-2                | Bromomethane                             | Soil                |
| 320.50 - 320.65      | East of Poplar Road   | P28 BH11-1                 | Cobalt, Copper, Nickel                   | Soil                |
| 319.75 - 319.90      | Immediately east of Manse Road                                      | P30 BH11-5                 | SAR                                      | Soil                |
| Approximately 319.75 | East of Manse Road  | P30 BH11-8                 | Benzo(a)pyrene<br>Dibenzo(a,h)anthracene | Soil                |
| Approximately 317.60 | Approximately 300 m east of Port Union Pedestrian Pathway           | P32 BH11-3                 | Copper<br>Cis-1,2-Dichloroethylene       | Soil<br>Groundwater |

The exceedances of metals detected in the soil samples collected from the boreholes installed east of Poplar Road (i.e., copper, cobalt and nickel) and east of the Port Union Pedestrian Pathway (i.e., copper) are typically associated with railway ballast and fill material situated along railway corridors. In addition, the exceedances of PAH parameters reported in the soil sample collected from the borehole installed east of Manse Road (i.e., at approximately Mile 319.75) were noted to be commonly found in railway ballast and fill material.

The soil sample collected from the borehole installed immediately east of Manse Road exceeded the MOECC Standard for SAR. This exceedance may be attributed to de-icing activities in the vicinity of the borehole.

The groundwater samples collected from monitoring well P32 BH11-3 exceeded the MOECC Standard for Cis-1,2-Dichloroethylene. The Phase I ESA report (SPL, 2011) identified two (2) Issues of Potential Environmental Concern in the vicinity of P32 BH11-3. The issue located north of this sampling location (ID-439) was reported as Pharmaceutical Manufacturing, Processing or Storage, and was evaluated as having a Low Anticipated Environmental Impact. The issue located southwest of this sampling location (ID-438) was reported as Fuel Storage and/or Dispensing, and was evaluated as having a Moderate Anticipated Environmental Impact.

4. The Study Area rationale was not presented in the Phase II ESA report.

It should be noted that ethylene dibromide was not detected in the groundwater quality results; however, the applicable MOECC standard is below the laboratory MDL (method detection limits) reported by SPL. Exceedances of a PAH parameter (dibenzo(a,h)anthracene) in soil were measured above the method detection limit within two (2) of the boreholes (i.e., P28 BH11-1 and PH29 BH 11-2) installed between Miles 319.90 and 320.65.

All soil and groundwater identified as being contaminated during the construction program must be treated as such to ensure the health and safety of workers and alignment with MOECC regulations.

## 4.4 Air Quality

An air quality impact assessment was conducted to determine the potential air quality and greenhouse gas (GHG) effects of increased rail traffic within the Study Area. A detailed Air Quality Assessment is provided in **Appendix B3**.

### 4.4.1 Methods

The Study Area for the air quality assessment encompasses the Lakeshore East Rail Corridor, between mileage points 322.10 to the west and 312.96 to the east (Scarborough Golf Club Road to before Pickering GO Station) and 300 m on each side of the rail right-of-way. The spatial extent of the Study Area was selected to encompass potential Project air quality effects. It includes the layer of air near the earth’s surface, known as the troposphere, which extends from the surface to approximately 10 km in altitude.

The baseline ambient air quality was based on the latest publicly available historical data from ambient air quality monitoring stations within Ontario. Data was extracted from the annual MOECC publication *Air Quality in Ontario*. Five years of data from 2008 through 2012 were used (where available). Ambient monitoring data for air quality pollutants was extracted as follows (for CO, PM<sub>2.5</sub>, NO<sub>2</sub>, NO<sub>x</sub>, formaldehyde, acetaldehyde, benzene, 1,3-butadiene, acrolein and benzo(a)pyrene), which are the main health-based compounds of concern to MTO and MOECC from transportation-related air quality impact assessments:

- 1 hour, 8 hour, and 24 hour ambient concentrations for the contaminants were obtained from the 90<sup>th</sup> percentile of hourly measurements from the representative air quality monitoring station (the average value was calculated over the available years).
- Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative air quality monitoring station (the average value was calculated over the available years).

Summarized details of the monitoring stations closest to the Study Area are provided in **Table 4-8**.

**Table 4-8: Air Quality Monitoring Stations**

| Station Name:       | Toronto College St               | Toronto East  | Toronto West                       | Toronto Downtown  | Toronto Perth                                      | Oshawa  |
|---------------------|----------------------------------|---|------------------------------------|---|--|---|
| Address:            | 223 College St, Toronto, Ontario | Kennedy Rd and Lawrence Ave, Toronto, Ontario           | 125 Resources Rd, Toronto, Ontario | Bay Street and Wellesley St. W, Toronto, Ontario.           | Perth/Ruskin (Junction Triangle), Toronto, Ontario | 2000 Simcoe Street North, Oshawa, Ontario               |
| Station Type:       | Urban                            | Urban   | Urban                              | Urban   | Urban  | Urban   |
| Pollutants Measured | Benzene and 1,3-Butadiene        | NO <sub>x</sub> , NO, NO <sub>2</sub> , PM2.5 and Ozone | CO                                 | NO <sub>x</sub> , NO, NO <sub>2</sub> , CO, PM2.5 and Ozone | Formaldehyde, Acetaldehyde and Acrolein            | NO <sub>x</sub> , NO, NO <sub>2</sub> , PM2.5 and Ozone |
| Years Available     | 2008-2012                        | 2008-2012   | 2008-2012                          | 2008-2012   | 2002-2006  | 2008-2012   |

The background contaminant concentration levels used already include emissions resulting from current traffic levels in the areas the air quality monitoring was conducted. The potential for double counting likely results in conservative predicted maximum concentrations for comparison with the air quality standards.

#### 4.4.2 Background Concentrations

Table 4-9 shows the 90<sup>th</sup> percentile ambient and mean concentration values from the available years of data that were used for the background concentrations. It should be noted that the background concentrations for benzene (annual) and benzo(a) pyrene (24-hour, and annual) exceed their respective air quality standards. CO 8-hour and NO<sub>2</sub> 24-hour ambient air concentrations were estimated by converting 1-hour concentrations using the time averaging conversion factors (unitless) of 0.56 and 0.41 respectively.

**Table 4-9: Background Concentrations Used in Air Dispersion Modelling**

| Contaminant       | Averaging Period | Ambient Concentration Measured (µg/m <sup>3</sup> ) | Statistic                                 | Air Quality Standard (µg/m <sup>3</sup> ) | Percent of Air Quality Standard (%) |
|-------------------|------------------|---|---|---|-------------------------------------|
| NO <sub>x</sub>   | 1                | 69.1  | 90 <sup>th</sup> Percentile Concentration | 400                                       | 17%                                 |
|                   | 24               | 69.1  | 90 <sup>th</sup> Percentile Concentration | 200                                       | 35%                                 |
| NO <sub>2</sub>   | 1                | 49.5  | 90 <sup>th</sup> Percentile Concentration | 400                                       | 12%                                 |
|                   | 24               | 49.5  | 90 <sup>th</sup> Percentile Concentration | 200                                       | 25%                                 |
| CO                | 1                | 424   | 90 <sup>th</sup> Percentile Concentration | 36,200                                    | 1%                                  |
|                   | 8                | 424   | 90 <sup>th</sup> Percentile Concentration | 15,700                                    | 3%                                  |
| PM <sub>2.5</sub> | 24               | 13.53   | 90 <sup>th</sup> Percentile Concentration | 27  | 45%                                 |
|                   | Annual           | 6.07  | Mean Concentration                        | 8.8                                       | 69%                                 |
| Acetaldehyde      | 24               | 0.24  | 90 <sup>th</sup> Percentile Concentration | 500                                       | 0.6%                                |
| Acrolein          | 24               | 1.06  | 90 <sup>th</sup> Percentile Concentration | 0.4                                       | 60%                                 |
| Benzene           | 24               | 0.7   | 90 <sup>th</sup> Percentile Concentration | 2.3                                       | 46%                                 |
|                   | Annual           | 0.119   | Mean Concentration                        | 0.45                                      | 156%                                |
| 1,3-Butadiene     | 24               | 0.072   | 90 <sup>th</sup> Percentile Concentration | 10  | 1%                                  |
|                   | Annual           | 5.79  | 90 <sup>th</sup> Percentile Concentration | 2   | 4%                                  |
| Formaldehyde      | 24               | 4.79  | 90 <sup>th</sup> Percentile Concentration | 65  | 9%                                  |
| Benzo(a)pyrene    | 24               | 0.00008   | 90 <sup>th</sup> Percentile Concentration | 0.00005                                   | 160%                                |
|                   | Annual           | 0.00005   | Mean Concentration                        | 0.00001                                   | 500%                                |

## 4.5 Noise and Vibration

Potential noise and vibration effects during the construction and operation stages of the Project were assessed and determined and assessed based on the requirements of the Ontario Ministry of the Environment and Climate Change / GO Transit Draft Protocol for Noise and Vibration Assessment (Draft #9, Jan. 1995). A detailed Noise and Vibration Impact Assessment Report is included in **Appendix B4**.

### 4.5.1 Methods

The Study Area for the noise and vibration effects assessment encompasses the Lakeshore East Rail Corridor, broadly between Guildwood GO Station and Pickering GO Station.

Existing noise and vibration conditions within the Study Area were determined from baseline noise and vibration monitoring conducted at four sample locations adjacent to the rail corridor:

- End of Apsco Avenue, adjacent to 22 Apsco Avenue;
- Corner of Lakeridge Drive and Waterbridge Way;
- End of Dunn Crescent; and

- Corner of Begley Street and Bayly Street.

Noise monitoring was completed using 3M Quest SoundPro sound level meters, fitted with microphone wind shields and strapped to poles such that the microphone height was approximately 2 m above local ground surface. The sound level meters were calibrated immediately prior to the measurement period and checked upon completion of the measurements to confirm that no significant drift in calibration was observed. Measurements were recorded in one-hour samples.

Vibration monitoring was completed using Instantel Minimate vibration meters with the triaxial geophones buried approximately 0.3 m below the local ground surface. Measurements were recorded in 15-minute samples.

Weather data was obtained from a nearby Environment Canada weather station (Toronto Buttonville). The noise and vibration measurement data was cross-referenced against the weather data and any measurements recorded during periods of inclement weather have been omitted from the dataset. For noise, this includes wind speeds greater than 20 km/h or any precipitation. For vibration, this includes wind speeds greater than 50 km/hr or any precipitation.

#### 4.5.2 Baseline Measurement Data

A summary of key baseline measurement data at four sample locations adjacent to the rail corridor is provided in **Table 4-10**. These locations were chosen to provide a representative distribution of baseline noise and vibration levels within the Study Area.

**Table 4-10: Summary of Baseline Noise and Vibration Monitoring Data**

| Location  | Monitoring Dates            | Noise   |   | Vibration   |
|---|-----------------------------|---|---|---|
|   |                             | Existing Daytime Noise (dBA)<br><i>L<sub>eq,07:00-23:00</sub></i> | Existing Nighttime Noise (dBA)<br><i>L<sub>eq,23:00-07:00</sub></i> | Existing Vibration: Average Daily Maximum RMSV (mm/s) * |
| End of Apsco Avenue, adjacent to #22 Apsco Avenue | June 4 2014 – June 9, 2014  | 57  | 53  | 0.20  |
| Corner of Lakeridge Drive and Waterbridge Way     | June 4 2014 – June 9, 2014  | 61  | 58  | 0.16  |
| End of Dunn Crescent                              | May 30, 2014 – June 4, 2014 | 60  | 55  | 0.10  |
| Corner of Begley Street and Bayly Street          | May 30, 2014 – June 4, 2014 | 73  | 66  | 0.23  |

Note: \* Root Mean Square Velocity (RMSV) estimated from measured Peak Particle Velocity (PPV) data assuming a crest factor of 4. Crest factor is the ratio of PPV to maximum Root Mean Square (RMS) amplitude, which is usually 4 to 5 for ground-borne vibration from trains (FTA, 2006).

## 4.6 Land Use and Planning Policy

The existing land use and planning policy context of the Study Area is documented in greater detail in the Socio-Economic and Land Use Impact Assessment Report provided in **Appendix B5**.

### 4.6.1 Methods

A desktop review of the Study Area (within 300 m of the existing Lakeshore East Rail Corridor) was conducted based upon municipal planning documents and open data sources to identify significant socio-economic and land

use features, including commercial areas, institutional uses, employment lands, recreational uses and parks and open spaces.

## 4.6.2 Planning Context

The Study Area is located within the City of Toronto, specifically within Ward 36 (Scarborough Southwest), Ward 43 (Scarborough East), and Ward 44 (Scarborough East), and the City of Pickering within Durham Region, specifically Ward 1 and Ward 2. City of Toronto Official Plan and Region of Durham Official Plan land designations within the Study Area are included in **Figure 4-3**.

As population and employment growth increases within the Study Area, future development and investment should align with Official Plan policies. Consideration should be given to enhancing connectivity with surrounding transit services and public amenities; improving the transitions between different land uses; ensuring a high-quality public realm and open space network; and encourage active mobility.

### 4.6.2.1 City of Toronto Official Plan (June, 2015)

The majority of the land use in the City of Toronto portion of the Study Area is designated as 'Neighbourhoods'. This designation permits a full range of residential uses within lower scale buildings, as well as parks, schools, local institutions and small-scale stores and shops that serve local needs.

The 'Parks' and 'Natural Areas' designations also comprise a significant portion of the Study Area and are dispersed throughout. These designations are both sub-categories of the 'Natural Areas, Parks, and Other Open Space Areas' designation. The 'Parks' designation permits municipal parks and recreation trails, while the 'Natural Areas' designation is reserved for lands that are to be kept primarily in a natural state with some use for compatible recreational, cultural and educational uses and facilities that minimize adverse effects on natural features and functions. In addition, the Official Plan designates the Rouge River Marshes Wetland Complex as a 'Provincially Significant Wetland'.

At the westerly limit of the Study Area, a significant portion of land is designated as 'Other Open Space Areas' where the Scarboro Golf and Country Club is located. This designation permits uses such as golf clubs, cemeteries, and public utilities.

Lands located northeast of where the rail corridor intersects with Kingston Road are designated as 'Mixed Use Areas' where Guildwood GO Station is located. This designation consists of a broad range of commercial, residential, and institutional uses, in single use or mixed use buildings. The use of this designation achieves City planning objectives by combining a broad array of residential uses, offices, retail and services, institutions, entertainment, recreation and cultural activities, and parks and open spaces.

A large portion of land within the Study Area from Morningside Avenue to Highland Creek is designated as 'Employment Areas' and includes public works facilities such as FJ Horgan Water Treatment Plant and Highland Creek Wastewater Treatment Plant. 'Employment Areas' are places of business and economic activity, including offices, manufacturing, warehousing, distribution, research and development facilities, utilities, media facilities, parks, hotels, retail outlets ancillary to the preceding uses, and restaurants and small scale stores and services that serve businesses and workers.

The Study Area includes lands that are subject to the City of Toronto Ravine and Natural Feature Protection By-law. The by-law promotes the management, protection and conservation of ravines and associated natural and woodland areas and to prohibit and regulate the injury and destruction of trees, filling, grading, and dumping in

areas defined within the by-law. The following locations within the Study Area are affected by the Ravine and Natural Feature Protection By-law and are also regulated by TRCA:

- Rouge River (on both sides of the rail corridor);
- Scarborough Golf Club Road (at rail crossing and lands immediately west);
- Galloway Road (at rail crossing and lands immediately west);
- Morningside Avenue (at rail crossing and lands immediately southeast);
- Manse Road (at rail crossing and lands immediately west and east);
- Beechgrove Drive (at rail crossing and lands immediately west); and
- Chesterton Shores (south of rail corridor).

The City of Toronto current population is on track with the population targets outlined in the Growth Plan for the Greater Golden Horseshoe. More specifically, the Toronto neighbourhoods located within the Study Area (i.e., Scarborough Village, Guildwood, West Hill, Centennial Scarborough, and Rouge) have maintained generally stable population, with minor increases (Scarborough Village and Centennial Scarborough) and decreases (Guildwood and West Hill), with the exception of Rouge which more than doubled its population (59.6% increase from 2001 to 2011).

The overall employment base in City of Toronto increased 2.7% from 2014 to 2015. The Toronto Official Plan identifies enhanced transit service as a critical initiative for employment growth. To support this notion, the Official Plan notes that transportation infrastructure improvements (i.e., renovations at Union Station) and incremental expansion of the rapid transit system are required to support the City's growth.

#### 4.6.2.2 *Durham Regional Official Plan (June, 2015)*

The majority of the land use in the Durham Region portion of the Study Area is designated as 'Living Areas' and 'Major Open Space Areas'. The 'Living Areas' designation is comprised of predominantly housing, including group homes, certain home occupations, retail stores, and public uses that are compatible with their surroundings. The 'Major Open Space Areas' designation permits conservation areas with a full range of agricultural and agricultural-related uses, as well as non-agricultural uses including agri-business, major recreational uses, commercial kennels and landscape industry.

A significant portion of land south of the rail corridor between Rouge River and Frenchman's Bay is designated as a 'Waterfront Area', which describes a continuous system that links urban and rural areas, protects natural areas and develops specific access points attract tourists and residents.. Frenchman's Bay is also designated as a 'Waterfront Place'. 'Waterfront Places' are described as developed focal points along the Lake Ontario waterfront that permit a mix of uses, which may include residential, commercial, marina, recreational, and cultural and community facilities. These 'Waterfront Places' also emphasize unique landscape features and heritage resources that contribute to community identity.

The Regional Official Plan establishes a regional framework for growth and development, with a specific goal to support population growth and increase employment opportunities. These population and growth policies are built upon in the Pickering Official Plan.

A portion of the Study Area is designated as an 'Urban Growth Centre' and a 'Regional Centre'. Downtown Pickering is recognized as an 'Urban Growth Centre' in accordance with the *Growth Plan for the Greater Golden Horseshoe, 2006*, and functions as a dominant area within the Region. 'Urban Growth Centres' are defined as "planned focal areas for institutional, region-wide public services, major offices, commercial (which may include major retail), recreational, cultural, entertainment and residential uses, serving as major employment centres supporting higher order transit services." 'Regional Centres' are main concentrations of urban activities at a

smaller scale than 'Urban Growth Centres', while providing a full array of the same uses and services. 'Regional Centres' function as symbolic and physical interest points for residents and contribute to the identity of the municipality and surrounding area. It is important to note that 'Regional Centres' are conceptual in the Regional Official Plan, with the boundaries of these areas defined in the lower tier Official Plans (i.e., City of Pickering). In addition to 'Regional Centres', the Regional Official Plan also identifies 'Regional Corridors', one of which falls within the Study Area along Bayly Street. These 'Regional Corridors' are planned to support higher density mixed-use areas and support higher order transit services to provide efficient transportation links to the 'Urban Growth Centres' and 'Regional Centres'.

Lands located northwest of where the rail corridor intersects with Whites Road South are designated as 'Employment Areas' where a concentration of various large employers are located, including Rogers Communication Inc. and Ellis Packaging. 'Employment Areas' are designated in separation from sensitive uses and may include manufacturing, assembly and processing of goods, service industries, research and development facilities, warehousing, offices and business parks, hotels, storage of goods and materials, freight transfer and transportation facilities.

It is important to note that land use designations in the Official Plan are conceptual and may not necessarily reflect the existing land uses.

#### 4.6.2.3 *City of Pickering Official Plan (February, 2010)*

The majority of the land use in the City of Pickering portion of the Study Area is designated as 'Low Density Areas' and 'Natural Areas' including Petticoat Creek and Frenchman's Bay. 'Low Density Areas' describes a sub-category of the 'Urban Residential Areas' designation and is primarily comprised of single and semi-detached housing and related uses, including neighbourhood and community services (schools, parks, libraries, places of worship, and limited office and retail). 'Natural Areas' describes a sub-category of the 'Open Space System' designation and includes valley and stream corridors, shorelines, environmentally significant areas, areas of natural or scientific interest, wetlands, significant forested areas, major parks, recreational and conservation areas, major open space linkages, passive recreation, and agricultural uses.

A portion of Petticoat Creek is designated as 'Active Recreational Areas', which is a sub-category of 'Open Space System' and permits active recreational uses and community, cultural and other related uses.

A significant portion of land immediately north of the Study Area is designated as 'Controlled Access Areas' where Highway 401 is located. 'Controlled Access Areas' describes a sub-category of the 'Freeways and Major Utilities' designation and includes freeways and utilities, as well as their ancillary uses and related public or private uses.

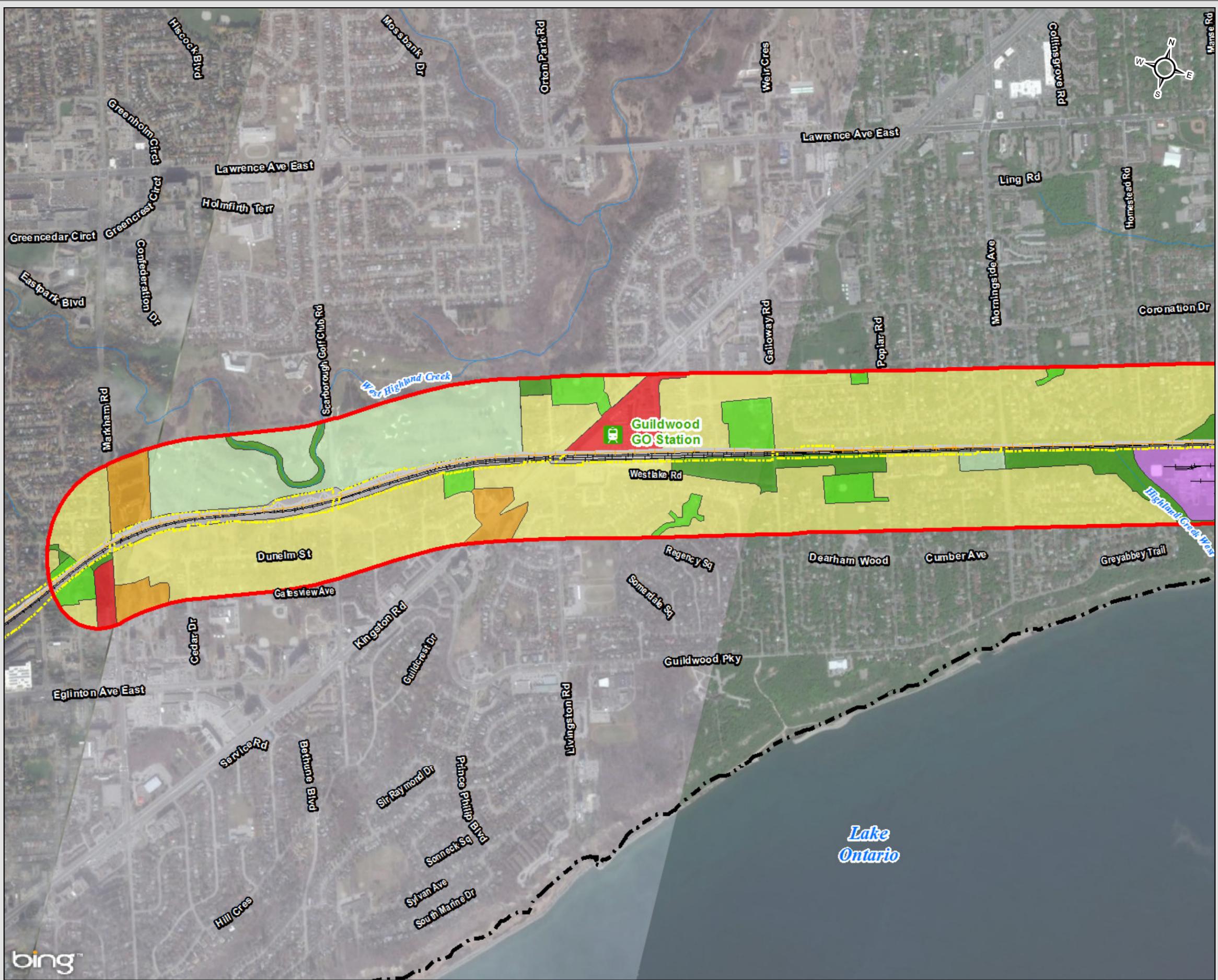
The entire Study Area falls within the 'South Pickering Urban Area' identified in the Official Plan. The Official Plan adopted a population target of 100,500 and an employment target of 51,200 within this area for 2016. Consistent with the Regional projections, the Official Plan estimates that an additional 31,000 people and 26,000 jobs will be accommodated in the 'South Pickering Urban Area' between 1996 and 2016. In addition, Amendment 26 to the Pickering Official Plan was approved in 2015 to support the City's initiative for redevelopment and intensification of the City Centre. This City Centre designation is consistent with the Growth Plan for the Greater Golden Horseshoe and the Region of Durham Official Plan.

#### 4.6.2.4 *Parks Canada Draft Management Plan for Rouge National Urban Park (June, 2014)*

The draft management plan for the future Rouge National Urban Park issued by Parks Canada in 2014 notes several initiatives relevant to the Rouge Beach/ Marsh area:

- Welcome Area to serve the most southerly gateway to the park;
- Trail connections from the beach/ marsh north to the Glen Rouge Campground at Kingston Road;
- Enhancement of the marsh area; and,
- Maintenance of the beach area for public use.

The draft management plan is currently being finalized. The final, approved management plan will be the primary guiding document for the future Rouge National Urban Park once the transfer of lands in this area (which are currently owned by TRCA) to Parks Canada takes place.



- Legend**
- Proposed Enclosed Tunnel Entrance/Exit
  - Study Area (300m Buffer)
  - Proposed Rail Alignment
  - Proposed Grading/Ditch/Retaining wall
  - Lakeshore East Rail Corridor
  - GO Stations
  - Watercourse
  - Ontario Railway Network
  - Municipal Boundary
- City of Toronto Official Plan Designation (June 2015)**
- Neighbourhoods
  - Apartment Neighbourhoods
  - Mixed Use Areas
  - Employment Areas
  - Parks
  - Natural Areas
  - Other Open Space Areas
  - Utility Corridors
- Region of Durham Official Plan Designations (June 2015)**
- Employment Areas
  - Living Areas
  - Oak Ridges Moraine Areas
  - Regional Centre / Corridor
  - Waterfront Areas



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**Land Use Designations within the Study Area**  
December 2016

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- ### Legend
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- ### City of Toronto Official Plan Designation (June 2015)
- Neighbourhoods
  - Apartment Neighbourhoods
  - Mixed Use Areas
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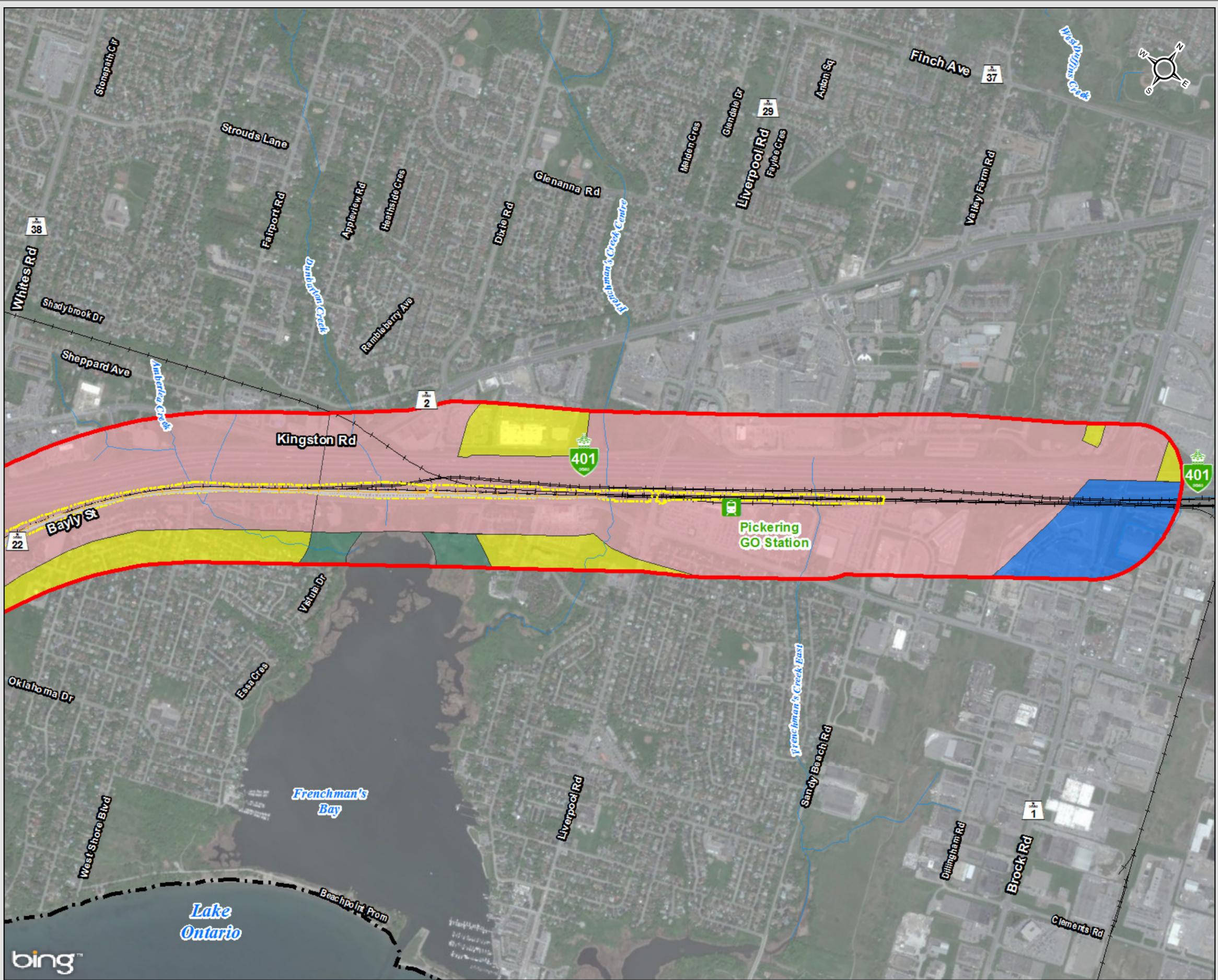
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**Legend**

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### 4.6.3 Existing Land Use

Key existing land uses, including neighbourhoods, residential, commercial, institutional, employment, recreation and parks and open spaces uses are documented in **Figure 4-4**.

#### 4.6.3.1 Neighbourhoods

A number of established neighbourhoods are present within or in close proximity to the Study Area including:

##### **City of Toronto**

- Scarborough Village;
- Guildwood;
- West Hill;
- Centennial Scarborough; and
- Rouge

##### **City of Pickering**

- Rosebank;
- West Shore; and
- Bay Ridges

#### 4.6.3.2 Residential

The Study Area is comprised of predominantly low-density residential housing with some medium-density residential housing. There is medium-density residential housing, in the form of a townhouse development, on Eye Drive (east of Whites Road South) and on the south side of Bayly Street (between West Shore Boulevard and Liverpool Road). There is also a significant amount of townhouse development west and northeast of Rouge Hill GO Station.

Site plan applications have been approved for a townhouse development at 280-282 Scarborough Golf Club Road and 2 and 4 Dale Avenue and for a high density residential development at 4121 Kingston Road and 85 Galloway Road.

#### 4.6.3.3 Commercial

Commercial uses are dispersed throughout the Study Area and consist of mainly retail uses that serve the surrounding neighbourhood, as well as some office space and restaurants. There are no large-scale shopping malls or shopping centres within the Study Area.

#### 4.6.3.4 Institutional

There are 9 schools within the Study Area consisting of elementary and secondary schools, as well as pre-schools. There are three churches located within the Study Area but no other places of worship. Immediately east of Rouge River on the south side of the rail corridor, at 534 Rodd Avenue, is Abbeylawn Manor Retirement Home. The home has been open since 2007 and is surrounded by the Petticoat Creek Conservation Area. The Boys and Girls Club of East Scarborough is also located within the Study Area.

#### 4.6.3.5 Employment

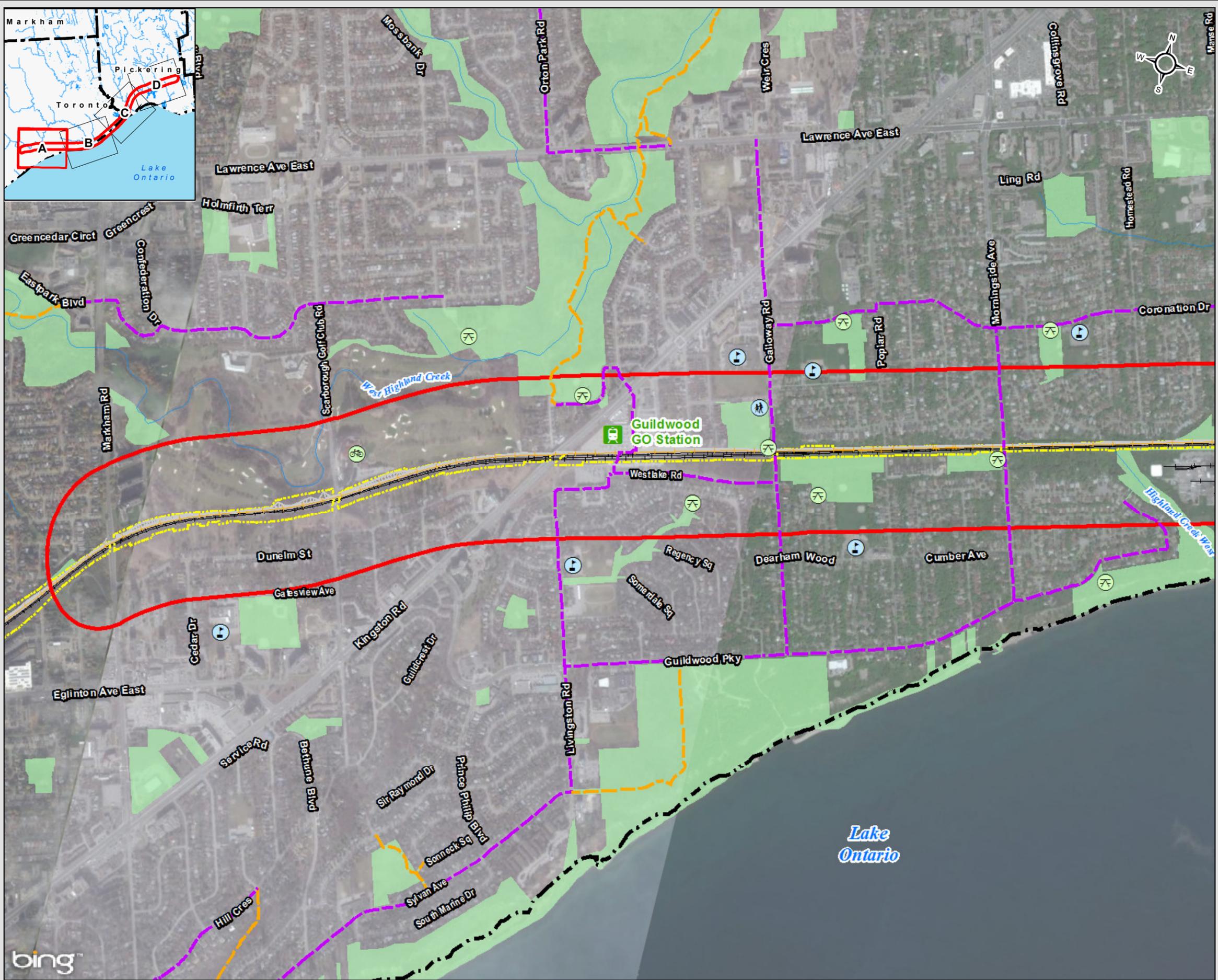
There are two main employment areas within the Study Area. One of the main employment areas is located along the rail corridor between Manse Road and Highland Creek, on the south side of Coronation Drive and north side of Copperfield Road. The uses within this area are mainly comprised of water and wastewater treatment plants, including FJ Horgan Water Treatment Plant and Highland Creek Wastewater Treatment Plant, as well as major chemical companies such as Rohm and Haas Canada LP. The other main employment area is located on Granite Court and Sandstone Manor. The uses in this area mostly consist of manufacturing facilities.

#### 4.6.3.6 *Recreational*

There are a number of public recreational uses within the Study Area. Ken Morrish Softball Complex consists of four softball diamonds and is located at East Point on Copperfield Road. Dunmoore Park offers a variety of public amenities including soccer fields, tennis courts, and baseball diamonds, with access from Callahan Street and Whites Road South. Art Thompson Arena is a large recreational centre with ice rinks and is located on Bayly Street, east of Pickering GO Station. Rouge Beach consists of a swimmable, sandy beach and marshes / wetland with easily accessible boardwalks and pathways and attracts upwards of 300,000 visitors each summer, according to Parks Canada research undertaken in 2013 and 2014. The Waterfront Trail, a multi-use pathway that is comprised of a mix of off-road paths and on-road sections, extends eastwards from Highland. The Waterfront Trail accommodates many recreational uses, including walking/hiking, running, cycling, inline skating and skateboarding. In addition to the Waterfront Trail, there are popular cyclist routes on shared roadways that cross the Lakeshore East Rail Corridor on Galloway Road, Morningside Avenue and Manse Road and adjacent to the Guildwood GO Station. There are also two private clubs used for recreation within the Study Area. Scarborough Golf and Country Club is located on Scarborough Golf Club Road and occupies a significant amount of land in the area. The Pickering Lawn Bowling Club is also within the Study Area and is located on the west side of Liverpool Road, south of Bayly Street.

#### 4.6.3.7 *Parks and Open Spaces*

There are many natural areas, including parks and open spaces, located within the Study Area. The parks within the Study Area include neighbourhood parks, parkettes, recreational parks and conservation areas. Notable open spaces within the Study Area include Grey Abbey Ravine, Lower Highland Creek, the Waterfront Trail, and Rouge Park and the transition to the future Rouge National Urban Park, the first of its type in Canada. Frenchman's Bay is within close proximity to the rail corridor and is surrounded by open space, including Vistula Ravine and Douglas Ravine.



- ### Legend
- Retirement Institution
  - Educational Institution
  - Religious Institution
  - Other Institution
  - Open Space
  - Park
  - Recreational Area
  - Multi-use Pathways
  - Cycling Routes (Shared Roadways)
  - Main Employment Areas
  - Main Commercial Areas
  - High-Density Mixed Use Residential
  - Green Space/Park
  - Proposed Enclosed Tunnel Entrance/Exit
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## Existing Socio-Economic Features

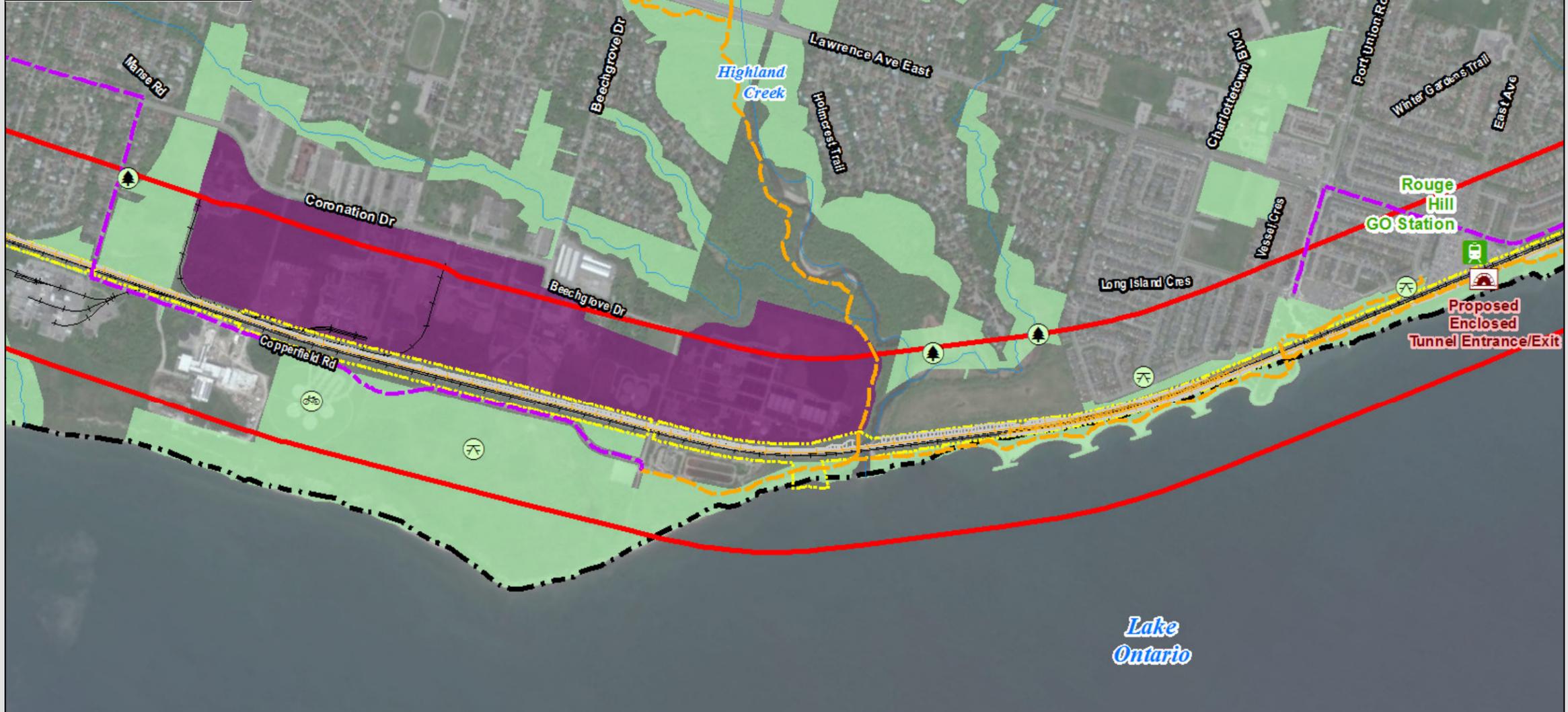
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Figure 4-4A

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- ### Legend
- Retirement Institution
  - Educational Institution
  - Religious Institution
  - Other Institution
  - Open Space
  - Park
  - Recreational Area
  - Multi-use Pathways
  - Cycling Routes (Shared Roadways)
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## Existing Socio-Economic Features

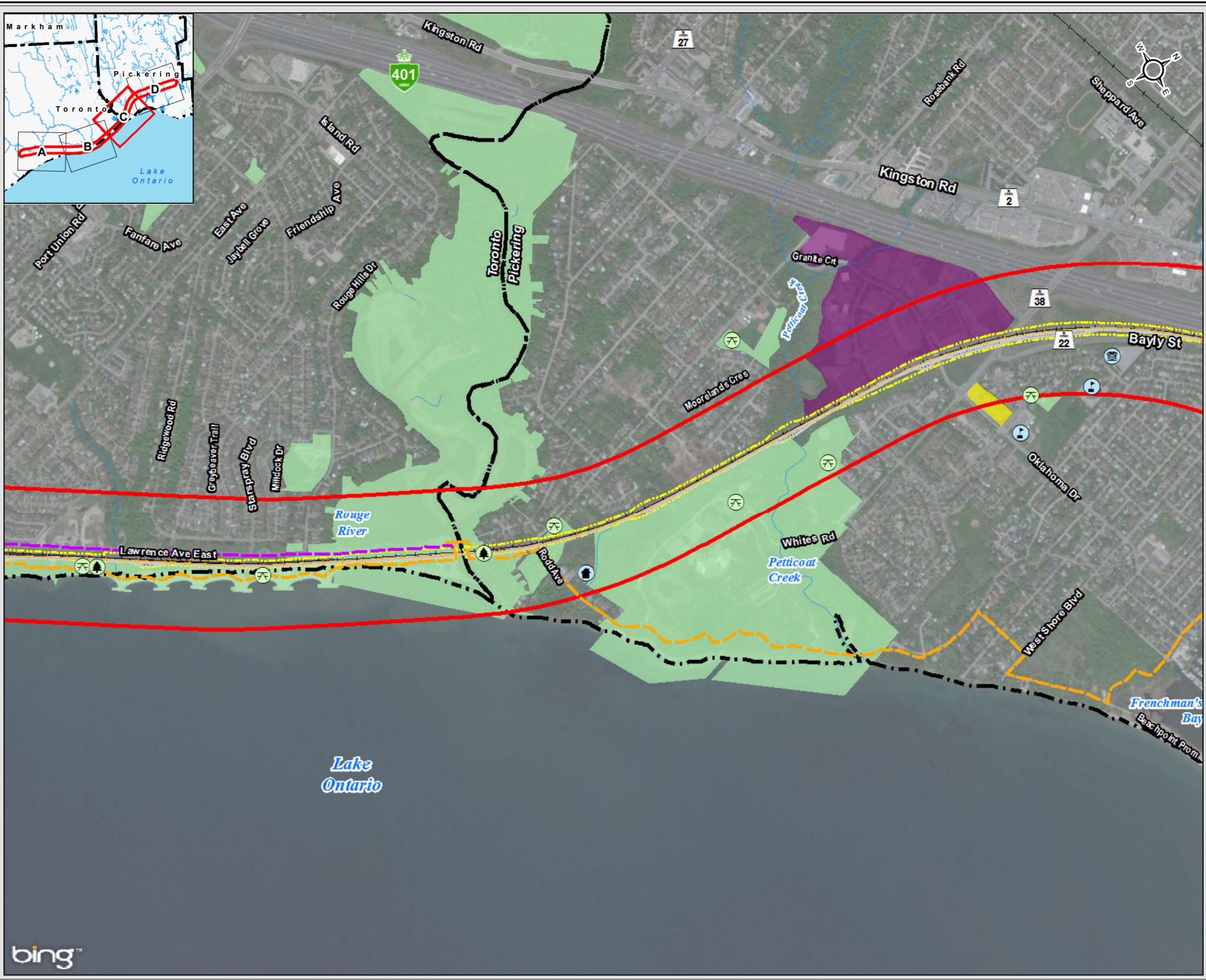
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Figure 4-4B

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**Legend**

- Retirement Institution
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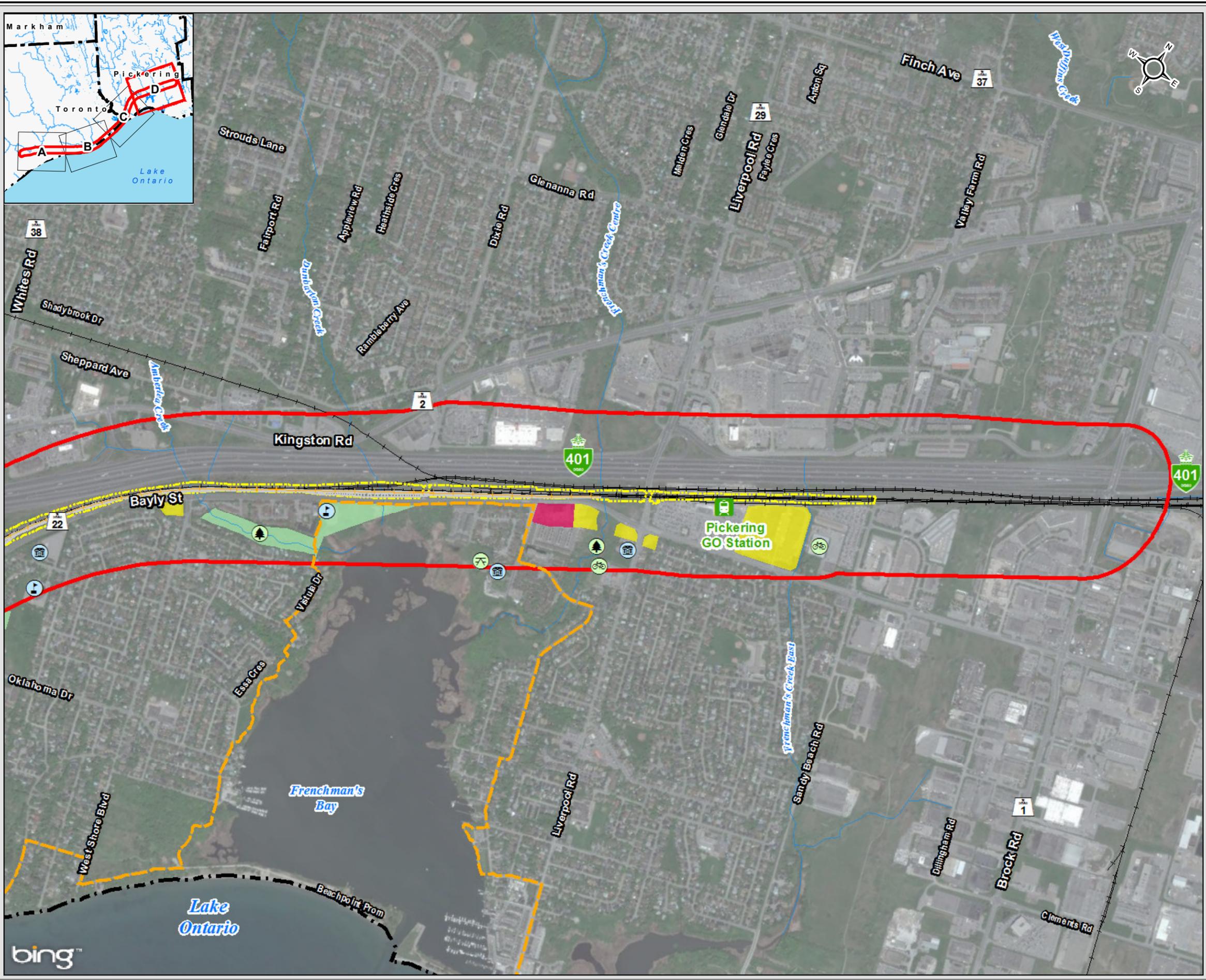
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**Legend**

- Retirement Institution
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- Open Space
- Park
- Recreational Area
- Multi-use Pathways
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## 4.7 Traffic and Transportation

A Traffic Impact Study (TIS) was completed to document existing road traffic volumes and to assess future road traffic volumes during and after construction of the Project. The TIS is included in **Appendix B6**.

### 4.7.1 Methods

A road traffic counting program was commissioned to collect turning movement count data at key intersections within and adjacent to the Study Area and at the rail crossing locations. The counts included overall summaries and a 15-minute breakdown. The majority of the counts took place in October 2014. Counts at the Lawrence Avenue intersections were collected at a later date (February 2015) due to construction along Lawrence Avenue in 2014, which would have resulted in atypical volumes.

A level of service (LOS) and capacity analysis was undertaken at key intersections using Synchro/SimTraffic 9.0 software, which implements the methods of the 2010 Highway Capacity Manual. Traffic queues, as a result of the at-grade crossings, were modelled in SimTraffic assuming a train frequency of approximately 15 minutes at each crossing.

### 4.7.2 Existing Traffic Volumes and Operations

Tables 4-11 and 4-12 below show the existing road traffic and pedestrian/cyclist volumes at rail crossing locations.

**Table 4-11: Existing Vehicular Traffic at Rail Crossings**

| # | Date of Traffic Counts                           | Lakeshore East Track Crossing | Northbound |     | Southbound |     |
|---|--|-------------------------------|------------|-----|------------|-----|
|   |  |                               | AM         | PM  | AM         | PM  |
| 1 | October 17, 2014 to October 30, 2014 (inclusive) | Scarborough Golf Club Road    | 403        | 461 | 410        | 453 |
| 2 |  | Morningside Avenue            | 285        | 281 | 425        | 254 |
| 3 |  | Galloway Road                 | 133        | 187 | 246        | 111 |
| 4 |  | Poplar Road                   | 42         | 49  | 67         | 53  |
| 5 |  | Beechgrove Drive              | 23         | 29  | 20         | 18  |
| 6 |  | Manse Road                    | 27         | 72  | 49         | 33  |

Notes: Auto volumes are the averages of Tuesday, Wednesday and Thursday peak hour volumes.  
 Auto volumes for Morningside Avenue are based on traffic counts at the Morningside/Cumber intersection.

**Table 4-12: Existing Pedestrian/Cyclist Traffic at Rail Crossings**

| # | Date of Traffic Count | Lakeshore East Track Crossing | Cyclist Volumes |    |            |    | Pedestrian Volumes |    |            |    |
|---|-----------------------|-------------------------------|-----------------|----|------------|----|--------------------|----|------------|----|
|   |                       |                               | Northbound      |    | Southbound |    | Northbound         |    | Southbound |    |
|   |                       |                               | AM              | PM | AM         | PM | AM                 | PM | AM         | PM |
| 1 | October 25, 2014      | Scarborough Golf Club Road    | 3               | 4  | 1          | 0  | 5                  | 4  | 2          | 5  |
| 2 |                       | Morningside Avenue            | 4               | 3  | 4          | 7  | 7                  | 9  | 5          | 4  |
| 3 |                       | Galloway Road                 | 9               | 3  | 3          | 3  | 5                  | 8  | 16         | 11 |
| 4 |                       | Poplar Road                   | 3               | 0  | 3          | 2  | 6                  | 5  | 7          | 4  |
| 5 |                       | Beechgrove Drive              | 3               | 4  | 7          | 3  | 1                  | 3  | 4          | 1  |
| 6 |                       | Manse Road                    | 7               | 5  | 4          | 10 | 1                  | 4  | 2          | 1  |
| 7 |                       | Chesterton Shores             | 3               | 2  | 2          | 3  | 16                 | 19 | 25         | 11 |

Within the City of Toronto, acceptable operations are generally considered to be LOS “D” or better and a volume to capacity (v/c) ratio less than 1.0. The results of the modelling indicate that the majority of intersections are currently operating below critical thresholds, with the exception of the following:

- Markham Road/Kingston Road
  - Eastbound left-turn; LOS “F” with v/c ratio 0.97 (AM Peak), LOS “E” with v/c ratio 0.91 (PM Peak).
- Scarborough Golf Club Road/Kingston Road
  - Overall LOS “F” with v/c ratio 1.05
  - Westbound thru-thru-thru/right; LOS “F” with v/c ratio 1.33
- Kingston Road/Lawrence Avenue
  - Eastbound left-turn; LOS “E” with v/c ratio 0.87 (PM Peak)
- Kingston Road/Galloway Road
  - Westbound left-turn; LOS “E” with v/c ratio 0.83 (PM Peak)
- Poplar Road/Kingston Road
  - Westbound left-turn; LOS “F” with v/c ratio 0.98 (PM Peak).

**4.7.3 Existing Transit Service**

Figure 4-5 below illustrates the TTC bus routes servicing the Study Area, including:

- Route 54 Lawrence East – services on Lawrence Avenue with peak-period headway of 5 minutes;
- Route 86 Scarborough – services Eglinton Avenue and Kingston Road with peak-period headway of 7 minutes and one branch (i.e., 86D) making a loop from Lawrence Avenue to Beechgrove Drive to Coronation Drive and Manse Road before making a left onto Lawrence Avenue westbound travel lanes;
- Route 102 Markham Road – services Markham Road over the Lakeshore East Rail Corridor, Kingston Road, and St. Clair Avenue East with a terminal at Warden Station on Bloor-Danforth subway line and peak-period headway of 5 minutes; and,
- Route 116 Morningside Avenue – Morningside Avenue across the Lakeshore East Rail Corridor, Guildwood Parkway and Eglinton Avenue with a terminal at Kennedy Station and peak-period headway of 6 minutes.

**Figure 4-5: Existing TTC Bus Routes in the Study Area, City of Toronto**



Below is a list of Durham Region Transit routes which currently service the Study Area:

- Route 101 Bay Ridges Industrial – services Pickering GO Station to St Martins Drive, Radom Street, Liverpool Road and continues south of the Study Area to Broadview Street, Krosno Boulevard, Alyssum Street, Lublin Avenue, Parkham Crescent, to Sandy Beach Road;
- Route 103B Glenanna Strouds – services Pickering GO Station to Bayly Street and Liverpool Road, and continues north of the Study Area;
- Route 107 Rosebank Whites (peak hours only) – services Pickering GO Station across Bayly Street to West Shore Boulevard, Oklahoma Drive, Whites Road and north to Sun Bird Loop;
- Route 110A Finch West (peak hours only) – services Whites Road north-south and across Bayly Street to Pickering GO Station;
- Route 112 Brock (peak hours only) – services Bayly Street to Brock Road northeast of the Study Area;
- Route 120 Rosebank Whites – services Pickering GO Station, Bayly Street, and Whites Road, and continues north of the Study Area;
- Route 193A Community Route (peak hours only) – services Whites Road to Granite Court, south on Rosebank Road to Rougemount Drive, Road, Liverpool Road, continues south of the Study Area to Krosno Boulevard and Annland Street back to Liverpool Road, loops at Radom Street and St. Martin’s Drive, and continues up Liverpool Road north of the Study Area;
- Route 193B Community Route (peak hours only) – services Liverpool Road, Krosno Boulevard, Annland Street, north on Liverpool Road, loops at Radom Street and St. Martins Drive, and continues up Liverpool Road northeast of the Study Area; and,
- Route 223 Bayly – services Bayly Street and continues east of the Study Area.

The GO Rail Station Access Plan, as updated in December 2016, identifies the importance of prioritizing local transit as a means of bringing customers to and from GO stations across the network. It provides both system-wide direction as well as station-specific recommendations for all current and planned GO stations, including Guildwood, Rouge Hill and Pickering.

The following targets are recommended for these three stations in the Plan:

**Table 4-13: Local Transit Targets**

|                   | <b>Current local transit mode share for station access (2015)</b> | <b>Target local transit mode share for station access (2031)</b> |
|-------------------|---|--|
| <b>Guildwood</b>  | 1%  | 18-20%   |
| <b>Rouge Hill</b> | 4%  | 14-16%   |
| <b>Pickering</b>  | 8%  | 8-20%  |

At this time, Metrolinx is leading work on a strategy to achieve greater fare and service integration in collaboration with the TTC, DRT and the other seven municipal transit service providers in the Greater Toronto and Hamilton Area. Part of this work includes developing one integrated and consistent fare structure that could potentially be applied across the region, allowing transit to be perceived and experienced as one network composed of multiple service providers.

Today, both in this portion of the Lakeshore East corridor and elsewhere in the network, the existing fare policy creates some barriers that preclude the optimal functioning of the local and regional transit networks as a seamless whole. For example, in most circumstances two full fares are charged when one takes a transit trip combining a leg on GO services and a leg on TTC services. Metrolinx and its partners are investigating potential changes to the fare structure that could reduce or eliminate barriers such as this one. Such changes have the potential to improve the attractiveness of using local transit as a feeder and distributor of trips on GO rail service.

## 4.8 Utilities

### 4.8.1 Overview of Known Utilities

Utility owners have been identified within the rail corridor based on the Utility Crossing Agreements with Metrolinx, and supplemented by a subsurface utility investigation report provided by Planview Utility Services Ltd. The precise location of these utility crossings will be verified through correspondence with the respective utility owners.

Identified utility owners are listed below:

#### Power, Cables, Conduits and Lighting

- Ontario Power Generation Inc.
- Veridian
- Toronto Hydro Electric Commission
- Hydro One

#### Gas and Oil

- City of Toronto
- Enbridge Gas

#### Potable Water

- Region of Durham
- City of Toronto

#### Communications

- Bell Canada
- Cogeco
- MTS Allstream Inc.
- Rogers Cable Comm Inc.
- Shaw Cable Systems Ltd.
- Trillium Cable Communications

#### Sewers and Drains

- Canadian Johns-Manville Inc.
- Central Mortgage & Housing Corp.
- City of Toronto
- Ministry of the Environment and Climate Change
- City of Pickering
- Durham Region

## 4.9 Cultural Environment

### 4.9.1 Cultural Heritage

#### 4.9.1.1 Methods

Unterman McPhail Associates completed a Cultural Heritage Screening Report (CHSR) to identify major historical themes and activities within and adjacent to the rail corridor, cultural heritage landscapes, built heritage resources, sensitivities to change, and develop mitigation recommendations. The CHSR is provided in **Appendix B7**.

A windshield survey of the Study Area was undertaken in October 2014 to include the rail corridor and a 300 m buffer from the railway track centreline. Primary and secondary sources were reviewed, as well as topographic and historical mapping. Consultation was also undertaken with the Ministry of Tourism, Culture and Sport (MTCS), the City of Toronto and City of Pickering.

#### 4.9.1.2 Findings

Nine (9) (known and potential) cultural heritage landscapes and nine built heritage resources were identified within or adjacent to the rail corridor and are listed below:

### Cultural Heritage Landscapes

1. The mouth of the Rouge River and Marsh Area, which are part of the Little Rouge and Rouge River corridor
2. Grand Trunk Railway;
3. Scarborough Golf Club Road;
4. Scarboro Golf & Country Club;
5. Kingston Road;
6. Galloway Road;
7. Morningside Avenue;
8. Highland Creek Wastewater Treatment Plant;
9. Port Union; and
10. Rosebank.

### Built Heritage Resources

1. Kingston Road Overhead;
2. Purvis-Castle Log Cabin (90 Morningside Avenue);
3. Highland Creek Bridge;
4. Rouge River Bridge;
5. Petticoat Creek Culvert;
6. Whites Road Overhead;
7. Double Stone Culvert;
8. Dunbarton Subway; and
9. Liverpool Road Overhead.

Of these identified cultural heritage resources, the following have known heritage recognition:

- Scarborough Golf & Country Club – listed in the City of Toronto's Inventory of Heritage Properties.
- Purvis Castle Log Cabin (90 Morningside Avenue) – designated under Part IV of the *Ontario Heritage Act (OHA)* by the City of Toronto (1985).
- Highland Creek Bridge – identified as a provincial heritage property by Metrolinx on April 10, 2015 (Part III.1 of the *OHA*) (see **Section 5.9.2**).
- Rouge River Bridge – identified as a provincial heritage property of provincial significance by Metrolinx on April 10, 2015 (Part III.1 of the *OHA*) (see **Section 5.9.3**).
- Petticoat Creek Culvert – identified as a provincial heritage property by Metrolinx on June 8, 2016 (Part III.1 of the *OHA*) (see **Section 5.9.4**).
- Double Stone Culvert – not considered a provincial heritage property by Metrolinx on June 8, 2016 (Part III.1 of the *OHA*) (see **Section 5.9.5**).
- Dunbarton Subway – identified in a City of Pickering Inventory of Heritage Properties (2002) and identified as a provincial heritage property by Metrolinx on June 8, 2016 (Part III.1 of the *OHA*) (see **Section 5.9.6**).

## 4.9.2 Archaeology

### 4.9.2.1 Methods

A Stage 1 Archaeological Assessment (AA) was conducted for the Study Area to include the rail corridor with a 300 m buffer centred on the existing rail-track mid-line. The purpose of the Stage 1 AA was to determine whether there is any potential for the Project to impact known, or previously undocumented, archaeological resources within the Study Area. The Stage 1 AA is provided in **Appendix B8**.

The Stage 1 AA was conducted to meet the requirements of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011). This included an analysis of the following sources of information:

- MTCS Archaeological Sites Database (ASDB) for a listing of registered archaeological sites within a 1 km radius of the Study Area;
- Reports of previous archaeological assessments within 50 m of the Study Area;
- Visual inspection of the subject area lands;

- Recent and historical maps of the Study Area; and
- Archaeological management plans or other archaeological potential mapping, where available.

4.9.2.2 *Known Archaeological Sites*

Nine (9) registered archaeological sites are situated within 1 km of the Study Area, as indicated in **Table 4-13** below.

**Table 4-14: Known Archaeological Sites**

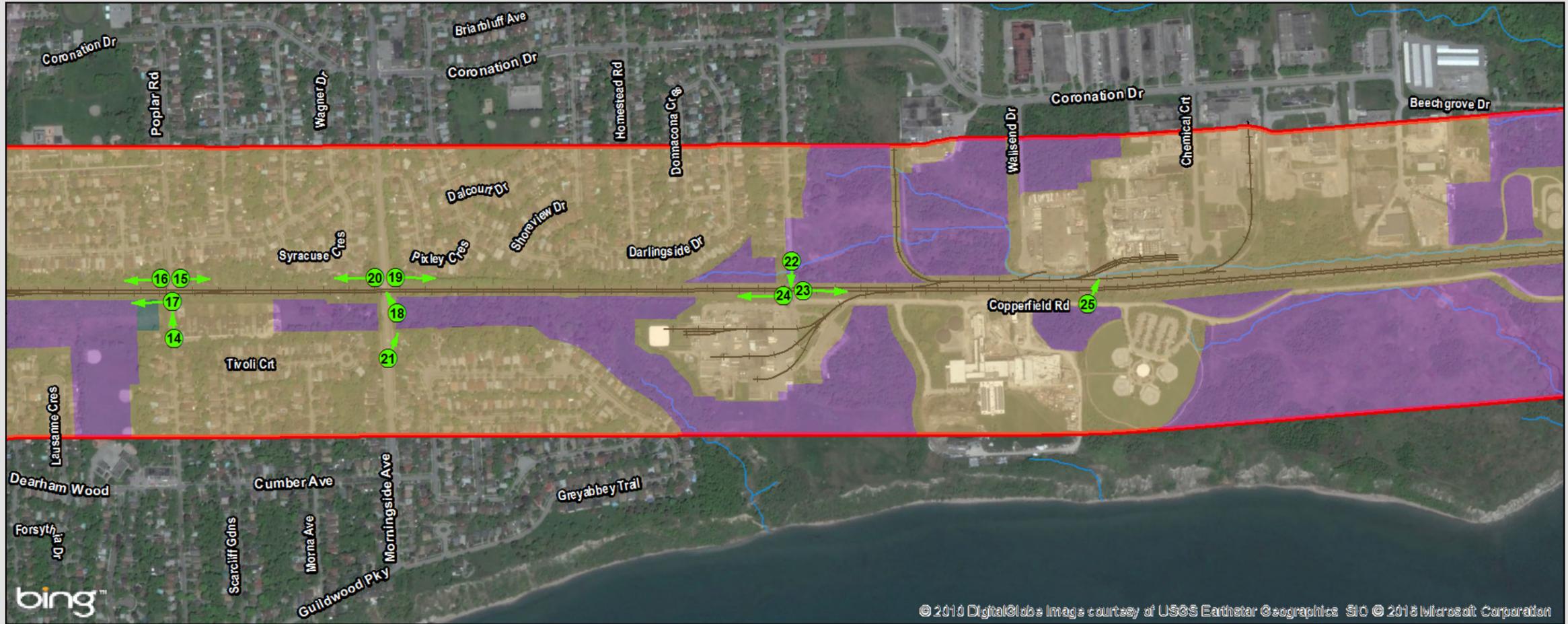
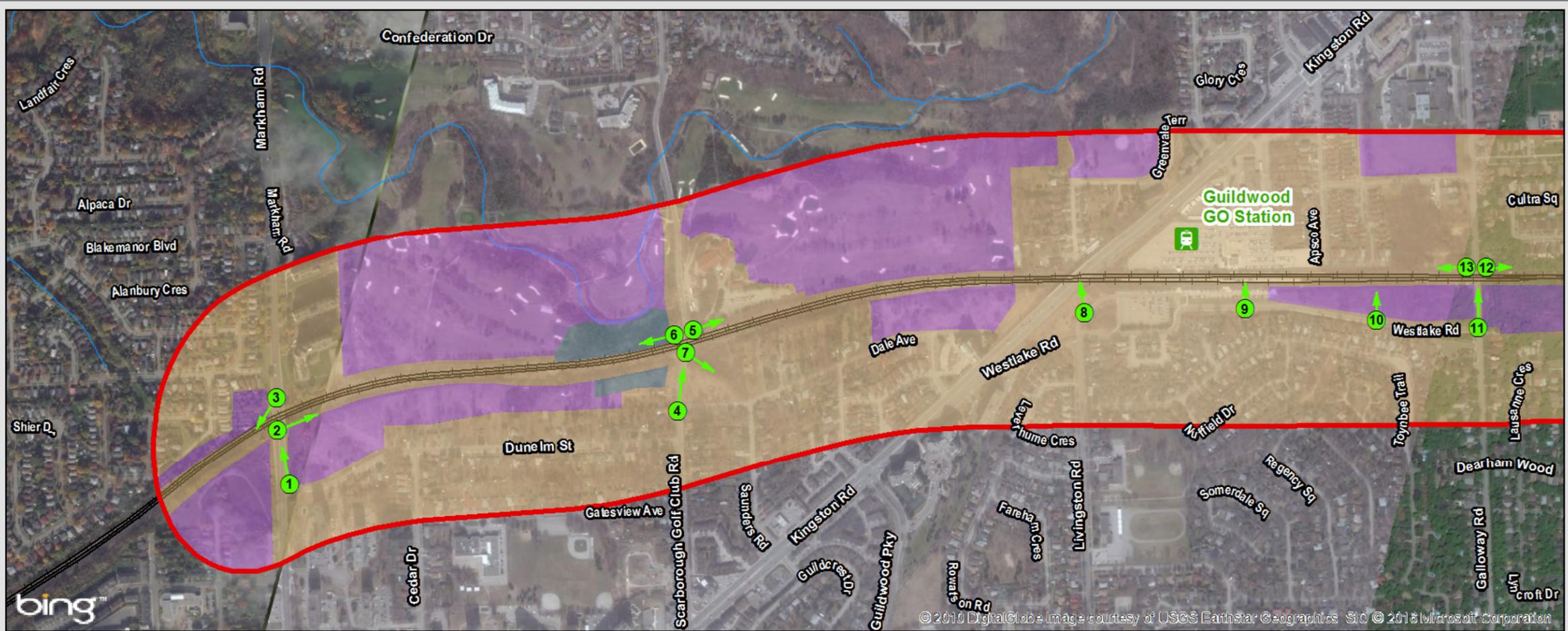
| Site Name                | Site Type      | Cultural Affiliation                   |
|--------------------------|----------------|--|
| Bella Vista              | Undetermined   | Iroquoian, Late Woodland               |
| William Dunbar Residence | Homestead      | 19 <sup>th</sup> Century Euro-Canadian |
| Petticoat Creek          | Lithic Scatter | Pre-contact Indigenous                 |
| N/A                      | Crib, log      | 19 <sup>th</sup> Century Euro-Canadian |
| Rouge River 1            | Campsite       | Seneca, Woodland                       |
| Cowan Circle             | Findspot       | Pre-contact Indigenous                 |
| Rouge River 2            | Campsite       | Historic Seneca                        |
| N/A                      | Findspot       | Pre-contact Indigenous                 |
| Horgan WTP P1            | Findspot       | Pre-contact Indigenous                 |

4.9.2.3 *Archaeological Potential Analysis*

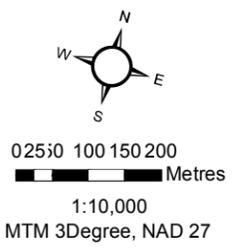
The potential for pre-contact and contact period Indigenous archaeological resources in the Study Area is high based on the proximity to Lake Ontario and several river systems and bays, important thoroughfares for trade and sources of potable water. The potential for Euro-Canadian archaeological resources in the Study Area is also high based on the early settlement of the area by Euro-Canadian pioneers. The presence of several structures in proximity to the Study Area, early rail systems, Port Union Station, and early transportation routes indicate early settlement and development in the surrounding area.

These determinations of archaeological potential are supported by the 2011 interim archaeological potential mapping for the City of Toronto, East. According to this mapping, the majority of the Study Area retains archaeological potential. At the time of this report, no archaeological potential mapping could be located for Durham Region.

The Stage 1 AA recommended that a Stage 2 AA be conducted on lands that will be impacted by the Project, if they are shown as retaining potential for archaeological resources. These lands are shown in **Figure 4-6**.



- Legend**
- Photo Capture Location
  - Photo Direction
  - Proposed Enclosed Tunnel Entrance/Exit
  - Potential for Archaeological Resources, Stage 2 Required
  - Previously Disturbed, No Further Work
  - Poor Drainage, No Further Work
  - Closed Asbestos Landfill Site - No Further Work
  - Study Area
  - Railway
  - Watercourse



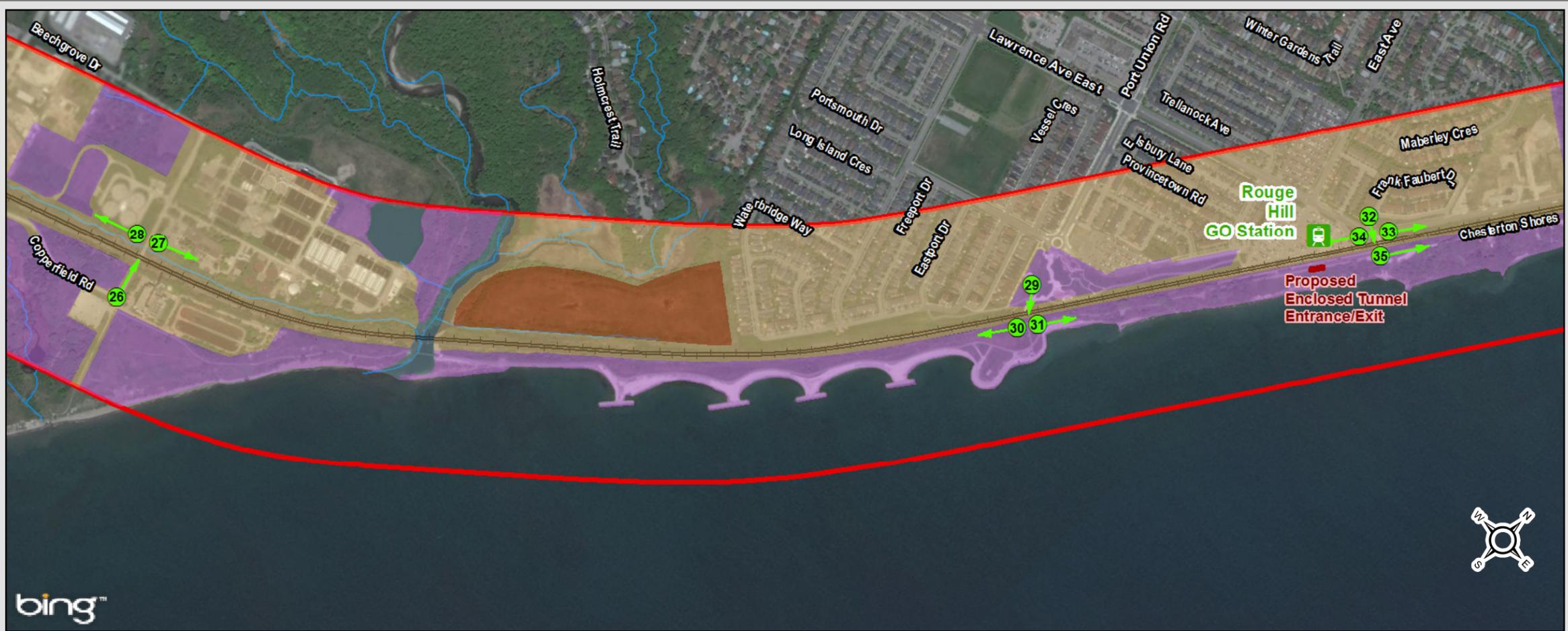
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Metrolinx Lakeshore East Rail Corridor Expansion  
 (Guildwood to Pickering) Project  
 Environmental Project Report

**Results of Stage 1  
 Property Inspection, West**

October 2016

Map Document: (\\sart11p001\DATA\Projects\60315664\400-Technical\402 Environmental Assessment (TPAP)\GIS\60315664\_Results\_of\_Stage1\_Property\_Inspection\_A.mxd) 2016-10-06 3:40:20 PM



- ### Legend
- GO Stations
  - Photo Capture Location
  - Photo Direction
  - Proposed Enclosed Tunnel Entrance/Exit
  - Potential for Archaeological Resources, Stage 2 Required
  - Previously Disturbed, No Further Work
  - Poor Drainage, No Further Work
  - Closed Asbestos Landfill Site - No Further Work
  - Study Area
  - Railway
  - Watercourse



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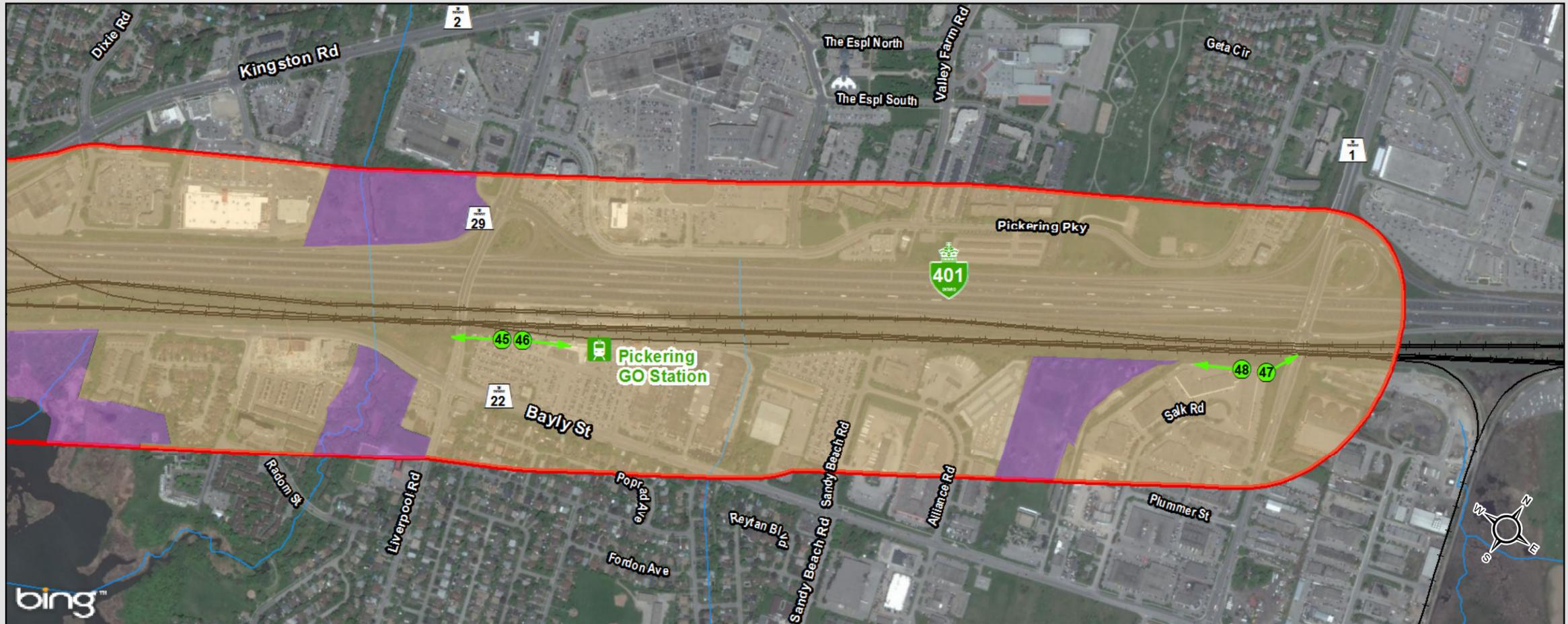
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MetroLinx Lakeshore East Rail Corridor Expansion  
(Guildwood to Pickering) Project  
Environmental Project Report

**Results of Stage 1  
Property Inspection, Central**

October 2016

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**Legend**

- GO Stations
- Photo Capture Location
- Photo Direction
- Proposed Enclosed Tunnel Entrance/Exit
- Potential for Archaeological Resources, Stage 2 Required
- Previously Disturbed, No Further Work
- Poor Drainage, No Further Work
- Closed Asbestos Landfill Site - No Further Work
- Study Area
- Railway
- Watercourse



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Metrolinx Lakeshore East Rail Corridor Expansion  
(Guildwood to Pickering) Project  
Environmental Project Report

**Results of Stage 1  
Property Inspection, East**

October 2016



Figure 4-6C

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## 5. Assessment of Potential Effects and Proposed Mitigation Measures

The Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) Project has the potential to create environmental condition changes that may result in both positive and negative effects. These condition changes have been considered through consultation with the public and stakeholders throughout the Pre-Planning and TPAP phases of the study.

The Transit Projects Regulation requires the proponent to prepare an EPR that contains the following information:

- An assessment and evaluation of the potential effects that the Project may have on the environment;
- A description of any measures proposed to mitigate any negative effects that the Project may have on the environment; and,
- A description of the means to monitor or verify the effectiveness of the proposed mitigations to reduce or eliminate adverse effects.

The purpose of this section is to document these requirements for the Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) Project. The effects of the Project have been assessed in terms of potential changes to natural, social and cultural environments. **Table 5-1** below outlines the evaluation factors and related criteria.

**Table 5-1: Evaluation Factors and Related Criteria**

| Technical Reports                  | Criteria  |
|------------------------------------|---|
| <b>Natural Environment</b>         | <p><u>Terrestrial Features:</u></p> <ul style="list-style-type: none"> <li>• Effects to existing vegetation communities</li> <li>• Potential effects to designated Environmentally Sensitive Areas/Areas of Natural and Scientific Interest/Provincially Significant Wetlands;</li> <li>• Potential effects to designated vegetation species at risk;</li> <li>• Effects to wildlife (birds, mammals, and herpetofauna) and wildlife habitat (type and quality);</li> <li>• Impacts to wildlife movement, breeding and increases in animal mortality;</li> <li>• Potential effects to wildlife species at risk</li> </ul> <p><u>Aquatic Features:</u></p> <ul style="list-style-type: none"> <li>• Effects watercourses providing fish habitat (number of watercourse crossings, sensitivity of fish and fish habitat, extent of fish habitat altered/displaced);</li> <li>• Effects to designated aquatic species at risk;</li> <li>• Effects to water quality of watercourses.</li> </ul> |
| <b>Air Quality</b>                 | <ul style="list-style-type: none"> <li>• Potential effects on air quality and GHG impacts during the operational stage of the Project</li> </ul>  |
| <b>Noise and Vibration</b>         | <ul style="list-style-type: none"> <li>• Noise and vibration effects during construction and operation at sensitive land uses;</li> <li>• Potential increase in noise during construction and sensitive receptors;</li> <li>• Vibration effects during construction activities;</li> <li>• Effects to sensitive land uses during the operational phase.</li> </ul>  |
| <b>Socio-Economic and Land Use</b> | <ul style="list-style-type: none"> <li>• Potential effects on property – either a requirement for temporary easements, or acquisition;</li> <li>• Potential changes to residential, commercial and institutional uses as a result of the Project;</li> <li>• Potential changes to recreational uses, trails, parks and open spaces;</li> </ul>  |

| Technical Reports                         | Criteria  |
|---|---|
|   | <ul style="list-style-type: none"> <li>• Potential effects to utilities during construction activities; and,</li> <li>• Visual effects as a result of the Project.</li> </ul>   |
| <b>Traffic</b>                            | <ul style="list-style-type: none"> <li>• Changes to traffic operations at key Study Area intersections both during-construction and post-construction of the planned grade separations;</li> <li>• Potential effects to road traffic of the planned grade separations and road closures</li> </ul>  |
| <b>Cultural Heritage</b>                  | <ul style="list-style-type: none"> <li>• Potential direct and indirect impacts to known built heritage resources and/or cultural heritage landscapes that may be displaced or removed if they are located within the right-of-way of the Project;</li> <li>• Potential direct and indirect effects due to disruption to cultural heritage resources by the introduction of physical, visual, audible or atmospheric elements;</li> <li>• Potential for isolation of cultural heritage resources that may occur due to acquisition of land for new and realigned roads or demolition due to neglect and/or vandalism.</li> </ul> |
| <b>Archaeology</b>                        | <ul style="list-style-type: none"> <li>• Potential for disturbance or destruction of archaeological resources.</li> </ul>   |
| <b>Stormwater Management and Drainage</b> | <ul style="list-style-type: none"> <li>• Stormwater runoff quantity: Potential for increase in peak flows, impact on storm drainage systems and erosion and flooding in receiving watercourses;</li> <li>• Storm runoff quality: Potential for increase in pollutant loading and effects to water quality;</li> <li>• Flood Plains: Potential effects on flood plains due to encroachment or structure widening at watercourse crossings.</li> </ul>  |
| <b>Groundwater</b>                        | <ul style="list-style-type: none"> <li>• Potential effects to groundwater quantity/quality</li> </ul>   |
| <b>Soils</b>                              | <ul style="list-style-type: none"> <li>• Potential changes to soil;</li> <li>• Potential to encounter contaminated material during construction activities</li> </ul>   |

## 5.1 Natural Environment

The majority of the construction associated with the Project will be limited to within the existing Lakeshore East Rail Corridor. Potential effects associated with construction include loss of vegetation cover through vegetation removal and disturbance to local wildlife through noise or possible mortality. The following sections identify the key terrestrial and aquatic features that may potentially be impacted by the proposed construction and operation of the Project. Recommendations for mitigation measures are also provided. More detailed information is provided in the Natural Environment Existing Conditions and Environmental Impact Assessment Report and Tree Inventory and Preservation Plan (**Appendices B1 & B2**).

### 5.1.1 Terrestrial Features

#### 5.1.1.1 Vegetation Cover and Designated Natural Areas

For the purposes of assessing potential areas of vegetation removal required for the construction of the third track, the construction footprint was assumed to be on whichever side (i.e., north or south side) of the third track where grading is proposed. The construction footprint was measured from the third track rail line (inclusive) to either the north or south outer edge of the Lakeshore East Rail Corridor, depending on which side the grading was proposed. In some instances, grading was proposed to the north and south of the third track, in which case the entire width of the Lakeshore East Rail Corridor was considered to be the construction footprint for that segment. Construction footprint included the enclosed tunnel entrance/exit building and the three (3) proposed grade separations. The limits of the Lakeshore East Rail Corridor and the footprint of the proposed enclosed tunnel entrance/exit building where grading is proposed is shown in **Appendix B1**, Figures 2AA to 2BJ. Vegetation removal will be required for the grading areas but it is not known exactly which trees or shrubs will be

removed elsewhere (e.g. for material storage, laydown/storage areas, etc.) within the construction footprint at this stage.

### **Potential Construction Effects**

Based on the ELC surveys completed by AECOM, the majority of the vegetation located within and immediately adjacent to the existing Lakeshore East Rail Corridor and enclosed tunnel entrance/exit building is comprised of invasive or non-native woody and herbaceous species that are tolerant of disturbance, such as Manitoba Maple, Common Buckthorn, Dog-strangling Vine and other weedy plants. Within the Lakeshore East Rail Corridor, trees and shrubs are most abundant in sections of the rail corridor that are adjacent to natural areas.

It should be noted that the ELC vegetation communities surveyed by AECOM do not cover all of the vegetated (i.e., natural) areas within the construction footprint. Only a representative sample of those natural areas that were assumed to be potentially impacted by the proposed undertaking at the time of the ELC surveys. However, later design drawings revealed that the construction footprint overlapped with a few natural areas that were initially delineated through interpretation of aerial imagery but not surveyed in the field by AECOM. To compensate for these data gaps, the following ELC mapping data was used to analyze areas of potential vegetation removal: ELC identified through aerial imagery interpretation, ELC confirmed in the field by AECOM and ELC communities delineated by the TRCA<sup>5</sup>.

Approximately 21.28 ha of vegetation communities are proposed to be removed for the proposed development. The majority of the vegetation removal is anticipated to be within mixed meadows, woodlands and cultural thickets that are located immediately adjacent to the rail tracks. Generally, the vegetation communities surveyed by AECOM that are closest to the rail corridor have the highest concentration of invasive species indicating that habitat conditions are highly disturbed and are of poor quality. No provincially rare plant species other than the Butternut was identified by AECOM in these vegetation communities. A tree inventory was completed by a qualified Arborist within the construction footprint during the EA phase in order to document all of the woody vegetation, including trees and shrubs, that will be need to be removed; the arborist report will be completed during the Detailed Design phase. Potential impacts to SAR, including Butternut, and details of required additional surveys are discussed in **Appendix B1**.

Several regionally rare or uncommon plants within these vegetation communities were also recorded by AECOM; however, these species are relatively common to the local area and are situated further in the vegetation community and away from the Lakeshore East Rail Corridor.

The existing Lakeshore East Rail Corridor crosses the Provincially Significant Rouge River Valley Life Science ANSI, Petticoat Creek ESA and Rouge Marsh Area ESA, and runs adjacent to the Regionally Significant East Point Bluffs and East Point ESA. The Provincially Significant Rouge River Valley Life Science ANSI and Rouge Marsh ESA will not be greatly impacted by vegetation removal as the boundaries of this ANSI and ESA are located outside of the construction footprint except for a very small area on the east side of the Rouge River. The only vegetation removal that may occur within this area is for the construction of the new bridge structure and rehabilitation of the existing rail bridge crossing the Rouge River. Rehabilitation of the existing bridge is limited to within the Lakeshore East Rail Corridor, which consists of shrub thicket (**Appendix B1**). The new bridge structure is proposed to be located south of and immediately parallel to the existing bridge crossing the Rouge River and also limited to within the Lakeshore East Rail Corridor. However, minimal vegetation removal outside of the Lakeshore East Rail Corridor may be required for construction (i.e., staging areas) of the new bridge structure. There is minimal vegetation present south of the existing bridge and outside of the Lakeshore East Rail Corridor, including a few planted trees and shrubs.

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5. ELC communities delineated by TRCA are not shown on **Figures 2AA-2BJ (Appendix B1)** due to data sharing restrictions.

It is anticipated that the preservation of a total of 397 trees, 24 tree polygons and portions of 8 tree polygons will be possible with appropriate tree protection measures, pending further review at the Detailed Design phase. Unfortunately, despite Metrolinx’s best efforts to preserve as many trees as possible, there will be a need for tree removal within the Study Area.

It is anticipated that the removal of 250 trees, 23 tree polygons and portions of 8 tree polygons will be required to accommodate the proposed Project, pending further review at the Detailed Design phase. Within the City of Toronto a total of 205 trees, 15 tree polygons and portions of 5 tree polygons are identified for preservation; 172 trees, 17 tree polygons and portions of 5 tree polygons require removal. Within the City of Pickering a total of 192 trees, 9 tree polygons and portions of 3 tree polygons are identified for preservation; 78 trees, 6 tree polygons and portions of 3 tree polygons require removal. Where grade is added, tree roots may suffocate due to compaction, and where grade is removed tree roots may be severed and lost. In both cases, the structural integrity may be compromised and trees may fail. As such, trees which conflict with proposed grading may require removal. ELC vegetation communities affected by vegetation removal are listed below in **Table 5-2**.

**Table 5-2: ELC Vegetation Communities Affected by Vegetation Removal**

| Affected ELC Vegetation Communities | Area (ha) of Proposed Vegetation Removal |
|-------------------------------------|--|
| Open Beach Bar                      | 0.02                                     |
| Shrub Bluff                         | 0.02                                     |
| Cultural Hedgerow                   | 1.12                                     |
| Mixed Meadow                        | 4.85                                     |
| Cultural Plantation                 | 0.37                                     |
| Cultural Savannah                   | 1.13                                     |
| Cultural Thickets                   | 4.16                                     |
| Woodlands                           | 4.32                                     |
| Deciduous Forest                    | 2.62                                     |
| Mixed Forest                        | 0.94                                     |
| Meadow Marsh                        | 0.33                                     |
| Shallow Marsh                       | 0.66                                     |
| Open Aquatic                        | 0.02                                     |
| Treed Sand Dune                     | 0.05                                     |
| Deciduous Swamp                     | 0.15                                     |
| Swamp Thicket                       | 0.54                                     |
| <b>Approximate Total:</b>           | <b>21.28</b>                             |

Of the trees anticipated for removal there are:

- One Category 2 tree (trees with diameters of 30 cm or more, situated on private property, with 6 m of the subject site as defined by City of Toronto Tree Protection By-law);
- Forty-seven Category 3 trees (trees of all diameters situated on City owned parkland within 6 m of the subject site as defined by City of Toronto Tree Protection By-law);
- One Category 3 tree polygon;
- Twelve Category 4 trees (trees of all diameters situated within land designated under City of Toronto Municipal Code, Chapter 658, Ravine and Natural Feature Protection as defined by City of Toronto Tree Protection By-law);
- Sixteen Category 5 trees (trees of all diameters situated within the City road allowance adjacent to the subject site as defined by City of Toronto Tree Protection By-law);
- Portion of two Category 5 tree polygons;
- Four trees protected by City of Pickering By-law 6108/03; and
- Nineteen trees situated within the TRCA regulated area.

Encroachment within the minimum Tree Preservation Zone (mTPZ) of 23 trees may be required for activities such as proposed grade removal or excavation for retaining walls. There may be some damage to the roots as aggregate is pushed down into the soil profile, however roots will not be lost immediately. As such, it is anticipated that these trees will respond well to construction impacts.

Further details on tree preservation and removal are provided in **Appendix B2**.

A total of 41 trees were identified within felling distance of the rail corridor with elevated risk potential. These trees must be removed to mitigate the risk associated to rail service and workers within the rail corridor.

### **Potential Operations Effects**

During operation of increased GO service, it is not anticipated that there will be any significant potential effects on vegetation cover or designated natural areas.

### **Mitigation**

Metrolinx is currently consulting with Conservation Authorities and Municipalities to establish an *Ecosystem Service Compensation Protocol* for Metrolinx projects. It will address items such as tree and vegetation removal from within the Lakeshore East Rail Corridor, from within woodlots, wetlands as well as trees immediately adjacent to Metrolinx-owned properties, compensation approach, tree limb pruning protocols for construction.

In general, tree protection measures shall follow municipal by-laws and policies, such as the City of Toronto's Tree Protection Policy and Specifications for Construction Near Trees (March 2016). The opportunity to salvage existing vegetation, particularly sensitive species, for transplanting from within the project boundaries in its proximity must be explored.

Vegetation removal will be kept to a minimum and limited to within the construction footprint, where feasible. Silt fencing and/or protective tree fencing will be installed, where possible, and maintained to clearly define the construction footprint and prevent accidental damage to vegetation or intrusion to adjacent vegetated areas.

Prior to the commencement of construction, tree protection fencing will be installed at the locations outlined in the Tree Inventory and Preservation Plan (**Appendix B2**). Acceptable tree protection will be implemented adhering to the *Tree*

*Protection Policy and Specification for Construction Near Trees* (City of Toronto, 2016) through consultation with the City of Toronto and Metrolinx during Detailed Design. Tree protection fencing is not required where an existing fence serves the same purpose. At such locations, the barrier shall terminate at the existing fence so that a continuous barricade is provided between the trees and the areas of work. The protection fencing shall be maintained erect and in good repair throughout the duration of construction operations without breaks and unsupported section, and shall be removed upon completion of the work.

Where trees residing on the side of the rail right-of-way where no grading is proposed no tree protection fencing is required. There will not be grading machinery in these locations and as such no tree protection is required. Tree protection fencing must remain intact through the entire phase of construction. No construction activity including grade changes, surface treatments or excavations of any kind is permitted within a Tree Preservation Zone (TPZ). No root cutting or storage of material, vehicles, equipment or fill is permitted within the TPZ. Grade changes are not permitted within established TPZ. The area(s) identified as a TPZ must remain undisturbed at all times. It is recommended that TPZ signage be installed on the fence. The sign will be a minimum of 40 cm x 60 cm, made of white gator board and outline the following:

- That no grade change, storage of materials or equipment is permitted within the TPZ;
- Contact information of the Municipal Forestry department; and
- The potential fine for contravention of disobeying by-laws in which the TPZ was installed.

Where branches are likely to be damaged during construction, pruning will take place, where possible, prior to construction to avoid branches being broken off, so that bark is not torn and wounds are not more extensive than absolutely necessary. Limbs that may interfere with construction must be pruned under the supervision of the contract administrator or qualified tree worker prior to construction. Where minimal work (e.g., pruning) is required within a tree's TPZ such that the tree will be preserved with injuries on lands owned by the City of Toronto, a permit to injure will be required for those trees located outside of the Lakeshore East Rail Corridor. Assessment of the trees requiring this permit will be conducted during Detail Design.

Root damage can be minimized by restricting equipment in the vicinity of the existing trees, and limiting equipment and materials storage area within the development limits. It is critical to avoid damage to the structural root plate in order to prevent affecting tree stability and creating a hazard. In general, roots 100 mm in diameter or larger must be considered structural roots. If there is any question about whether a tree's stability may be affected, a Certified Arborist will be consulted. Root pruning will occur prior to the start of construction to prevent desiccation of roots, increase root regeneration and minimize damage to root systems during construction. Roots will be pruned 15 to 30 cm back from the edge of the TPZ and to a depth of 1 m or the maximum depth of root penetration (whichever is deeper). Pruning roots within the TPZ provides an area of minimally disturbed soil, allowing for new root growth. All pruning will be done with clean, approved root-pruning equipment and under the supervision of a Certified Arborist. Any roots that are severed during construction will be cut cleanly to minimize decay and entry points for disease. If roots will be exposed for more than a few hours, they will be protected from drying with the application of mulch.

Metrolinx is currently consulting with Conservation Authorities and Municipalities to establish an *Ecosystem Service Compensation Protocol* for Metrolinx projects. It will address items such as tree and vegetation removal from within the Lakeshore East Rail Corridor, from within woodlots, wetlands as well as trees immediately adjacent to Metrolinx-owned properties, compensation approach, tree limb pruning protocols for construction. The requirements of this protocol will be carried forward as future commitments for the Project.

A total of 41 hazard trees were identified within felling distance of the railway corridor. These trees will be removed to mitigate the risk associated to rail service and workers within the railway corridor.

Tree protection measures must be implemented prior to the construction phase (grading) to ensure that trees identified for preservation are not impacted.

Given that portions of the Study Area reside within areas protected by the Ravine and Natural Feature Protection By-law a restoration plan will be required under separate cover to meet the regulations of the By-law. A Ravine Stewardship Plan will be required for any proposed disturbances within Ravine and Natural Feature areas.

Multiple Butternut trees were identified within the Study Area. If the results of genetic testing prove the trees are true Butternut specimens they will be assessed by a Certified Butternut Health Assessor in accordance with MNRF protocol.

#### 5.1.1.2 Wetlands

##### **Potential Construction Effects**

Approximately 1.67 ha of wetland ELC communities (meadow marsh, shallow marsh, deciduous swamp and swamp thicket) may be potentially impacted by vegetation removal for the proposed developments. Of these, 0.52 ha are identified as unevaluated wetlands by the MNRF (refer to **Appendix B1**). There are several other unevaluated wetland located in close proximity to the rail corridor that will be not be impacted by vegetation removal but are still within 120 m of the construction footprint. The majority of the unevaluated wetlands are located west of Beechgrove Drive (**Appendix B1**).

In addition, grade separations proposed at Scarborough Golf Club, Morningside Avenue and Galloway Road may potentially affect adjacent wetland communities. These may be potentially affected by effects to hydrologic connections between wetland units, for example east and west of Galloway Road, and/or dewatering activities. Generally, all wetland communities in close proximity to the Lakeshore East Rail Corridor are usually not of high quality but regardless hold intrinsic value because there is a general lack of wetlands in the GTA.

Potential impacts associated with vegetation removal and dewatering in wetlands generally include loss of hydrological function, loss of biodiversity and wildlife habitat, change or disruption of substrates, and increased siltation. Consultation with the MNRF and TRCA will be initiated during the Detailed Design phase regarding whether the significance of the unevaluated wetland needs to be evaluated prior to construction. Additional details describing mitigation and compensation measures, required additional surveys and environmental monitoring for affected aquatic features are provided in **Appendix B1**.

Furthermore, the Provincially Significant Highland Creek Wetland Complex, Rouge River Marshes Wetland Complex and Frenchman's Bay Coastal Wetland Complex are located outside of the construction footprint and will not be impacted by vegetation removal.

##### **Potential Operational Effects**

During operation of increased GO service, it is not anticipated that there will be any significant potential operational effects on wetlands.

##### **Mitigation**

Consultation with TRCA will be required at Detailed Design stage to determine mitigation and compensation measures. Consultation with the MNRF will also be required to determine whether the unevaluated wetland complex west of Highland Creek should be evaluated for significance using the Ontario Wetland Evaluation System Southern Manual, 3rd Edition (MNRF, 2014). General mitigation is best implemented through avoiding or minimizing the

amount of wetland area requiring removal. Consultation with TRCA will further determine the appropriate timing window for the wetland removal (e.g., “in the dry”, over winter, etc.) as well as offsetting impacts e.g., through compensation via wetland creation elsewhere within the same wetland unit, or within the region, or improvements to the quality of remaining wetland, e.g., through removal of any exotic/invasive species (if present), native species plantings.

Appropriate sediment and erosion control measures will be developed in consultation with TRCA to prevent sedimentation and erosion from construction areas entering adjacent wetland communities. Dewatering of wetlands is recommended to be undertaken during the winter when the effects of changes in water levels are less significant. If dewatering occurs during the winter, mitigation measures are not required to augment water levels. However, if this is not possible, mitigation measures will be developed in consultation with TRCA. Flood impact assessments are recommended for Highland Creek and Scarborough Golf Club Road crossings. Wetland boundary delineation of wetland communities adjacent to the Lakeshore East Rail Corridor, particularly at the Galloway Road crossing, will be conducted by a qualified wetland Biologist and TRCA during the Detailed Design phase. Where development will occur within the TRCA regulated areas (e.g. wetlands and watercourses), the policies outlined in Section 8.9.2 of the Living City Policy will be followed.

Project engineers will review drainage design alternatives to maintain flow connection between wetland units, avoiding the potential to either drown or starve wetlands; such consideration will be in conjunction with creating a detailed flood control strategy, e.g. for the grade separation, at Detailed Design. Metrolinx is currently consulting with Conservation Authorities and Municipalities to establish an *Ecosystem Service Compensation Protocol* for Metrolinx projects. It will address items such as tree and vegetation removal from within the Lakeshore East Rail Corridor, from within woodlots, wetlands as well as trees immediately adjacent to Metrolinx-owned properties, compensation approach and tree limb pruning protocols for construction.

#### 5.1.1.3 Wildlife Habitat

##### **Potential Construction Effects**

Proposed vegetation removal, as well as temporary noise disturbance from construction related activities are likely to have potential impacts on wildlife habitat identified within or near the existing rail corridor. Potential impacts to these wildlife habitat are discussed as follows.

A relatively large colony of Cliff Swallows with approximately 100 active nests was found under the pedestrian foot bridge crossing the Rouge River. The pedestrian bridge is located approximately 30 m away from the existing rail corridor and runs parallel to it (**Appendix B1**). The colony is constructed on a man-made structure and therefore it does not meet the criteria for Significant Wildlife Habitat in accordance to the Draft Significant Wildlife Habitat 7E Criterion Schedule (MNR, 2012b). However, Cliff Swallows and their nests are protected under the MBCA. Although the pedestrian bridge will not be impacted during the construction of the Project, noise and vibration from the construction related activities may temporarily disturb the neighbouring Cliff Swallow Colony or temporarily displace breeding individuals during the breeding season. Operational noise impacts are projected to increase by less than 4 decibels (dB) from existing noise conditions at night time and an even smaller increase during daytime. Operational vibration impacts are projected to increase by 17% from existing conditions. The Cliff Swallows are tolerant to the current noise and vibration coming from the busy park access road, adjacent rail tracks and pedestrians walking on the bridge and therefore it is not anticipated that the colony will be greatly impacted by small increases in noise and vibration associated with higher train traffic volumes during operation.

No potential impacts related to construction are anticipated for any breeding amphibians within or adjacent to the existing rail corridor. One potential amphibian breeding habitat was initially identified within the SAF1-3 vegetation community situated in the Lakeshore East Rail Corridor near the intersection of Beechgrove Drive and Copperfield

Road (**Appendix B1**); however, this habitat was confirmed as not significant due to the low number of amphibians heard calling during the amphibian surveys in 2014.

Additionally, the Rouge Marsh Area ESA, which may contain healthy amphibian breeding populations, will not be impacted since no habitat loss is anticipated as result of the construction. The marsh is currently separated from the existing rail corridor by a park access road, which buffers it from the nearby construction activities. Furthermore, the existing rail crosses the Rouge River by a bridge that is elevated high above the marsh and therefore amphibians are not at any risk of mortality due to trains. Breeding amphibians within the marsh are also likely tolerant to current levels of noise and vibrations coming from the existing park access road and rail corridor and are unlikely to be affected by increase in noise associated with nearby temporary construction or operation. It is for these reasons that this marsh was not initially included in the amphibian call surveys since it was determined during the reconnaissance surveys that it would not be impacted by the Project and therefore did not require to be investigated.

Finally, according to the Atlas of the Mammals of Ontario (Dobbyn, 1994) there are several bat species that can be found in the Greater Toronto Area (GTA) including Eastern Small-footed Bat (*Myotis leibii*), Little Brown Bat (*Myotis lucifugus*), Northern Long-eared Bat (*Myotis septentrionalis*), Silver-haired Bat (*Lasionycteris noctivagans*), Tri-colored Bat (*Perimyotis subflavus*), Big Brown Bat (*Eptesicus fuscus*), Eastern Red Bat (*Lasiurus borealis*) and Hoary Bat (*Lasiurus cinereus*). In the summer, male and female bats of these species can generally be found roosting in a variety of structures including tree cavities, attics and buildings (MNR, 1984). Reproductive females form maternity colonies and rear their young during the sensitive maternity roosting period through June and July. Vegetation removal is required within the construction footprint. Any bat maternity colonies residing in cavities of trees identified for removal would be significantly impacted through habitat loss and/or possible mortality. Surveys to assess whether any significant bat maternity colonies are located within or adjacent to the existing Lakeshore East Rail Corridor were not completed as part of the 2014 field investigations as this requirement was not flagged by MNR through correspondence at the time. Therefore, additional surveys including snag/cavity tree density surveys, exit surveys and/or acoustic monitoring will be conducted prior to construction to determine potential impacts, if any, on significant bat maternity colonies. Avoidance measures such as timing restrictions for tree removal within confirmed significant bat maternity colonies will be required.

The timing and extent of overnight work will be identified through the Detailed Design phase. To mitigate, such overnight disruption would be limited to locations as listed above to the extent possible, and over as short a duration as possible. Additionally, it is recommended that overnight work occur outside of sensitive breeding timing windows, e.g., outside of March 31<sup>st</sup> through September 1<sup>st</sup>, inclusively, to best avoid disruption of important breeding and rearing life stages of local wildlife.

### **Potential Operations Effects**

It is not anticipated that the Cliff Swallow colony will be significantly impacted by the potential increase in noise and vibration during operation of increased GO service, due to its tolerance for noise and vibration from the existing operation of the rail corridor.

### **Mitigation**

Construction of the rail bridge structure crossing the Rouge River will be avoided during the breeding bird season (March 31 to September 1) to avoid disturbing the Cliff Swallow colony. Appropriate nesting prevention and exclusion measures will be developed in consultation with applicable regulatory agencies where timing windows are restrictive to construction and other measures such as advanced nesting surveys are not sufficient. During the breeding season, the area will be checked to ensure that no Cliff Swallows have managed to nest in the area.

The primary mitigation measure is avoidance. Where avoidance is not possible, appropriate nesting prevention and exclusion measures will be developed in consultation with applicable regulatory agencies.

#### 5.1.1.4 Breeding Birds

##### **Potential Construction Effects**

The existing Lakeshore East Rail Corridor runs through heavily urbanized cities, consisting of residential, commercial and industrial areas where natural vegetation is limited to city parks, open spaces, resident's front and backyards and in road and Lakeshore East Rail Corridors. While the enclosed tunnel entrance/exit building is located entirely within a manicured lawn. In general, natural vegetation cover is higher along the Ontario lakeshore. All of these vegetated areas can provide breeding and nesting habitat for breeding birds. Numerous breeding birds were recorded in 2014 within and in the vicinity of the existing rail corridor. The most commonly recorded bird species included Red-winged Blackbirds, Common Grackle, Northern Cardinal, Song Sparrow, Yellow Warbler, American Robin and American Goldfinch, all of which are common in Ontario and tolerant to disturbances associated with urban settings. Most of the recorded bird species are protected under the *MBCA*. Any harm or destruction to the migratory birds listed under the *MBCA*, their eggs and/or their active nests is prohibited. In addition, several locally significant species as identified by TRCA were recorded; most of these are also protected under the *MBCA*. Displacement of breeding migratory birds and/or destruction of their active nests may occur if vegetation removal for the construction of the Project occurs during the breeding bird season (March 31 to September 1). The potential impact on breeding birds is considered low provided that the avoidance and mitigation measures described in **Appendix B1** are implemented.

Additionally, culverts along the existing rail corridor and rail bridges crossing the Rouge River and Highland Creek were inspected for nesting structures. None of the culverts contained any nests. Culverts along the existing rail corridor consisted of box and round concrete culverts and small corrugated steel pipe culverts. The box and round concrete culverts varied in size of between 2 to 3 m high and 3 m wide. These culvert structures (i.e., concrete and corrugated steel piles), are not considered to be suitable nesting habitat for swallows and other bird species given the small dimensions and their potential of being flooded during periods of high runoff. Also, corrugated metal surfaces generally make it difficult for birds to build their nests on. Similarly, none of the rail bridges contained any nests. This is likely because of the noise and vibrations coming from regular train traffic, which makes the bridges unstable habitat for building nests on. Therefore, no nest avoidance structures are required to be installed to deter birds from nesting. Although it is unlikely that birds will nest in these structures, a nest survey of the culverts and bridges should be conducted prior to construction if it is anticipated to start during the breeding bird season. This nest survey will ensure that no SAR bird species or migratory birds protected under the *MBCA* have nested on these structures since the field investigations conducted in 2014.

##### **Potential Operations Effects**

During operation of increased GO service, it is not anticipated that there will be any significant potential effects on breeding birds.

##### **Mitigation**

Vegetation removal will be scheduled to occur outside of the breeding bird season (March 31 to September 1). If this is not possible, active nest surveys will be completed by a qualified Biologist 24 hours prior to vegetation removal within habitat considered "simple" as defined by Environment Canada – Canadian Wildlife Services:

- "an urban park consisting mostly of lawns with a few isolated trees;
- a vacant lot with few possible nest sites;

- a previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil, for instance); or
- a structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawks, gulls and others)” (Canadian Wildlife Services 2014).

Similarly, nest searches can also be considered when investigating:

- “conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or
- colonial-breeding species that can often be located from a distance (such as a colony of terns or gulls)” (Canadian Wildlife Services 2014).

If an active nest of a migratory bird is found, an appropriate buffer depending on the species will be applied to the nest wherein no vegetation removal will be permitted until the young have fledged from the nest. Nest surveys of culverts and rail bridges will be conducted if construction of these structures takes place during the breeding bird season. If active nests are observed, an environmental monitor will be notified immediately.

Environment Canada cannot provide authorizations or permits for the incidental take of migratory bird nests and eggs. Activities affecting migratory birds and/or their nests and eggs, regardless of their scale, the level of potential detrimental effects on bird populations, or the nature of mitigation measures taken, can result in violations of the Migratory Birds Regulations.

The contravention of the *MBCA* will be avoided if the prescribed mitigation measures above are followed during construction.

#### 5.1.1.5 Terrestrial Species at Risk and Special Concern Species

##### **Plant Species at Risk**

##### **Potential Construction Effects**

At least 19 Butternuts were recorded within or in the vicinity of the existing Lakeshore East Rail Corridor between the ELC surveys and tree inventory conducted in 2014 and 2015, respectively. The majority of these Butternuts are suspected to be hybrids (four of which were confirmed as hybrids through genetic testing) but a few showed signs of the Butternut Canker and may be true Butternuts. Butternut is listed as an Endangered species under the *Endangered Species Act, 2007 (ESA)*, however hybrids are not protected. The individual and its’ habitat is protected under the ESA; however, the removal and harm of true Butternut trees may be permitted provided that a qualified Butternut Assessor assesses the health of the tree and characterizes into one of three categories: (1) non-retainable, (2) retainable and (3) archivable. The Butternut Health Assessor must submit a Butternut Health Assessment Report, documenting the number and category classification of Butternut trees proposed for removal, to the MNR. After 30 days of submitting the Butternut Health Assessment Report, non-retainable (i.e., Category 1) Butternut trees may be removed without further process or documentation unless otherwise indicated by the MNR. Up to ten (10) retainable (i.e., Category 2) Butternut Trees may be removed provided that a Notice of Activity is registered with the MNR and butternut seedlings are planted following certain ratios and planting requirements, monitored and reported on. A permit from the MNR may be required if more than ten (10) retainable trees or any archivable trees are proposed to be removed. Hybrid trees are not protected under the ESA and therefore may be removed. Until recently, MNR has been recommending a protective buffer of 25 m around a retainable Butternut to ensure that there is no disturbance to the rooting zone; however, MNR’s more recent guidance on the general habitat for Butternut includes a 50 m buffer (MNR, personal communication, August 8, 2016). Therefore, a Butternut Health Assessment may be avoided if a true Butternut tree does not have to be removed and is more than

50 m away from the construction footprint. Those Butternuts not already genetically tested for hybridity should be tested during Detailed Design to confirm whether any of them are in fact hybrids.

If any true Butternuts are identified for removal, a butternut health assessment will be completed. Protective measures will be applied for those Butternuts identified within 50 m of the construction footprint but do not need to be removed as described in further detail in **Appendix B1**.

According to the MNRF phone call to AECOM staff on 29 August 2014, there is a record of Dense Blazing Star occurring in the unevaluated wetlands east of Highland Creek. This species was not observed or recorded during the ELC surveys within, or in the vicinity of, the Lakeshore East Rail Corridor and therefore no impacts associated with construction are anticipated.

### Potential Operations Effects

During operation of increased GO service, it is not anticipated that there will be any significant potential effects on plant SAR.

### Mitigation

If a pure retainable (Category 2) Butternut tree must be harmed or removed, a Butternut Health Assessment completed by a qualified Butternut Health Assessor will be required. A Notice of Activity will have to be registered with the MNRF by submitting a Notice of Butternut Impact Form to the MNRF Registry. A Butternut Compensation Plan will be developed and will include monitoring and reporting in accordance with legislative requirements. A permit or authorization under the *ESA* will be required if more than ten (10) retainable (Category 2) Butternuts or Archivable (Category 3) Butternuts are to be removed.

It shall be noted that no Butternut trees were identified within the boundaries of the future Rouge National Urban Park during the 2014 field investigations or the 2015 tree inventory. As such, a permit for removal from Parks Canada will not be required. If any pure retainable Butternut trees are identified within the future Rouge National Urban Park during Detailed Design, consultation with Parks Canada will be initiated if the lands have already been transferred and fall under federal jurisdiction; otherwise permitting through the MNRF under the provincial *ESA* will be required.

## **Bird Species at Risk and Special Concern Species**

### Potential Construction Effects

Habitat within or in the vicinity of the existing Lakeshore East Rail Corridor was identified for two (2) bird SAR and four (4) special concern species. Yellow-breasted Chat and Bank Swallow are designated as Endangered and Threatened species, respectively, and are protected under the *ESA*. Potentially suitable habitat for Yellow-breasted Chat was identified within the naturalized area west of Beechgrove Drive and along the forested floodplains of Highland Creek. This species was not observed during the breeding bird surveys in 2014 nor was it recorded in the results from the NHIC or the Ontario Breeding Bird Atlas. There are no potential effects anticipated to this species since it is highly unlikely that it occurs in the general area.

A colony of Bank Swallows was recorded in a sand bank along the Waterfront Trail and east of Lawrence Avenue East, facing Lake Ontario (**Appendix B1**). Bank swallows were observed flying in the area and entering some of the burrows. Habitat for the Bank Swallow Colony, which includes a 50 m habitat buffer from the peripheral burrow on the sand bank, is located within the construction footprint. Grading for the third track is proposed inside this habitat (i.e., 50 m buffer) but it will be on the north side of the existing rail tracks. It is likely that these Bank Swallows are

tolerant to the current levels of noise and vibrations coming from existing train traffic. Operational noise impacts are predicted to increase by less than 4 dB from existing conditions at the most and operational vibration impacts are predicted to increase by 17%. Vegetation cover between the south side of the existing rail tracks and the edge of the cliff acts as a buffer against current levels of noise. Vegetation removal south of the existing rail tracks, if any, may decrease the effectiveness of this buffer. Potential temporary increase in noise levels from construction related activities and/ or potential permanent increases in noise and vibration from increased volumes of train traffic during operation may disturb breeding Bank Swallows during the breeding bird season (March 31 to September 1) and may lead to abandonment of the habitat. Avoidance measures and monitoring requirements to minimize potential impacts on this colony are described in **Appendix B1**. MNRF comments received on the draft EPR indicated that, should work proceed, no impacts are anticipated. Nevertheless, the MNRF will be consulted at the Detailed Design permitting stage regarding whether an authorization or permit under the ESA would be required and any additional mitigation and/or compensation measures and monitoring requirements.

The remaining species, Eastern Wood-pewee, Golden-winged Warbler and Wood Thrush are designated as Special Concern but do not receive protection under the ESA. Suitable habitat for Eastern Wood-pewee may consist of fragmented patches of deciduous forests within and adjacent to the Lakeshore East Rail Corridor. One Eastern Wood-pewee was recorded in a woodlot on the north side of Lawrence Avenue East and west of Ridgewood Road during breeding bird surveys. No construction is proposed north of Lawrence Avenue and therefore this woodlot will not be impacted. Golden-winged Warbler prefers to nest in open woodland or thicket habitat of which occur along the existing Lakeshore East Rail Corridor. Wood thrush and Hooded Warbler are area-sensitive species that require relatively large tracks of deciduous forest. Suitable habitat includes the forested floodplains of Rouge River, Highland Creek and Petticoat Creek; however, those species were not recorded during breeding bird surveys in 2014. Vegetation removal near these areas will be limited to within the construction footprint, which is mostly within the existing Lakeshore East Rail Corridor. The potential impact to these species is considered low provided that the avoidance and mitigation measures described in **Appendix B1** are implemented from March 31 to September 1.

### Potential Operations Effects

It is likely that the Bank Swallows are tolerant to the current levels of noise and vibration coming from existing rail traffic, and vegetation cover between the south side of the existing rail corridor and the edge of the cliff acts as a buffer from this. However, vegetation removal south of the existing rail corridor may decrease the effectiveness of this buffer. Potential permanent increases in noise and vibration from increased volumes of rail traffic during operation of increased GO service may disturb breeding Bank Swallows during the breeding bird season (March 31 to September 1) and may lead to abandonment of the habitat.

### Mitigation

A nest survey of the culverts and bridges will be conducted prior to construction if it is anticipated to start during the breeding bird season, to ensure that no SAR bird species or migratory birds protected under the *MBCA* have nested on these structures since the 2014 field investigations.

The MNRF will be consulted regarding whether an authorization or permit under the ESA would be required and any additional mitigation and/or compensation measures and monitoring requirements.

Particular care must be taken in selecting erosion prevention and control measures if migratory birds are found nesting in stockpiles of overburden or on exposed soil banks in sand pits or quarries. During the breeding season it is important that nests not be disturbed by erosion prevention and control measures or by excavation and construction activities. For species such as Bank Swallows, which nest in burrows dug into exposed soil banks, the period when nests are considered active includes not only when birds are incubating eggs and taking care of flightless chicks, but also the roosting period after chicks have learned to fly and nests continue to be used.

## **Mammal Species at Risk**

### Potential Construction Effects

Of the bats identified to potentially occur within the Greater Toronto Area (GTA) according to the Atlas of the Mammals of Ontario (Dobbyn, 1994), four species are listed as Endangered and protected under the ESA, including Eastern Small-footed Bat, Little Brown Bat, Tri-coloured Bat and Northern Long-eared Bat. The removal of occupied snags or cavity trees, if any, would be detrimental to these bats, particularly during the most sensitive maternity roosting period of June 1 to July 31.

### Potential Operations Effects

During operation of increased GO service, it is not anticipated that there will be any significant potential effects on mammal SAR.

### Mitigation

Tree removal in Significant Bat Maternity Colony Habitat confirmed through snag/cavity tree density surveys (which will be completed during leaf-off seasons prior to construction) will be scheduled to occur outside of the bat roosting season of April 30 to September 1 and strictly cannot occur during the bat maternity period of June 1 to July 31. If this is not possible, tree removal could occur outside of the bat maternity period in confirmed Significant Bat Maternity Colonies provided that exit surveys and/or acoustic monitoring are completed 24 hours prior to vegetation removal to ensure suitable cavity trees are not occupied by maternity colonies. Surveys will be conducted following the protocols described in the *Use of Buildings and Isolated Trees by Species at Risk Bats Survey Methodology* developed by the MNRF (2014). Additional mitigation, compensation measures, and monitoring may be required based on the results of additional surveys and consultations with the MNRF. If surveys confirmed that no significant bat maternity colonies or SAR bats were recorded, the above timing restrictions need not apply.

## **Reptile Species at Risk and Special Concern Species**

### Potential Construction Effects

Potentially suitable habitat for four (4) reptile species was identified within or in the vicinity of the Lakeshore East Rail Corridor. These are Snapping Turtle, Northern Map Turtle, Eastern Musk Turtle (all ranked Special Concern, provincially) and Blanding's Turtle (ranked Threatened, provincially); these species are not protected under the ESA and were not recorded during any of the field investigations completed in 2014.

Portions of the Highland Creek and/or floodplains of the Rouge River may be potentially suitable habitat for Snapping Turtle, Northern Map Turtle and Eastern Musk Turtle. In-water works may be required for the construction of the rail bridge structures crossing Highland Creek and Rouge River. Turtles generally overwinter at the bottom of ponds, large wetlands, bogs and fens, and slow-moving rivers that have adequate dissolved oxygen levels, soft mud substrates to burry into and water depths that are deep enough not to freeze during the Winter (MNRF, 2012b). Turtles overwintering in or near the construction footprint may be potentially harmed or killed if in-water works occur during the winter, between October 1 and April 30. During the nesting season, these turtles may travel some distances, sometimes crossing roads, in search nesting sites. All leave the water to nest in dry open areas where the sun will incubate the eggs. Northern Map Turtles prefer to nest in sand beaches and dunes, gravel piers, sand bars, gardens and rock outcrops near their home lake or river (COSEWIC, 2012). Eastern Musk Turtles can nest in soil, decaying vegetation, rotting words, on open ground or in rock crevices (MNRF, 2014b). Snapping turtle females

often nest on open areas that can include anthropogenic sites such as in the gravel shoulders of roads (MNR, 2014b).

Sections of the existing Lakeshore East Rail Corridor are either fenced off or raised on a high berm which prevents access to turtles and therefore it is unlikely that any turtles are travelling across the rail tracks or nesting on the shoulders. Additionally, the shoulders of the rail tracks consist of large rocks that are not suitable for nesting. Therefore, there is no direct risk of mortality to turtles associated with construction and increased volumes of train traffic during operation. In the summer, turtles may bask on logs or rocks near the rail bridges crossing the Highland Creek and Rouge River. However, they will likely move away from any disturbances associated with in-water works. Additionally, indirect potential impacts associated with construction activities can include sediment erosion that may degrade adjacent habitat. Mitigation measures to reduce or eliminate potential construction related impacts are described in **Appendix B1**.

#### Potential Operations Effects

During operation of increased GO service, it is not anticipated that there will be any significant potential effects on reptile SAR.

#### Mitigation

In-water works will be scheduled to occur outside of the turtle overwintering period of October 1 to April 30. Prior to in-water works, an area search for turtles will be conducted. If a turtle is encountered then it will be safely encouraged to move away from the work area. Sediment and erosion control fencing will be installed along edge of construction area, where possible, to prevent sedimentation and erosion from construction to enter the watercourse.

Prior to turtles moving to overwintering habitat, appropriate wildlife exclusion measures will be developed in consultation with the applicable regulatory agencies as a measure to prevent turtles from overwintering in areas where construction activities may have to occur during their overwintering period.

Cover objects (e.g. corrugated metal sheets, plywood, particle boards, carpets, etc.) must not be stored within the construction area as they might attract Milksnakes. If a snake is encountered during construction, staff will try to herd it away safely from the construction area.

### **5.1.2 Aquatic Features**

#### Potential Construction Effects

The use of machinery in or near water poses risks of fuel contamination and spills. Fuel contamination and spills of any kind can harm and potentially limit aquatic species ability to carry out their life processes. Use of machinery may also result in removal of vegetation along the riparian corridor and earth moving activities may result in exposed soils resulting in greater risk for soil erosion and sedimentation to the watercourse. Sedimentation of the watercourse can result in decreased water clarity, increased total suspended solids, downstream deposition of materials and stress to fish present within the vicinity of construction activities. In-water works further increases the potential of these and other construction effects at Rouge River and Highland Creek crossings.

#### Rouge River

Installation of coffer dams and/or sheet piling at the Rouge River as well as operation of machinery on the river bed within an isolated work area will be necessary to construct the columns required to increase structure strength for the watercourse crossing. This in-water work has the potential to disturb substrates and aquatic vegetation.

Existing conditions of the area potentially affected consist primarily of sand substrates with minimal aquatic macrophytes. Due to the soft nature of existing sand substrates it is anticipated that restoration of the river bed will be required to return it to pre-construction conditions. Minimal effects on aquatic vegetation are anticipated. River banks and riparian vegetation have the potential to be disturbed by machinery; however, there will be minimal effects on the river banks if access is limited to the west bank as they are already hardened with armour stone and placed rock. Machinery must avoid the east bank, if possible, to reduce disturbance to existing riparian vegetation. Potential effects on the work area and downstream portions of the river may include disturbance of substrates, removal of aquatic and riparian vegetation, increased sedimentation, and erosion of the river banks.

The estimated area of permanent impact on the Rouge River bed is anticipated to be approximately 60 m<sup>2</sup>. It is anticipated that the potential impacts can be mitigated with the application of environmental protection and mitigation measures and that serious harm to fish or fish habitat from the proposed activities can be avoided. Further, there is a possibility that Eastern Pondmussel may be present and should be protected from environmental perturbation. Project design works will require engagement with Fisheries and Oceans Canada (DFO) and MNR, and further study, to confirm impacts to the provincially and federally protected aquatic Species at Risk in the vicinity of the Rouge River crossing. Refer to the NER for additional details regarding aquatic Species at Risk.

### Highland Creek

The Highland Creek (Main) bridge modifications will require in-water work to extend the existing centre pier to accommodate an additional track and space for a potential future fourth track. Sheet piles are proposed to be installed in the river bed on either side of the existing pier. This work will likely require installation of coffer dams and dewatering of the work area. Water may be pumped from the isolated area to the downstream portion of the waterbody through an appropriate sediment control device (e.g. sediment bag or filter cloth). Flow of the creek must be maintained downstream during all works. It is recommended that coffer dams be reduced to the smallest cross-section width possible and the creek flow be permitted to pass through the site without altering water levels, water velocities or causing downstream erosion.

Existing conditions of the area potentially affected consist of sand substrates with scattered boulders as well as large, angular rock substrate downstream of the rail bridge. Minimal aquatic macrophytes are present. Due to the soft nature of existing sand substrates it is anticipated that restoration of the creek bed will be required to return it to pre-construction conditions. Large rocks downstream may need to be removed prior to installation of sheets or coffer dams which could result in additional disturbance. Minimal effects on aquatic vegetation are anticipated. River banks and riparian vegetation has low potential to be disturbed by machinery since both banks in the immediate vicinity of the bridge are hardened with large boulders and placed rock. Sand banks, which are more vulnerable to disturbance and erosion are present immediately downstream of the Waterfront Trail approximately 15 m downstream of the rail bridge. There can be minimal effects on the river banks if access is limited to the west bank on the north side of the railway as there is an existing access road leading to the creek edge. Potential effects on the work area and downstream portions of the river may include disturbance of substrates, limited removal of aquatic and riparian vegetation, increased sedimentation, and erosion of the river banks.

The estimated permanent area of impact on the Highland Creek river bed is anticipated to be approximately 50 m<sup>2</sup>. It is anticipated that the potential impacts can be mitigated with the application of environmental protection and mitigation measures and that serious harm to fish or fish habitat from the proposed activities can be avoided.

### Other Activities

All other track alignment, grade separations, bridge, culvert, station and enclosed tunnel are not anticipated to have negative effects on watercourses provided environmental protection and mitigation measures are implemented.

### Potential Operational Effects

No negative effects on aquatic features are anticipated during Operations with the exception of potential fuel spills from daily operation of trains which may result in harm to aquatic species and their habitat.

### Mitigation

#### **Project Planning**

- In-water works will be planned in accordance with the permissible warm water timing window (i.e. the time when in-water works are allowed) between July 1<sup>st</sup> and March 31<sup>st</sup>, of any given year, or as otherwise approved by MNRF. Steps must be taken to minimize the requirement for, and the duration of, any in-water works. Further, any in-water works required will be conducted during periods of low flow to further reduce the risk to fish and their habitat and to allow work in-water to be isolated from high flows.
- It is recommended that in-water works at Rouge River and Highland Creek be completed in the dry, meaning the work space be contained by a coffer dam and dewatered prior to work commencing to protect the waterbody from sedimentation and siltation.
- The Rouge River crossing may also require Eastern Pondmussel surveys and relocation, if necessary. A SARA permit may be required to address mitigation involving the Eastern Pondmussel.
- Creek flows must be maintained downstream during all works. It is recommended that coffer dams be reduced to the smallest cross-section width possible and the creek flow be permitted to pass through the site without altering water levels, water velocities or causing downstream erosion.

#### **Erosion and Sediment Control**

- Construction activities in or near water will be scheduled in order to avoid wet, windy and rainy periods that may increase erosion and sedimentation.
- In-water activities will be undertaken in isolation of open or flowing water to maintain the natural flow of water downstream and avoid introducing sediment into the watercourse.
- An Erosion and Sediment Control Plan for the work site must be prepared and implemented during construction to minimize the risk of sedimentation to the waterbody during all phases of construction.
- Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody and/or settling basin and runoff water is clear.
- Measures must be undertaken to contain and stabilize any waste material above the high water mark to prevent re-entry.
- Inspection and maintenance of erosion and sediment control measures and structures will happen regularly during the course of construction.
- Repairs to erosion and sediment control measures and structures will take place if damage occurs.
- Non-biodegradable erosion and sediment control materials will be removed once site is stabilized.

### **Operation of Machinery**

- Machinery will arrive on site in a clean condition and be maintained free of fluid leaks, invasive species and noxious weeds. Whenever possible, machinery will be operated on land above the high water mark, in a manner that minimizes disturbance to the banks and bed of the waterbody.
- Machinery will be washed, refuelled, and serviced properly away from any waterbody at a minimum of 30 m. Storage of fuel and other materials for the machinery should be in such a way as to prevent any deleterious substances from entering the water.
- Activities near water will be planned to insure that such materials do not enter the watercourse.
- A response plan for spills will be developed before work commences. This plan will be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.
- Any building material used in a watercourse will be handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.
- All construction materials will be removed from site upon project completion.

### **Shoreline Re-vegetation and Stabilization**

- Clearing of riparian vegetation will be kept to a minimum; use existing trails, roads or pathways wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction. When practicable, prune or top the vegetation instead of grubbing/uprooting, if required.
- Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary high water mark. If material is removed from the waterbody, set it aside and return it to the original location once construction activities are completed.
- The shoreline and/or banks disturbed by any activity associated with the project will be immediately stabilized to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
- Additional mitigation measures to protect banks could include fish habitat enhancement measures. Planting of native riparian vegetation may be advantageous at both crossings as it may provide increased shade to the water. Cabled log jams and aquatic macrophyte plantings may provide refuge for fish.

### **Construction Activities and Monitoring During Construction**

- All in-water activities, or associated in-water structures, will not permanently interfere with fish passage, permanently constrict the channel width, or reduce flows.
- An isolation/containment plan will be implemented to isolate temporary in-water work zones (as applicable) to maintain clean flow downstream/around the work zone at all times.
- Turbidity will be monitored during the construction activities to ensure that water downstream is not being adversely affected.
- A qualified environmental professional will capture (under the appropriate collection permit) any fish trapped within any isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters.

## 5.2 Stormwater Management and Drainage

### 5.2.1 Stormwater Management and Drainage

This section presents a summary of the potential effects and mitigation relating to stormwater management and drainage associated with the Project. Further details are provided in the Stormwater Management and Drainage Report in **Appendix B9**.

In addition, Metrolinx completed a fluvial geomorphological and hydraulic assessment along Highland Creek and in the vicinity of Highland Creek Bridge to identify potential scour and erosion issues. The key findings of the assessment can also be found in this section.

#### **Potential Effects**

The proposed grade separations at Galloway Road and Morningside Avenue result in a trapped low point where stormwater will pond. Scarborough Golf Club Road does not create a trapped low point and the major overland flow path can be maintained. All the three proposed grade separations are within the TRCA regulation limits. At Galloway Road the crossing is adjacent to a regulated wetland and design will need to consider this wetland. At Scarborough Golf Club Road and Morningside Avenue the proposed grade separation will encroach on the TRCA regulatory flood limit and the potential flooding effects will need to be considered.

A review of the rail corridor drainage ditch identified five low points where ponding against the track base could occur. An assessment of the storage volume and catchment area for each low point identified two low points with a combination of significant storage volume and large catchment area. The proposed corridor expansion will likely encroach on the existing rail corridor drainage ditch in some areas reducing the capacity of the ditch and its ability to convey the 100-year event. Retaining walls have been proposed at a number of locations along the rail corridor which act to reduce encroachment on the ditch. Three typical ditch section designs were assessed for their hydraulic capacity to convey the 100-year event. Manning's equation calculations determined that the proposed typical sections will convey the 100-year event without causing flooding of the tracks.

The Rouge River Bridge and Highland Creek Bridge structures require widening to accommodate the proposed track expansion. The Petticoat Creek Culvert requires raising of the upstream and downstream headwalls as part of the project.

The hydraulic assessment of the Rouge River Bridge found the bridge widening resulted in a minimal decrease in water surface elevations of -0.04 m during the 100-year event and -0.03 m during the Regional event immediately downstream of the crossing and a minimal decrease in water surface elevations at the upstream Waterfront Trail pedestrian bridge of -0.03 m during the 100-year event and -0.01 m during the Regional event. Therefore the proposed bridge widening does not negatively impact flood elevations upstream or downstream of the crossing.

Metrolinx, in consultation with TRCA, completed a fluvial geomorphological and hydraulic assessment along Highland Creek and in the vicinity of Highland Creek Bridge to identify potential scour and erosion issues. The assessment determined that the widening of Highland Creek Bridge results in a minimal increase in the Regional water surface elevations upstream of the bridge and is considered to have minimal or insignificant potential effects, if any. The assessment identified that Highland Creek is currently widening due to increased flow as a result of:

- the realignment of Centennial Creek that now discharges into Highland Creek; and
- the high urbanization in the upstream catchment with minimal stormwater controls.

A total of 26 culverts were identified within the Study Area. Of these, five were identified as requiring extension to accommodate the track widening. These five culverts are located at mileage 315.20, 317.10, 317.15, 317.75 and 320.50. The hydraulic capacity of the culverts was assessed using inlet and outlet control calculations. The assessment found that all five culverts requiring extension meet the AREMA criteria of  $HW/D < 1$  for the 25-year event and  $HW/D < 1.5$  for the 100-year event. Furthermore, all five culverts provide sufficient freeboard to the base of rail ( $> 0.6$  m) during the 100-year event. The Petticoat Creek culvert does not require extension to accommodate the proposed track widening. Therefore there is no change to the hydraulic characteristics and hydraulic capacity of the existing culvert. A hydraulic assessment of the existing culvert using the TRCA HEC-RAS model for Petticoat Creek was undertaken. The analysis found the existing (and proposed) culvert meet AREMA criteria for the 25-year and 100-year events however the rail overtops during the Regional event and the culvert is operating under pressure flow with a headwater depth of approximately 12 m. For the Amberlea Creek culvert, there is no proposed additional track so the culvert will not require extension and there will likely be no reduction in flows at this location. Culvert extension can impact a fish species' ability to navigate the length of a culvert; however, as the five culverts requiring extension are not located on a watercourse, fish passage is not considered a concern at these locations.

### 5.2.2 Mitigation

Further assessment of the storm sewer network is required at the Galloway Road and Morningside Avenue grade separation locations to determine the appropriate management for the minor and major systems.

A detailed flood control strategy will be developed during Detailed Design. This strategy will include further assessment of the storm sewer network to determine appropriate mitigation for the major and minor systems at each grade separation.

LID opportunities will be considered where feasible at Morningside Avenue and Scarborough Golf Club Road due to possible increases in imperviousness.

Incremental cut and fill balance assessment will be completed to demonstrate no cumulative loss in floodplain conveyance and/or storage volume.

Metrolinx will work with TRCA during Detailed Design to develop suitable mitigation to avoid and/or protect the wetland adjacent to Galloway Road and avoid potential flooding effects within the regulatory limit at Scarborough Golf Club Road and Morningside Avenue in accordance with TRCA Guidelines and required permitting.

Low points with a combination of significant storage volume and large catchment area will be assessed by a geotechnical engineer to determine if potential stability issues may arise. It is recommended, if possible, that refinements to the drainage ditch are made at low points to remove the low point and direct surface runoff to an existing centreline culvert.

Based on a predicted velocity of 4.17 m/s at Rouge River Bridge, rip rap with a nominal stone size of 800 mm will be applied for scour protection at the crossing. At Highland Creek Bridge, a rip-rap apron with a D50 of 1,000 mm overlain with a filter layer and covering the total width of the river bed and total length of the bridge (19.35 m) will be installed so as to overlap with bank scour protection.

At Highland Creek Bridge, stone sizing calculations identified armour stone with a D<sub>50</sub> of 1,420 mm is required for the rail embankment. This is consistent with existing armour stone protection on the embankments which should be extended to the north and south in line with the proposed bridge widening.

While the present erosion is not currently impacting the rail embankment, it is recommended that erosion monitoring be implemented along the east bank in the vicinity of the rail embankment at Highland Creek based on significant

planform changes in the past 50 years, which has resulted in a high yearly erosion rate within the vicinity of the Highland Creek Bridge. The widening of the channel is a result of increased flows in Highland Creek associated with the realignment of Centennial Creek and high urbanization in the Highland Creek catchment.

Further geotechnical assessment will be completed at the Petticoat Creek Culvert location to ensure embankment failure and washout will not occur under anticipated conditions.

## 5.3 Groundwater

### 5.3.1 Groundwater Quantity

#### 5.3.1.1 Potential Construction Effects

Subsurface excavation below the water table may be required to allow for the construction of structural elements (e.g., culverts, embankments, foundations, footings, abutments and/or piers) necessary for the modification and/or replacement of bridges and culverts at watercourse crossings (Highland Creek and Rouge River) and road crossings (Scarborough Golf Club Road, Morningside Avenue and Galloway Road) within the Study Area.

As a result, construction dewatering may be required to achieve dry working conditions. As prescribed under *O. Reg. 63/16*, water taking for construction site dewatering in excess of 50,000 L/day and under 400,000 L/day is subject to registration through the Environmental Activity and Sector Registry (EASR). Where construction dewatering volumes are expected to exceed 400,000 L/day, a Permit to Take Water (PTTW) will be required from MOECC, in accordance with Section 34 of the *Ontario Water Resources Act (OWRA)*. Similarly, approvals for the discharge of pumped water also will be required, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval, and/or MOECC Environmental Compliance Approval (ECA) (*OWRA*, Section 53).

Construction dewatering activities have the potential to affect groundwater quantity, resulting in decreases in baseflow to watercourses, groundwater discharge to wetlands, yield of private water wells and groundwater flow patterns. Where dewatering occurs, local water table elevations will be temporarily lowered to facilitate construction under dry conditions. These effects are confined to the Zone of Influence (ZOI) from dewatering activities and are typically temporary in nature. Private water wells located within the dewatering ZOI, where groundwater levels have been lowered to facilitate construction, have the potential to be effected temporarily by lower well yields and/or changes in water quality. A reduction in well yield and/or water quality may result in the inability to use the well as a potable water source. Construction dewatering activities may also result in a decrease in groundwater contribution to groundwater-dependent natural features (i.e., wetlands, watercourses, ponds and lakes) resulting in declines in surface water levels/flow, temperature changes, and potential loss of habitat. Estimates of water taking quantities and resultant dewatering ZOI would be determined at the Detailed Design phase through a hydrogeological investigation and Water Taking Assessment.

#### 5.3.1.2 Potential Operations Effects

In areas where 'cut' or 'fill' is required that result in permanent changes to the original ground topography, corresponding changes to groundwater flow patterns (i.e., rate, direction, gradient, etc.) may occur. Since the proposed rail line will be constructed at the same grade as the existing rail, changes in groundwater flow patterns from the proposed expansion is expected to be negligible at the present time. Similarly, reduction in groundwater recharge as a result in increases in impervious surfaces or the placement of fill is considered to be negligible.

### 5.3.1.3 Mitigation

Prior to construction, a detailed Water Taking Assessment will be conducted to determine anticipated groundwater and surface water taking quantities, groundwater quality, predicted ZOI, evaluate potential impacts to groundwater dependent features, and identify groundwater discharge locations (i.e., sanitary and/or storm sewer, or natural environment). This assessment will be of sufficient scope to obtain a water taking permit (PTTW or EASR registration). Based on the results of the Water Taking Assessment, a water taking permit will be acquired from the MOECC in accordance with Section 34 of the *OWRA* and/or Part II of the Environmental Protection Act. Similarly, approvals for the discharge of pumped water will be acquired based on relative location of dewatering activities to potential receiving infrastructure (i.e., sanitary and/or storm sewer) or nearby natural features (i.e., watercourses, wetlands and/or ponds). The quantity and quality of discharge water will be managed to meet permitted limits under the discharge permit. Site-specific mitigation measures and a monitoring program for groundwater-dependent natural features and private water wells within the anticipated ZOI for dewatering activities will be determined during Detailed Design.

A Groundwater Management Plan describing appropriate areas and methods for discharge and identifying general and site-specific mitigations measures and monitoring requirements will be developed and implemented. The Groundwater Management Plan will include mitigation/treatment measures and monitoring requirements to manage any contaminated groundwater encountered during construction dewatering as a result of previous rail corridor and/or adjacent land use contamination. Where appropriate based on local groundwater quality, other mitigation measures will be identified to reduce groundwater taking quantities and related impacts, such as implementing groundwater cut-off measures (i.e. sheet piling) to restrict or alleviate any necessary dewatering requirements. Potential effects will be further mitigated by limiting dewatering to as short a time frame as possible through effective construction staging.

Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Groundwater Management Plan are fulfilled.

## 5.3.2 Groundwater Quality

### 5.3.2.1 Potential Construction Effects

General construction activities such as vehicle and machinery operation have the potential to affect groundwater quality through minor contaminant releases. Spills consisting of materials that constitute a contaminant may affect the water quality in nearby private water wells will therefore have to be managed.

In addition, improperly managed construction dewatering activities may result in an accidental release of contaminated groundwater to the environment.

### 5.3.2.2 Potential Operations Effects

General operational activities such as train operation and rail maintenance have the potential to affect groundwater quality through minor contaminant releases. Spills consisting of materials that constitute a contaminant or long term release of petroleum hydrocarbons (i.e., grease, oils, and/or fuel) from trains and other maintenance vehicles may potentially affect the water quality in nearby private water wells and therefore will need to be managed.

### 5.3.2.3 Mitigation

A Spill Prevention and Response Plan, outlining steps to prevent and contain any contaminant releases and/or to avoid impacts to groundwater will need to be developed during the Detailed Design phase. The Spill Prevention and Response Plan will include the requirement for a spill kit to be on site at all times during construction. General mitigation measures may include: ensuring machinery and trains are maintained and free of leaks, to reduce the possibility of fluid release; store any potential contaminants (e.g., oils, fuels and chemicals) in designated areas using appropriate secondary containment, where necessary. Staff will also be educated regarding appropriate handling procedures, including spill response and reporting requirements. Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Spill Prevention and Response Plan are fulfilled.

Groundwater quality testing will be performed at all construction dewatering locations prior to discharge to the natural environment or sewer and compared to the appropriate regulatory guidelines (i.e., Provincial Water Quality Objectives (PWQO) for environmental releases, storm and sanitary bylaws for discharge to municipal sewers). Appropriate water quality management (i.e. filtration systems and/or water treatment systems) will be implemented in the event exceedances to regulatory guidelines or limits are detected.

## 5.4 Surface Water and Soil Management

Previous contamination investigations (Phase I and Phase II ESAs) have been completed for the Lakeshore East Rail Corridor, from the Don Valley Parkway in the City of Toronto, to Frenchman's Bay in the City of Pickering. Those investigations found a number of existing site contamination issues along the corridor attributed to the current and historical activities associated with the operation of a rail corridor.

### 5.4.1 Potential Construction Effects

There is the potential for sediments to enter watercourses as a result of site clearing, stockpiling, cut/fill activities, excavation and construction activities.

General construction activities such as vehicle and equipment operations have the potential to change soil quality through minor contaminant releases. Spills consisting of materials that constitute a contaminant (fuels, lubricating oils and other fluids) may affect soils and will therefore have to be managed.

Construction workers may be exposed to designated substances identified in the *Occupational Health and Safety Act*, including but not limited to asbestos, PCBs, acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates, lead, mercury, silica, and vinyl chloride (SPL, 2011). Existing railway ties were observed to be stained black during the Phase I ESA investigation (SPL, 2011), and it is expected that creosote was used in wood preservation. Typical constituents of creosote include phenol, cresol and xylenols which have the potential to contaminate soil and groundwater within the corridor. Soil and groundwater potentially contaminated with VOC may be encountered during general constructions activities. Disturbance of contaminated soils and/or subsoils during construction activities may result in an accidental release of contaminants to the environment due to erosion and sedimentation of contaminated soil stockpiles and/or the improper handling and disposal of contaminated soils.

### 5.4.2 Potential Operation Effects

Potential effects due to the disturbance of existing contaminated sites and the release of contaminants could include reduction in soil quality due to accidental release of contaminants during operations. General operations activities such as maintenance vehicle and equipment operations have the potential to change soil quality through minor

contaminant releases. Maintenance activities do not typically involve the use of large quantities of fuel so the likely risk of contaminant release is from maintenance trucks or other vehicles.

### 5.4.3 Mitigation

An erosion and sediment control plan will be developed in consultation with TRCA and will include the requirement for a spill kit to be on site at all times during construction. Implementation of the erosion and sedimentation control measures will conform to recognized standard specifications such as Ontario Provincial Standards Specification (OPSS) and the requirements of the TRCA. Sediment and erosion control measures (e.g. silt curtains, silt fence) shall be installed prior to site clearing, grubbing, excavation or grading works.

Stockpiled material shall be stored at a safe distance from the waterway to ensure no deleterious substances enter watercourses.

Prior to construction, a Waste Management Plan will be developed to address proper handling of all excess materials that may be potentially contaminated. Signs of soil impacts (i.e. visual and/or olfactory indicators) will be managed according to standard industry best practices during construction activities.

Construction of the railway expansion, grade separations, and construction works at the bridge locations is expected to generate excess soil that cannot be reused on site due to its geotechnical properties or quality of the excess soil. In all cases the on-site and off-site beneficial reuse of excess soil will be explored by the Project team and will be undertaken in accordance with *Excess Soil – A Guide to Best Management Practices* (MOECC, January 2014). It is noted that the MOECC is presently contemplating the creation of a Regulation to govern excess soil management. Should this Regulation come into force within the implementation of the project the requirements will be incorporated as applicable.

All contaminated materials will be handled according to applicable provincial and federal legislation, regulations and standard procedures. *O. Reg. 347* under the Ontario *Environmental Protection Act* outlines requirements for on-site handling, mixing and processing of waste disposal sites and waste management systems.

The construction contractor will be required to develop and implement a site specific Health and Safety Plan and a Spill Prevention and Response Plan outlining steps to prevent and contain any chemicals and/or spills in a timely and effective manner and to avoid soil contamination.

If potential areas of contamination are identified during operations, further investigations will be completed to determine if contamination is present and what remedial action is necessary. All contaminated materials found during operation and maintenance activities will be handled in accordance with applicable provincial and federal legislation, regulations and standard procedures.

As recommended in the Phase I ESA report (SPL, 2011), best management practices for handling potential PCB-containing electrical ballast associated with the removal and/or replacement of fluorescent fixtures include the removal of potentially contaminated ballast from the fixtures prior to disposal and review of ballast labels and serial numbers to determine if the ballast likely contains PCB. In the event PCB containing electrical ballast is identified, the ballast will be handled in accordance with federal and provincial regulations governing PCB wastes.

It should be noted that Metrolinx will undertake a Phase I ESA investigation for additional lands required for the Project (both permanent and temporary) during the Detailed Design phase. Based on the findings of the Phase I ESA, a Phase II ESA may be required.

## 5.5 Air Quality

An air quality impact assessment was conducted for the construction and operation stages of the Project to determine the air quality and GHG impacts. A detailed Air Quality Assessment documenting potential effects and mitigation is provided in **Appendix B3**.

Local air quality effects as a result of the Project were assessed by comparing predicted pollutant concentrations with background air quality levels of CO, NO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, formaldehyde, acetaldehyde, benzene, 1,3-butadiene, acrolein and benzo(a)pyrene at sensitive and critical receptors (education, healthcare and daycare facilities, places of worship, and residences) within the Study Area.

To assess the pollutant concentrations at sensitive and critical receptors, air modelling was conducted for year 2025 (assumed future condition) using the AERMOD model which is an advanced air dispersion model that has been identified by the MOECC as one of the approved models under *O. Reg. 419/05*.

The modelling was conducted to determine the different contributions from each train service in operation within the Study Area (CN, VIA, GO). Road traffic and GO Station parking lot (Guildwood and Rouge Hill) emissions were modelled through emission factors generated using MOVES2014 (Motor Vehicle Emissions Simulator) which is the U.S. EPA's latest program for estimating vehicle emissions and is a model approved by the MOECC.

Event record data files obtained from Metrolinx were used to calculate duty cycles and geographical segmentation for typical weekday train runs for eastbound, westbound, express and local runs. The event record data account for differences in train speed and notch settings during times of unideal conditions. The notch settings do not vary significantly from run to run, since the train has to follow a strict schedule and strict speed limits for safety and operational reasons. The credible worst- case scenario is based on established service goals upon which the minimum infrastructure needs to be determined. Increase to the service levels would require additional infrastructure due to the operational and safety considerations. Current rail regulations are principally governed by Transport Canada and the US Federal Rail Administration; while Metrolinx, CN and CP are the principal sources of operational policies, standards, and rules. Other contributors to rail policy are the American railway Engineering and maintenance of way Association (AREMA) and the American public Transportation association (APTA). Collectively, these regulators and associations set limits on how railways are designed, operated and maintained. In addition, traffic during rush hour would not apply to train service and the notch settings, as the train schedule is set.

Regional air quality was assessed by examining the Project's contribution to the provincial and national emissions of pollutants that contribute to the formation of smog. In addition, the Project's impact on climate change was assessed by examining the Project's contribution to GHG emissions relative to Ontario GHG reduction targets.

### 5.5.1 Potential Construction Effects

Emissions caused by construction activities will likely result in the creation of vapours and particulate matter and the potential inhalation of these contaminants by construction workers and residents in the surrounding communities. However, emissions from construction activities will likely be temporary and unlikely to have a long-lasting effect on the surrounding area.

### 5.5.2 Potential Operations Effects

During operations, there will likely be multiple emission sources including locomotives (train operation and idling), road traffic inside GO Station parking lots, and road traffic on the public roads within the Study Area. The modeling results showed that for all pollutants, the maximum cumulative concentrations were below their respective standard,

guideline or interim reference levels, with the exception of benzo(a)pyrene (24-hr, annual) for the year 2025 (future condition). For each pollutant, the 90th percentile background concentrations were used to represent background air quality levels as a conservative approach.

The future condition (year 2025) has shown a reduction in predicted contaminant concentrations relative to the current (year 2015) condition for all contaminants analyzed. This is in part due to locomotives meeting Tier 4 standards<sup>6</sup>.

Based on the study results, emissions from GO train operations will account for 34.4% of the NO<sub>2</sub> cumulative concentration, 1.3% of PM<sub>2.5</sub>, and 21% of benzo(a)pyrene.

### 5.5.3 Regional Air Quality and Greenhouse Gas Effects

An emission burden analysis was conducted to determine the total amount of pollutants and GHG emissions (tonnes/year) to determine the regional effects of the Project. This analysis focused on regionally critical pollutants such as NO<sub>2</sub>, CO, and PM<sub>2.5</sub>, which are major contributors to smog. The regional effects assessment concluded that the future condition (year 2025) will result in a slight increase in emissions for all pollutants analyzed; however, the Project-related emissions were very small compared with Ontario and national mobile emissions. Details of the regional emissions comparison can be found in **Table 5-3**.

**Table 5-3: Regional Emissions Comparison**

| Contaminants      | Current (2015) Scenario (tonnes) | Future-Build (2025) Scenario (tonnes) | Future-No Build (2025) Scenario (tonnes) | Difference – (Build Minus No Build) (tonnes) | Mobile Emissions (Ontario) (2013) (tonnes) | % Project Contribution | Mobile Emissions (Canada) (2013) <sup>1</sup> (tonnes) | % Project Contribution |
|-------------------|----------------------------------|---------------------------------------|--|--|--|------------------------|--|------------------------|
| NO <sub>2</sub>   | 311.9                            | 113.19                                | 88.15                                    | 25.04  | 236,494                                    | 0.05%                  | 1,143,004  | 0.01%                  |
| CO                | 872.78                           | 386.16                                | 377.03                                   | 9.13   | 1,048,493                                  | 0.04%                  | 3,687,549  | 0.01%                  |
| PM <sub>2.5</sub> | 6.68                             | 2.15                                  | 1.93                                     | 0.22   | 12,726                                     | 0.02%                  | 57,020   | 0.004%                 |

Note: 1. Environment Canada, 2013 “Air Pollutant Emissions Data”. <http://www.ec.gc.ca/inrp-npri/donnees-data/ap/index.cfm?lang=En>

In addition, GHG effects were analyzed to assess the Project’s effects on climate change. GHG impacts were expressed in terms of Global Warming Potential (GWP) and converted to CO<sub>2</sub> equivalent emissions. As shown in **Table 5-4**, Project-related GHG emissions were significantly less than the 2020 Ontario projected GHG emissions; therefore, Project-related GHG contribution is estimated to be 0.0155% of the projected 2020 GHG emissions for the transportation sector in Ontario.

**Table 5-4: Greenhouse Gas Emissions Comparison**

| Contaminants       | Current (2015) Scenario (Mt) <sup>1</sup> | Future-Build (2025) Scenario (Mt) | Future-No Build (2025) Scenario (Mt) | Ontario 2020 Projected GHG Emissions for the Transportation Sector (Mt CO <sub>2</sub> -eq) <sup>2</sup> | % Contribution of complete the Future-Build Scenario | % Contribution of Project (Build minus No Build) |
|--------------------|---|-----------------------------------|--------------------------------------|--|--|--|
| CO <sub>2</sub> eq | 0.0881                                    | 0.0931                            | 0.0786                               | 60   | 0.0155%  | 0.024%   |

Note: 1. Mt-Megatons

6. Tier 4 standards apply to locomotives and locomotive engines manufactured after 2015.

2. Ministry of the Environment and Climate Change: "Ontario's Climate Change Update, 2014", Figure 11, Page 23.

Although it is difficult to quantify, the principal GHG emission benefits of the Project arise from the reduction in car travel and associated reduction in fuel consumption and GHG emissions.

As mentioned in earlier sections, the purpose of the Project is to improve accommodations on the Lakeshore East Rail Corridor as Metrolinx moves forward with the service expansions associated with the Regional Express Rail (RER). RER will provide new travel choices on the GO Transit network across the Greater Toronto and Hamilton Area (GTHA), including a 15-minute electrified service in core areas.

Availability of a more frequent service will provide an alternative to cars and act as a catalyst to attract more people to use GO transit for their daily commute. According to a study, a single person, commuting alone by car, who switches a 20-mile round trip commute to existing public transportation, can reduce his or her annual CO<sub>2</sub> emissions by 4,800 pounds per year, equal to a 10% reduction in all greenhouse gases produced by a typical two=adult, two-car household. By eliminating one car and taking public transportation instead of driving, a savings of up to 30% of carbon dioxide emissions can be realized.<sup>7</sup> The use of public transit provide an immediate alternative for individuals to switch to a more energy efficient method of travel and help reduce carbon footprints. Increased transit use should reduce the overall emissions levels by removing car trips from the road.

#### 5.5.4 Mitigation

Negative effects can be effectively mitigated by implementing best practices for reduction of air emissions during construction and demolition activity. The air quality effects resulting from construction activities can be effectively mitigated through the following actions:

- Schedule construction activities to avoid overlapping construction activities where possible;
- Minimize the number of machines operating in any one area at any given point in time;
- Use heavy equipment that is in good condition of maintenance and compliant with applicable federal regulations for off-road diesel engines;
- Ensure all machinery is maintained and operated in accordance with the manufacturer's specifications;
- Use equipment sized for the particular job and operate equipment at optimum rated loads;
- Minimize idling time and posting signage to this effect around the construction site;
- Locate stationary equipment (e.g., generators, compressors etc.) as far away from sensitive receptors as practical; and
- Implement those measures (to be performed by the Contractor) to minimize the generation of dust via materials handling, vehicle movement and wind erosion.

During operation of the expanded rail corridor, measures to reduce GHG emissions shall be considered. In addition, Metrolinx is working towards the electrification of most of its rail corridors within 10 years as an Ontario government commitment.

Diesel engines are already highly optimized for fuel efficiency and low emission. In addition, Metrolinx is working towards the electrification of most of its rail corridors and undertaking a separate EA under the TPAP as per *O. Reg. 231/08*.

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<sup>7</sup> "Public Transportation's Contribution to U.S. Greenhouse Gas Reduction," *Science Applications International Corporation*, September 2007.

In addition to recommendations provided above, it is further recommended that mitigation measures detailed in “*Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)*” be implemented, where practical.

## 5.6 Noise and Vibration

A more detailed Noise and Vibration Assessment Study, documenting potential effects and mitigation, is provided in **Appendix B4**. The section below summarizes the key findings of this assessment. Noise and vibration effects have been assessed during construction and operation phases of the Project. Noise and vibration impacts have been determined and assessed based on the requirements of the Ontario Ministry of the Environment and Climate Change / GO Transit Draft Protocol for Noise and Vibration Assessment (Draft #9, Jan. 1995).

The Protocol refers to the Model Municipal Noise Control Bylaw. The bylaw includes time restrictions for construction activities and includes noise pollution control publication NPC-115, which sets requirements for sound power levels of individual construction equipment items. Local by-laws also set further timing restrictions and vibration limits for construction activities. Guidance from the United States Federal Transit Administration has been adopted to establish noise limits for construction activities.

The Protocol provides limits for operational noise and vibration impacts, which are evaluated by comparing noise and vibration levels with the completed project and without the project. Noise mitigation investigation is warranted where significant impacts are predicted.

### 5.6.1 Potential Construction Effects

#### 5.6.1.1 Noise

Noise impact is the difference between the noise levels predicted with the completed project and without the project. Noise levels without the project are taken to be the higher of the predicted ambient noise level, combined with the existing rail noise without the project, or 55 dBA  $L_{eq,16hr}$  (daytime) or 50 dBA  $L_{eq,8hr}$  (night time). The Protocol includes **Table 5-5** below which defines the noise impact ratings:

**Table 5-5: Noise Impact Ratings**

| Adjusted Impact Level | Impact Rating    |
|-----------------------|------------------|
| 0-2.99 dB             | Insignificant    |
| 3-4.99 dB             | Noticeable       |
| 5-9.99 dB             | Significant      |
| 10+ dB                | Very Significant |

In accordance with the Protocol, the feasibility of operational noise mitigation measures is to be reviewed where the predicted noise impact of the project is ‘significant’ (equal to or greater than 5 dB).

In order to keep the railway operating during the daytime, it is expected that some construction efforts will likely be undertaken at night, although it will be avoided wherever possible. This would likely include track detouring at Scarborough Golf Club Road and Morningside Avenue, at Highland Creek and Rouge River crossings, as well as associated with work in the Galloway Road area to install the box culvert road bridge, likely over an extended weekend in this latter case.

During the corridor grading and proposed platform modifications works at Rouge Hill GO Station, the activities with the highest noise generation are expected to be excavation and grading, and track installation during construction.

During the grade separation works at Scarborough Golf Club Road, Galloway Road and Morningside Avenue, the activities with highest noise generation are expected to be excavation and grading during road construction works, and augered pile Installation and span/track Installation during rail construction works. Wherever soil conditions allow, driven piles will not be used.

During the proposed construction work at the bridges at Highland Creek and Rouge River, the activities with the highest noise generation are expected to be excavation and grading, augered pile installation, and track installation.

Temporary construction noise effects have been estimated at the most affected points of reception during the activities of highest noise generation, relative to baseline noise levels. Temporary construction noise effects at all site locations are anticipated to be significantly higher than baseline levels at the most affected receptors. Predicted noise levels exceed the US FTA guideline limit of 80 dBA  $L_{eq,8hr}$  for daytime construction work at four (4) locations, particularly during excavation and grading works (**Table 5-6**). At six (6) locations, predicted noise levels meet or exceed the US FTA guideline limit of 70 dBA  $L_{eq,8hr}$  for night-time construction work.

Noise levels are expected to be lower because the predictions are based on construction equipment operating together at the same conservative set-back distance, rather than distributed around the work site. However, noise will be controlled to ensure that the guideline limits are not exceeded, where possible.

Noise during construction is predicted to be significantly higher than baseline ambient noise levels, although noise levels are expected to be lower than the predicted levels presented in **Table 5-6** because the predictions are based on construction equipment operating together at the same conservative set-back distance, rather than distributed around the work site. Noise will be controlled to ensure that the guideline limits are not exceeded, where possible. Mitigation measures will be implemented to reduce impact at sensitive receptors, outlined in **Appendix B4**.

**Table 5-6: Predicted Construction Noise Effects**

| Location  |                              | Assumed Baseline Noise Level (dBA) |                         | Predicted Construction Noise Level (predictable worst case scenario) (dBA) | Temporary Construction Noise Impact (dB) |                         |
|---|------------------------------|------------------------------------|-------------------------|--|--|-------------------------|
| Site  | Assessed Point of Reception  | Daytime, 07:00-23:00               | Night-time, 23:00-07:00 |  | Daytime, 07:00-23:00                     | Night-time, 23:00-07:00 |
| Corridor Grading (from Scarborough Golf Club Road to Durham Junction) | 90 Morningside Avenue        | 57                                 | 53                      | 92   | 35                                       | 39                      |
| Rouge Hill GO Station   | 120 Marine Approach Drive    | 61                                 | 58                      | 75   | 14                                       | 17                      |
| Scarborough Golf Club Road  | Northwest corner of Pin Lane | 57                                 | 53                      | 87   | 30                                       | 34                      |
| Galloway Road   | 85 Galloway Road             | 57                                 | 53                      | 87   | 30                                       | 34                      |
| Morningside Avenue  | 85 Morningside Avenue        | 57                                 | 53                      | 88   | 31                                       | 35                      |
| Highland Creek  | 6 Holmcrest Trail            | 57                                 | 53                      | 58   | 1  | 5                       |
| Rouge River   | 313 Dyson Road               | 67                                 | 55                      | 74   | 14                                       | 19                      |

### 5.6.1.2 Vibration

Across all site locations and phases of construction, the use of a vibratory roller is anticipated to generate the highest construction vibration levels. Peak construction vibration velocity levels are predicted to be lower than the City of Toronto's zone of influence threshold of 5 mm/s at all assessed points of reception, except at one location (67 Galloway Road) during access road construction, where unmitigated vibration levels are predicted to reach approximately 14 mm/s.

## 5.6.2 Potential Operations Effects

### 5.6.2.1 Noise

Significant operational noise effects (above 5 dB impact) are predicted only at one location within the Study Area (90 Morningside Avenue) as a result of future rail tracks being aligned closer to this point of reception (**Table 5-7**).

**Table 5-7: Predicted Operational Noise Effects**

| Assessed Point of Reception       | Approx. Location of Adjacent Track | Predicted Noise Level (dBA) Without Project |                      | Predicted Noise Level (dBA) With Project |                      | Predicted Noise Impact (dB) |       | Mitigation Investigation Requirement<br>Yes/No |
|-----------------------------------|------------------------------------|---|----------------------|--|----------------------|-----------------------------|-------|--|
|                                   |                                    | $L_{eq,16hr}$ (day)                         | $L_{eq,8hr}$ (night) | $L_{eq,16hr}$ (day)                      | $L_{eq,8hr}$ (night) | Day                         | Night |  |
| 32 Dale Avenue                    | Mi. 321.88                         | 59.3  | 56.3                 | 61.6                                     | 60.2                 | 2.3                         | 3.9   | No   |
| 406 Livingston Road North         | Mi. 321.47                         | 63.7  | 59.5                 | 66                                       | 63.4                 | 2.3                         | 3.9   | No   |
| 12 Burnage Court                  | Mi. 321.30                         | 59.5  | 55.5                 | 62.5                                     | 59.5                 | 3.0                         | 4.0   | No   |
| 17 Syracuse Crescent              | Mi. 320.50                         | 66  | 61.2                 | 68.4                                     | 65.7                 | 2.4                         | 4.5   | No   |
| 90 Morningside Avenue             | Mi. 320.46                         | 71.7  | 66                   | 75.3                                     | 71.0                 | 3.6                         | 5.0   | <b>Yes</b>                                     |
| 6 Lakeridge Drive                 | Mi. 318.05                         | 64.6  | 61.1                 | 66.7                                     | 64.6                 | 2.1                         | 3.5   | No   |
| 17 Wharfside Lane                 | Mi. 317.73                         | 66.2  | 61.6                 | 68.9                                     | 65.6                 | 2.7                         | 4.0   | No   |
| 2 Frank Faubert Drive             | Mi. 317.23                         | 62.1  | 58.5                 | 64.9                                     | 62.3                 | 2.8                         | 3.8   | No   |
| 104 Ridgewood Road                | Mi. 316.48                         | 65.4  | 61.3                 | 68.6                                     | 65.6                 | 3.2                         | 4.3   | No   |
| 313 Dyson Road                    | Mi. 316.04                         | 68.2  | 63.8                 | 70.3                                     | 67.2                 | 2.1                         | 3.4   | No   |
| 515 Rodd Avenue                   | Mi. 315.96                         | 60.9  | 57.5                 | 63.2                                     | 61.0                 | 2.3                         | 3.5   | No   |
| 534 Rodd Avenue (Retirement Home) | Mi. 315.87                         | 59.1  | 55.3                 | 61.4                                     | 58.8                 | 2.3                         | 3.5   | No   |
| 643 Dunn Crescent                 | Mi. 315.74                         | 62.1  | 62.0                 | 63.6                                     | 65.5                 | 1.5                         | 3.5   | No   |
| Houston Court                     | Mi. 315.47                         | 67.7  | 63.6                 | 69.8                                     | 67.5                 | 2.1                         | 3.9   | No   |
| 655 Atwood Crescent               | Mi. 315.18                         | 58.9  | 58.1                 | 60.8                                     | 61.2                 | 1.9                         | 3.1   | No   |
| 792 Eyer Drive                    | Mi. 314.57                         | 69.8  | 70.2                 | 70.4                                     | 70.6                 | 0.6                         | 0.4   | No   |
| 890 Marinet Crescent              | Mi. 314.29                         | 71.1  | 73.6                 | 71.1                                     | 73.7                 | 0.0                         | 0.1   | No   |
| Unit 9, 925 Bayly Street          | Mi. 313.96                         | 74.6  | 74.4                 | 74.7                                     | 74.6                 | 0.1                         | 0.2   | No   |
| Unit 38, 110 Begley Street        | Mi. 313.45                         | 69.2  | 70.5                 | 69.4                                     | 70.8                 | 0.2                         | 0.3   | No   |
| 1235 Bayly Street                 | Mi. 313.24                         | 74.5  | 74.3                 | 74.7                                     | 74.4                 | 0.2                         | 0.1   | No   |

### 5.6.2.2 Vibration

Significant vibration effects (above 25% impact) are predicted at one location within the Study Area (90 Morningside Avenue) as a result of future tracks being aligned closer to this point of reception. Consideration for mitigation is warranted at this location.

### 5.6.3 Mitigation

#### 5.6.3.1 Construction Noise

Noise from construction activities can be controlled in numerous ways, including operational restrictions, source mitigation measures, as well as receptor-based mitigation measures. The following measures will be implemented, where possible, throughout construction to reduce the noise effects at sensitive receptors:

- Operate in accordance with local by-laws whenever possible;
- Inform local residents of the type of construction planned and the expected duration if construction needs to be undertaken outside of the normal daytime hours;
- Use construction equipment compliant with noise level specifications in MOECC guideline NPC-115;
- Keep equipment well-maintained and fitted with efficient muffling devices;
- Ensure vehicles employed continuously on site for extended periods of time (two days or more) are fitted with sound reducing back-up (reversing) alarms;
- Avoid unnecessary revving of engines and switch off equipment when not required (do not idle);
- Minimize drop heights of materials; and
- Route haulage/dump trucks on main roads where possible, rather than quieter residential roads.

\* *Note that Ministry of Labour requirements and Ontario's Occupational Health & Safety Act and Regulations (Reg. 231/91-105) specify obligations for dump trucks to be equipped with automatic audible reversal alarms when operated in reverse.*

During construction work adjacent to 90 Morningside Avenue and in proximity to the grade separation work sites if it is determined that there is a need to further reduce noise effects, the following additional mitigation measures may be considered and implemented, where appropriate:

- Offset usage of active heavy equipment (schedule non-concurrent use);
- Implement noise compliance checks to ensure equipment levels are in compliance with MOECC guideline NPC-115;
- Reroute construction and truck traffic, when possible;
- Coordinate 'noisy' operations such that they will not occur simultaneously, where possible;
- Investigate and implement the use of alternative construction equipment or methods to reduce noise emissions from construction, where possible. Utilize alternative equipment that generates lower noise levels or optimize silencer/muffler/enclosure performance;
- Use rubber linings in chutes and dumpers to reduce impact noise;
- Install acoustic enclosures, noise shrouds or noise curtains around noisy equipment; and
- Install temporary noise barriers/solid construction hoarding on site boundary to screen affected locations.

Metrolinx will inform surrounding property owners of upcoming construction works, including work at night, which is anticipated to occur. Metrolinx will determine preferred construction noise mitigation in consultation with the City of Toronto during Detailed Design.

#### 5.6.3.2 Construction Vibration

The use of a vibratory roller will be restricted to a set-back distance of at least 8 m to minimise risk of cosmetic or structural building damage. If this set-back distance cannot be maintained, a vibration monitoring program will be implemented to ensure that vibration levels stay below City of Toronto limits at affected properties.

The RMS vibration velocity levels are generally predicted to be below the human perceptibility threshold of 0.1 mm/s, except close to the rail corridor during grading activities and at the nearest point of reception to the grade separation work sites. The vibration effects are generally not considered to be significant, given their low level and temporary nature. Therefore construction vibration mitigation measures are not anticipated to be required, with the exception of the set-back limit for vibratory rollers.

#### 5.6.3.3 Operational Noise

To reduce operational noise effects at 90 Morningside Avenue, mitigation in the form of a noise wall is recommended. **Figure 5-1** shows the recommended location for a noise wall to be provided, subject to administrative, operational, economic and technical feasibility.

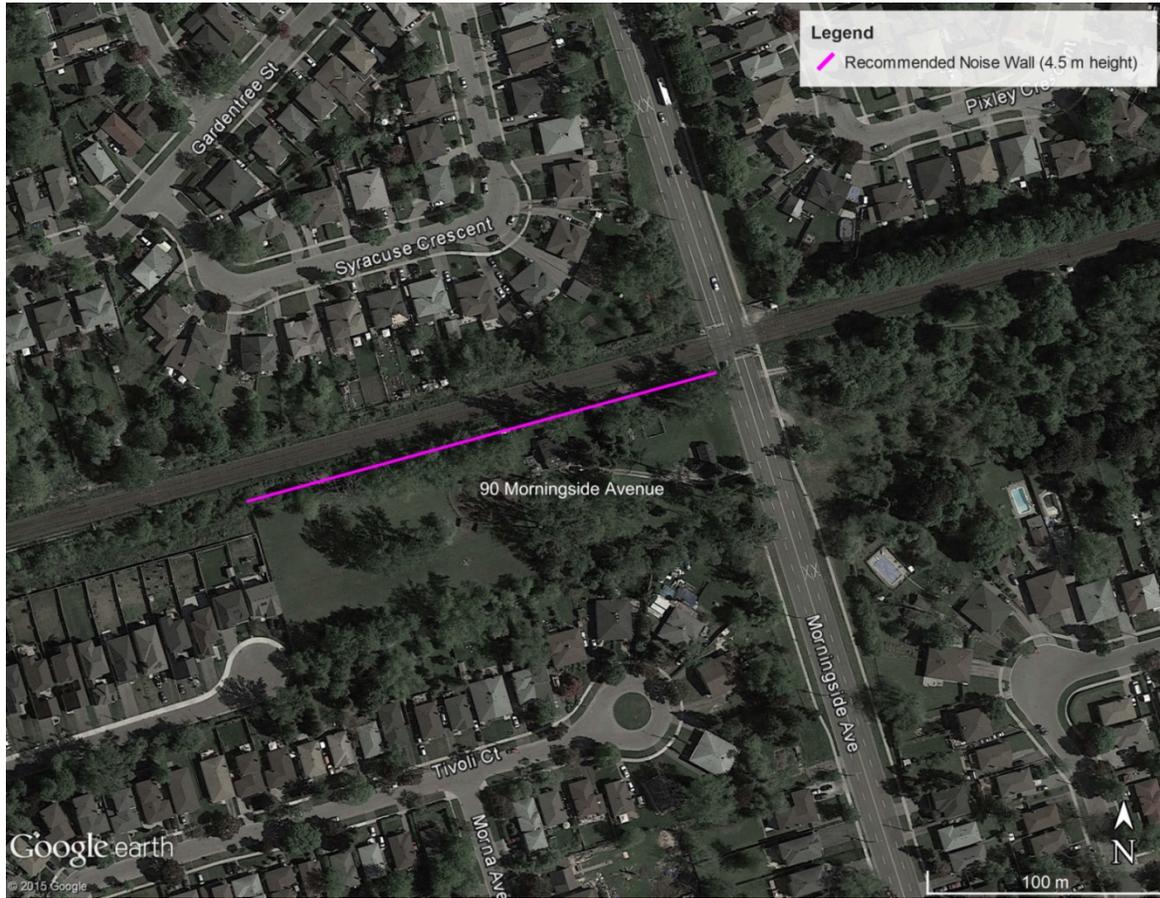
Metrolinx is working proactively to examine ways to minimize noise impacts beyond the requirements of the MOEE/GO Transit Protocol. Metrolinx is currently involved in the following activities:

- Connecting with Transport Canada regarding the existing bells and whistles regulation and some of the challenges they create in an urban environment;
- Examining the use of leading-edge infrastructure materials and design which can reduce noise through advances in technology (such as improvements in track structure, curves and welds, the use of rail dampers on track);
- Examining options for mitigating noise on those corridors where service and operations have increased significantly without the additional infrastructure that would trigger provincial requirements to consider noise mitigation;
- Investigating noise concerns and undertaking maintenance or other actions to address noise, if possible; and
- Informing communities at least two weeks in advance of the start of construction activities and any noise mitigation plans that will be in place during construction.

#### 5.6.3.4 Operational Vibration

The performance of the mitigation to achieve the existing vibration levels is up to 3 dB overall insertion loss. This means the mitigation to be implemented must be capable of reducing vibration levels by at least 3 dB. There are several options that may be considered for this level of vibration isolation, with some mitigation measures described in **Table 5-8**.

Figure 5-1: Recommended Extents of Noise Mitigation (90 Morningside Avenue)

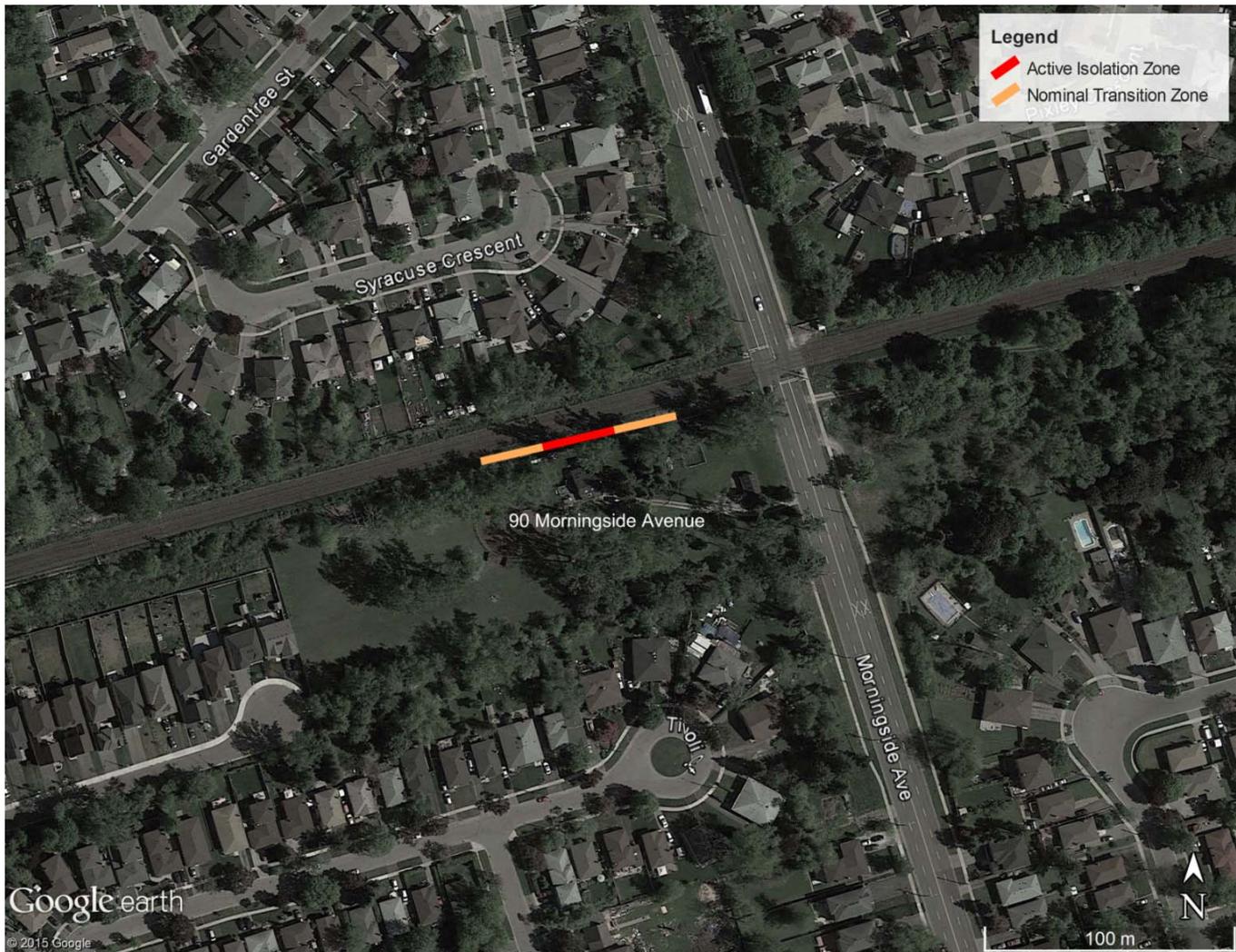


**Table 5-8: Example of Site Specific Vibration Mitigation**

| Mitigation Measure              | Description  |
|---------------------------------|--|
| <b>Resilient Rail Fasteners</b> | Resilient fasteners are used to fasten the rails to the ties.<br>By making use of fasteners that are less stiff in the vertical direction, it is possible to reduce the ground-borne vibration by as much as 4 to 8 dB at frequencies above 30 to 40 Hz.   |
| <b>Resilient Supported Ties</b> | Resiliently supported tie system involves attaching thick rubber pads directly to the underside of ties in ballast.<br>By making use of rubber pads between the ties and the foundation it is possible to reduce the vibration by at least 10 dB.<br>The rails are fastened directly to the concrete ties using standard rail clips.                             |
| <b>Ballast Mats</b>             | A ballast mat consists of a rubber or other type of elastomer pad that is placed under the ballast.<br>Ballast mats are less effective if placed directly on the soil or the sub-ballast and in some instances may require an asphalt or concrete layer under the ballast.<br>Ballast mats can provide 10 to 15 dB attenuation at frequencies above 25 to 30 Hz. |

The recommended extents of the vibration mitigation are shown in **Figure 5-2** below.

**Figure 5-2: Recommended Extents of Vibration Mitigation (90 Morningside Avenue)**



## 5.7 Socio-Economic and Land Use

Potential effects and mitigation measures relating to the socio-economic environment and land use are provided in **Appendix B5**.

### 5.7.1 Residential, Commercial and Institutional Uses

#### 5.7.1.1 Potential Construction Effects

Temporary traffic delays, road closures/re-alignments and detours associated with construction activities may cause disturbances to the transportation patterns of local residents and businesses. Scarborough Golf Club Road and Morningside Avenue are expected to remain open during construction. Galloway Road is expected to be closed during construction, with traffic detours to newly separated Scarborough Golf Club Road and Morningside Avenue as well as Poplar Road grade crossing. Construction staging and potential traffic effects (to both vehicular and active transportation modes) are discussed in the Traffic Impact Study.

Non-vehicular road users will be affected as a result of the closure of Poplar Road, and this includes impacts to safety on pedestrians and cyclists at this crossing as they will need to be redirected. Metrolinx recommends closure of Poplar Road and seeking City of Toronto approval for non-vehicular grade separation for pedestrians and cyclists.

Residents, businesses and institutions may experience nuisance effects resulting from increased noise and vibration levels due to construction equipment and activities.

Potential noise and vibration effects are described in greater detail in **Section 5.6** and also in the Noise and Vibration Impact Assessment Report in **Appendix B4**.

Temporary traffic delays, road closures/re-alignments and road detours associated with construction activities may cause disruptions to business within the vicinity of the road/rail grade separations at Scarborough Golf Club Road, Galloway Road, and Morningside Avenue. However, commercial and mixed-use areas are primarily located in the eastern part of the Study Area and are not anticipated to be affected by the effects noted above. Therefore, any potential effects to retail or commercial businesses are anticipated to be minimal. One notable exception is Rohm and Haas, located at the intersection of Manse Road and Copperfield Road, as construction activities may temporarily affect the use of its rail spur. Any potential effects to residential, commercial and institutional uses due to utility relocation and/or service interruptions are covered in **Section 5.7.4**.

The construction activities associated with the Project may also result in direct and indirect economic benefits. Construction activities are expected to result in additional employment opportunities, and provision of potential additional revenue opportunities to local businesses with respect to various supplies required and restaurant/food establishments.

#### 5.7.1.2 Potential Operations Effects

The permanent closure of Poplar Road to vehicular traffic may cause disturbances to the transportation patterns of local residents in this area. However, it will likely also serve to reduce through traffic in this residential area, therefore creating potential safety benefits for local residents and children. The permanent closure of Chesterton Shores may impede Emergency Services access to emergencies located south of the rail corridor along the Waterfront Trail. Metrolinx recommends closure of Poplar Road and seeking City of Toronto approval for non-vehicular grade separation for pedestrians and cyclists. Metrolinx is seeking closure of Chesterton Shores to all traffic except Emergency Services.

### 5.7.1.3 Mitigation

The surrounding community and Emergency Services will be notified of initial construction plans and permanent road closures, as well as any future modifications as they occur. Access to all residential, commercial and institutional uses will be maintained wherever possible. Where this is not possible, direct consultation will occur with the affected property owners to establish a suitable mitigation strategy.

A feasibility study has been completed by Metrolinx to determine the future treatment of the Chesterton Shores. Potential solutions include the modification of existing access to the Waterfront Trail at the Rouge River to accommodate easier access of Emergency Services and this will likely also require some modifications to existing structures on the Waterfront Trail in the Rouge River and Chesterton Shores Park area. The existing access point at the Port Union Village Common Park will be maintained to allow for access by smaller Emergency Services vehicles. Further consultation will take place with affected stakeholders to determine the preferred solution.

Metrolinx will consider the specific design of the Poplar Road closure and the potential to maintain pedestrian and cyclist access. This will be established through continued consultation with the City of Toronto during Detailed Design.

Mitigation measures related to construction noise and vibration are discussed in greater detail in **Section 5.6** and in the Noise and Vibration Impact Assessment Report in **Appendix B4**.

Mitigation measures related to traffic are discussed in greater detail in **Section 5.8** and the TIS in **Appendix B6**.

## 5.7.2 Recreational Uses, Parks and Open Spaces

### 5.7.2.1 Potential Construction Effects

There are cyclist routes as well as other forms of active transportation on shared roadways that cross the rail corridor. Road closures and/or re-alignments during construction at these locations may temporarily restrict access to these routes. Temporary road closures may also result in restricted pedestrian and cyclist access to the Waterfront Trail, local parks (e.g. Port Union Village Common Park and Port Union Waterfront Park), and use of other infrastructure such as the Highland Creek and Rouge River pedestrian bridges. Furthermore, potential safety concerns exist where pedestrians and cyclists come in proximity to construction activities. Metrolinx will ensure public notification of detours and/or closures during construction activities.

In certain recreational areas, tree removal and the construction of infrastructure such as retaining walls or embankments is anticipated, which may affect enjoyment of these areas (i.e. the “park experience”) for some users. Metrolinx is currently determining specific impacts to the Port Union Village Common Park and the Port Union Waterfront Park. The precise property requirements and treatment of Project infrastructure in these locations will be developed during Detailed Design in consultation with key stakeholders, including the City of Toronto, TRCA and Parks Canada. Rouge National Urban Park/Rouge Beach will be assessed during Detailed Design. Potential property impacts are discussed in greater detail below in this section.

Enjoyment of other public and private recreational uses within the Study Area may be affected by increased noise levels due to construction equipment and activities. Potential noise effects and mitigation are described in greater detail in **Section 5.6** and also in the Noise and Vibration Impact Assessment Report in **Appendix B4**.

The construction of the Scarborough Golf Club Road grade separation will require a realignment of the existing access to the Scarboro Golf and Country Club, which may cause temporary disturbance to its patrons and workers

during construction. The design of this access will be determined in consultation with the City of Toronto and Scarborough Golf and Country Club during the Detailed Design phase.

The permanent road closure proposed at Chesterton Shores will result in potential disturbances for pedestrian and cyclist access to the Port Union Waterfront Park. To mitigate this effect on pedestrians and cyclists, an enclosed tunnel entrance/exit is proposed south of the Rouge Hill GO Station south platform. The enclosed tunnel entrance/exit offers pedestrian and cyclist access upon the closure of Chesterton Shores, redirecting pedestrian and cyclist traffic to Rouge Hill GO Station in a reliable manner and improving connectivity to the Waterfront Park Trail. The enclosed tunnel entrance/exit is designed to include aesthetic qualities to maximize the views of Lake Ontario as visitors approach the enclosed structure.

Similarly, the Poplar Road closure may result in reduced direct access to Eastview Park (from south of the rail corridor) and Poplar Park (from north of the rail corridor).

#### 5.7.2.2 *Potential Operations Effects*

The enclosed tunnel entrance/exit will function as a safe and reliable permanent connection to Rouge Hill GO Station and Port Union Waterfront Park upon the closure of Chesterton Shores.

#### 5.7.2.3 *Mitigation*

Pedestrian/cyclist access will be maintained throughout construction activities, where possible. A plan will be developed to inform the public on construction activities and schedule, as well as address any public concerns. A temporary sidewalk will be considered as part of any re-alignment. Cyclists will have the option of using either a re-aligned sidewalk or a re-aligned traffic lane at grade-separation locations. Special directional signage may also be considered as a means to indicate alternative access routes to the Port Union Waterfront Park.

At a minimum, safety fencing will be used where necessary to separate the work area from pedestrians and cyclists. Signage indicating the presence of construction crews and/or activities will also be utilized.

Should permanent modifications to the existing Waterfront Trail be required as a result of construction activities, the trail will be modified so that unrestricted, safe, and continuous access is maintained, particularly at key crossing locations at the Rouge River and Highland Creek. Pedestrian/cyclist access will be maintained throughout construction activities, where possible. A plan will be developed to inform the public on construction activities and schedule, as well as address any public concerns, taking into consideration peak summer season and provision of signed detours. A temporary sidewalk will be considered as part of any re-alignment.

Where parkland is required, Metrolinx will work with Parks Canada, TRCA, City of Toronto, and/or City of Pickering to ensure that key features are protected, or where this is not possible, appropriately relocated within the vicinity.

Specific property requirements from parks and open spaces will be determined as part of the Detailed Design phase and in consultation with affected property owners. Any appropriate mitigation measures with respect to recreational uses, including measures to address impacts to the "park experience", will also be determined during the Detailed Design phase.

Permanent road closure at Chesterton Shores with access to Emergency Services vehicles only is planned, upon City of Toronto approval. Recognizing the importance of access to the area south of the Lakeshore East Rail Corridor for recreational purposes and Emergency Services, Metrolinx determined the addition of an enclosed tunnel entrance/exit will allow pedestrians and cyclists to use the improved pedestrian tunnel at Rouge Hill GO Station,

which will be upgraded to provide safe access as part of future improvement works at this station. City of Toronto, TRCA, and Parks Canada were consulted regarding the enclosed tunnel entrance/exit through a series of workshops to receive design feedback and to ensure that solutions are developed that allow for unhindered access for Emergency Services, including improved access at the Rouge River and maintaining access at the Port Union Village Common Park tunnel. Additionally, further discussions on the nature of access at the station are required with the City of Toronto, TRCA, and Parks Canada. This will be addressed through an EPR Addendum process.

Metrolinx will consider specific design solutions for the Poplar Road closure and the potential to provide pedestrian and cyclist access. This will be established during the Detailed Design phase in consultation with the City of Toronto.

### **5.7.3 Aesthetics**

#### *5.7.3.1 Potential Construction and Operations Effects*

Large retaining wall structures and/or embankments may be required to support the construction of the additional third railway track. Tree removal and new retaining walls/embankments may pose undesirable aesthetic effects to the local residents and may affect the overall recreational experience of existing and future park users.

The Rouge River Rail Bridge will be removed and replaced and Highland Creek Rail Bridge will be widened to support the proposed rail corridor expansion. The Rouge River Bridge is a provincially significant heritage bridge, and it will be replaced by a new bridge that may result in different aesthetics. Similarly, modifications to the Highland Creek Bridge and the Port Union Village Common Park and the Port Union Waterfront Park redesigns may result in altered aesthetics.

Construction activities, including the presence of construction equipment, staging areas and temporary fencing, may also result in undesirable temporary aesthetic effects.

Retaining walls in the vicinity of Rouge River Bridge will be permanent and structural in nature to support additional tracks. Retaining walls and new structures at the existing Highland Creek Bridges, adjacent to the additional railway track, and at grade separation locations may be permanent. Further details (e.g. dimensions) of these structures will be confirmed during Detailed Design. Accordingly, the local community and park users may experience undesirable aesthetic effects associated with the presence of these structures that may continue throughout the operation of the Project.

#### *5.7.3.2 Mitigation*

Construction of these structures will be completed as expediently as possible to reduce the duration of any temporary aesthetic effects.

During Detailed Design, Metrolinx will present options for public-facing retaining walls to the Metrolinx Design Review Panel (MDRP) and discuss potential design methods to minimize negative aesthetic effects. Where appropriate, Metrolinx will also seek to develop an aesthetically pleasing design for public-facing retaining walls or other appropriate Project infrastructure in consultation with adjacent landowners.

The design of the new structures at the existing Rouge River and Highland Creek crossings, as well as the Port Union Village Common Park and the Port Union Waterfront Park redesigns and the Rouge Beach retaining wall, will reflect key heritage attributes and will be developed in accordance with the MDRP and in consultation with key stakeholders.

The widening of the Highland Creek Bridge will minimize the removal of stone and new structures will be designed in a manner consistent with the general historic designs and appearance. The new Rouge River Bridge will be designed in order to best conserve the cultural heritage values and attributes of the bridge and incorporate the character of the existing bridge into the landscape as outlined in the Heritage Impact Assessment. Additional mitigation measures for these two rail bridges are provided in the Heritage Impact Assessments in Appendix B7 of this EPR. Detailed discussions with Parks Canada, City of Toronto and TRCA will take place to develop an agreed approach to the wall cladding in the Rouge Beach area.

The City of Toronto, TRCA and Parks Canada will be consulted to determine appropriate design features or elements that may be incorporated into appropriate Project infrastructure that ultimately lies within parkland areas.

Metrolinx is currently developing an Ecosystem Service Compensation Protocol which will be used to further identify mitigation and compensation requirements. The requirements of this protocol will be carried forward as future commitments for the Project.

#### **5.7.4 Utilities**

##### *5.7.4.1 Potential Construction Effects*

Potential effects to existing utilities within the rail corridor and at proposed grade separation locations include the need for re-location and/or temporary service interruptions to local residents and businesses.

##### *5.7.4.2 Potential Operations Effects*

During operation of the Project, it is not anticipated that there will be any significant potential effects on utilities.

##### *5.7.4.3 Mitigation*

A review of existing and proposed future utilities plan, as well as on-going consultation with utility companies, has identified the specific location of utilities within the vicinity of the rail corridor and this consultation will continue to occur during Detailed Design. Any potential conflicts and associated mitigation measures will be identified as part of the Detailed Design. Once utility conflicts have been specifically identified and resolved, no further mitigation measures related to utilities are required for the operations phase of the Project.

#### **5.7.5 Property**

##### *5.7.5.1 Potential Construction and Operations Effects*

The majority of the proposed rail corridor expansion uses existing railway lands. In certain sections of the Study Area, portions of private properties and public lands may be required to accommodate the proposed additional track and grade separations at Scarborough Golf Club Road, Galloway Road, and Morningside Avenue.

During construction, temporary access permission (easements) may be required and residential and commercial property owners may be inconvenienced by construction activities.

Given the preliminary nature of the design at this time, specific property requirements will be determined during Detailed Design and discussions will take place with the relevant property owners.

Access for corridor operations and maintenance activities during the operations phase of the Project may require portions of public lands and private properties. Agreements with adjacent property owners may be required once specific requirements are confirmed.

Locations of impacted properties identified to date are outlined in **Table 5-9** below. The property requirements identified in this study are considered to be preliminary and are subject to change as the Detailed Design phase of this Project proceeds. It has not yet been determined whether property requirements are full or partial with respect to each identified property and this will also be confirmed during Detailed Design and in consultation with affected landowners.

**Table 5-9: Preliminary Property Requirements**

| Location  | Description   | Full/Partial Taking – To be determined (TBD) |
|---|---|--|
| <b>Rouge Beach</b>  | Lands south of retaining wall.  | TBD  |
| <b>Track and Grading from Rodd Avenue to Beechgrove Drive</b> | One parcel of land along south side of rail corridor and west of Rodd Avenue between the rail corridor and Rouge River. Approximately 400m of property located south of the rail corridor from Rouge River Bridge going west. | TBD  |
|   | Approximately 1.15 km of property located south of the rail corridor from about 375 m east of Chesterton Shores going west to the Port Union Pedestrian Pathway.  | TBD  |
|   | Property adjacent to the north side of the rail corridor, just west of the Rouge Hill GO Station platform (150m)  | TBD  |
|   | Property adjacent to the north side of the rail corridor just east of Chesterton Shores (400m)  | TBD  |
|   | Parcel of land along waterfront pedestrian pathway west of Highland Creek   | TBD  |
| <b>Track and Grading from Durham Junction to Rodd Avenue</b>  | Four parcels of MTO lands between Durham Junction and White Road adjacent to north side of the rail corridor.   | TBD  |
|   | Parcel of land on south side of corridor east of Rodd Avenue to Petticoat Creek Conservation Area.  | TBD  |
| <b>Scarborough Road Grade Separation</b>                      | 321 Scarborough Golf Club Road  | TBD  |
|   | 276 Scarborough Golf Club Road  | TBD  |
|   | 278 Scarborough Golf Club Road  | TBD  |
|   | 96 Dunelm Street  | TBD  |
| <b>Morningside Avenue Grade Separation</b>                    | Lands in all quadrants adjacent to rail crossing  | TBD  |
|   | Track and Grading from Beechgrove Drive to Galloway. Approximately 350 m of property located south of the rail corridor from about 100 m east of Manse Road.  | TBD  |
|   | 90 Morningside Avenue   | TBD  |
|   | 87 Morningside Avenue   | TBD  |
|   | 31 Pixley Crescent  | TBD  |
|   | 29 Pixley Crescent  | TBD  |
|   | 27 Pixley Crescent  | TBD  |
|   | 25 Pixley Crescent  | TBD  |
| <b>Galloway Road Grade Separation</b>                         | 85 Galloway Road  | TBD  |
|   | 87 Galloway Road  | TBD  |
|   | 89 Galloway Road  | TBD  |
|   | 91 Galloway Road  | TBD  |
| <b>Rouge Hill GO Station Enclosed Tunnel Entrance/Exit</b>    | Land south of Rouge Hill GO Station property (approx. 223 sq. m)  | TBD  |

### 5.7.5.2 Mitigation

Specific property requirements will be confirmed during Detailed Design and efforts will be made to minimize property requirements through design and engineering solutions. Appropriate mitigation measures will be developed in consultation with affected landowners. Consultation with stakeholders to identify local and site-specific issues may include discussions on topics such as:

- Road closures/re-alignments;
- Construction access; and
- Construction schedule.

Associated effects on adjacent property owners related to construction activities (e.g. noise and vibration, air quality, traffic) will be addressed through the mitigation measures outlined in other technical reports accompanying the EPR.

A construction monitoring program will be implemented prior to construction. Best efforts will be made to maintain temporary access where possible.

Communication with the relevant property owners will be ongoing and specific agreements will be completed as necessary.

Metrolinx will work with TRCA property agencies regarding appropriate compensation of any loss to conservation lands resulting from this project.

A more detailed assessment of the potential socio-economic effects is provided in the Socio-Economic and Land Use Impact Assessment Report (**Appendix B5**).

## 5.8 Traffic

A more detailed assessment of the potential effects associated with traffic and transportation is documented in the TIS provided in **Appendix B6**.

For ease of analysis, the potential traffic and transportation effects have been separated by specific location in the following sections.

### 5.8.1 Future Road Traffic Conditions

The following rail crossings were analyzed in the noted horizon years below based on their anticipated grade separation construction or closure completion years:

1. Morningside Avenue (Horizon Year 2020)
2. Scarborough Golf Club Road (2020)
3. Galloway Road (2023)
4. Poplar Road (2023)
5. Chesterton Shores (2026)

The following sections provide a worst case scenario summary of the estimated future road traffic conditions and effects of the grade separation construction at key intersections during and after construction of the Project.

### 5.8.1.1 Morningside Avenue and Scarborough Golf Club Road Grade Separations

#### **Potential Construction Effects**

Construction of the Morningside Avenue and Scarborough Golf Club Road grade separations are planned to begin in 2017 with a construction period of three years. During construction, Morningside Avenue is planned to be reduced from four lanes to two lanes for the northbound and southbound traffic approaching the work zone. Scarborough Golf Club Road will retain two lanes via re-alignment to the east of the work zone. To assess the effects of this work, a queue length analysis was completed to determine whether the Morningside Avenue lane reduction and Scarborough Golf Club Road re-alignment could continue to accommodate future traffic volumes.

During the construction works and due to the partial closure (i.e., lane reduction) of Morningside Avenue to vehicular traffic across the tracks, portions of the existing traffic on the northbound and southbound traffic lanes could be diverted to adjacent parallel roadways; this potential traffic diversion would provide some level of relief to potential traffic congestion at the study intersections along Morningside Avenue. However, for the purpose of assessing the future traffic conditions during the construction, the analysis assumes that Study Area traffic patterns will remain unchanged from those in the existing conditions. The analyses were conducted for horizon year 2020, just prior to the completion of the related construction works.

The Synchro models assumed the same key parameters (e.g., analysis period, heavy vehicle percentages, saturated flow rate, lane widths, etc.) as those used in the existing conditions analysis. The results show that the majority of intersections are operating below critical thresholds with the exception of the following:

- **Markham Road / Kingston Road**
  - Eastbound left-turn; LOS 'E' with v/c ratio 0.84 (AM peak)
  - Westbound left-turn; LOS 'E' with v/c ratio 0.61 (PM peak)
- **Kingston Road / Eglinton Avenue;**
  - Overall LOS 'C' with v/c ratio 1.00 (AM peak)
- **Scarborough Golf Club Road / Kingston Road**
  - Overall LOS 'F' with v/c ratio 1.12 (AM peak)
  - Westbound thru-thru-thru/right, LOS 'F' with v/c ratio 1.34 (AM peak)
- **Kingston Road / Lawrence Avenue**
  - Northbound thru-thru-thru/right, LOS 'E' with v/c ratio 1.01 (PM peak)
- **Kingston Road / Galloway Road**
  - Overall LOS 'D' with v/c 1.03 (AM peak)
  - Westbound thru-thru-thru/right, LOS 'E' with v/c ratio 1.08 (AM peak)
  - Northbound left/thru/right, LOS 'E' with v/c ratio 0.96 (AM peak)
  - Westbound left-turn, LOS 'F' with v/c ratio 0.87 (PM peak)
- **Poplar Road / Kingston Road**
  - Westbound left-turn, LOS 'F' with v/c ratio 1.06 (PM peak)

The detailed results of the analysis and the related Synchro and SimTraffic Queue reports are provided in **Appendix B6**.

The results show that the majority of queue lengths at the road-rail crossings during construction of the Morningside Avenue and Scarborough Golf Club Road grade separations will likely have minimal effects on upstream intersection operations. The only exception is the northbound queue behind the Scarborough Golf Club Road road-rail crossing during the PM peak hour.

During construction, traffic is not expected to make significant use of local streets to detour during periods when trains are crossing the roadway and blocking traffic. For example, at the Morningside Avenue work zone where the existing four lanes are reduced to two lanes, traffic queues in the southbound direction are not expected to queue to the upstream intersection of Morningside Avenue / Gardentree Street.

### **Potential Operations Effects**

The traffic operational conditions (i.e., LOS / delay, v/c ratios, and queue lengths) at the study intersections immediately after the completion of the Morningside Avenue and Scarborough Golf Club Road grade separations (i.e., the post construction scenario) in 2020 are expected to be very similar to those of the during-construction scenario (described above) in the same horizon year. In addition, the estimated length of queues behind the Morningside Avenue and Scarborough Golf Club Road road-rail crossings in the post-construction scenario are expected to be shorter than those during the construction with the partial road closures (i.e., lane reductions) in the same horizon year. For these reasons, a separate post-construction analysis was not conducted.

#### *5.8.1.2 Galloway Road Grade Separation*

### **Potential Construction Effects**

Construction of the Galloway Road grade separated crossing is estimated to begin upon completion of the Morningside Avenue and Scarborough Golf Club Road grade separations in 2020 with a construction period of three years. The analysis for the construction scenario of Galloway Road grade separation was conducted for the horizon year 2023, just prior to the completion of the Galloway Road construction work.

The results of the analysis show that the majority of intersections are anticipated to operate at satisfactory levels of service with the exception of the following intersections / movements:

- **Kingston Road / Lawrence Avenue**
  - Eastbound left-turn, LOS 'E' with v/c ratio 0.89 (PM peak)
  - Northbound thru-thru-thru/right, LOS 'E' with v/c ratio 1.03 (PM peak)
  - Southbound thru-thru-thru/right, LOS 'E' with v/c ratio 0.96 (AM peak)
- **Kingston Road / Galloway Road**
  - Eastbound left-turn, LOS 'E' with v/c ratio 0.85 (PM peak)
  - Westbound thru-thru-thru/right, LOS 'F' with v/c ratio 1.11 (AM peak)
  - Northbound Left/Thru/Right, LOS 'E' with v/c ratio 0.97 (AM peak)
  - Overall LOS 'E' with v/c ratio 1.05 (AM peak)
- **Poplar Road / Kingston Road**
  - Westbound left-turn, LOS 'F' with v/c ratio 1.72 (PM peak)
  - Overall LOS 'C' with v/c ratio 1.26 (PM peak)
- **Guildwood Parkway / Galloway Road**
  - Westbound Thru/Right, LOS 'E' with v/c ratio 0.91 (AM peak)

The results show that, even with the detoured traffic resulting from the full closure of the Galloway Road crossing, none of the traffic queues at the Poplar Road crossing are expected to reach upstream intersections (i.e., Gardentree Street for southbound traffic and Cumber Avenue for northbound traffic). The detailed results of the analysis and the related Synchro and SimTraffic Queue reports are provided in **Appendix B6**.

The construction works for the planned Galloway Road grade separation will require the full closure of Galloway Road resulting in the detour of portions of Galloway Road northbound and southbound traffic volumes (i.e., portions of traffic volumes which would have used Galloway Road to travel across the tracks) to the closest north-south roadway across the railway tracks, Poplar Road. Following the full closure of Galloway Road approaches to the tracks, the vehicular traffic volumes will be re-distributed in the Study Area road network.

The full closure of the Galloway Road approaches to the railway tracks during the construction work were assumed not to impact traffic operational conditions at the study intersections along Markham Road and Scarborough Golf Club Road. Hence, the study intersections along Markham Road and Scarborough Golf Club Road are not included in the traffic study. For consistency, the Synchro models assume the same key parameters (analysis period, heavy vehicle percentages, saturated flow rate, lane widths, etc.) as the previous analyses with the exception of the signal timing plans which were optimized for future scenarios.

### **Potential Operational Effects**

An intersection operational analysis was also conducted for a post-construction scenario of the Galloway Road grade separation for the purpose of comparing this scenario with the “during construction” scenario.

The results of the analysis show that the majority of intersections are anticipated to operate at satisfactory levels of service with the exception of the following intersections / movements:

- **Kingston Road / Lawrence Avenue**
  - Eastbound left-turn, LOS ‘E’ with v/c ratio 0.89 (PM peak)
  - Northbound thru-thru-thru/right, LOS ‘E’ with v/c ratio 1.03 (PM peak)
  - Southbound thru-thru-thru/right, LOS ‘E’ with v/c ratio 0.96 (AM peak)
- **Kingston Road / Galloway Road**
  - Eastbound left-turn, LOS ‘E’ with v/c ratio 0.85 (PM peak)
  - Westbound thru-thru-thru/right, LOS ‘F’ with v/c ratio 1.11 (AM peak)
  - Northbound Left/Thru/Right, LOS ‘E’ with v/c ratio 1.00 (AM peak)
  - Overall LOS ‘E’ with v/c ratio 1.06 (AM peak)
- **Poplar Road / Kingston Road**
  - Westbound left-turn, LOS ‘F’ with v/c ratio 1.21 (PM peak)

As the grade separated Galloway Road crossing is opened to traffic, the northbound movement at the Kingston Road / Galloway Road intersection is expected to reach critical thresholds in the post-construction scenario. Also, with westbound left-turning traffic on Kingston Road no longer using Poplar Road to cross the tracks, the v/c ratio for this movement at Kingston Road / Poplar Road has decreased during the PM peak hour. Overall, the PM peak hour v/c ratio of Kingston Road / Poplar Road has decreased in the during-construction scenario compared to the post-construction scenario. Finally, unlike the during-construction period, the westbound shared through / right lane at the intersection of Guildwood Parkway and Galloway Road is expected to operate at an acceptable LOS ‘D’.

The detailed results of the Synchro analysis are provided in **Appendix B6**.

#### **5.8.1.3 Poplar Road Permanent Closure to Vehicular Traffic**

Following the completion of the Galloway Road grade separation, Poplar Road is planned to be permanently closed to vehicular traffic with a proposed non-vehicular grade separation, upon City of Toronto approval. To support this closure, an intersection analysis was completed to determine the effects that the detoured traffic volumes would have on the road network for a horizon year 2023.

The closure of Poplar Road to vehicular traffic will conform to current City of Toronto road design standards and further consultation will occur with the City to determine if pedestrian and cyclist access may be provided at this crossing.

In addition, further consultation will occur with the City of Toronto to ensure that the proposed non-vehicular grade separation will maintain access for pedestrians and cyclists upon closure.

The results of the analysis show that the majority of intersections are anticipated to operate at satisfactory levels of service with the exception of the following intersections / movements:

- **Kingston Road / Lawrence Avenue**
  - Eastbound left-turn, LOS 'E' with v/c ratio 0.89 (PM peak)
  - Northbound thru-thru-thru/right, LOS 'E' with v/c ratio 1.03 (PM peak)
  - Southbound thru-thru-thru/right, LOS 'E' with v/c ratio 0.96 (AM peak)
- **Kingston Road / Galloway Road**
  - Eastbound left-turn, LOS 'E' with v/c ratio 0.84 (PM peak)
  - Westbound left, LOS 'F' with v/c ratio 0.90 (PM peak)
  - Westbound thru-thru-thru/right, LOS 'E' with v/c ratio 1.10 (AM peak)
  - Northbound left/thru/right, LOS 'E' with v/c ratio 1.05 (AM peak)
  - Overall LOS 'E' with v/c ratio 1.08 (AM peak)
- **Poplar Road / Kingston Road**
  - Westbound left-turn, LOS 'F' with v/c ratio 1.19 (PM peak)

Comparing these results to the results of the post-construction Galloway Road analysis, there are insignificant effects to the operation of the surrounding road network. The traffic data collected shows that Poplar Road accommodates the least amount of traffic volumes out of the studied crossings throughout both the AM and PM peak hours.

Consultation with the City of Toronto will continue to occur until a final decision regarding the road closure and proposed non-vehicular grade separation is made.

#### 5.8.1.4 *Chesterton Shores Permanent Closure*

The Chesterton Shores crossing is located on the east side of the Rouge Hill GO Station bus loop and provides access for pedestrians, cyclists, and authorized vehicles to the Waterfront Trail south of the rail corridor. This crossing is not used by general-purpose vehicular traffic and is primarily used by active transportation modes and maintenance and Emergency Services vehicles on a very limited basis; therefore the effects of the potential closure of Chesterton Shores crossing on motorized vehicle traffic, if at all any, are not expected to be significant.

It is proposed to permanently close the Chesterton Shores crossing to motorized and non-motorized traffic, with the exception of Emergency Services vehicles. In terms of safety, the proposed enclosed tunnel entrance/exit will eliminate all predominant safety hazards by removing conflict points between crossing traffic and the oncoming trains. In terms of accessibility, the enhanced pedestrian tunnel at Rouge Hill GO Station will provide pedestrians and cyclists a means of crossing the tracks, with minimal detour distances from the original Chesterton Shores crossing. The addition of an enclosed tunnel entrance/exit will allow pedestrians and cyclists to use the improved pedestrian tunnel at Rouge Hill GO Station, which will be upgraded to provide safe access as part of future improvement works at this station. Additionally, further discussions on the nature of access at the station are

required with the City of Toronto, TRCA, and Parks Canada. Metrolinx will be undertaking an EPR addendum for the proposed enclosed tunnel entrance/exit to address environmental and design concerns. The final design will take into account the natural setting of its location to achieve an integrated solution and impacts to public enjoyment of the space and impacts to TRCA property will be minimized. TRCA and the other key stakeholders will continue to be engaged through the design process to ensure the final design satisfies stakeholder concerns and meets their expectations.

#### 5.8.1.5 Other Crossings

Beechgrove Drive, Manse Road and Rodd Avenue are not assessed as part of this Project; therefore, this Project assumes existing at-grade access will be maintained at these locations. Metrolinx will undergo a separate process to identify options for addressing these at-grade crossings.

### 5.8.2 Public Transit and Active Transportation

TTC bus routes servicing the Study Area are as follows:

- Route #54 Lawrence East runs across the Study Area on Lawrence Avenue with peak-period headway of 5 minutes;
- Route #86 Scarborough runs along Eglinton Avenue and Kingston Road with peak-period headway of 7 minutes and one branch (i.e., 86D) making a loop from Lawrence Avenue to Beechgrove Drive, to Coronation Drive, and Manse Road before making left onto Lawrence Avenue westbound travel lanes;
- Route #102 Markham Road runs on Markham Road over the Lakeshore East Rail Corridor, Kingston Road, and St. Clair Avenue East with a terminal at Warden Station on Bloor-Danforth subway line and peak-period headway of 5 minutes; and
- Route #116 Morningside Avenue runs on Morningside Avenue across the rail corridor, Guildwood Parkway and Eglinton Avenue with a terminal at Kennedy Station and peak-period headway of 6 minutes.

Of the above-noted TTC bus routes, only the buses on route #116 cross the rail corridor at grade. The two-lane realignment around the construction work zone will likely accommodate the buses with minimal effects to public transit service and all the four key intersections along Morningside Avenue to the north and to the south of the construction zone are expected to operate at an acceptable LOS.

Pedestrian activities will be retained on a sidewalk, where possible, as part of the re-alignment while cyclists have the option of using either the re-aligned sidewalk or a re-aligned traffic lane across the tracks during the construction activities. In the post-construction period, on the grade-separated pedestrian / cyclist facilities over the tracks, no issue is expected to occur for pedestrians / cyclists.

There is no TTC bus route currently running along Scarborough Golf Club Road. Whenever possible, during and after the construction works for the Scarborough Golf Club Road grade separation, pedestrian and cyclist activities are planned to be accommodated.

There is no TTC bus route currently running along Galloway Road. During the construction of the Galloway Road grade separation, whenever possible, pedestrians and cyclist access will remain open. It should be noted that there are currently no pedestrian facilities at the Poplar Road crossing.

The permanent closure of Poplar Road to vehicular traffic with the proposed non-vehicular grade separation will not result in detours of pedestrians and cyclists. The existing volume of pedestrians/cyclists crossing the tracks along Poplar Road were observed to be very low and therefore no effects are anticipated.

Lawrence Avenue is currently serviced by TTC's bus route 54. The route #86D buses also services Lawrence Avenue and turns right onto Beechgrove Drive, Coronation Drive, and Manse Road before making a left turn onto Lawrence Avenue, travelling westbound. However, neither of these two bus routes runs across the rail corridor. Metrolinx will consider the specific design of the Poplar Road closure and the potential to maintain pedestrian and cyclist access. This will be established during Detailed Design and will include consultation with the City of Toronto.

### **5.8.3 Mitigation**

A Traffic Staging and Management Plan will be developed prior to construction. The Traffic Staging and Management Plan will, at a minimum, include measures to:

- Warn on-coming motorists of construction activity;
- Restrict the movement of personnel and materials to and from construction sites;
- Control traffic at road crossings;
- Reduce temporary lane disturbances and closures, where possible;
- Store equipment as far away from the roadway as possible; and
- Utilize and install construction barricades at road crossings.

As the construction of the Project proceeds, the proposed Traffic Staging and Management Plan may be adjusted based on changes to activity in the surrounding area.

Other mitigation measures such as special directional signage may also be considered when temporary road closures occur as part of construction activities.

Consultation with the City of Toronto will occur during Detailed Design to discuss potential mitigation measures that may be put in place at Poplar Road to accommodate pedestrians and cyclists after its permanent closure. Consultation with the City of Toronto and Emergency Services will also occur during Detailed Design to determine potential mitigation measures that may be put in place at Chesterton Shores to accommodate pedestrians and cyclists, as well as Emergency Services vehicles, after its permanent closure.

Metrolinx will obtain a Building and Land Use permit from MTO for any work that falls within 45 m of the MTO defined Controlled Access Highway boundary limits or within 400 m of an interchange. A Permission to Construct permit is required, including a Stormwater Management Report, for construction planned next to MTO property. An Encroachment Permit is also required where applicable.

## **5.9 Cultural Heritage**

### **5.9.1 Cultural Heritage Screening**

A corridor-wide Cultural Heritage Screening Report (CHSR) was undertaken by Unterman McPhail Associates. The study limits for this CHSR extend between Scarborough Golf Club Road in the City of Toronto and Durham Junction in the City of Pickering. The findings of the CHSR are summarized in sections below and are included in **Appendix B7**.

## 5.9.2 Cultural Heritage Evaluations

Based on the recommendations of the CHSR, further studies were completed for a series of structures and properties in the form of Cultural Heritage Evaluation Reports (CHER). CHERs were completed or currently underway for the following properties:

- Highland Creek Bridge;
- Rouge River Bridge;
- Petticoat Creek Culvert;
- Dunbarton Subway
- Double Stone Culvert; and
- 90 Morningside Avenue.

The CHERs include an evaluation of the cultural heritage value or interest of each of the properties according to the criteria outlined in O. Reg. 9/06 and 10/06. The Rouge River Bridge was determined to meet O.Reg. 9/06 and 10/06 and as a result was determined to be a Provincial Heritage Property of Provincial Significance. The Highland Creek Bridge, the Petticoat Creke Culvert, and the Dunbarton Subway, were determined to only meet O.Reg. 9/06 and as a result were determined to be Provincial Heritage Properties. The Double Stone Culvert did not meet any of the criteria is therefore not a heritage property.

The cultural heritage value or interest of the property at 90 Morningside Avenue is currently being confirmed as part of a CHER for the property.

### 5.9.2.1 Potential Effects

A preliminary assessment of the potential effects of the proposed Project was undertaken. The potential *direct* impacts (displacement or removal) are generally associated with the construction of the new track and the associated replacement or widening of existing rail bridges and culverts and the introduction of new grade separation structures. There may also be potential for *indirect* impacts (disruption) to cultural heritage resources by the introduction of physical, visual, audible or atmospheric elements that are not in keeping with their character.

### **Direct Impacts**

Within the Study Area four identified cultural heritage resources have the potential to be directly impacted by the project (see **Table 5-10**):

1. Highland Creek Bridge; the existing bridge is to be retained. However, additional bridge components will be added to both the north and south sides of the existing structure to accommodate the additional two tracks. An HIA has been prepared for the Highland Creek Bridge to address how the new structures will be constructed to best conserve the cultural heritage value of the existing bridge.
2. Rouge River Bridge; the existing bridge will be demolished and replaced by a new structure. An HIA has been prepared to consider conservations options for the existing bridge. Because the Rouge River Bridge was determined to be a provincial heritage property of provincial significance the consent of the MTCS Minister must be obtained for its demolition. Cultural heritage landscape features included within the Rouge River Bridge area that are anticipated to be impacted includes the visual barrier that creates two distinct landscapes (a beach at the mouth of the river and the wetland/marsh north of the embankment), and the height and linear form of the earthworks. Petticoat Creek Culvert; the head walls – also referred to as the apron walls – will be raised in order to accommodate the additional tracks over the structure. These walls are not specifically identified

- as a heritage attribute; however, given that there will be impacts to the overall fabric of the structure a HIA will be completed to evaluate the impacts and recommend mitigation options, as appropriate;
3. 90 Morningside Avenue (Purvis-Castle Log Cabin): this property is owned by the City of Toronto and designated under Part IV of the OHA. Approximately 8-12 m along the eastern portion of the property will be acquired for grading along Morningside Avenue in order to accommodate the grade separation at this crossing. A HIA will be prepared to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the property. The recommendations of the HIA will be followed.

**Indirect Impacts**

Fourteen (14) indirect impacts have been identified and grouped into the following two categories – the introduction of a grade separation structure in proximity to a property or properties of identified cultural heritage value, and general construction and operation impacts related to the introduction of an additional rail track (see **Table 5-10**).

**Introduction of a Grade Separation Structure:**

1. Scarborough Golf Club Road
2. 321 Scarborough Golf Club Road
3. Galloway Road
4. Morningside Avenue

**General Construction and Operation Impacts:**

5. Grand Trunk Railway corridor
6. Kingston Road
7. Kingston Road Overhead
8. 51 Beechgrove Drive
9. Port Union
10. Rosebank
11. Whites Road Overhead
12. Liverpool Road Overhead
13. Dunbarton Subway
14. Double Stone Culvert

**5.9.2.2 Mitigation**

Mitigation measures and best management practices will be implemented to address potential effects. Identified mitigation strategies will be carried through Detailed Design as applicable. Mitigation measures including assessment work where required, are discussed in **Table 5-10** for each direct and indirect impact. **Table 5-10** also includes commitments to complete further assessment work for those properties of 40 years of age and older where direct or indirect impacts have been identified. Cultural heritage identification and evaluation will follow the process set out in Metrolinx’s Interim Cultural Heritage Management Process (2013).

**Table 5-10: Potential Cultural Heritage Effects and Mitigation Measures**

| Site Name                         | Resource Category | Impact  | Mitigation  |
|-----------------------------------|-------------------|---|---|
| <b>GTR Railway Corridor</b>       | CHL               | Indirect:<br>General construction and operational effects related to the construction of additional tracks. | A CHSR completed for the Grand Trunk Railway Corridor determined the rail corridor is a potential provincial heritage property and a CHER is required.<br><br>Review during Detailed Design to confirm the design has not changed in this area. |
| <b>Scarborough Golf Club Road</b> | CHL               | Indirect:<br>General construction and operational   | Review during Detailed Design to confirm the design has not changed in  |

**Table 5-10: Potential Cultural Heritage Effects and Mitigation Measures**

| Site Name                                    | Resource Category | Impact  | Mitigation  |
|--|-------------------|---|---|
|  |                   | effects. A new grade separation structure will be constructed on Scarborough Golf Club Road.  | this area. Further evaluation may be undertaken during Detailed Design, as required.  |
| <b>321 Scarborough Golf Club Road</b>        | CHL               | Indirect:<br>General construction and operational effects. Tracks will be closer to the listed property. It is not anticipated that additional property will be required. | Additional buffering in the form of fencing and/or vegetation may be required. Review during Detailed Design to confirm the design has not changed in this area. Additional buffering in the form of fencing and/or vegetation may be required. Further evaluation and/or impact assessment will be undertaken during Detailed Design, as required.   |
| <b>Kingston Road</b>                         | CHL               | Indirect:<br>General construction and operational effects.  | Review during Detailed Design to confirm the design has not changed in this area.   |
| <b>Kingston Road Overhead</b>                | BHR               | Indirect:<br>General construction and operational effects.  | Review during Detailed Design to confirm the design has not changed in this area.   |
| <b>Galloway Road</b>                         | CHL               | Indirect:<br>General construction and operational effects. A new grade separation structure will be constructed on Galloway Road.   | Review during Detailed Design to confirm the design has not changed in this area. Further evaluation may be undertaken during Detailed Design, as required.   |
| <b>90 Morningside Ave (Purvis Cabin Log)</b> | BHR               | Direct:<br>General construction and operational effects. Tracks will be closer to the designated property. No additional property is required.                            | A CHER is currently underway to review and confirm the cultural heritage value or interest of the property. Additional buffering in the form of fencing and/or vegetation may be required. Consultation with the City of Toronto Heritage Preservation Services and MTCS will be completed to determine additional requirements. Review during Detailed Design to confirm design has not changed in this area. Further evaluation and/or impact assessment will be undertaken during Detailed Design, as required. Metrolinx will be working with City of Toronto and MTCS on the HIA on this City-Owned property to address potential impacts. |
| <b>Morningside Ave</b>                       | CHL               | Indirect:<br>General construction and operational effects. A new grade separation structure will be constructed on Morningside Avenue.                                    | Review during Detailed Design to confirm the design has not changed in this area. Further evaluation may be undertaken during Detailed Design, as required.   |
| <b>51 Beechgrove Drive</b>                   | CHL               | Indirect:<br>General construction and operational effects.  | Review during Detailed Design to confirm the design has not changed in this area.   |
| <b>Highland Creek</b>                        | BHR               | Direct:   | Identified as a provincial heritage property  |

**Table 5-10: Potential Cultural Heritage Effects and Mitigation Measures**

| Site Name                      | Resource Category | Impact   | Mitigation   |
|--------------------------------|-------------------|--|--|
| <b>Bridge</b>                  |                   | General construction and operational effects. The crossing will be widened to accommodate the two extra tracks. Details on the design of the new structure(s) or modifications to the existing structure are not available.  | by Metrolinx as it meets the criteria under Ont. Reg. 9/06. An HIA has been completed and will be reviewed during Detailed Design to mitigate potential impacts.   |
| <b>Port Union</b>              | CHL               | Indirect:<br>General construction and operational effects. While Port Union is a historical settlement area, no structures of potential heritage value were identified in proximity to the rail corridor.  | Review during Detailed Design to confirm the design has not changed in this area.  |
| <b>Rouge River Bridge</b>      | BHR               | Direct:<br>General construction and operational effects. The bridge will be removed and replaced with two new, sympathetically-designed structures to accommodate the additional tracks. The design for the new structure is in process.<br>Beyond the structure itself, the Cultural Heritage Landscape for the Rouge River has historical value both for its importance to Indigenous peoples in the region as well as for its current recreational use. | Identified as a provincial heritage property of provincial significance by Metrolinx. An HIA has been completed for the structure and its surrounding landscape setting. As it has been determined that the bridge is to be removed in its entirety, Metrolinx has been in consultation with MTCS regarding Minister's consent for removal of the bridge. A formal application for consent has been submitted to MTCS.<br><br>Any interpretive materials prepared for the Rouge River Bridge should also address the historical associations of the Cultural Heritage Landscape. |
| <b>Rosebank</b>                | BHR               | Indirect:<br>General construction and operational effects. While Rosebank is a historical settlement area, no structures of potential heritage value were identified in proximity to the rail corridor. The at-grade crossing at Rodd Avenue will be retained.   | Review during Detailed Design to confirm the design has not changed in this area.  |
| <b>Petticoat Creek Culvert</b> | BHR               | Direct:<br>General construction and operational effects. The crossing will be widened to accommodate the additional tracks. Details on the design of the new structure(s) or modifications to the existing structure are not available.  | Identified as a provincial heritage property by Metrolinx. An HIA will be completed during Detailed Design to address potential effects.<br><br>The HIA will be provided for review and comment to MTCS, City of Pickering and City's heritage committee. Metrolinx will continue to work with these organizations as necessary.   |
| <b>Whites Road Overhead</b>    | BHR               | Indirect:<br>General construction and operational effects are not anticipated to impact  | Review during Detailed Design to confirm the design has not changed in this area.  |

**Table 5-10: Potential Cultural Heritage Effects and Mitigation Measures**

| Site Name                      | Resource Category | Impact   | Mitigation   |
|--------------------------------|-------------------|--|--|
|                                |                   | the structure. Minimal change to the existing structure is anticipated.  |  |
| <b>Double Stone Culvert</b>    | BHR               | Indirect:<br>General construction and operational effects.   | Metrolinx has evaluated this property and determined that it does not have cultural heritage value or interest.  |
| <b>Dunbarton Subway</b>        | BHR               | Indirect:<br>General construction and operational effects.   | Identified as a provincial heritage property by Metrolinx. Even though the Dunbarton Subway is adjacent to the project area the Subway will not be affected by the project. No alteration on or around the structure will be undertaken. Given that there is no work on this site, a HIA will not be required. |
| <b>Liverpool Road Overhead</b> | BHR               | Indirect:<br>General construction and operational effects are not anticipated to impact the structure. The bridge is located on the CN owned portion of the Kingston Subdivision. Minimal change to the existing structure is anticipated. | Review during Detailed Design to confirm the design has not changed in this area.  |

### 5.9.3 Highland Creek Bridge

A copy of the HIA report as well as the MHC Decision Form, which includes the SCHV and list of heritage attributes, are provided in **Appendix B7**.

#### 5.9.3.1 Mitigation

A Heritage Impact Assessment (HIA) has been completed for the bridge. The HIA was prepared to assess impacts to the heritage attributes and to make recommendations regarding mitigation. As the existing bridge will be “bracketed” by new construction on both the north and south sides of the structure, the greatest impacts will be to the first two heritage attributes – the cut stone abutments and the deck plate girder structure. Although these features and the other attributes will remain they will be largely hidden by the new construction. Recommendations are included in the HIA to address these impacts through design elements such as appropriate surface treatments for the new abutments that are consistent with the ashlar surface of the current abutments and design of the new girder structures that is consistent with the current design and appearance of the structure. The remaining attributes are minimally affected.

### 5.9.4 Rouge River Bridge

A copy of the HIA report as well as the MHC Decision Form, which includes the SCHV and list of heritage attributes, are included in **Appendix B7**.

#### 5.9.4.1 Mitigation

A Heritage Impact Assessment has been prepared to assess impacts to the heritage attributes and to make recommendations regarding mitigation of those impacts. The HIA recommended that the impacts to the heritage attributes be mitigated through the use of sympathetic design principles. The process of identifying conservation options and actions was based on the use of the MTO Ontario Heritage Bridge Guideline. (OHBG, 2011). As the bridge is to be replaced, the principal method of impact mitigation is through sympathetic design that specifically addresses the identified attributes. The HIA provides guidance on the design process and provides recommendations regarding mitigation of specific impacts. As the design process for the preplacement structures is being completed in a parallel process, the HIA specifically addresses the design elements as they are proposed and notes how they address impacts to the attributes. In addition, the HIA makes recommendations related to the cultural landscape features of the Rouge River Bridge setting, including the naturalization of the embankment. The CHER and HIA are provided in **Appendix B7**.

Although the crossing of the river will not have significant impacts on the existing cultural heritage landscape, any interpretive elements that are developed as part of the mitigation of impacts for the structure should also address these issues as appropriate.

### 5.9.5 Petticoat Creek Culvert

The MHC Decision Form, which includes the SCHV and list of heritage attributes is provided in **Appendix B7**.

#### 5.9.5.1 Mitigation

Given that there is a plan to raise the head walls (also referred to as the apron wall) there will be impacts to the fabric of the culvert. The apron wall is not specifically identified as a heritage attribute of the bridge. However, stylistic elements of the walls such as the size, dressing and tooling of the ashlar stone are attributes that could be affected by the proposed increase in height of the walls if it is not done in a conscientious, sympathetic manner. During and prior to the completion of Detailed Design, an HIA will be completed for the Petticoat Creek Culvert to identify ways in which impacts to the attributes can be mitigated. The HIA will be sent to MTCS, the City of Pickering and City's Heritage Committee for review and comment. Metrolinx will continue to work with these organizations to ensure satisfactory outcomes.

### 5.9.6 Dunbarton Subway

The MHC Decision form, which includes the SCHV and list of heritage attributes is provided in **Appendix B7**.

#### 5.9.6.1 Mitigation

Even though the Dunbarton Subway is adjacent to the project area the Subway will not be affected by the project. No alteration on or around the structure will be undertaken. Given that there is no work on this site, a HIA is not required. 90 Morningside Avenue.

#### 5.9.6.2 Cultural Heritage Value or Interest

The city-owned property at 90 Morningside Avenue, known as the Purvis Castle Log Cabin is designated under Part IV of the OHA. An HIA will be prepared during and prior to completion of Detail Design The HIA will be sent to MOECC, MTCS, the City of Toronto Heritage Preservation Services and the City's heritage committee for review and comment as soon as it is available, and prior to completion of Detail Design.

### 5.9.6.1 Mitigation

Approximately 8-12 m along the eastern portion of the property will be acquired for grading along Morningside Avenue in order to accommodate the grade separation at this crossing. A HIA will be prepared to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the property. The recommendations of the HIA will be followed. The HIA will be shared with the MTCS, City of Toronto Heritage Preservation Services, and the City's heritage committee, as required.

## 5.10 Archaeology

### 5.10.1 Potential Effects

As described in **Section 4.9**, a Stage 1 AA was carried out for the Study Area, and this has been submitted to MTCS in accordance with Section 65 of the *Ontario Heritage Act*.

The findings of the Stage 1 AA (see **Appendix B8**) determined that the Study Area retains the potential for archaeological discoveries in certain areas. Therefore, a Stage 2 AA is recommended on any lands that will be impacted by the Project if it is shown as retaining potential for archaeological resources (see **Figure 4-6**).

The Stage 1 AA has been sent to interested Indigenous communities. In accordance with MTCS' draft technical bulletin for consultant archaeologists in Ontario "Engaging Aboriginal Communities in Archaeology" (2011), engaging Indigenous community monitors during further Stage 2 and Stage 3 AAs will be part of conversations with Indigenous communities.

### 5.10.2 Mitigation

A Stage 2 AA has been undertaken in the areas surrounding the Highland Creek Bridge and Rouge River Bridge and are owned by TRCA.

A Stage 2 AA will be undertaken for all areas as identified in the Stage 1AA. All required archaeological assessments (up to Stage 4 as required) for the study area (rail corridor) will be completed during and prior to completion of Detail Design. The recommendation mitigation measures will be followed from this project. All reports will be submitted by the licensed archaeologist to MTCS as required under the S&Gs for Consultant Archaeologists. Indigenous communities have been consulted on this project. Metrolinx will continue to engage with these communities.

Should the proposed work extend beyond the Study Area, the Stage 1 AA must be revised to determine the archaeological potential and requirement for further Stage 2 AA work of any additional lands. In addition, Metrolinx will ensure due diligence for any lands that require further archaeological assessment (i.e. Stage 3 AA) following the results of a required Stage 2 AA during Detailed Design. Metrolinx may consider an avoidance strategy as mitigation for lands subject to a Stage 3 AA, as required.

Should previously unknown or unassessed deeply buried archaeological resources be uncovered during construction activities, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section

48 (1) of the *Ontario Heritage Act*. Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. In addition, consultation with relevant Indigenous communities will be initiated in the event that archaeological resources or human remains are discovered.

## 6. Consultation Process

In accordance with Section 8 of *Ontario Regulation 231/08*, this section summarizes the consultation activities carried out with the public, property owners, review agencies, Indigenous communities and other stakeholders during the course of the Project, including a summary of feedback and comments received and how they were considered. A Project Mailing List (**Appendix C1**) was continually updated in response to Project feedback and was utilized to inform stakeholders of key consultation milestones.

### 6.1 Consultation Activities

Metrolinx offered a wide range of communication methods to the general public, review agencies, property owners, Indigenous communities and other interested groups and carried out the following activities to solicit comments and feedback on the Project:

- Project Website;
- Stakeholder Meetings;
- Public Meetings;
- Notifications/Newspaper Advertisements;
- E-mail distribution list;
- Project e-mail; and
- Mailings.

#### 6.1.1 *Project Website*

The Project Website ([/www.metrolinx.com/en/regionalplanning/rer/guildwood-pickering.aspx](http://www.metrolinx.com/en/regionalplanning/rer/guildwood-pickering.aspx)) was dedicated to keep the public up-to-date on the latest developments of the Project, provide notice of upcoming Public Meetings, serve as a virtual library for materials presented at Public Meetings and other Project documentation, and provide a means for the public to comment on the Project.

#### 6.1.2 *Stakeholder Meetings*

Metrolinx consulted with stakeholders, including provincial and municipal review agencies, Indigenous communities, adjacent property owners, and community groups, through meetings and workshops during the Pre-TPAP and TPAP phases of the Project. In addition, individual briefings were held with City Councillors and elected officials to provide progress updates pertaining to their specific Project interests. **Table 6-1** provides a list of stakeholder meetings held and a summary of key outcomes.

**Table 6-1: Summary of Stakeholder Meetings**

| Stakeholder                    | Date                               | Key Objectives  | Key Outcomes   |
|--------------------------------|------------------------------------|---|--|
| <b>Review Agencies</b>         |                                    |   |  |
| <b>City of Toronto</b>         | March 19, 2014 Meeting             | <ul style="list-style-type: none"> <li>Provide a high level overview of upcoming Metrolinx projects, including Lakeshore East Rail Corridor Expansion (Guildwood to Pickering)</li> </ul>   | <ul style="list-style-type: none"> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>   |
| <b>Parks Canada &amp; TRCA</b> | February 10, 2015 Meeting          | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss proposed works at Highland Creek, Rouge River, and Petticoat Creek</li> <li>Discuss any other works which may affect TRCA regulated area</li> </ul>            | <ul style="list-style-type: none"> <li>MX noted TRCA's concerns regarding structural integrity of the pier at Highland Creek Bridge</li> <li>MX will consult with Parks Canada and TRCA further regarding of visual effects of modifications to Rouge River Bridge</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>City of Toronto</b>         | February 12, 2015 Meeting          | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Seek guidance and feedback regarding infrastructure modifications, specifically with respect to proposed grade separations and road closures</li> </ul>                | <ul style="list-style-type: none"> <li>MX will complete traffic impact study as per City of Toronto guidelines</li> <li>MX noted City of Toronto's concerns with respect to maintaining multi-modal access at grade separations and road closures</li> <li>MX will consult with applicable City of Toronto divisions and City Councillors</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul> |
| <b>City of Pickering</b>       | March 9, 2015 Meeting              | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Seek guidance and feedback regarding infrastructure modifications, specifically with respect to Petticoat Creek Culvert and future treatment of Rodd Avenue</li> </ul> | <ul style="list-style-type: none"> <li>MX noted City of Pickering's position with respect to closing access to Rodd Avenue</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>City of Pickering</b>       | August 11, 2015 Meeting            | <ul style="list-style-type: none"> <li>Provide Project update and discuss next steps</li> </ul>   | <ul style="list-style-type: none"> <li>MX will provide Project briefing to City Councillors</li> <li>MX to meet with Region of Durham to discuss potential utility conflicts</li> <li>MX to follow up with City of Pickering regarding future treatment at Rodd Avenue</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>TRCA</b>                    | August 27, 2015 Site Visit         | <ul style="list-style-type: none"> <li>Discuss proposed works at watercourse crossings (i.e. potential effects and TRCA requirements)</li> <li></li> </ul>  | <ul style="list-style-type: none"> <li>MX noted TRCA's concerns with respect to SWM</li> <li>MX will engage in a second site visit site visit to investigate watercourse crossings within the City of Toronto (i.e. Highland Creek and Rouge River)</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>   |
| <b>MOECC</b>                   | September 23, 2015 Conference Call | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> </ul>  | <ul style="list-style-type: none"> <li>MX provided anticipated Project schedule and key milestones</li> </ul>  |

| Stakeholder  | Date                            | Key Objectives  | Key Outcomes  |
|--|---------------------------------|---|---|
|  |                                 |   | <ul style="list-style-type: none"> <li>MOECC confirmed required TPAP studies to be completed for this Project</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>Region of Durham</b>  | September 25, 2015 Meeting      | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss potential utility conflicts in Durham Region</li> </ul>  | <ul style="list-style-type: none"> <li>Region of Durham provided list of utilities crossing the rail corridor</li> </ul>  |
| <b>City of Toronto, Parks Canada &amp; TRCA</b>                  | October 1, 2015 Meeting         | <ul style="list-style-type: none"> <li>Discuss potential land effects at Port Union Waterfront</li> <li>Discuss structure modifications (i.e. Highland Creek Bridge, Rouge River Bridge, and Petticoat Creek Culvert)</li> <li>Discuss other proposed infrastructure modifications (i.e. proposed grade separations and road closures)</li> </ul> | <ul style="list-style-type: none"> <li>MX noted stakeholder concerns with respect to vegetation removal, potential noise effects, potential visual effects, and desire to maintain a positive user experience at Port Union Waterfront</li> <li>MX will engage in further discussions with TRCA regarding hydraulic studies for Highland Creek</li> <li>MX will develop and implement a communications strategy for community and stakeholders during construction</li> <li>MX will continue to seek guidance and feedback as Project progresses, including invitation to MDRP</li> </ul> |
| <b>City of Toronto &amp; TRCA</b>                                | October 5, 2015 Meeting         | <ul style="list-style-type: none"> <li>Discuss Chesterton Shores Feasibility Study</li> </ul>   | <ul style="list-style-type: none"> <li>MX will conduct pedestrian counts at Chesterton Shores to understand traffic flow</li> <li>MX noted City of Toronto Emergency Services concerns relating to safety, security, and accessibility</li> <li>MX will continue to seek guidance and feedback as Project progresses, including Chesterton Shores development</li> </ul>  |
| <b>MTCS</b>  | October 9, 2015 Conference Call | <ul style="list-style-type: none"> <li>Discuss heritage requirements with respect to Rouge River Bridge modifications</li> </ul>  | <ul style="list-style-type: none"> <li>MX will prepare application to request consent to transfer Rouge River Bridge out of provincial control.</li> <li>MX will continue to seek guidance and feedback as Project progresses.</li> </ul>   |
| <b>City of Toronto – Scarborough District Community Planning</b> | October 13, 2015 Meeting        | <ul style="list-style-type: none"> <li>Provide design update regarding bridge modifications, grade separations, road closures, and property requirements</li> </ul>   | <ul style="list-style-type: none"> <li>MX will evaluate proposed grade separation at Scarborough Golf Club Road with previous 1992 ESR grade separation designs</li> <li>MX will develop proposed grade separation renderings to be used for consultation</li> <li>MX will continue to seek guidance and feedback as Project progresses, including review of Draft EPR</li> </ul>   |
| <b>MTO</b>   | October 15, 2015 Meeting        | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss works near MTO property (i.e. Highway 401) and requirements for property transfer</li> </ul>   | <ul style="list-style-type: none"> <li>MTO advised of property transfer process and requirements</li> <li>MX will send property requisitions for MTO review</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>City of Toronto – Traffic and Transportation Services</b>     | October 19, 2015 Meeting        | <ul style="list-style-type: none"> <li>Provide design update regarding road alignment and grade separations</li> </ul>  | <ul style="list-style-type: none"> <li>MX noted potential effects to utilities during construction</li> <li>MX will continue to seek guidance and feedback as Project progresses, including proposed road alignments and grade</li> </ul>   |

| Stakeholder  | Date                                 | Key Objectives   | Key Outcomes  |
|--|--------------------------------------|--|---|
| <b>TRCA</b>  | October 21, 2015<br>Site Visit       | <ul style="list-style-type: none"> <li>● Provide design update regarding proposed infrastructure modifications and construction effects</li> <li>●</li> </ul>  | <p>separations, construction timelines, and temporary detours.</p> <ul style="list-style-type: none"> <li>● TRCA identified a need to conduct a fluvial geomorphic study and hydraulic models with respect Highland Creek Bridge</li> <li>● TRCA identified a requirement for completion of a SWM report in line with TRCA SWM criteria, including timing windows and erosion control measures</li> <li>● MX will provide HEC-RAS model to TRCA</li> <li>● TRCA provided direction with respect to location and design of transportation infrastructure, including safe conveyance of water flows to mitigate effects to flooding and erosion</li> <li>● TRCA noted mitigation due diligence requirements with respect to in-water works timing, flooding, and erosion control</li> <li>● MX will continue to seek guidance and feedback as Project progresses</li> </ul> |
| <b>Toronto Hydro</b>   | October 23, 2015<br>Meeting          | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> <li>● Discuss potential utility conflicts in City of Toronto</li> </ul>   | <ul style="list-style-type: none"> <li>● Toronto Hydro to provide cost estimate for PO</li> <li>● MX to investigate crossing agreement terms</li> </ul>   |
| <b>MTO</b>   | October 26, 2015<br>Meeting          | <ul style="list-style-type: none"> <li>● Continue discussion regarding potential effects to MTO property and possible options to address concerns</li> </ul>   | <ul style="list-style-type: none"> <li>● MTO advised Building &amp; Land Use Permit will be required for work within a 45 m of a MTO defined Controlled Access Highway property line or within 400 m of an interchange</li> <li>● MX will continue to seek guidance and feedback regarding property effects as Project progresses</li> </ul>  |
| <b>TRCA</b>  | November 24, 2015<br>Conference Call | <ul style="list-style-type: none"> <li>● Confirm on agreed approach to assess potential effects at Highland Creek Bridge pier</li> <li>● Discuss benefits of developing a fluvial geomorphology study / 2D model</li> </ul>  | <ul style="list-style-type: none"> <li>● TRCA requested a geomorphic study on the proposed expansion of the Highland Creek Bridge pier to confirm erosion risk</li> <li>● MX will be required to update TRCA's hydraulic model (Rouge River, Highland Creek) with respect to any modifications to bridges or grading within the floodplain</li> <li>● TRCA requires a SWM report be completed in line with TRCA SWM criteria and it should include proposed water quality, quantity and erosion control as a result of an increase to the amount of impervious surface</li> </ul>   |
| <b>City of Toronto, City of Pickering, Parks Canada &amp; TRCA</b> | January 21, 2016<br>Meeting          | <ul style="list-style-type: none"> <li>● Confirm on agreed approach to assess potential effects at Highland Creek Bridge pier</li> <li>● Discuss benefits of developing a fluvial geomorphology Study/2D model and consider other alternatives</li> <li>● Review potential effects to Port Union Waterfront (Rouge River to Highland Creek) and discuss alternatives</li> <li>● Discuss retaining wall requirements to support rail corridor expansion between Rouge River and Highland Creek</li> </ul> | <ul style="list-style-type: none"> <li>● TRCA noted archaeological assessments will be conducted by staff on all TRCA lands prior to land transfer</li> <li>● MX will review possibility of extending Rouge River Bridge with consideration to cultural heritage</li> <li>● Parks Canada noted that there seemed to be three types of walls to consider: full wall on existing rail corridor boundary; option presented at the meeting with partial land takings and reduced wall needs; or a type of terraced wall arrangement. TRCA, Parks Canada and City of Toronto to review the</li> </ul>  |

| Stakeholder                                     | Date                     | Key Objectives   | Key Outcomes   |
|---|--------------------------|--|--|
|   |                          |  | <p>proposed retaining wall locations and advise of any comments to be considered to finalize location</p> <ul style="list-style-type: none"> <li>• MX noted Toronto Fire Services and Emergency Services concerns with proposed road closure and will complete Feasibility Study to addresses traffic concern</li> <li>• MX will develop more information regarding Chesterton Shores alternatives (pedestrian/cyclist tunnel under Rouge Hill GO Station) and provide update once available</li> <li>• MX will continue to seek guidance and feedback as Project progresses</li> </ul>          |
| <b>City of Toronto TAC</b>                      | January 29, 2016 Meeting | <ul style="list-style-type: none"> <li>• Discuss alignment of Scarborough Golf Club Road, access to 90 Morningside Avenue, Chesterton Shores Feasibility Study, and Port Union Waterfront (Rouge River to Highland Creek)</li> </ul>   | <ul style="list-style-type: none"> <li>• City of Toronto was given opportunity to provide feedback on alignment of Scarborough Golf Club Road, access to 90 Morningside Avenue, Chesterton Shores Feasibility Study, and Port Union Waterfront (Rouge River to Highland Creek)</li> <li>• City of Toronto to review Draft EPR and provide comments to MX</li> <li>• MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>City of Toronto, Parks Canada &amp; TRCA</b> | March 24, 2016 Workshop  | <ul style="list-style-type: none"> <li>• Continue discussion regarding potential effects to Port Union Waterfront (Rouge River to Highland Creek) and retaining wall requirements to support the rail corridor expansion between Rouge River and Highland Creek including potential landscaping opportunities</li> </ul> | <ul style="list-style-type: none"> <li>• City of Toronto was given opportunity to provide feedback on plans for Port Union Waterfront and retaining wall requirements</li> <li>• Parks Canada suggested continued engagement on the design of cladding on the proposed retaining walls in the Rouge Beach area and suggested wall structures should provide opportunities for the addition of facing or other treatments so that it acts as a “canvas” to support Rouge National Urban Park programs.</li> <li>• MX will continue to seek guidance and feedback as Project progresses</li> </ul> |
| <b>City of Toronto</b>                          | April 27, 2016 Meeting   | <ul style="list-style-type: none"> <li>• Review and discuss profile drawings for proposed grade separations</li> </ul>   | <ul style="list-style-type: none"> <li>• City of Toronto was given opportunity to provide feedback on profile drawings for proposed grade separations</li> <li>• MX will continue to seek guidance and feedback as Project progresses</li> </ul>   |
| <b>City of Toronto</b>                          | May 3, 2016 Meeting      | <ul style="list-style-type: none"> <li>• Discuss access to 90 Morningside Avenue</li> <li>• Discuss mitigation measures for potential effects to cultural heritage buildings</li> <li>• Discuss construction staging and requirements for property transfer</li> </ul>   | <ul style="list-style-type: none"> <li>• City of Toronto was given opportunity to provide feedback on potential effects to cultural heritage, construction staging, and property transfer</li> <li>• MX and City of Toronto agreed that MX Heritage Protocol will be followed for evaluation of landscapes and structures of potential cultural heritage significance</li> <li>• MX will complete a CHER for 90 Morningside Avenue with an opportunity for City to review and comment upon</li> </ul>  |

| Stakeholder  | Date                         | Key Objectives  | Key Outcomes  |
|--|------------------------------|---|---|
|  |                              |   | <p>completion</p> <ul style="list-style-type: none"> <li>MX will provide briefing to City of Toronto Realty Staff detailing potential effects, mitigation, and construction staging plans</li> <li>MX will conduct an HIA following City of Toronto Terms of Reference</li> <li>City of Toronto to provide business case for future bike paths to MX</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>   |
| <p><b>City of Toronto, Parks Canada &amp; TRCA</b></p> | <p>May 19, 2016 Meeting</p>  | <ul style="list-style-type: none"> <li>Discuss proposed Rouge Hill GO Station updates including enclosed tunnel entrance/exit and Port Union Waterfront design, based on feedback from previous workshop</li> </ul>   | <ul style="list-style-type: none"> <li>Stakeholders were given opportunity to provide feedback on alternatives for redirecting pedestrian/cyclist traffic from Chesterton Shores</li> <li>TRCA stated there are no shoreline protection measures in the area and therefore identified the need for future assessment of potential shoreline erosion</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <p><b>MTO</b></p>                                      | <p>May 27, 2016 Meeting</p>  | <ul style="list-style-type: none"> <li>Continue discussion regarding potential effects to MTO property and possible options to address concerns</li> <li>Reviewed lands in question from Whites Road to Liverpool Road and discussed MTO requirements to advance their request</li> </ul> | <ul style="list-style-type: none"> <li>MTO will forward collective technical comments to MX regarding the plans for property requirements</li> <li>MX will forward the next level of design documents at the 90% complete for MTO review</li> <li>MTO real estate will need a photo mosaic roll plan showing the roads and stream levels and the ROW for the road and rail corridors along with the location of each parcel of land required. Each parcel of land should indicate the size of each block.</li> <li>MTO will review current plans and advise if there are any blocks of land which will not be clearly approved to proceed to a land transfer and must remain MTO responsibility</li> <li>MTO and MX will continue to work together in the property acquisition process</li> </ul> |
| <p><b>City of Toronto TAC</b></p>                      | <p>June 20, 2016 Meeting</p> | <ul style="list-style-type: none"> <li>Discuss Scarborough Golf Club Road profile drawings and potential effects</li> <li>Discuss pedestrian counts at Chesterton Shores crossing</li> </ul>  | <ul style="list-style-type: none"> <li>City of Toronto was given opportunity to provide feedback on alternatives for redirecting pedestrian/cyclist traffic from Chesterton Shores</li> <li>MX will consider reducing design speed at City of Toronto's request</li> <li>MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <p><b>City of Toronto TAC</b></p>                      | <p>July 5, 2016 Meeting</p>  | <ul style="list-style-type: none"> <li>Continue Scarborough Golf Club Road profile drawings discussion</li> </ul>   | <ul style="list-style-type: none"> <li>City of Toronto will provide MX with list of items to address during Detailed Design</li> </ul>  |

| Stakeholder                                     | Date                            | Key Objectives  | Key Outcomes  |
|---|---------------------------------|---|---|
|   |                                 | <ul style="list-style-type: none"> <li>• Discuss road profile of Galloway Road</li> <li>• Provide update regarding 90 Morningside Avenue access discussion and discuss access to 86 Morningside Avenue</li> </ul>   | <ul style="list-style-type: none"> <li>• MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>MTCS</b>                                     | July 5, 2016 Meeting            | <ul style="list-style-type: none"> <li>• Provide Project update and discuss Rouge River Bridge consent application.</li> <li>• Discuss MTCS expectations based on MTCS comments on Draft EPR in February, 2016</li> </ul>   | <ul style="list-style-type: none"> <li>• MX will need to demonstrate consultation with the heritage departments of both municipalities (City of Toronto and City of Pickering) and First Nations groups with potential interest in the Project</li> <li>• MX will reach out to MOI and determine next steps – MTCS to provide contact information.</li> <li>• MX stated that CHERs for Petticoat Creek, Dunbarton and Double Stone culvert were being reviewed by the MetroInx Heritage Committee.</li> <li>• MX informed that 90 Morningside CHER is pending permission to enter and MTCS advised MX to proceed with CHER as there is sufficient information available.</li> <li>• MX will provide a package to MTCS via email containing the documents requested.</li> <li>• MTCS noted the need for public consultation under the TPAP standards and guidelines and that MX must demonstrate consultation with the heritage departments of both municipalities (City of Toronto and City of Pickering) and Indigenous communities with potential interest in the Project.</li> <li>• MTCS noted that MOI is overseeing the transfer of provincial lands to Parks Canada for the Rouge Urban National Park and MX agreed to reach out to MOI to determine next steps.</li> <li>• MTCS is to provide contact information to MX for MOI.</li> </ul> |
| <b>City of Toronto, Parks Canada &amp; TRCA</b> | July 14, 2016 Workshop          | <ul style="list-style-type: none"> <li>• Discuss proposed Rouge Hill GO Station updates including enclosed tunnel entrance/exit and Port Union Waterfront, based on feedback from previous workshop and meeting</li> <li>• Review 4 potential alternatives at Chesterton Shores</li> <li>•</li> </ul> | <ul style="list-style-type: none"> <li>• Stakeholders were given opportunity to provide feedback on enclosed tunnel entrance/exit and Port Union Waterfront</li> <li>• Potential alternatives were narrowed down to 2 options</li> <li>• MX will review access points, ramp elevation, and potential connections to trail</li> <li>• TRCA will provide previously completed Erosion Study to MX</li> <li>• MX will continue to seek guidance and feedback as Project progresses</li> </ul>  |
| <b>MNRF</b>                                     | August 29, 2016 Conference Call | <ul style="list-style-type: none"> <li>• Discuss Draft EPR comments and clarify further studies required</li> </ul>   | <ul style="list-style-type: none"> <li>• AECOM to submit NHIC records by December 31, 2016 to Aurora District and also email to Margaret Berube.</li> <li>• AECOM to submit Bank Swallow memo of methods/findings to MNRF upon review by MX</li> <li>• MNRF and Fisheries and Oceans Canada (DFO) to coordinate further analysis and information to provide to</li> </ul>   |

| Stakeholder  | Date                              | Key Objectives   | Key Outcomes  |
|--|-----------------------------------|--|---|
|  |                                   |  | <p>Metrolinx and AECOM regarding Eastern Pondmussel</p> <ul style="list-style-type: none"> <li>● AECOM to provide finalized wetland boundaries as shapefile to MNRF Aurora District</li> <li>● Consult with TRCA regarding MX ROW within ANSIs and need for compensation for non-sensitive/ rare species being removed for ROW widening</li> <li>● AECOM to revise the responses to MNRF draft EPR comments based on results of this meeting</li> </ul>   |
| <p><b>City of Toronto TAC</b></p>                      | <p>September 16, 2016 Meeting</p> | <ul style="list-style-type: none"> <li>● Discuss presentation materials for PM #3</li> </ul>   | <ul style="list-style-type: none"> <li>● Host of suggestions / requests regarding content of Public Meeting presentation</li> <li>● MX to provide video and the final Public Meeting presentation to the City</li> </ul>  |
| <p><b>CN Rail</b></p>                                  | <p>October 7, 2016 Meeting</p>    | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> </ul>   | <ul style="list-style-type: none"> <li>● MX will provide updated track schematics to show current turnout and crossover designs at Durham Junction and the new Rouge plant.</li> <li>● MX to send design information for CN review. CN advised that the designs will be reviewed for track geometry and bridge designs to confirm that AREMA and loading requirements have been met.</li> <li>● The Final EPR will be available on the Project website November 4, 2016 and CN requested to be notified</li> </ul>  |
| <p><b>City of Toronto, Parks Canada &amp; TRCA</b></p> | <p>November 30, 2016 Meeting</p>  | <ul style="list-style-type: none"> <li>● Discuss the conceptual design options for the east tunnel at Rouge Hill GO Station subsequent to the comments from the July 14, 2016 workshop.</li> </ul> | <ul style="list-style-type: none"> <li>● MX considers plan to construct an enhanced east tunnel (larger than typical tunnels with mini bike ramp) at Rouge Hill GO Station to be sufficient and safer replacement for the Chesterton Shores crossing</li> <li>● TRCA believed that a second crossing would be a better solution to safely accommodate increased bicycle and pedestrian traffic.</li> <li>● MX is to arrange for a follow up with TRCA , City of Toronto and MX Operations to discuss the history of park access points through the Station and current agreements in place.</li> <li>● MX to review the 'Traits to GO' program with internal stakeholders to reflect on the Station's future design scope.</li> <li>● City of Toronto is to review the bike trough in the South Pavillion design with MX and provide examples from a project that was recently worked on in the Lower Don.</li> <li>● Parks Canada way finding strategy or approved City of Toronto signage will be used for signage on City of Toronto parklands.</li> <li>● MX to communicate findings to WSP and build on the next design submission.</li> </ul> |

| Stakeholder  | Date                       | Key Objectives  | Key Outcomes   |
|--|----------------------------|---|--|
| Indigenous Communities   |                            |   |  |
| <b>Williams Treaties First Nations (Mississauga Communities)</b> | May 26, 2016 Meeting       | <ul style="list-style-type: none"> <li>• Provide an introduction to the Project and explained the TPAP</li> <li>•</li> </ul>  | <ul style="list-style-type: none"> <li>• WTFN confirmed staff contacts for future notices and correspondence</li> <li>• WTFN advised staff is available to monitor any archaeology fieldwork</li> <li>• MX will keep WTFN apprised of any archaeological updates as Project progresses</li> </ul>  |
| <b>Williams Treaties First Nations (Mississauga Communities)</b> | July 18, 2016 Meeting      | <ul style="list-style-type: none"> <li>• Provide an introduction to the Project and explained the TPAP</li> <li>• Continued discussion from May 26, 2016 meeting</li> </ul>                 | <ul style="list-style-type: none"> <li>• MX agreed that, going forward, meetings with WTFN will be held quarterly to efficiently receive updates and exchange information and concerns regarding current and upcoming MX projects.</li> <li>• MX planned the next meeting with WTFN for September 28, 2016 at the Rama Community Hall which will align with the anticipated fall public meetings</li> <li>• WTFN communities expressed interest in employment opportunities including apprenticeships and training for community members. MX is currently working on a framework and community benefits program for future projects which may include special training and apprenticeship programs.</li> </ul> |
| <b>Six Nations of the Grand River</b>                            | September 12, 2016 Meeting | <ul style="list-style-type: none"> <li>• Provide a high level overview of upcoming Metrolinx projects, including Lakeshore East Rail Corridor Expansion (Guildwood to Pickering)</li> </ul> | <ul style="list-style-type: none"> <li>• The Six Nations of the Grand River noted that they have an internal archaeological group that monitors Stage 2 AA and up. It was recommended that these monitors be on site, to avoid any future issues. It was noted that the monitors can travel to anywhere in the Metrolinx system. Metrolinx stated that this would be determined for each particular project, and that they would take note of this recommendation.</li> </ul>  |
| <b>The Mississaugas of the New Credit First Nations</b>          | September 19, 2016 Meeting | <ul style="list-style-type: none"> <li>• Provide a high level overview of upcoming Metrolinx projects, including Lakeshore East Rail Corridor Expansion (Guildwood to Pickering)</li> </ul> | <ul style="list-style-type: none"> <li>• A question was asked regarding the stage and status of the AA for the Rouge River Bridge (and whether or not a Stage 2 AA has been done). MX is to provide an update on the status, as well as details of the Stage 1 AA</li> </ul>   |
| <b>Huron-Wendat First Nation</b>                                 | September 27, 2016 Meeting | <ul style="list-style-type: none"> <li>• Provide a high level overview of upcoming Metrolinx projects, including Lakeshore East Rail Corridor Expansion (Guildwood to Pickering)</li> </ul> | <ul style="list-style-type: none"> <li>• MX confirmed that the TRCA will be conducting the Stage 2 AA and is to provide updates on the status</li> <li>• MX provided an update on the ownership[ of the Rouge River Bridge property, and land transfer details including Parks Canada engagement</li> <li>• MX provided an overview of the steps taken if heritage resources are found during the AA.</li> </ul>   |
| <b>Williams Treaties First Nations (Mississauga Communities)</b> | September 29, 2016 Meeting | <ul style="list-style-type: none"> <li>• Provide a high level overview of upcoming Metrolinx projects, including Lakeshore East Rail Corridor Expansion</li> </ul>                          | <ul style="list-style-type: none"> <li>• MX confirmed that the TRCA will be conducting the Stage 2 AA, and is to provide updates on the status</li> </ul>  |

| Stakeholder  | Date                      | Key Objectives   | Key Outcomes   |
|--|---------------------------|--|--|
|  |                           | (Guildwood to Pickering)   | <ul style="list-style-type: none"> <li>MX will provide the Stage 2 AA report for review upon completion</li> <li>MX confirmed that as per MTCS Standards and Guidelines, First Nations archaeological monitors will not be present</li> <li>MX provided an update on the ownership of the Rouge River Bridge property, and land transfer details including Parks Canada engagement</li> </ul>  |
| <b>Other Public Stakeholders</b>                   |                           |  |  |
| <b>Scarboro Golf and Country Club</b>              | November 10, 2015 Meeting | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss proposed grade separation at Scarborough Golf Club Road and potential effects (i.e. access requirements)</li> </ul>     | <ul style="list-style-type: none"> <li>The Club would be agreeable to closing Scarborough Golf Club Road at the rail crossing</li> <li>MX will provide the Club with more information with respect to noise and vibration levels</li> <li>MX noted the Club's concerns with potential effects to regular operations during construction</li> <li>MX will keep the Club apprised of potential effects to property access as the Project progresses</li> </ul> |
| <b>Namara Developments Ltd.</b>                    | November 19, 2015 Meeting | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss proposed grade separation at Galloway Road and potential effects to proposed development at 85 Galloway Road</li> </ul> | <ul style="list-style-type: none"> <li>MX understands proposed development at 85 Galloway Road and potential effects to future Metrolinx projects</li> <li>MX and developer agreed to exchange road profiles and designs for comparison</li> <li>MX will keep the developer apprised of any relevant updates to this area as the Project progresses</li> </ul>   |
| <b>Guildwood Village Community Association</b>     | November 23, 2015 Meeting | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss the community group's concerns regarding potential effects and establish a working relationship</li> <li></li> </ul>    | <ul style="list-style-type: none"> <li>MX will continue to consult with the City of Toronto to further understand the potential traffic implications of proposed development (i.e. Guild Inn redevelopment) and how this aligns with the future traffic management plan for the Project</li> <li>MX will keep the community group apprised of any relevant updates to this area as the Project progresses, including construction staging</li> </ul>         |
| <b>Centennial Community Recreation Association</b> | December 4, 2015 Meeting  | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss the community group's concerns regarding potential effects and establish a working relationship</li> </ul>              | <ul style="list-style-type: none"> <li>MX will continue to consult with the City of Toronto Emergency Services regarding Chesterton Shores closure</li> <li>MX will seek opportunities to integrate consultation events with the concurrent TRCA Waterfront EA Study</li> <li>MX will keep the community group apprised of any relevant updates to this area as the Project progresses</li> </ul>  |
| <b>West Rouge Community Association</b>            | December 14, 2015 Meeting | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss the community group's concerns regarding potential effects and establish a working relationship</li> </ul>              | <ul style="list-style-type: none"> <li>MX will keep the community group apprised of any relevant updates to this area as the Project progresses</li> </ul>   |
| <b>Rohm &amp; Haas Canada</b>                      | December 18, 2015 Meeting | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss potential effects to regular business operations and</li> </ul>   | <ul style="list-style-type: none"> <li>MX will coordinate with Rohm &amp; Haas regarding construction activity in the area, specifically with respect to timing of</li> </ul>  |

| Stakeholder                                       | Date                           | Key Objectives   | Key Outcomes  |
|---|--------------------------------|--|---|
|   |                                | mitigation options   | shunts <ul style="list-style-type: none"> <li>● MX will engage in future discussions regarding construction staging if effects are anticipated</li> <li>● Members of Rohm &amp; Haas intend to update a Community Advisory Panel for business/residents in the area based on this meeting</li> <li>● MX will keep Rohm &amp; Haas apprised of upcoming PMs</li> </ul>   |
| <b>Pickering West Shore Community Association</b> | January 21, 2016 Meeting       | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> <li>● Discuss grade separation rationale and alternative considered</li> <li>● Discuss Poplar Road closure</li> <li>● Discuss proposed updates and potential effects to Waterfront Trail</li> <li>● Provide Project timelines and next steps</li> </ul> | <ul style="list-style-type: none"> <li>● MX indicated that pedestrian/cyclist access will be maintained with any temporary outages and detours communicated</li> </ul>  |
| <b>Coronation Community Association</b>           | February 2, 2016 Meeting       | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> <li>● Discuss grade separation rationale and alternative considered</li> <li>● Discuss Poplar Road closure</li> <li>● Discuss proposed updates and potential effects to Waterfront Trail</li> <li>● Provide Project timelines and next steps</li> </ul> | <ul style="list-style-type: none"> <li>● MX to develop traffic management plan prior to construction, in consultation with the City.</li> </ul>   |
| <b>Boys &amp; Girls Club of East Scarborough</b>  | February 8, 2016 Meeting       | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> <li>● Discuss grade separation at Galloway Road</li> <li>● Discuss potential benefits and effects to the Club</li> </ul>  | <ul style="list-style-type: none"> <li>● MX will meet AODA requirements at this location</li> <li>● MX will work together with BGC to maintain access and coordinate works so that any temporary outages have minimal impact</li> </ul>   |
| <b>Guildwood Village Community Association</b>    | March 22, 2016 General Meeting | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> <li>● Discuss grade separation rationale and alternative considered</li> <li>● Discuss Poplar Road closure</li> <li>● Discuss proposed updates and potential effects to Waterfront Trail</li> <li>● Provide Project timelines and next steps</li> </ul> | <ul style="list-style-type: none"> <li>● MX to develop traffic management plan prior to construction, in consultation with the City.</li> <li>● MX to consult with the City regarding wider traffic impacts as a result of other initiatives</li> <li>● MX to advise the GVCA of second round of public meetings in early 2016, and other key updates.</li> <li>● GVCA to confirm their request for MX to attend 2016 AGM.</li> </ul> |
| <b>Waterfront Regeneration Trust (WRT)</b>        | April 11, 2016 Meeting         | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> <li>● Discuss proposed design for Port Union Waterfront and seek guidance and feedback</li> </ul>   | <ul style="list-style-type: none"> <li>● WRT was given opportunity to provide feedback on propose design for Port Union Waterfront</li> <li>● MX will keep the community group apprised of any relevant updates to this area as the Project progresses</li> </ul>   |
| <b>Scarborough Village Community Association</b>  | May 13, 2016 Meeting           | <ul style="list-style-type: none"> <li>● Provide an introduction to the Project</li> <li>● Discuss the community group's concerns regarding potential effects which may result from proposed grade separation and establish a working relationship</li> </ul>  | <ul style="list-style-type: none"> <li>● MX noted concerns from the community group, including: noise and vibration levels, maintaining pedestrian/cyclist access during construction, quality of life, property values, community engagement, and future plans for electrification</li> </ul>  |

| Stakeholder                                       | Date                       | Key Objectives  | Key Outcomes   |
|---|----------------------------|---|--|
| <b>Scarborough Village Community Association</b>  | July 22, 2016 Meeting      | <ul style="list-style-type: none"> <li>Discuss SVCA issues list, including sidewalks, SWM, construction timing of grade separations, traffic impact study, and specific concerns at Dale Avenue and Pin Lane</li> </ul> | <ul style="list-style-type: none"> <li>MX to provide drawing (profile) to each property owner during Detailed Design</li> <li>MX has provided outline of TPAP and list of Environmental Studies completed for this TPAP</li> <li>MX met with Pin Lane residents on July 23, 2016</li> <li>MX to provide Environmental Studies for public review / comment in the fall</li> </ul> |
| <b>Steve Duffield Community Meeting</b>           | September 15, 2016 Meeting | <ul style="list-style-type: none"> <li>Provide an introduction to the project</li> <li>Discuss proposed grade separation at Galloway Road</li> </ul>  | <ul style="list-style-type: none"> <li>MX attended meeting held by community members to answer any questions regarding the Project</li> <li>MX noted concerns from the community regarding the grade separation and potential road closures</li> <li>60 attendees were present, including representatives from Councillor Ainslie and MPP Hunter</li> </ul>                      |
| <b>Highland Creek Waste Water Treatment Plant</b> | September 13, 2016 Meeting | <ul style="list-style-type: none"> <li>Provide an introduction to the Project</li> <li>Discuss access requirements during construction and establish working relationship to address any concerns</li> </ul>            | <ul style="list-style-type: none"> <li>MX to provide shaded area map on plant map where we foresee access needs, laydown area and where work is to be done.</li> <li>MX to get Highland Creek WWTP input for specs and tender.</li> <li>MX to inform Highland Creek WWTP of sidewalk meeting with City</li> </ul>  |

### 6.1.3 Public Meetings

#### 6.1.3.1 Public Meeting #1

The first Public Meeting (PM) was held in open house format over two (2) sessions as part of the Preliminary Planning stage prior to commencing the TPAP. The first session was held on March 25, 2015 at the Scarborough Village Recreation Centre in Scarborough at 3600 Kingston Road from 6:00 PM to 8:00 PM. The second session was held on March 26, 2015 at Rosebank Road Public School in Pickering at 591 Rosebank Road from 6:00 PM to 8:00 PM. Consultation materials developed in association with Public Meeting #1 are included in **Appendix C2**.

Notification for PM #1 was accomplished through the following:

- Posting on the Project Website on March 12, 2015;
- Publication in the following local newspapers:
  - *Scarborough Mirror* on March 12, 2015 and March 19, 2015
  - *Ajax/Pickering News Advertiser* on March 12, 2015 and March 19, 2015.
- Addressed mail to the following groups on March 12, 2015:
  - Properties within approximately 30 m of the site
  - All federal, provincial, and municipal agencies, Indigenous communities, and other interested stakeholders on the Project Mailing List;

In total, 44 comments (22 feedback forms, 20 email submissions and 2 other comments) were received between March 12, 2015 and April 15, 2015 regarding the Project. All public comments are included in the PM #1 Summary Report (**Appendix C2**).

The following information was presented at PM #1:

- Background information about Metrolinx and RER;
- Description of the Guildwood to Pickering Project;
- How the planning process will proceed under the TPAP;
- Description of the potential effects, how they will be assessed and potential mitigation measures; and
- Project schedule and next steps.

Participants of PM #1 indicated mitigation for noise and vibration, traffic, and natural environment effects as important considerations for the Project. There were also suggestions to implement grade separation at level crossing.

The sections below summarize the common themes of the public comments received.

#### **Noise and Vibration Effects**

Participants suggested noise and vibration mitigation to be implemented in an effort to reduce potential effects, especially during night-time hours. Participants also noted concerns with existing noise and vibration levels.

### Traffic Effects

Participants noted the importance of maintaining local access to neighbourhoods during construction. Participants also suggested Metrolinx to consider implementing grade separations at existing level crossings to ensure pedestrian safety.

### Natural Environment Effects

Participants suggested Metrolinx to consider implementing passages under the rail tracks improve wildlife habitat and safety. Participants also noted the importance of tree planting other measures that will improve the natural environment in the area. Staff representatives of TRCA and City of Toronto who attended PM #1 advised Metrolinx to consult the agencies regarding Rouge Marsh and East Point Park, respectively.

#### 6.1.3.2 Public Meeting #2

The second PM was held in an open house format over three (3) sessions as part of the Preliminary Planning stage prior to commencing the TPAP. The first session was held on May 25, 2016 at Sir Oliver Mowat Collegiate Institute in Scarborough at 5400 Lawrence Avenue East from 6:30 PM to 8:30 PM. The second session was held on May 26, 2016 at the East Scarborough Boys and Girls Club in Scarborough at 100 Galloway Road from 6:30 PM to 8:30 PM. The third session was held on May 31 at Bayview Heights Public School in Pickering at 1400 Garvolin Avenue. Consultation materials developed in association with Public Meeting #2 are included in **Appendix C2**.

Notification for PM #2 was accomplished through the following:

- Posting on the Project Website on May 17, 2016;
- Publication in the following local newspapers:
  - *Scarborough Mirror* on May 19, 2016
  - *Ajax/Pickering News Advertiser* on May 19, 2016
- Addressed mail to the following groups:
  - *Properties within 100 m of the Study Area – May 19, 2016*
  - *Indigenous communities – May 16 and May 17, 2016*
- Emailed to the following groups:
  - *Members of the public on the email contact list – May 13, 2016*
  - *Stakeholders on the email contact list – May 13, 2016*
  - *Federal and provincial agencies – May 9 and May 13, 2016*

In total, 64 comments (48 feedback forms and 16 email submissions) were received between May 25, 2016 and June 15, 2016 regarding the Project. All public comments are included in the PM #2 Summary Report (**Appendix C2**).

The following information was presented at PM #2:

- Updated Project progress information since PM #1;
- The proposed new third track alignment, grade separations, road closures and bridge modifications;
- Description of key findings from the environmental studies; and
- Project schedule and next steps.

The sections below summarize the common themes of the public comments received.

### Support for Project Processes

Participants indicated support for various Project processes including plans for grade separations at Scarborough Golf Club Road, Galloway Road and Morningside Avenue, the proposal to maintain Beechgrove Drive, Manse Road and Rodd Avenue at-grade road-rail crossings, the closure of Poplar Road road-rail crossing, plans for the pedestrian/cyclist tunnel at Chesterton Shores and planned bridge modifications.

### Noise and Vibration Concerns and Suggestions

Participants noted concerns regarding construction and operations noise and vibration levels and suggested the implementation of sound barriers such as walls or trees. Participants were particularly concerned about noise levels in the Beechgrove Drive, Manse Road and Rodd Avenue at-grade crossing locations.

### Traffic and Safety Concerns and Suggestions

Participants noted concerns regarding the future increased traffic volumes and suggested the implementation of traffic calming measures and traffic lights, particularly on Scarborough Golf Club Road and Galloway Road.

### Property Concerns

Participants noted concerns regarding property impacts, particularly on Scarborough Golf Club Road and Rodd Avenue, Participants suggested to dead end Dale Avenue so that properties would not need to be expropriated.

### Accessibility Concerns and Suggestions

Participants noted concerns regarding pedestrian and cyclist access to parks and the Waterfront Trail as well as Emergency Services access at Poplar Road road-rail crossing.

### Natural Environment and Wildlife Concerns and Suggestions

Participants noted a general concerns regarding impacts to surrounding wildlife and endangered species as well as loss of trees, parkland and swallows due to construction activities and operational noise and vibration.

#### *6.1.3.3 Public Meeting #3*

The third PM was held in an open house format over three (3) sessions during the TPAP following the Notice of Commencement of the TPAP, issued July 7, 2016. The first session was held on September 21, 2016 at the Scarborough Village Recreation Centre in Scarborough at 3600 Kingston Road from 6:30 PM to 8:30 PM. The second session was held on September 22, 2016 at the Petticoat Creek Community Centre in Pickering at 470 Kingston Road West from 7:00 PM to 9:00 PM. The third session was held on September 29, 2016 in Scarborough at The Royal Canadian Legion at 45 Lawson Road from 6:30 PM to 8:30 PM. In addition, Drop-in Sessions were held in early October 2016 to provide an opportunity for public consultation during the TPAP phase as an alternative to PM #3. Consultation materials developed in association with Public Meeting #3 are included in **Appendix C3**.

Notification for PM #3 was accomplished through the following:

- Posting on the Project Website on September 7, 2016;
- Publication in the following local newspapers:
  - *Ajax/Pickering News Advertiser on September 7, 2016*
  - *Scarborough Mirror on September 8, 2016*

- Addressed mail to the following groups:
  - Properties within 150 m of the Study Area – September 5 2016
  - Indigenous communities – September 7, 2016
- Emailed to the following groups:
  - Stakeholders and members of the public on the email contact list – September 7 and September 19, 2016
  - Federal and provincial agencies – September 7, 2016

The sections below summarize the common themes of the public comments received.

#### Concerns Regarding Maintaining Access

Participants noted concerns regarding the ability for vehicular traffic, pedestrians and cyclists to maintain access throughout construction and operation of the Project. Specific areas of concern include Scarborough Golf Club Road, Rodd Avenue, the Waterfront Trail and Port Union Waterfront Park.

#### Safety Concerns

Participants noted safety concerns regarding electrification, retaining walls and at-grade crossings. Specifically, some expressed concerns for riders / service during power outages and severe storms once electrification is implemented. Some also noted the concerns of children being able to access / climb retaining walls and the risk to senior citizens and children when crossing the tracks on Rodd Avenue.

#### Noise Concerns and Suggestions

Participants noted concerns regarding construction and operation noise levels and the impact on local residents, particularly at Scarborough Golf Club Road. Some suggested various ways of lowering or eliminating the noise level of bells at level crossings to minimize the impact during operation.

#### Concerns Regarding Visual Impacts

Participants noted concerns regarding the visual impacts of the Project including the design of retaining walls and embankments and the design of structures to accommodate electrification such as road protection barriers.

### **6.1.4 Notice of Commencement**

The Notice of Commencement was issued to the public on July 7, 2016, and was published in the local newspapers. The Notice of Commencement was also posted to the Project website ([www.metrolinx.com/en/regionalplanning/rer/20160707-LSE\\_NO\\_C\\_final.pdf](http://www.metrolinx.com/en/regionalplanning/rer/20160707-LSE_NOC_final.pdf)). The Notice is attached in **Appendix C3**.

The Notice of Commencement was sent by email and addressed mail to the MOECC EAB Project Officer, MOECC EAB Director, and MOECC Regional Director.

The Notice of Commencement was also emailed to stakeholders (government review agencies, Indigenous communities, property owners within 30 m) and attendees of PM #1, PM #2 and PM #3 and where email was available. All other stakeholders were sent addressed mail.

### 6.1.5 Circulation of Draft EPR

The Draft EPR was circulated to the following review agencies and stakeholders:

- City of Toronto;
- City of Pickering;
- Durham Region;
- TRCA;
- Parks Canada;
- MOECC;
- MNRF;
- MTCS; and
- MTO.

A period of one month was provided for review agencies and stakeholders to provide comment and feedback on the Draft EPR. Agency and stakeholder feedback was incorporated to inform the direction of the Project, where feasible, as documented in **Appendix C2**. Agency and stakeholder feedback along with the corresponding responses from Metrolinx are included as **Appendix C4**.

### 6.1.6 Notice of Completion

The Notice of Completion was issued to the public on November 3, 2016 and was published in the local newspapers. The Notice of Completion was also posted to the Project Website ([http://www.metrolinx.com/en/regionalplanning/rer/2016-11\\_Guildwood-Pickering\\_Notice\\_of\\_Completion.pdf](http://www.metrolinx.com/en/regionalplanning/rer/2016-11_Guildwood-Pickering_Notice_of_Completion.pdf)). The Notice is attached in **Appendix C3**

The Notice of Completion was sent by email and addressed mail to the MOECC EAB Project Officer, MOECC EAB Director, and MOECC Regional Director.

The Notice of Completion was also emailed to stakeholders (government review agencies, Indigenous communities, property owners within 30 m) and attendees of PM #1, PM #2 and PM #3 where email was available. All other stakeholders were sent addressed mail.

## 6.2 Consultation with Review Agencies

**Table 6-2** outlines review agency and stakeholder correspondence that has taken place as part of this Project.

**Table 6-2: Summary of Agency Comments**

| Date Received  | Summary of Comment Received  | Summary of Response Issued by Metrolinx                 |
|--|--|---|
| <b>Pre-TPAP</b>  |  |   |
| <b>Canadian Environmental Assessment Agency (CEAA)</b> |  |   |
| April 29, 2015   | <ul style="list-style-type: none"> <li>• Sent an email with a letter attached providing information on the Canadian Environmental Assessment Act, 2012 including the regulations that a railway line that requires a total of 32 km or more of new right of way; a railway yard with seven or more yard of tracks or a total track length of 20 km or more; and/or a railway line designed for trains that have an average speed of 200 km/h or more may require a Federal Environmental Assessment</li> </ul> | <ul style="list-style-type: none"> <li>• N/A</li> </ul> |
| <b>Canadian Transportation Agency (CTA)</b>            |  |   |

**Table 6-2: Summary of Agency Comments**

| Date Received   | Summary of Comment Received  | Summary of Response Issued by Metrolinx  |
|---|--|--|
| March 12, 2015  | <ul style="list-style-type: none"> <li>Received an email from Metrolinx regarding the Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) TPAP. Requested to speak to Elise Croll regarding Project details.</li> </ul>  | <ul style="list-style-type: none"> <li>Provided Project details and learned that the CTA had no further interest in the Project.</li> </ul>  |
| <b>Hydro One</b>  |  |  |
| May 11, 2015  | <ul style="list-style-type: none"> <li>Conducted a review of the proposed Project and confirmed that there are no Hydro One Transmission (above 115 kV) Facilities in the Study Area. Also noted that there may be Hydro One Distribution facilities in the Study Area and to forward the EA to zone2scheduling@hydroone.com</li> </ul>  | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |
| <b>Ministry of Natural Resources and Forestry (MNRF)</b>  |  |  |
| April 30, 2014  | <ul style="list-style-type: none"> <li>Received request for information on the EA and provided the required information and contacts along with a list of SAR records of occurrences in close proximity to the existing tracks.</li> </ul>   | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |
| May 12, 2014  | <ul style="list-style-type: none"> <li>Received Metrolinx's information email regarding the TPAP for Lakeshore East Rail Corridor Expansion (Guildwood to Pickering). Responded with providing the Rouge River marshes, Highland Creek and Frenchman's Bay wetland evaluations</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for wetland evaluation records and inquired about shape files for the wetland community boundaries.</li> </ul>  |
| August 20, 2014   | <ul style="list-style-type: none"> <li>Provided a list of SAR in the Study Area and immediate vicinity. Also provided a list of natural heritage features recorded within the Study Area.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that AECOM is preparing an EA on behalf of Metrolinx to determine the most appropriate alignment of an additional rail line within the existing rail corridor. Thanked for providing advice.</li> </ul> |
| August 21, 2014   | <ul style="list-style-type: none"> <li>Request for more detailed information on the proposed project in order to assess the impacts of the works on SAR. Provided an Information Gathering Form (IGF) for any threatened or endangered species and requested a detailed description of the undertakings</li> </ul>   |  |
| <b>Ministry of Environment and Climate Change (MOECC)</b> |  |  |
| February 4, 2014  | <ul style="list-style-type: none"> <li>Received letter from Metrolinx regarding the initiation of the Lakeshore East Rail Corridor Expansion (Guildwood to Pickering). Recommended that Metrolinx contact a provided list of organizations that can assist in identifying interested Indigenous communities to be contacted for this Project. Expressed content with Metrolinx's intention to follow the accelerated TPAP as per Ontario Regulation 231/08.</li> </ul> | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |
| August 17, 2015   | <ul style="list-style-type: none"> <li>Requested existing Indigenous consultation list for the Project along with when it was created.</li> </ul>  | <ul style="list-style-type: none"> <li>Provided the Indigenous and stakeholder contact list and stated that it was generated in consultation with the Ministry of Aboriginal Affairs and MOECC between January and March of 2015.</li> </ul>         |
|   | <ul style="list-style-type: none"> <li>Provided some revisions / updates to contact list</li> </ul>  | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |
| September 23, 2015  | <ul style="list-style-type: none"> <li>Requested a list of studies conducted for the TPAP EA along with a list of upcoming milestones</li> </ul>   | <ul style="list-style-type: none"> <li>Provided a list of studies conducted for the TPAP EA along with a list of upcoming milestones including the 95% EPR review date, Notice of Commencement and Public Meeting #2.</li> </ul>                     |
| January 12, 2016  | <ul style="list-style-type: none"> <li>Confirmed that MOECC has not received the FTP instructions from Metrolinx.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided the FTP website link and credentials. Confirmed that an electronic copy will suffice for the draft EPR.</li> </ul>   |
| January 19, 2016  | <ul style="list-style-type: none"> <li>Confirmed that electronic copies of the draft EPR have been distributed to all MOECC reviewers.</li> </ul>  | <ul style="list-style-type: none"> <li>Confirmed that the Air Quality and GHG Emission Impact Assessment is a detailed</li> </ul>  |

**Table 6-2: Summary of Agency Comments**

| Date Received   | Summary of Comment Received   | Summary of Response Issued by Metrolinx  |
|---|---|--|
|   | <ul style="list-style-type: none"> <li>Requested to review a document referenced in the Air Quality Impact Assessment (Air Quality and GHG Emissions Impact Assessment)</li> </ul>  | <ul style="list-style-type: none"> <li>scope of work that was provided to the consultant. Provided the document as an attachment.</li> </ul>   |
| February 11, 2016                                       | <ul style="list-style-type: none"> <li>Provided comments on the Air Quality Impact Assessment.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for providing comments and provided a letter addressing all comments.</li> </ul>  |
| February 24, 2016                                       | <ul style="list-style-type: none"> <li>Provided comments on the Stormwater Management Report</li> </ul>   | <ul style="list-style-type: none"> <li>Provided responses to all comments.</li> </ul>  |
| March 11, 2016  | <ul style="list-style-type: none"> <li>Provided comments on the Draft EPR.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses to all comments.</li> </ul>   |
| <b>Ministry of Tourism, Culture and Sport (MTCS)</b>    |   |  |
| October 9, 2015   | <ul style="list-style-type: none"> <li>N/A</li> </ul>   | <ul style="list-style-type: none"> <li>Metrolinx requested MTCS to provide information on the Rouge River Bridge including the property address and legal property description as required for an application for Minister's Consent.</li> <li>Metrolinx informed MTCS that the Rouge River Bridge was identified as a provincial heritage property of provincial significance.</li> </ul> |
| October 13, 2015  | <ul style="list-style-type: none"> <li>Provided guidance and reference documents on the MTCS Minister's consent application package.</li> <li>Requested that Metrolinx add the Rouge River Bridge to the list of provincial heritage properties.</li> <li>Requested that Metrolinx prepare a consent application and submit to the MTCS Minister</li> <li>Requested that Metrolinx search and identify the PIN for the larger parcel of land this bridge is located on and add to the description.</li> </ul> | <ul style="list-style-type: none"> <li>Metrolinx submitted a Minister's consent application for the demolition and replacement of the Rouge River Bridge.</li> </ul>   |
| <b>Ministry of Transportation (MTO)</b>                 |   |  |
| January 18, 2016  | <ul style="list-style-type: none"> <li>Requested access to the draft EPR and appendices to review.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided the draft EPR and appendices and link to FTP site.</li> </ul>  |
| March 9, 2016   | <ul style="list-style-type: none"> <li>Provided comments on the draft EPR. Confirmed that MTO has no objections to the proposed project.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments.</li> </ul>  |
| <b>Ontario Provincial Police (OPP)</b>                  |   |  |
| March 13, 2015  | <ul style="list-style-type: none"> <li>Requested Metrolinx update their contact list to include the contact provided.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for informing Metrolinx of the change in contact information. Confirmed the contact list has been updated.</li> </ul>   |
| <b>Parks Canada</b>                                     |   |  |
| June 1, 2015  | <ul style="list-style-type: none"> <li>Provided comments on the Lakeshore East Rail Corridor Expansion (Guildwood to Pickering)</li> </ul>  | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |
| February 26, 2016                                       | <ul style="list-style-type: none"> <li>Provided a follow-up to the meeting on January 21 and provided input on the options for a retaining wall in the Rouge Beach area.</li> </ul>   | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |
| March 4, 2016   | <ul style="list-style-type: none"> <li>Provided comments on the Draft EPR.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided responses to all comments.</li> </ul>  |
| June 28, 2016   | <ul style="list-style-type: none"> <li>Provided a map showing the boundaries of the future extent of the Rouge National Urban Park (RNUP) in the vicinity of the Lakeshore East Rail Corridor Expansion (Guildwood to Pickering). Requested that Metrolinx consider RNUP Boundary preliminary as the lands require confirmation.</li> </ul>   | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |
| <b>Toronto and Region Conservation Authority (TRCA)</b> |   |  |
| March 16, 2015  | <ul style="list-style-type: none"> <li>Received Notice of Public Meeting #1 and noted that staff are unable to attend. Requested a copy of any handouts or display</li> </ul>   | <ul style="list-style-type: none"> <li>N/A</li> </ul>  |

**Table 6-2: Summary of Agency Comments**

| Date Received   | Summary of Comment Received  | Summary of Response Issued by Metrolinx   |
|---|--|---|
|   | materials from the meeting for TRCA files.   |   |
| March 23, 2015  | <ul style="list-style-type: none"> <li>A contact from TRCA requested to be added to the distribution list.</li> </ul>  | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
| March 12, 2015  | <ul style="list-style-type: none"> <li>Provided feedback on the February 10 meeting minutes provided by Metrolinx.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for feedback.</li> </ul>   |
| April 15, 2015  | <ul style="list-style-type: none"> <li>Noted that TRCA staff and Rouge Park staff met on April 2, 2015 to discuss mutual concerns of the Lakeshore East Rail Corridor Expansion (Guildwood to Pickering). Noted that there will need to be a visit to the relevant stretches of the Study Area or key segments where there are watercourse crossings in the summer or spring.</li> </ul> | <ul style="list-style-type: none"> <li>Thanked for information and attached the appendix diagrams for more information.</li> </ul>  |
| May 11, 2015  | <ul style="list-style-type: none"> <li>Provided high level TRCA preliminary comments on the proposed project.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses to all comments.</li> </ul>  |
| February 23, 2016   | <ul style="list-style-type: none"> <li>Provided TRCA comments on the January 21, 2015 meeting discussions.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses.</li> </ul>  |
| March 11, 2016  | <ul style="list-style-type: none"> <li>Provided TRCA comments on the Draft EPR.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses to all comments.</li> </ul>  |
| <b>TPAP</b>   |  |   |
| <b>City of Toronto</b>  |  |   |
| December 2, 2016  | <ul style="list-style-type: none"> <li>Provided further comments on the Final EPR regarding commitments from Metrolinx involving impacts to parks, recreational facilities and the Waterfront Trail, safety and access at Chesterton Shores, Manse Road and Beechgrove Drive and the design development progress.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses.</li> <li>Noted that safety is the top priority at Metrolinx and Emergency Services access at Chesterton Shores will be built to meet the appropriate safety standards.</li> <li>Clarified that Metrolinx is proposing a closure of Poplar Road at the existing rail crossing, with addition of a new non-vehicular grade separation for pedestrians and cyclists, pending City of Toronto approval of the proposed road closure. Pointed to Section 3.1 and 3.4.3.1 of EPR for further detail.</li> </ul> |
| <b>Ministry of the Environment and Climate Change (MOECC)</b> |  |   |
| November 2, 2016  | <ul style="list-style-type: none"> <li>Requested formal response to the EAB's stormwater reviewer comments.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided responses to MOECC stormwater comments</li> </ul>   |
| December 5, 2016  | <ul style="list-style-type: none"> <li>Provided additional comments on the Final EPR that require responses and / or clarification in a table attached to an email.</li> <li>Noted that the MOECC received a set of comments from the West Rouge Community Association (WRCA) and attached the letter to the email.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses to each issue raised in an attached letter.</li> <li>Noted that responses to MOECC SWM recommendations were provided December 9, 2016 and the commitments to consult with EAB and seek legal counsel as required for ECA will be included in the revised EPR.</li> <li>Noted that Metrolinx will issue a response to the WRCA on December 12, 2016.</li> </ul>   |
| <b>Ministry of Natural Resources and Forestry (MNRF)</b>      |  |   |
| November 25, 2016   | <ul style="list-style-type: none"> <li>Thanked for addressing MNRF initial comments in the EPR and noted that there are no further comments but recognize that moving forward MNRF will be consulted during detailed design</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for confirming that MNRF has no further comments.</li> <li>Noted that Metrolinx has previously been in contact with MNRF on each point raised in</li> </ul>  |

**Table 6-2: Summary of Agency Comments**

| Date Received   | Summary of Comment Received  | Summary of Response Issued by Metrolinx   |
|---|--|---|
|   |  | <p>MNRF's email as noted in the Commitments and Future Work section of the EPR and will continue to do so during detailed design.</p>   |
| <b>Ministry of Tourism, Culture and Sport (MTCS)</b>    |  |   |
| July 20, 2016   | <ul style="list-style-type: none"> <li>Confirmed that MTCS has included the Rouge River Bridge on the list of provincial heritage properties. Confirmed that MTCS is currently reviewing the draft HIA and Minister's consent letter.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided meeting minutes from July 5, 2016 meeting.</li> <li>Provided the draft Minister's consent letter for review and comment as well as the Rouge River Bridge Metrolinx Heritage Committee Decision Form and record of Indigenous consultation.</li> </ul>  |
| December 5, 2016  | <ul style="list-style-type: none"> <li>Noted that MTCS's interest in this Project relates to its mandate of conserving Ontario's cultural heritage, which includes archaeological resources, built heritage resources and cultural heritage landscapes.</li> <li>Provided two tables regarding a summary of MTCS comments on the EPR and a comparison of the Draft and Final EPR as it relates to cultural heritage, MTCS comments on Final EPR and recommendations.</li> </ul>  | <ul style="list-style-type: none"> <li>Provided responses to all issues raised by MTCS in a letter attached to an email.</li> <li>Noted that Metrolinx has taken extensive effort to ensure all appropriate heritage studies are undertaken in compliance with TPAP requirements.</li> </ul>  |
| December 12, 2016                                       | <ul style="list-style-type: none"> <li>Thanked for sending Metrolinx responses to MTCS comments.</li> <li>Provided some corrections and advised Metrolinx to clearly state what will be delivered and when regarding commitments for future work under the TPAP.</li> <li>Noted that commitments for additional technical heritage studies must also include a commitment to provide the studies for review and comment to MTCS, the City of Toronto Heritage Preservation Services, and individuals and organizations with an interest in the Project.</li> <li>Noted that the AAs may also have to be provided to Indigenous groups as requested.</li> </ul> | <ul style="list-style-type: none"> <li>Thanked for additional comments and provided an MTCS comment and Metrolinx response table.</li> </ul>  |
| December 16, 2016                                       | <ul style="list-style-type: none"> <li>Provided a letter consenting to Metrolinx's application to demolish Rouge River Railway Bridge.</li> </ul>  | <ul style="list-style-type: none"> <li>N/A</li> </ul>   |
| <b>Parks Canada</b>                                     |  |   |
| December 2, 2016  | <ul style="list-style-type: none"> <li>Provided comments on the Final EPR.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses attached in a letter</li> </ul>  |
| <b>Regional Municipality of Durham</b>                  |  |   |
| December 5, 2016  | <ul style="list-style-type: none"> <li>Attached the Region's comments on the EPR and noted that most comments were editorial in nature or regarding the detailed design process.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses in an attached letter.</li> </ul>  |
| <b>Toronto and Region Conservation Authority (TRCA)</b> |  |   |
| November 1, 2016  | <ul style="list-style-type: none"> <li>Provided a list of EA commitments and requirements categorized into permanent or temporary impacts. Noted that most have been discussed previously and there are several commitments that have been left vague to ensure there is opportunity for future discussion to allow both parties to discuss in future stages of the Project.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for comments and noted that the Final EPR was made available for the 30-day public review in November, 2016 and therefore there was insufficient time to include the comments provided November 1, 2016.</li> <li>Noted that all previous correspondence between Metrolinx and TRCA can be found in <b>Section 6</b> and <b>Appendix C</b> of the Final EPR</li> </ul> |

**Table 6-2: Summary of Agency Comments**

| Date Received                           | Summary of Comment Received  | Summary of Response Issued by Metrolinx   |
|---|--|---|
|   |  | and that future commitments can be found in <b>Section 7.4</b> . <ul style="list-style-type: none"> <li>Issued response letter on December 15, 2016 with formal responses to comments.</li> </ul>   |
| November 29, 2016                       | <ul style="list-style-type: none"> <li>Thanked Metrolinx for taking the time to go over responses to their request.</li> <li>Noted that most of the commitments outlined in <b>Section 7.4</b> and <b>Table 7-1</b> of the Final EPR will suffice for this stage of the EA process.</li> <li>Requested the Metrolinx design team to identify any issues with the commitments provided by TRCA so that they can be worked through in a timely manner.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for comments and confirmed that the TRCA memo sent November 1, 2016 is on the agenda to be discussed at the meeting with TRCA and the design team the first week of December, 2016.</li> </ul> |
| December 5, 2016                        | <ul style="list-style-type: none"> <li>Provided responses to the Final EPR.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments on Final EPR and provided responses to each issue raised.</li> </ul>  |
| December 14, 2016                       | <ul style="list-style-type: none"> <li>Provided a letter regarding the updated response to the Final EPR.</li> <li>Noted that TRCA responded to the Final EA via letter on December 5, 2016 and Metrolinx provided a response December 9, 2016 that noted the statement referencing a future EA study is a typographical error in the document. Metrolinx also advised that the only access being pursued is through Rouge Hill Station that will connect the proposed new service building with the GO station platforms via an enclosed tunnel entrance/exit south of the Waterfront Trail.</li> <li>Provided a complete summary of concerns as discussed in previous meetings and correspondence with Metrolinx.</li> <li>Noted that TRCA is informing the MOECC that TRCA staff are not satisfied that concerns regarding the proposed works have been resolved or addressed.</li> </ul> | <ul style="list-style-type: none"> <li>Issued response letter on December 15, 2016 with formal responses to comments.</li> </ul>  |
| <b>West Rouge Community Association</b> |  |   |
| December 2, 2016                        | <ul style="list-style-type: none"> <li>Submitted a Notice of Objection to the EPR which included concerns regarding parking, access to the Waterfront Trail and proposed retaining walls.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for comments and provided responses.</li> </ul>  |

**6.2.1 Metrolinx Design Review Panel**

Designs for key elements including the proposed grade separations, public-facing retaining walls (such as along sections of the Port Union Waterfront) and new rail bridges will require review by the MDRP. The MDRP provides meaningful feedback and direction related to architecture, urban design and landscape architecture, at key junctures in the design process for Metrolinx projects over \$10M, located in a mobility hub or projects with a significant public face. Input is provided early in the design process to ensure that high-quality design is a critical consideration in all capital projects.

The MDRP invited guest panelists Parks Canada and TRCA, to solicit their input concerning the proposed works at the Highland Creek and Rouge River bridges as well as the Rouge Beach retaining walls, given that these features that may impact lands within their jurisdiction. Key elements of the recommendations of the MDRP September 15, 2016 that will be considered and/or explored during Detailed Design include the following:

- Proceed with use of fabric formed concrete and explore ways it can be lent a more natural appearance, including masking of joints, tinting of concrete or adding elements to the concrete mixture;
- Explore opportunities to simplify the corten sections of the bridge. Further, explore opportunities to include programming along walls at either end of Rouge River Bridge as well as the corten section adjacent to the pedestrian path;
- Seek to include interpretation and reference to the identity of Rouge National Urban Park throughout the corridor, given its strong environment and cultural significance;
- Engage with stakeholders, the community and Indigenous communities to explore programming opportunities; and,
- Consider vegetation or other material to lend the caps of the various walls a more natural appearance.

Other public facing elements of the Project will be reviewed by MDRP and other guest panelist will be invited as required.

### 6.3 Consultation with the Public

Members of the public requesting general Project information were directed to the Project Website and notified of upcoming Public Meetings. Multiple comments received from the public requested to be added to the Project Mailing List and kept informed. In response to these requests, Metrolinx maintained and added the requested contacts to the Project Mailing List accordingly. All other public comments and issued responses are summarized in **Table 6-3**.

**Table 6-3: Summary of Public Comments**

| Date Received   | Summary of Comment Received   | Summary of Response Issued by Metrolinx   |
|-----------------|---|---|
| <b>Pre-TPAP</b> |   |   |
| March 18, 2015  | <ul style="list-style-type: none"> <li>• Requested more information regarding the integrated transit network across the GTHA. Indicated support of the Project. Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>• Provided link to Metrolinx website.</li> </ul>   |
| March 19, 2015  | <ul style="list-style-type: none"> <li>• Requested more information about the Project. Inquired about the underpass to the crossings at Rosebank Road and Rodd Avenue.</li> </ul>   | <ul style="list-style-type: none"> <li>• Noted that Metrolinx is committed to improving pedestrian access and safety where it is feasible to do so. Noted the future treatment of the Rodd Avenue rail crossing will be considered during preliminary design. Provided link to Metrolinx website and advised to check for notice of the next public meeting.</li> </ul> |
| March 20, 2015  | <ul style="list-style-type: none"> <li>• Requested more information about the Project.</li> </ul>   | <ul style="list-style-type: none"> <li>• Noted that the EA will assess the potential environmental effects of the corridor between Guildwood and Pickering to support future Metrolinx service enhancements. Provided link to Metrolinx website and advised to check for notice of next public meeting.</li> </ul>  |
| March 21, 2015  | <ul style="list-style-type: none"> <li>• Requested to be added to the mailing list.</li> </ul>  | <ul style="list-style-type: none"> <li>• Confirmed addition to Project mailing list.</li> </ul>   |
| March 23, 2015  | <ul style="list-style-type: none"> <li>• Received Notice of PM #1 in the mail. Noted reduced quality of life due to train frequency passing through Guildwood GO Station and expressed concern about noise and air pollution. Requested noise barrier to be installed to mitigate these concerns. Indicated opposition to increased additional tracks and increased train frequency.</li> </ul> | <ul style="list-style-type: none"> <li>• Noted that noise levels have been sampled as part of the EA and that potential changes as a result of the Project will be modelled to determine effects.</li> <li>• Provided link to Metrolinx website and advised to check for Notice of next public meeting.</li> </ul>  |
|                 | <ul style="list-style-type: none"> <li>• Received Notice of PM #1 in the mail. Requested to be added to the Project Mailing List.</li> </ul>  | <ul style="list-style-type: none"> <li>• Confirmed addition to the Project Mailing List.</li> </ul>   |

**Table 6-3: Summary of Public Comments**

| Date Received  | Summary of Comment Received   | Summary of Response Issued by Metrolinx  |
|----------------|---|--|
|                | <ul style="list-style-type: none"> <li>Received Notice of PM #1 in the mail. Requested more information regarding electromagnetic frequency.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that the scope of the EA does not include electrification of the rail corridor. Provided link to Metrolinx website.</li> </ul>  |
|                | <ul style="list-style-type: none"> <li>Requested more information re: the Project.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided link to Metrolinx website.</li> </ul>  |
| March 25, 2015 | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>  | <ul style="list-style-type: none"> <li>Confirmed addition to Project mailing list.</li> </ul>  |
|                | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>  | <ul style="list-style-type: none"> <li>Confirmed addition to Project mailing list.</li> </ul>  |
|                | <ul style="list-style-type: none"> <li>Attended PM #1 on March 25, 2015. Noted that a submission was left with the Project Team.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that all submissions to the Project Team will be reviewed.</li> </ul>   |
| March 27, 2015 | <ul style="list-style-type: none"> <li>Unable to attend PM #1. Requested more information re: the Project. Requested to be added to the Project Mailing List. Requested that the Project be added to the GO Transit Expansion Projects: Environmental Assessments webpage (<a href="http://www.gotransit.com/public/en/improve/environmentalassessments.aspx">http://www.gotransit.com/public/en/improve/environmentalassessments.aspx</a>).</li> </ul> | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> <li>Provided link to Metrolinx website.</li> </ul>   |
| March 29, 2015 | <ul style="list-style-type: none"> <li>Expressed concerns re: traffic, privacy, property value, noise, vibration, stormwater drainage, and dumping. Speculated that increased train service is a result of political influence. Noted that majority of the trains run empty. Expressed concerns with cargo trains running after midnight.</li> </ul>  | <ul style="list-style-type: none"> <li>Provided information re: increased service in the corridor. Provided information re: congestion in the corridor. Noted that noise levels have been sampled as part of the EA and that potential changes as a result of the Project will be modelled to determine effects. Noted that stormwater management will be addressed in the EA.</li> </ul>  |
| March 31, 2015 | <ul style="list-style-type: none"> <li>Unable to attend PM #1. Requested more information re: the Project. Expressed concerns re: noise.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that the TPAP is anticipated to commence in summer 2015 and to conclude by end of 2015 or early 2016. Noted that a detailed construction schedule has not been developed. Noted that analysis re: potential treatment of Rodd Avenue has not been undertaken and no decision has been made. Noted that noise levels have been sampled as part of the EA and that potential changes as a result of the Project will be modelled to determine effects. Provided link to Metrolinx website.</li> </ul> |
| April 1, 2015  | <ul style="list-style-type: none"> <li>Unable to attend PM #1. Requested more information re: the Project. Requested to be added to the Project Mailing List. Inquired re: construction duration and underpasses.</li> </ul>  | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List. Noted that Metrolinx is undertaking an analysis to determine the solutions for at-grade crossings from Guildwood to Pickering. Noted that a detailed construction schedule has not been developed. Provided link to Metrolinx website.</li> </ul>   |
| April 2, 2015  | <ul style="list-style-type: none"> <li>Attended PM #1 on March 26, 2015. Looking for what data was used by Metrolinx to justify service train increase. Inquired about freight service, representation of environmental concerns, the TPAP, and potential Rodd Avenue closure.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided information re: increased service in the corridor. Noted the primary objective is to improve GO service reliability and not to accommodate rail freight movements. Noted that potential effects to the environment will be assessed and documented in an EPR. Noted that analysis re: potential treatment of Rodd Avenue has not been undertaken and no decision has been made. Provided link to Metrolinx website.</li> </ul>   |
| April 8, 2015  | <ul style="list-style-type: none"> <li>Attended PM #1 on March 25, 2015. Provided a list of concerns re: incorrect mailing address, lack of resources at PM #1, ownership of existing</li> </ul>  | <ul style="list-style-type: none"> <li>Comments noted. Questions answered. Referred to the Metrolinx website to view the RER Business Case and noted that potential effects will be determined when studies</li> </ul>   |

**Table 6-3: Summary of Public Comments**

| Date Received    | Summary of Comment Received  | Summary of Response Issued by Metrolinx  |
|------------------|--|--|
|                  | tracks, safety, impact to waterfront trail and wildlife, access during construction, noise and vibration during construction, rail technology, and justification of service increase.  | are completed.   |
| April 9, 2015    | <ul style="list-style-type: none"> <li>Update to a previous email submission. Noted that cargo trains use the tracks through the night.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that noise levels have been sampled as part of the TPAP and that potential changes as a result of the Project will be modelled to determine effects. Provided link to Metrolinx website.</li> </ul>   |
| April 10, 2015   | <ul style="list-style-type: none"> <li>South Rosebank residents and frequent GO Transit users. Expressed concerns re: Rodd Avenue crossing, increased freight traffic, and noise.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that analysis re: potential treatment of Rodd Avenue has not been undertaken and no decision has been made. Identified that safety and accessibility are primary considerations at this location. Noted the primary objective is to improve GO service reliability and not to accommodate rail freight movements. Noted that noise levels have been sampled as part of the TPAP and that potential changes as a result of the Project will be modelled to determine effects.</li> </ul> |
| April 13, 2015   | <ul style="list-style-type: none"> <li>Requested more information regarding the Project.</li> </ul>  | <ul style="list-style-type: none"> <li>Provided link to Metrolinx website.</li> </ul>  |
| April 15, 2015   | <ul style="list-style-type: none"> <li>Residents of Pickering and did not receive Notice of PM #1. Requested more information re: the Project.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that Notice of PM #1 was directly mailed to addresses within 30 m of the Study Area. Noted that potential environmental effects will be assessed and presented at a second public meeting later on the year. Provided link to Metrolinx website.</li> </ul>   |
| May 7, 2015      | <ul style="list-style-type: none"> <li>Concerned about noise from frogs. Requested more information regarding how the animals will be monitored according to the EA, if the animals will be monitored at night, and how the animals will be protected during construction. Requested to be added to the Mailing List.</li> </ul> | <ul style="list-style-type: none"> <li>Added to mailing list. Metrolinx communications spoke with the resident to discuss her concerns and answered her questions.</li> </ul>  |
| May 9, 2015      | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
| May 9, 2015      | <ul style="list-style-type: none"> <li>Noted that pavement markings for utilities are visible from Scarborough Golf Club Road. Requested more information regarding cost of utility relocation and flagging this work for future consideration.</li> </ul>   | <ul style="list-style-type: none"> <li>Comments noted. At this phase of the study, the requested information is not yet available.</li> </ul>  |
| June 2, 2015     | <ul style="list-style-type: none"> <li>Attended PM#1. Inquiring if a road will run through Petticoat Creek Conservation Park using Rodd Avenue as access.</li> </ul>   | <ul style="list-style-type: none"> <li>No. This information is incorrect, referenced boards from the PIC on the project website.</li> </ul>  |
| June 3, 2015     | <ul style="list-style-type: none"> <li>Inquiries regarding electrification and concerns regarding operational train noise. Requested to be added to the Project Mailing List</li> </ul>  | <ul style="list-style-type: none"> <li>Added to project email list. Request forwarded to Electrification team.</li> </ul>  |
| August 25, 2015  | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
| August 26, 2015  | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
| January 30, 2016 | <ul style="list-style-type: none"> <li>Requested more information regarding the closure of Rodd Avenue.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that Metrolinx is not proposing the closure of Rodd Avenue at this time. Metrolinx is studying the crossing along with several others to understand what options are available. Noted that the project is in the pre-engagement</li> </ul>  |

**Table 6-3: Summary of Public Comments**

| Date Received  | Summary of Comment Received  | Summary of Response Issued by Metrolinx   |
|----------------|--|---|
|                |  | process and a public meeting will be held in the coming months. Provided link to project website.   |
| March 7, 2016  | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List. Inquired if Notice of Commencement has been issued.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List. Confirmed that Notice of Commencement has not been issued.</li> </ul>  |
| March 11, 2016 | <ul style="list-style-type: none"> <li>Inquiring about the closure of vehicular traffic on Poplar Road rail crossing and expressing support for closure.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for interest in Project. Noted that Metrolinx is still reviewing and studying the options for expanding the track between Guildwood and Pickering Station.</li> </ul>  |
| May 14, 2016   | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> <li>Expressed concerns regarding the cost of increasing train service to 15 minute intervals.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for sharing comments and confirmed addition to Project Mailing List.</li> </ul>  |
| May 18, 2016   | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
| May 19, 2016   | <ul style="list-style-type: none"> <li>Inquiries regarding fare integration and clarification of Project.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided information regarding fare integration and link to Metrolinx website and April 27 presentation.</li> </ul>  |
|                | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
|                | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
|                | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List as residence is close to the tracks on Morningside in Guildwood.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
| May 20, 2016   | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
| May 23, 2016   | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
| June 1, 2016   | <ul style="list-style-type: none"> <li>Provided a memo outlining ideas for Galloway Road.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that the concerns will be shared with the project team and also that Metrolinx would be happy to set up a meeting with residents on Galloway Road to further discuss the Project.</li> </ul>   |
| June 7, 2016   | <ul style="list-style-type: none"> <li>Attended PM#2 on May 25. Inquired if the work currently in progress at Guildwood GO Station and Rouge Hill GO Station is connected to this Project. Also inquired about Toronto Hydro with regard to accommodating this Project and asked when Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) construction would begin.</li> </ul> | <ul style="list-style-type: none"> <li>Noted that Metrolinx is upgrading the Guildwood station to better serve the community as part of the Lakeshore East Rail Corridor Expansion (Guildwood to Pickering) and future RER. Explained that the construction at Guildwood station does not specifically fall under this TPAP although both are part of the broader RER program and then explained the TPAP timelines. Noted that as part of ongoing rail maintenance, track work at night is done to maintain the existing tracks and provided contact information for Metrolinx Community Relations &amp; Issues Specialist.</li> </ul> |
| June 13, 2016  | <ul style="list-style-type: none"> <li>Concerned regarding the location of the track on the east side of the Rouge River Bridge after Rouge GO Station as the City of Pickering planted a memorial tree and plaque for late husband in the meadow south of the tracks.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that Metrolinx will look into the situation and provide further information if required. Also noted that the location currently does not appear to be an issue.</li> </ul>   |
| June 29, 2016  | <ul style="list-style-type: none"> <li>Resident of Galloway Road expressed support for the Project.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for sharing support and provided information regarding the potential resident meeting in August, 2016.</li> </ul>  |
| June 30, 2016  | <ul style="list-style-type: none"> <li>Resident of Guildwood village concerned about potential underpass on Galloway Road to</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for sharing ideas and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to</li> </ul>   |

**Table 6-3: Summary of Public Comments**

| Date Received       | Summary of Comment Received   | Summary of Response Issued by Metrolinx  |
|---------------------|---|--|
|                     | <p>accommodate the third track. Concerns regarding traffic, speed and risk to families and pedestrians in area. Proposed alternative to close off Galloway Road on each side of the GO tracks.</p> <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>                 | <p>further discuss the Project.</p> <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
| <p>July 1, 2016</p> | <ul style="list-style-type: none"> <li>Submitted a proposal to stop Galloway Road on both sides of the GO tracks and build a pedestrian and bike bridge in place of the proposed underpass.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for sharing ideas and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
|                     | <ul style="list-style-type: none"> <li>Resident of Galloway Road expressed opposition of proposed underpass at Galloway Road. Main concern regarding increased traffic making it unsafe for local residents and pedestrians.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for sharing ideas and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
|                     | <ul style="list-style-type: none"> <li>Resident of Galloway Road expressed proposal to stop Galloway Road on both sides of the GO tracks and build pedestrian and bike bridge in place of the proposed underpass.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for sharing ideas and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
|                     | <ul style="list-style-type: none"> <li>Resident of Galloway Road expressed support for the construction of an underpass at Galloway Road.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted and thanked for support of the Project.</li> </ul>  |
| <p>July 4, 2016</p> | <ul style="list-style-type: none"> <li>Resident on Toynbee Trail expressing concerns and disapproval of proposed underpass at Galloway Road. Requested the road be left as a dead end. Proposed alternative plan to close off Galloway on each side of the GO track to divert traffic to Morningside Avenue.</li> </ul> | <ul style="list-style-type: none"> <li>Thanked for suggestion and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to the Project Mailing List.</li> </ul> |
|                     | <ul style="list-style-type: none"> <li>Resident of Guildwood Village expressing concerns regarding the proposed underpass at Galloway Road due to unsafe volumes of traffic.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for sharing ideas and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
| <p>July 5, 2016</p> | <ul style="list-style-type: none"> <li>Resident of Galloway Road expressing concerns regarding increased traffic, speed and safety to pedestrians and cyclists due to the proposed underpass at Galloway Road.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for suggestion and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to the Project Mailing List.</li> </ul> |
| <p>July 6, 2016</p> | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>  | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
|                     | <ul style="list-style-type: none"> <li>Resident of Galloway Road expressing concerns regarding Project activities and to 'stop Galloway on both sides of the railway tracks'. Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for suggestion and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to Project Mailing List.</li> </ul>     |
| <p>TPAP</p>         |   |  |
| <p>July 8, 2016</p> | <ul style="list-style-type: none"> <li>Resident of Galloway Road expressing concerns regarding Project activities and to 'stop Galloway on both sides of the railway tracks'. Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Thanked for suggestion and noted that Metrolinx would be happy to host a meeting with Galloway Road residents to further discuss the Project.</li> <li>Confirmed addition to Project Mailing List.</li> </ul>     |
|                     | <ul style="list-style-type: none"> <li>Requesting further information regarding previous emails and phone calls in June 2016</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that the proposed location of the third track will require modifications to the existing station building and to</li> </ul>   |

**Table 6-3: Summary of Public Comments**

| Date Received      | Summary of Comment Received  | Summary of Response Issued by Metrolinx  |
|--------------------|--|--|
|                    | <p>regarding the closure of Chesterton Shores Road Rail Crossing.</p> <ul style="list-style-type: none"> <li>Requested information regarding the plan for Morningside Avenue.</li> </ul>   | <p>the way commuters access the platforms. Also noted that a retail component of the station building will be part of the review for station enhancement and the pedestrian / cycling tunnel would be below the station platforms. Provided further information regarding the Metrolinx Design Review Panel process to ensure the highest design standards are met.</p> <ul style="list-style-type: none"> <li>Noted that information on the Morningside Avenue portion of the project is outlined in the presentation from PM#2 and provided a link to the Metrolinx website pointing to slides 17, 18 and 19.</li> </ul> |
| July 11, 2016      | <ul style="list-style-type: none"> <li>Resident of Guildwood concerned about the proposed underpass at Galloway Road. Concerns include vehicle speed and safety of community, pedestrians and cyclists. Noted that the underpass may cause more harm economically and from a safety perspective.</li> </ul>                              | <ul style="list-style-type: none"> <li>Noted that Metrolinx is committed to working with the Galloway community and would be happy to host a meeting with Galloway Road residents to further discuss the Project. Confirmed addition to Project Mailing List.</li> </ul>   |
| July 13, 2015      | <ul style="list-style-type: none"> <li>Request to add new email address to the Project Mailing List. Expressed support for the reduction of property takings in community but requested to be updated more frequently as many people in the community were unaware of the reduction in property takings.</li> </ul>                      | <ul style="list-style-type: none"> <li>Confirmed that the Project Mailing List will be updated to include the new email address. Noted that as part of Metrolinx's goal to keep the broader community informed, an email update was provided to the email list on July 7, after discussions with impacted residents. Encouraged any interested residents to email <a href="mailto:guildwoodpickering@metrolinx.com">guildwoodpickering@metrolinx.com</a> to request to be added to email list.</li> </ul>  |
| September 10, 2016 | <ul style="list-style-type: none"> <li>Request to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List and provided most recent Project email, including Notice of PM#3.</li> </ul>   |
| September 13, 2016 | <ul style="list-style-type: none"> <li>Request to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List and provided most recent Project email, including Notice of PM#3.</li> </ul>   |
| September 15, 2016 | <ul style="list-style-type: none"> <li>Unable to attend Public Meeting however wanted to put forward noise and air quality concerns.</li> </ul>  | <ul style="list-style-type: none"> <li>Confirmed noise and air quality effects have been reviewed and assessed as part of the project. Results show that noise increases are not significant and mitigation is only required to be investigated at one location. MX is looking into changes to reduce noise across the corridor. Provided link to project website.</li> </ul>  |
| September 17, 2016 | <ul style="list-style-type: none"> <li>Request to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>  |
| September 22, 2016 | <ul style="list-style-type: none"> <li>Attached comments and questions previously submitted in June 2016 which have not received responses from Metrolinx.</li> <li>Concerns regarding construction impact of grade separations.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for questions and responded to all categories including management of change, MOECC Noise Protocol Assessment, communications between Metrolinx, VIA and CN, and noise and vibration impacts.</li> <li>Noted that concerns will be shared with the Project Team and be included in the Final EPR.</li> </ul>  |
| September 23, 2016 | <ul style="list-style-type: none"> <li>Questioned why Rodd Avenue was excluded from the traffic impact study and asked what the construction impact for Rodd Avenue would be.</li> <li>Noted that the community is very sensitive to future development recognizing current as of right zoning in light of the OMB allowing 3</li> </ul> | <ul style="list-style-type: none"> <li>Noted that a grade separation at Rodd Avenue was ruled out early in the process and therefore not evaluated in the Traffic Impact Study. Noted that construction staging plans will be developed as Detailed Design progresses.</li> <li>Noted that it is premature to have this conversation as Metrolinx is still working through the property conversations with property owners. Noted that Metrolinx will commit to</li> </ul>   |

**Table 6-3: Summary of Public Comments**

| Date Received      | Summary of Comment Received  | Summary of Response Issued by Metrolinx   |
|--------------------|--|---|
|                    | developments that are out of character with older existing stock.  | discuss this issue once property negotiations are complete. Noted that concerns have been documented and Metrolinx understands the Community's sensitivity given previous interactions with development proposals.  |
| September 25, 2016 | <ul style="list-style-type: none"> <li>Concerns for noise during Rouge River Bridge Construction. Asked if horns or back-up warnings are required during the reconstruction.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that Metrolinx will follow up with their Rail Operations team to ensure that there is a consistent ringing of the train horn only when required.</li> </ul>  |
|                    | <ul style="list-style-type: none"> <li>Noted that several residents did not receive Public Meeting invites through email. Requested Metrolinx check distribution list.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that sometimes email addresses printed may not be clear or the email may go to junk box. Noted that Metrolinx also mailed out notices to communities and placed ads in local newspapers.</li> </ul>  |
| September 27, 2016 | <ul style="list-style-type: none"> <li>Asked if Metrolinx was going to complete a safety assessment as many children and elderly will be walking over railway tracks at Rodd Avenue.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that Metrolinx will complete a review of all remaining road-rail crossings to assess what enhancements are necessary to continue to ensure that the crossings remain safe.</li> </ul>  |
|                    | <ul style="list-style-type: none"> <li>Concerns regarding the aesthetics of Rouge River Bridge and requested to improve sightlines. Noted that loss of parking space at Rouge is not acceptable. Also noted that the treatment of attendees at the end of the public meeting was unacceptable.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that concerns will be documented as part of the EPR. Noted that Metrolinx would like to discuss feelings regarding the public meeting and requested to set up a meeting to discuss.</li> </ul>   |
| September 28, 2016 | <ul style="list-style-type: none"> <li>Encouraged Metrolinx to rethink the removal of any parking spaces as riders highly value the spots close to the tracks. Requested a redesign of the new station so it can be built on the same / current footprint without the removal of parking spots.</li> </ul> | <ul style="list-style-type: none"> <li>Noted that Metrolinx will continue to work to find opportunities to minimize the impact to parking at Rouge Hill station as much as possible. Noted that Metrolinx will monitor the situation as service increases to ensure all customers have access to the GO service without barriers.</li> </ul>              |
|                    | <ul style="list-style-type: none"> <li>Request to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to Project Mailing List.</li> </ul>   |
| September 30, 2016 | <ul style="list-style-type: none"> <li>Informed Metrolinx of proposed development on a site backing the railway, east of the Markham Road Bridge. Would like Metrolinx to ensure that the developer is aware of the rules that must be adhered to.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for sharing information. Noted that Metrolinx will follow up with the Project Team to ensure they are aware of the situation.</li> </ul>   |
|                    | <ul style="list-style-type: none"> <li>Suggestion for walking/ cycling paths in Poplar Park and between Greyabbey and Manse Road. Requested that Metrolinx consider funding the paths as a means of gaining community support for the Project to create more accessibility to GO Stations.</li> </ul>      | <ul style="list-style-type: none"> <li>Noted that Metrolinx is very supportive of active transportation such as cycling and walking as a transportation alternative. Noted that the feedback will be shared with the City of Toronto, which is responsible for parks and trails, to see if it fits with the overall future plans for the area.</li> </ul> |
| October 1, 2016    | <ul style="list-style-type: none"> <li>Attached comments on the Draft Noise and Vibration assessment report focusing on the assessment of operational noise. Noted concerns about the GO rail traffic during night hours.</li> </ul>   | <ul style="list-style-type: none"> <li>Provided response to ten (10) comments / questions attached to the Draft Noise and Vibration assessment report. Metrolinx committed to including the 1995 MOEE protocol as an appendix to the MOEE/GO Transit Draft Protocol for Noise and Vibration Assessment in the final report.</li> </ul>                    |
| October 4, 2016    | <ul style="list-style-type: none"> <li>Concerns regarding loss of parking spaces at Rouge Hill GO Station.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted traffic counts and that Metrolinx will continue to monitor this area in the coming years.</li> </ul>   |
| October 6, 2016    | <ul style="list-style-type: none"> <li>Noted that the public meetings were very informative and noted that the public consultation process is working well. Suggested that the</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for positive feedback regarding the consultation process. Noted that it is a good idea to play wild flowers between the fencing and outer rails and that the Project</li> </ul>  |

**Table 6-3: Summary of Public Comments**

| Date Received           | Summary of Comment Received  | Summary of Response Issued by Metrolinx   |
|-------------------------|--|---|
|                         | <p>required space between the outer rails and protective fencing provides an opportunity to plant wild flowers and/or grasses as part of the design.</p>   | <p>Team will review to ensure proper sight lines and to avoid any conflict with the electrification infrastructure.</p>   |
| <p>October 10, 2016</p> | <ul style="list-style-type: none"> <li>Suggestion to review sound mitigation at Foster Court. Concerns regarding Rodd Avenue level crossing accessibility during construction and safety concerns for nearby public park due to inadequate fencing.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that Metrolinx reviewed the effects of planned GO service expansion on noise in the area. The results of the noise assessment show that any increase in noise is not significant and noise mitigation is only required to be investigated at one location. Regarding Rodd Avenue, Metrolinx will develop a construction mitigation plan that will outline how Metrolinx will work to build the project as outlined in the EPR. It will include noise, vibration, dust, etc. mitigation for the planned construction work as well as routes and detours for continued access. The plan will be developed once Detailed Design is complete.</li> </ul>   |
| <p>October 13, 2016</p> | <ul style="list-style-type: none"> <li>Concerns about parking space loss at Rouge Hill GO Station. Also wanted to know if the plan was to widen the path at the Rouge Beach. Would like a copy of surveys and reports that have been conducted regarding the water access under the bridge as it is already limited. Also concerned about the closing of several crossings such as Poplar Road and what will happen to the access south of the crossings.</li> </ul> | <ul style="list-style-type: none"> <li>Noted that parking survey data showed that Rouge Hill Station parking is not at capacity. The station building is not the sole reason for impact to parking as the addition of the third track on the north side of the rail corridor is also impacting [parking spots in the main lot.</li> <li>Noted that Metrolinx is planning to widen an existing abutment on the west side of Rouge River that is about twice as large as the existing access. Noted that flooding concerns are documented in the Stormwater Management and Drainage report. Noted that Metrolinx is recommending a pedestrian/cycling overpass or underpass should the City of Toronto decide to close the existing road-rail crossing at Poplar Road.</li> </ul> |
|                         | <ul style="list-style-type: none"> <li>Requested to be added to the Project Mailing List.</li> </ul>   | <ul style="list-style-type: none"> <li>Confirmed addition to the Project Mailing List.</li> </ul>   |
|                         | <ul style="list-style-type: none"> <li>Concerned about parking space loss at Rouge Hill GO Station and suggestion for alternative parking spaces/ retaining wall designs.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that the current Metrolinx Parking and Station Access Plan is currently being updated to create sufficient and sustainable station access and egress with less reliance on cars and more emphasis on other modes of transportation and public transit use.</li> <li>Noted that the concepts presented are a starting point to get feedback and improve the retaining wall design.</li> </ul>   |
| <p>October 14, 2016</p> | <ul style="list-style-type: none"> <li>Requested Metrolinx to accommodate the following items: a noise barrier be built to keep children's health safe; build a stormwater drainage system that will remove the requirement of community to maintain an endangered retaining wall because of the construction</li> </ul>   | <ul style="list-style-type: none"> <li>Provided predicted noise levels at sensitive receptor locations and shared results of the Noise and Vibration study at Pin Lane. Noted that Metrolinx empathizes with situation regarding water runoff and the retaining wall at the back of the Pin Lane development but it is outside the scope of work. Metrolinx will review this issue as the stormwater management plan is developed.</li> </ul>   |
| <p>October 17, 2016</p> | <ul style="list-style-type: none"> <li>Noted Councillor Anslie's comments in his Ward 43 Report, October 14. Stated agreement that noise is a concern and there are five (5) independent sources of noise near their residence. Noted that, based on the presentation at public meetings, the engine noise will be</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that noise will be reduced with the elimination of the level crossings and with the electrification of the corridor. Also noted that Metrolinx is committed to looking at any reasonable changes that can be made to reduce noise for local residents. Stated that Metrolinx is currently reviewing noise impacts from existing levels of service as part of a</li> </ul>  |

**Table 6-3: Summary of Public Comments**

| Date Received     | Summary of Comment Received   | Summary of Response Issued by Metrolinx   |
|-------------------|---|---|
|                   | significantly reduced and the elimination of the level crossings will eliminate those bells. Suggested that the installation of sound barriers be delayed until the effects of the mentioned factors have been assessed as they may not be needed to save expenses and use the money for other investments.   | separate process.   |
| October 23, 2016  | <ul style="list-style-type: none"> <li>Concerned about the closure of Poplar Road increasing traffic and creating a safety hazard for children in neighbourhood. Noted that a road closure increases the amount of time it takes Emergency Services to get through the neighbourhood.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that feedback will be included in the online record of consultation for the Project. Noted that Metrolinx is recommending a pedestrian/cycling overpass or underpass should the City of Toronto decide to close the existing road-rail crossing at Poplar Road. If a decision is not made, then the Poplar Road rail crossing will remain.</li> </ul>  |
| October 27, 2016  | <ul style="list-style-type: none"> <li>Requested that Metrolinx consider adding noise and wanted further details on how the noise prediction was calculated and what day the readings took place.</li> <li>Request that City, provincial and Metrolinx officials investigate how a developer was allowed to build the development (Pin Lane) without proper noise barriers.</li> </ul>              | <ul style="list-style-type: none"> <li>Noted that, at this time, Metrolinx cannot make any commitments to noise mitigation beyond what has been recommended in the Project's Noise and Vibration Impact Assessment.</li> <li>Stated that Metrolinx would be happy to schedule a meeting with noise experts to answer questions regarding the methodology used to assess the noise impact.</li> </ul>  |
| November 2, 2016  | <ul style="list-style-type: none"> <li>Requested update on Metrolinx's Noise and Vibration study in relation to the implementation of sound barriers along the proposed Lakeshore East Rail Corridor Expansion route specifically in the vicinity of Scarborough Golf Club Road to east of Morningside Road.</li> <li>Concerned about increased noise to the surrounding neighbourhoods.</li> </ul> | <ul style="list-style-type: none"> <li>Noted that the environmental studies, including the Noise and Vibration Impact Assessment were released on September 19, 2016. Noted that the results showed that only one (1) location, 90 Morningside Avenue, triggered the draft GO Transit / MOECC Noise Protocol with an increase of 5 dB or greater.</li> <li>Noted that Metrolinx is committed to reviewing noise impacts from existing levels of service as a party of a separate process outside of the GO Transit / MOECC Noise Protocol.</li> </ul>   |
| November 4, 2016  | <ul style="list-style-type: none"> <li>Provided compiled comments and feedback on the Lakeshore East Guildwood to Pickering TPAP.</li> </ul>  | <ul style="list-style-type: none"> <li>Thanked for participation in public meetings and noted a common theme of concern with overspending and not getting value for money on Metrolinx projects.</li> <li>Stated that increasing the road slope for Scarborough Golf Club Road and Galloway Road has not increased the Project budget and noted there is potential for overall savings since Metrolinx no longer needs to purchase as many properties. Also noted that using design excellence is not expected to cost more than producing a utilitarian engineering design and provided the link to the GO Regional Express Rail Initial Business Case.</li> <li>Noted that Metrolinx is committed to continuous improvement and strive to deliver the best project possible.</li> </ul> |
| November 10, 2016 | <ul style="list-style-type: none"> <li>Concerned about the increased noise levels of trains passing by near Morningside Avenue and Coronation caused by the addition of a third track. Request for the installation of noise barriers.</li> </ul>   | <ul style="list-style-type: none"> <li>Noted that Metrolinx understands concerns regarding noise mitigation and confirmed that Metrolinx will look at any changes that can be reasonably made to reduce noise in all nearby communities. Provided an excerpt from the Noise and Vibration Impact Assessment to show the predicted noise levels at sensitive receptor locations, including the</li> </ul>  |

**Table 6-3: Summary of Public Comments**

| Date Received     | Summary of Comment Received  | Summary of Response Issued by Metrolinx   |
|-------------------|--|---|
|                   | <ul style="list-style-type: none"> <li>Concerned about the current and future noise levels of trains passing by property, west of Poplar Road and east of Galloway Road, and noise caused by train horns. Request for installation of noise barrier instead of trees. Also concerned about health as noise from trains and horns affect sleep and ability to use backyard or open windows in house.</li> <li>Concerned about the current and future noise and vibration levels, especially under various weather-related conditions.</li> <li>Noted that the Metrolinx noise level does not include the frequency of the rail service and requested slower trains through any area where houses are situated</li> <li>Concerned about the quality of the Noise and Vibration Impact Assessment.</li> <li>Requested a noise barrier for the Guildwood neighbourhood.</li> <li>Concerned about health risks caused by increased noise and vibration levels.</li> </ul> | <p>location nearest to their address.</p> <ul style="list-style-type: none"> <li>Noted that Metrolinx understands concerns regarding noise mitigation and confirmed that Metrolinx will look at any changes that can be reasonably made to reduce noise in all nearby communities. Also noted that once Metrolinx moves from a diesel to an electrified service, noise will be reduced from trains pulling out of Guildwood Station. Provided an excerpt from the Noise and Vibration Impact Assessment to show the predicted noise levels at sensitive receptor locations, including the location nearest to their address. Confirmed that Metrolinx would be happy to meet to better understand their unique situation.</li> <li>Noted that Metrolinx understands concerns regarding noise mitigation and confirmed that Metrolinx will look at any changes that can be reasonably made to reduce noise in all nearby communities. Also noted that the Noise and Vibration Impact Assessment only identifies one location as possibly requiring noise mitigation as per the MOECC Noise Protocol – 90 Morningside Avenue.</li> <li>Noted that Metrolinx is committed to reviewing noise impacts from existing levels of service as a part of a separate process outside of the GO Transit / MOECC Noise and Vibration Protocol.</li> <li>Noted that the Noise and Vibration Impact Assessment only identifies one (1) location as possibly requiring noise mitigation as per the GO Transit / MOECC Noise Protocol – 90 Morningside Avenue.</li> <li>Provided the Predicted Operation Noise Impacts chart and closest assessed point of reception.</li> </ul> |
| November 12, 2016 | <ul style="list-style-type: none"> <li>Expressed opposition to the Noise and Vibration Impact Assessment results that show that noise barriers are only required at 90 Morningside Avenue. Requested additional noise mitigation along the tracks.</li> </ul>  | <ul style="list-style-type: none"> <li>Noted that their opposition has been received and documented.</li> <li>Noted that Metrolinx is committed to reviewing noise impacts from existing levels of service as a part of a separate process outside of the GO Transit / MOECC Noise and Vibration Protocol.</li> <li>Noted that the Noise and Vibration Impact Assessment only identifies one (1) location as possibly requiring noise mitigation as per the GO Transit / MOECC Noise Protocol – 90 Morningside Avenue.</li> <li>Provided the Predicted Operation Noise Impacts chart and closest assessed point of reception.</li> </ul>  |
| November 22, 2016 | <ul style="list-style-type: none"> <li>Concerned about the fact that only one location (90 Morningside Avenue) meets the criteria for a noise barrier. Noted that at the public meeting, the plans showed two (2) additional areas for noise barriers and would like to clarify.</li> </ul>  | <ul style="list-style-type: none"> <li>Clarified that green lines on the maps shown at the public meeting correspond to existing / planned noise barriers on private property. Noted that only 90 Morningside Avenue has been identified as requiring noise mitigation as per the GO Transit / MOECC Noise and Vibration Protocol.</li> </ul>   |
| November 23, 2016 | <ul style="list-style-type: none"> <li>Expressed concern regarding unclear mapping of noise barriers at the public meetings. Noted that the plan should cover all impacts and considerations before construction begins.</li> </ul>  | <ul style="list-style-type: none"> <li>Apologized if there was any confusion regarding the approach to reducing noise levels. Noted that Metrolinx has been consistent with their messaging throughout this process and understand that noise is an issue and that</li> </ul>   |

**Table 6-3: Summary of Public Comments**

| Date Received    | Summary of Comment Received   | Summary of Response Issued by Metrolinx  |
|------------------|---|--|
|                  | <ul style="list-style-type: none"> <li>• Requested to know the noise mitigation plans for the Guildwood neighbourhood and wanted to know how citizens view the plan.</li> <li>• Noted previous buildings built in the Guildwood neighbourhood area that were not done correctly and were never properly fixed by the City or developer as an example that they do not want to see the same mistakes made by Metrolinx.</li> </ul> | <p>Metrolinx is working to reduce the noise as much as possible in areas that have not been identified to receive noise mitigation as part of the current EA.</p> <ul style="list-style-type: none"> <li>• Noted that Metrolinx would be happy to set up a phone call to discuss issues and concerns further. Also noted that Metrolinx has not yet completed the assessment of further noise mitigation plans as Metrolinx is in the process of consulting on options with the community.</li> <li>• Stated that the noise reduction plan will be finalized in 2017 to help reduce noise from GO service where possible. Provided a link to <a href="http://metrolinxengage.com">metrolinxengage.com</a> where all material is currently posted.</li> </ul> |
| December 5, 2016 | <ul style="list-style-type: none"> <li>• Requested to know if the Galloway and Morningside underpasses will be kept open during construction.</li> </ul>  | <ul style="list-style-type: none"> <li>• Confirmed that both Scarborough Golf Club Road and Morningside Avenue will be open to traffic during construction. Noted that Metrolinx plans to close the Galloway Road rail crossing during construction once Scarborough Golf Club Road and Morningside Avenue are grade separated.</li> </ul>   |

## 6.4 Consultation with Indigenous Communities

Metrolinx is currently developed an Indigenous community engagement plan that was implemented during the pre-TPAP phase to encourage further discussion with affected or interested Indigenous communities and obtain their feedback and input on the Project.

On January 19, 2015 a formal request was sent to the MOECC's Environmental Approvals Branch for a list of Indigenous communities that may be interested in the Project. MOECC responded by making reference to the Ministry's website on Indigenous consultation for developing the Indigenous contact list. On February 23, 2015 a formal request was sent to the Ministry of Indigenous Relations and Reconciliation (MIRR) and Indigenous and Northern Affairs Canada (INAC) seeking assistance in identifying specific Indigenous communities with which to consult Project. The Indigenous contact list was developed by using the INAC Aboriginal and Treaty Rights Information System (ATRIS).

Indigenous communities were contacted for an opportunity to participate and provide comments on the Project. The following Indigenous communities were consulted during the Preliminary Planning stage, prior to Notice of Commencement:

- Alderville First Nation;
- Beausoleil First Nation;
- Chippewas of Georgina Island;
- Chippewas of Mnjikaning (Rama);
- Curve Lake First Nation;
- Hiawatha First Nation;
- Huron-Wendat First Nation;
- Kawartha Nishwabe First Nations;
- Métis Nation of Ontario;
- Mississaugas of the New Credit First Nation;

- Mississaugas of Scugog Island First Nation; and
- Six Nations of the Grand River Territory.

Each of the above-noted Indigenous communities were contacted by email (where available) or addressed mail to notify them of the Project, invite them to Public Meetings, and seek their input on the Project. The Indigenous communities were also circulated the Notice of Commencement and Notice of Completion. Written invitations were included as part of the circulation of these notices, which also included an offer to hold individual meetings to discuss any concerns. **Table 6-4** provides a summary of comments received from Indigenous communities.

In addition, the MIRR and INAC were included on the Project Mailing List and notified at all major Project milestones (Notice of Commencement, Notice of Public Open Houses, and Notice of Completion).

**Table 6-4: Summary of Indigenous Comments**

| Community               | Date Received  | Summary of Comment Received  | Summary of Response Issued by Metrolinx  |
|-------------------------|----------------|--|--|
| Huron-Wendat Nation     | March 22, 2015 | Responded to Notice of PM #1. Requested Shapefiles to determine if Huron-Wendat archaeological sites are located within or close to the Study Area.  | Provided shapefiles of the Study Area.   |
|                         | May 30, 2016   | Responded to Notice of PM#2. Expressed support for the project but also concerns regarding potential effects on cultural and archaeological sites. Stated that any project decision that has the potential to impact a cultural or archaeological site must be discussed, designed and built in respect of applicable laws, regulations and cultural rights of Huron-Wendat First Nation (HWN). Requested that a HWN monitor be present during the archaeological phases and that archaeological studies be submitted to HWN for review. | Responded through the Notice of Commencement letter sent to Huron-Wendat Nation June 28, 2016. In this response, Metrolinx outlined their commitment to keep the community apprised of any project updates, archaeological work or findings and potential environmental impacts. Attached to the letter was the Stage 1 Archaeological Assessment (AA) Report including the response for review by Huron-Wendat Nation. The community was also notified that Stage 2 AA works were yet to commence and information would be shared upon completion of the study. Metrolinx stated their willingness to meet with community representatives to further discuss potential community involvement of a monitor to be present during archaeological phases. |
| Alderville First Nation | March 30, 2015 | Responded to Notice of PM #1. Requested to meet with Project Team to discuss the Project.  | Metrolinx responded by registered mail, proposing to meet. No response was received from Alderville First Nation. Metrolinx will continue to seek discussion with Alderville First Nation and this will form a key element of the Indigenous Communities engagement plan.  |
| Curve Lake First Nation | April 22, 2016 | Responded to Notice of PM #1. Requested to meet with Project Team to discuss the Project and requested Metrolinx to provide Karry Sandy-Mackenzie, Williams Treaty First Nation Claims Coordinator, with a copy of the proposal as an obligation to consult.   | Metrolinx responded and set up a meeting with the consultation liaison on May 26, 2016. Metrolinx also copied Karry Sandy-Mackenzie in emails sent out to Williams Treaty First Nations.   |

## 6.5 Consultation with Elected Officials

Consultation with elected officials in the City of Toronto, City of Pickering, and Region of Durham was carried out throughout the course of the Project through meetings and written correspondence. In addition, all elected officials were circulated invitations to Public Meetings, the Notice of Commencement, and Notice of Completion.

Table 6-5 provides a summary of comments received from elected officials.

**Table 6-5: Summary of Elected Official Comments**

| Stakeholder   | Date  | Key Objectives   | Key Outcomes   |
|---|---|--|--|
| <b>City of Toronto Council</b><br>Councillor Gary Crawford (Ward 36)<br>Councillor Paul Ainslie (Ward 43)<br>Councillor Ron Moeser (Ward 44)  | December 7, 2015 – meeting with Councillor Crawford<br><br>December 9, 2015 – meeting with councillor Moeser<br><br>February 11, 2016 – meeting with Councillor Ainslie | <ul style="list-style-type: none"> <li>Provide an overview of the Project</li> <li>Discuss how the Project will impact residents of each ward.</li> <li>Obtain buy-in for key Project activities.</li> </ul> | <ul style="list-style-type: none"> <li>Commitment to continue to consult with Councillor Crawford and seek opportunities to inform the Councillor's ongoing communications concerning the Project to local residents.</li> <li>Remaining meeting outcomes TBD.</li> </ul>  |
| <b>Durham Region / City of Pickering Council</b><br>Regional Councillor Kevin Ashe (Ward 1 Pickering)<br>Regional Councillor Bill McLean (Ward 2, Pickering)<br>Councillor Vacant (Ward 1)<br>Councillor Ian Cumming (Ward 2) | January 5, 2016 – Councillor Ashe   | <ul style="list-style-type: none"> <li>Provide an overview of the Project</li> <li>Discuss how the Project will impact residents of each ward.</li> <li>Obtain buy-in for key Project activities.</li> </ul> | <ul style="list-style-type: none"> <li>Council expressed support of the Project and increased service.</li> <li>Council expressed concern regarding the closure of Road Avenue which is no longer planned and therefore resolved.</li> </ul>   |
| <b>Members of Provincial Parliament</b><br>MPP Mitzie Hunter (Scarborough-Guildwood)<br>MPP Tracey MacCharles (Pickering-Scarborough East)  | January 20, 2016 – MPP Hunter   | <ul style="list-style-type: none"> <li>Provide an overview of the Project</li> <li>Discuss how the Project will impact residents of each electoral district.</li> </ul>                                      | <ul style="list-style-type: none"> <li>MPP Hunter was supportive of the Project.</li> <li>Concerns raised regarding noise and vibration and north-south connectivity and access to the lake for residents to the north.</li> <li>Requested pedestrian/cyclist connectivity be maintained at Poplar Road</li> </ul> |
|   | February 12, 2016 – MPP MacCharles  | <ul style="list-style-type: none"> <li>Provide an overview of the Project</li> <li>Discuss how the Project will impact residents of each electoral district.</li> </ul>                                      | <ul style="list-style-type: none"> <li>MPP MacCharles expressed support for the Project and is looking forward to increased service.</li> <li>Concerns regarding impacts to traffic with the temporary closure of Galloway Road.</li> </ul>  |
|   | June 17, 2016 – MPP Hunter  | <ul style="list-style-type: none"> <li>Provide a walking tour of Port Union Waterfront Trail with MPP, members of council and local community groups</li> </ul>  | <ul style="list-style-type: none"> <li>Attendees pleased with the proposed plans for the Waterfront Trail</li> <li>Concern raised regarding the implementation</li> </ul>  |
| <b>Members of Parliament of Canada</b>  | March 4, 2016 – MP  | <ul style="list-style-type: none"> <li>Provide an overview of</li> </ul>   | MP O'Connell   |

| Stakeholder  | Date   | Key Objectives  | Key Outcomes   |
|--|--|---|--|
| <p><i>MP Gary Anandasangaree (Scarborough-Rouge Park)</i><br/> <i>MP John McKay (Scarborough-Guildwood)</i><br/> <i>MP Jennifer O'Connell (Pickering-Uxbridge)</i></p> | <p>Jennifer O'Connell and MP Gary Anandasangaree</p> | <p>the Project.</p> <ul style="list-style-type: none"> <li>Discuss how the Project will impact residents of each riding.</li> </ul> | <p>was supportive of the plan but expressed concern regarding the trails at the southwest end of the riding. MP Anandasangaree expressed concern regarding the Waterfront Trail and issues surrounding Rouge Park. Inquired about community benefits from the Project which Metrolinx provided</p> |

## 6.6 Ongoing Engagement

Metrolinx is committed to continuing to engage and communicate with stakeholders beyond the TPAP. Specifically, Metrolinx will:

- Design and implement a response strategy to address/resolve potential construction concerns;
- Maintain the Project website throughout the Detailed Design and construction phases where the public can access updated information on the Project; and
- Continue discussions/consultation with local stakeholders, members of the public and Indigenous communities with respect to potential impacts during the Detailed Design and construction phase, as appropriate.

## 7. Future Commitments and Monitoring

### 7.1 Canadian Environmental Assessment Act 2012 (CEAA 2012) Review

The Regulations Designating Physical Activities under the *Canadian Environmental Assessment Act (CEAA) 2012* identify the physical activities (i.e., types of projects) that constitute “designated projects” that may require a Federal EA. A review of the Regulations was carried out by Metrolinx with respect to the Project. Based on this review, this Project does not constitute a designated project under *CEAA, 2012*.

*CEAA 2012* also outlines requirements for determination of the likelihood of significant environmental effects for a physical activity that is carried out on federal lands, or outside Canada, in relation to a physical work and that is not a designated project (Section 67 of *CEAA 2012*). Where proposed works will be carried out on federal land it is anticipated that the information provided in this EPR, as well as ongoing discussions with federal agencies during Detailed Design, will provide sufficient information to address federal significance determinations under *CEAA 2012*.

### 7.2 Permits and Approvals Required

In accordance with *O. Reg. 231/08*, a Notice to Proceed will be issued by the Minister of the Environment and Climate Change if there are no outstanding issues on a matter of provincial importance that relates to the natural environment, cultural heritage/interest, or on a constitutionally protected Aboriginal or treaty right. In addition to carrying out the TPAP in accordance with *O. Reg. 231/08*, there are also a number of other provincial, municipal, and other approvals/permits required for this Project prior to implementation. Accordingly, the following section summarizes the anticipated permits and approvals based on the preferred design and input received from stakeholders to date.

In addition to the commitments to future work outlined in **Table 7-1**, the permits and approvals required for the proposed works may identify the need for additional mitigation. Any additional mitigation measures required in connection with a permit or approval will be implemented.

#### 7.2.1 Federal

##### 7.2.1.1 Fisheries and Oceans Canada (DFO)

Projects within or near water require a Self-Assessment to be undertaken by a qualified professional to determine whether, following the implementation of appropriate mitigation measures, further assessment and review is required by DFO.

DFO will be consulted in conjunction with MNR to determine the approach to permitting for one aquatic species at risk, Eastern Pondmussel, at Rouge River.

##### 7.2.1.2 Parks Canada

Canada’s first national urban park, the future Rouge National Urban Park, is protected under the *Rouge National Urban Park Act*. Metrolinx will continue to communicate and engage with Parks Canada during the Detailed Design phase and during construction planning to identify any required permits or approvals.

The potential environmental effects of the Project may trigger a Parks Canada Environmental Impact Analysis (EIA) that will consider Detailed Design, construction, operations, and eventual decommissioning. If required, Parks Canada will evaluate the nature of the potential environmental effects and determine the appropriate EIA pathway. In consideration of the SARA, additional authorization may be required if proposed activities will affect the SAR and/or SAR habitat. Parks Canada will be consulted during Detailed Design to determine the appropriate requirements.

### 7.2.1.3 Transport Canada

The *Navigation Protection Act* (NPA) includes a schedule of navigable waters that require regulatory approval for works that risk a substantial interference with navigation. The waterways crossed by this Project are not named “scheduled” navigable waterways; however, Lake Ontario is a “scheduled” navigable waterway and that includes the mouths of waterways connecting to Lake Ontario. A determination will be made if any of the Project works (e.g. at Rouge River or Highland Creek) are considered to be within the “mouths” of waterways connecting to Lake Ontario.

Works approved under the former *Navigable Waters Protection Act* (NWPA) were transitioned into the current NPA regime. Consequently, any term or condition imposed on a work under the NWPA remains in effect. Owners of works in non-scheduled waterways have the option to opt-out of the NPA within five years of the coming into force date (i.e. before April 1, 2019). Prior to construction Metrolinx will review any applicable previous approvals and consider NPA opt-out for non-scheduled waterways. Transport Canada will be consulted as appropriate in the context of the NPA.

## 7.2.2 Provincial

### 7.2.2.1 Ministry of the Environment and Climate Change (MOECC)

The taking of more than 50,000 L/day of groundwater for the purpose of construction dewatering requires notification and/or approval from the MOECC by means of registration through the EASR or an application for a Category 3 PTTW, dependent on the quantity and source of the water taking. As prescribed under *O. Reg. 63/16*, water taking for construction site dewatering in excess of 50,000 L/day and under 400,000 L/day is subject to registration through EASR. In accordance with *O. Reg. 387/04*, a Category 3 PTTW from MOECC must be obtained for the taking of more than 400,000 L/day of groundwater for the purposes of construction dewatering from any given source.

Permitting requirements will need to be revisited closer to the construction phase when specific details such as construction timing and methods are known. Approvals for the discharge of pumped water will be required, and could be a combination of Municipal Discharge Permits, Conservation Authority approval, and/or MOECC ECA in accordance with Section 53 of the *OWRA*. A water discharge management plan would be required, as necessary, based on pre-consultation discussion with MOECC and TRCA staff since the discharge of dewatering effluent may potentially be directed to a local watercourse, depending on the baseline groundwater quality analysis results. Required discharge permits should be prepared concurrently with the PTTW application or EASR registration. Potential effects of water taking will be assessed and strategies for mitigation will be proposed as part of the Water Taking Assessment application process, if required.

Construction of the railway expansion and construction works at the bridge locations is expected to generate excess soil that cannot be reused on site due to its geotechnical properties or quality of the excess soil. In all cases the on-site and off-site beneficial reuse of excess soil will be explored by the Project team and will be undertaken in accordance with *Excess Soil – A Guide to Best Management Practices* (MOECC, January 2014). It is noted that the MOECC is presently contemplating the creation of a Regulation to govern excess soil management. Should this Regulation come into force within the implementation of the project the requirements will be incorporated as applicable.

### 7.2.2.2 Ministry of Natural Resources and Forestry (MNRF)

The MNRF will be consulted regarding whether an authorization or permit under the *Endangered Species Act (ESA)* would be required and any additional mitigation and/or compensation measures and monitoring requirements including:

- Mitigation and potential compensation for effects on identified wetlands
- The need to evaluate the unevaluated wetland west of Highland Creek
- Performing additional bat monitoring surveys prior to construction (to address newly listed SAR including Little Brown Myotis, Northern Myotis, Eastern small-footed myotis, and Tri-coloured bat) and possible ensuing mitigation/compensation.
- Potential mitigation/compensation/authorization necessary for the Bank Swallow colony. Currently it is proposed to do more breeding bird surveys prior to construction and one year of post-construction monitoring.
- Prescription of timing windows (in-water for fish and reptiles, tree removal for breeding birds, tree removal for bats, etc.)
- The number of true butternuts to be removed and the corresponding authorization necessary (registration or permit)
- Project design for the Rouge River crossing to further investigate potential effects on SAR (Eastern pondmussel)

If during construction, removal of this habitat of ESA listed species is required, a registration of construction activity with the MNRF via Notice of Activity in accordance with *Ontario Regulation 242/08* under the *Act* is required.

If a true Butternut must be removed, a Butternut Health Assessment completed by a qualified Butternut Health Assessor will be required. A notice of activity will have to be registered under the *ESA* with the MNRF if up to ten (10) retainable (Category 2) Butternuts are to be removed or harmed. A permit or authorization under the *ESA* will be required if more than ten (10) retainable (Category 2) Butternuts or Archivable (Category 3) Butternuts are to be removed.

### 7.2.2.3 Ministry of Tourism, Culture and Sport (MTCS)

Stage 1 Archaeological Assessment was carried out for the Study Area, and this has been submitted to MTCS in accordance with Section 65 of the *Ontario Heritage Act*. The Stage 1 AA identified portions of the Study Area (rail corridor) as having the potential for archaeological resources. Stage 2 Archaeological Assessment is recommended on any lands that will be impacted by the Project if it is shown as retaining potential for archaeological resources.

A Stage 2 AA has been undertaken in the areas surrounding the Highland Creek Bridge and Rouge River Bridge and are owned by TRCA.

All required archaeological assessments (up to Stage 4 as required) for the Study Area (rail corridor) will be completed during and prior to completion of Detail Design. The report recommendations and mitigation measures will be followed for this project. All reports will be submitted by the licensed archaeologist to MTCS for review as required under the S&Gs for Consultant Archaeologists. Indigenous communities have been consulted on this project. Metrolinx will continue to engage with these communities.

MTCS reviews reports prepared by licensed archaeologists, including archaeological assessment reports, to ensure that the licensed archaeologist has met the terms and conditions of his or her licence including MTCS requirements for fieldwork and reporting. MTCS then provides the consultant archaeologist with a letter. If the report complies with MTCS requirements, the letter confirms that the MTCS have entered it into the Ontario Public Register of Archaeology Reports. Approval authorities can use this letter to verify that a development proponent has addressed concerns for archaeological sites on the property that was assessed. If the report does not comply with MTCS requirements, the

MTCS letter identifies concerns with the report and requests further archaeological fieldwork and/or revisions to address the concerns. MTCS staff will review and respond to additional reporting once submitted.

The Rouge River Bridge was evaluated and determined to be a provincial heritage property of provincial significance. As part of this project the Rouge River Bridge will be demolished and replaced.

Under the Standards and Guidelines for the Conservation of Provincial Heritage Properties, MTCS minister's consent must be obtained prior to removing or demolishing buildings or structures on a provincial heritage property of provincial significance. The removal or demolition is considered to be a last resort, subject to heritage impact assessment and public engagement.

Metrolinx has prepared a HIA outlining the alternatives considered in connection to the Rouge River Bridge and has submitted to MTCS Minister an application for consent to demolish the Rouge River Bridge together with the HIA as supporting documentation. Metrolinx received MTCS Minister consent for the demolition of the Rouge River Bridge on December 14, 2016.

#### *7.2.2.4 Ministry of Transportation (MTO)*

Metrolinx will obtain an Encroachment Permit for any proposed works within an MTO ROW, including survey work and preliminary investigative engineering works (e.g. boreholes, coring). Metrolinx will obtain a Building and Land Use Permit for any development, entrance, change of entrance use, building, or structure within 45 m of the MTO defined provincial highway property line or within 395 m of the centre point of an intersection or interchange with a provincial highway prior to construction. A Permission to Construct Permit is required, including a Stormwater Management Report, for construction planned next to MTO property. A Sign Permit will be obtained for signs which are visible from a provincial highway or within 400 m of the provincial highway property line, including alterations or location changes of existing signage.

#### *7.2.2.5 Toronto and Region Conservation Authority*

Metrolinx will consult with TRCA regarding potential effects on TRCA owned property such as the Waterfront Trail and the Petticoat Creek Conservation Area and community benefits. Metrolinx will engage the TRCA and adhere to TRCA requirements of the Voluntary Review Process with respect to works within TRCA regulated areas. Metrolinx will ensure that the proposed works does not increase flooding and erosion risk, and continue to engage TRCA to shape the final design of the proposed replacement access at Chesterton Shores/Rouge Hill Station Ecosystem Service Compensation Protocol for Metrolinx projects being developed in consultation with conservation authorities (including TRCA) and municipalities that will address vegetation removal from within the rail right-of-way, ecological wood lots, wetlands and linear trees adjacent to Metrolinx properties.

Metrolinx will continue to engage TRCA through detailed design to ensure the final design satisfies stakeholder concerns and meets their expectations.

### **7.2.3 Timing Windows and Preventative Measures**

It is recognized that there are overlapping timing windows and Metrolinx will consult further with the applicable regulatory agencies to determine a suitable approach for construction scheduling. Appropriate nesting prevention and exclusion measures will be developed in consultation with applicable regulatory agencies where timing windows are restrictive to construction and other measures such as where advanced nesting surveys are not sufficient.

## 7.2.4 *Municipal*

Although Metrolinx, as a Provincial Agency, is not subject to municipal permits and approvals, Metrolinx will adhere to the intent of the relevant permits/approvals requirements to the greatest extent possible, and will submit applications for review and information.

Metrolinx will continue to communicate and engage with the City of Toronto, City of Pickering and Region of Durham during the Detailed Design phase and during construction planning to ensure that any municipal concerns are addressed in the construction plans prior to commencement of construction activities, as follows:

- Metrolinx will consult with, and have regard for, the municipal planning policies with regard to specific projects (or components thereof) and will comply with the municipal requests when and where reasonable.
- When developing plans for new or expanded infrastructure, Metrolinx will coordinate with municipal staff to ensure infrastructure is constructed to meet municipal requirements to the greatest extent possible.
- Submissions relating to permits for construction within the existing road allowances will be made in accordance with municipal requirements, as applicable.
- Submission relating to City of Toronto Urban Forestry By-laws will be made in accordance with City of Toronto's requirements, as applicable.
- Submission relating to City of Pickering Tree Protection By-law will be made in accordance with City of Pickering requirements, as applicable.
- Submission relating to City of Toronto Tree Protection By-laws will be made in accordance with City of Toronto requirements, as applicable.

Metrolinx will endeavour to adhere to municipal Noise By-laws and policies in areas where it operates.

### 7.2.4.1 *Utilities*

The final assessment of utility conflicts will be reviewed in consultation with each utility company as part of the Detailed Design phase. Implementation and construction obligations will be undertaken pursuant to the crossing agreements with each of the utility companies as required.

## 7.3 **Addendum Process**

The Project presented in this EPR is not a static plan, nor is the context in which it is being assessed, reviewed, approved, constructed, and used. Given the potential for changes to the Project resulting from the approvals, Detailed Design, and construction processes, it is prudent to include in the EPR a comment on the responsibilities of the proponent should changes be required in the Project.

This EPR identifies the impacts associated with the Project presented herein, and the property envelope within which the Project can feasibly be constructed. The actual layout of project elements (e.g. grade separations, etc.) are subject to Detailed Design and any variation from that shown in this EPR, unless it results in an environmental impact which cannot be accommodated within the committed mitigation measures, does not require additional approval under *O. Reg. 231/08*.

The TPAP includes provisions (in Section 15 of the Regulation) for proponents to make changes to a transit project after the Statement of Completion is submitted to the Director of the Environmental Assessment and Approvals Branch of the MOECC and the MOECC Regional Director.

In compliance with Section 15(1) of the Regulation, Metrolinx will prepare an addendum to the EPR which is subject to a 30-day comment period if there is a proposed change to the Project that is inconsistent with the EPR after the Statement of Completion is issued. A change that is inconsistent with the EPR is generally defined as one for which the effects have not been accounted for in the EPR, either directly or through a contingency planning approach in which a worst case scenario has been contemplated and a protocol for addressing change has been included in the EPR. If the proposed change would result in a lesser impact than planned for and meets the mitigation intents identified in the EPR, it may be deemed to be consistent with the EPR and therefore no addendum is required. Changes to the Project may also be required if there is a significant lapse of time (i.e., ten years) between the Statement of Completion and the start of construction, which will require a formal review of the Project by the City of Toronto, TRCA, the City of Pickering, Region of Durham and Metrolinx (in accordance with Section 16 of the Regulation).

The EPR addendum must include the following information:

- A description of the proposed change;
- The reason for the proposed change;
- An assessment and evaluation of any impacts that the proposed change might have on the environment;
- A description of any proposed measure for mitigating any negative impacts that the proposed change might have on the environment; and
- A statement of whether the proponent is of the opinion that the proposed change is significant (or not), and the reasons for the opinion.

If changes to the Project indicate that an addendum is required, Metrolinx will have the option of proceeding with the Project changes under the provisions/requirements for an individual EA in accordance with Part II of the *Environmental Assessment Act*.

The requirement for an addendum does not apply to a change that is required to comply with another Act, a regulation made under another Act, or an order, permit, approval or other instrument issued under another Act.

## 7.4 Future Commitments

The EPR commitments are developed to satisfy the requirements of *O. Reg. 231/08*. Specifically the purpose of the commitments is to facilitate the implementation of the Project in accordance with the mitigation measures and monitoring activities described in the EPR and in a manner that does not result in negative impact on matters of provincial interest related to the natural environment or to cultural heritage value or interest, or on constitutionally protected Aboriginal or treaty rights.

Establishing EPR commitments also satisfies the requirements of the TPAP Guide. Specifically, Section 4.3 of the Guide prescribes that the monitoring actions identified in the EPR respecting the mitigation measures must be carried out and reported.

A summary of EPR commitments is provided in **Table 7-1**. All applicable permits, licences, approvals and monitoring requirements under environmental laws will be reviewed, confirmed and obtained by Metrolinx prior to the construction of the Project.

The responsible parties for implementation of EPR commitments are outlined as follows:

- Metrolinx will be responsible to audit the Contract Administrator and Contractor to ensure compliance with the EPR;
- The Contract Administrator will be responsible for monitoring and reporting on the commitments in the EPR; and,
- The Contractor will be responsible to execute the commitments in the EPR.

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline  | Mitigation Measure (or related action)  | Relevant Project Phase | Monitoring Activity Requirements   | Relevant Project Phase |
|---|---|------------------------|--|------------------------|
|   |   | Mitigation             |  | Monitoring             |
| <b>Natural Environment - Terrestrial Features</b> | As per City of Toronto guidelines, Tree Protection Hoarding (TPH) will be implemented where required. Further details regarding TPH will be discussed and developed during Detailed Design.   | Detailed Design        |  |                        |
|   | Consultation with MNRF should continue, to: <ul style="list-style-type: none"> <li>• Capture updates to the ESA and identify regulatory requirements arising from such changes</li> <li>• Submit findings in an information Gathering Form regarding project potential habitat for MNRF review - this will determine need and/or level of permitting/approvals required per SAR</li> </ul>  | Detailed Design        | N/A  | N/A                    |
|   | Develop a Sighting Response Protocol in case of wildlife encounters and/or SAR encounters within the Study Area during Project activities.  | Detailed Design        | Wildlife Sighting Response Protocol to be carried-out by the contractor. SAR sightings to be reported to the MNRF. | Construction           |
|   | Wetlands overlapping or immediately adjacent to/abutting the Lakeshore East Rail Corridor should be delineated up to 25 m from the edge of the existing Lakeshore East Rail Corridor to ground-truth the boundaries. Delineation of boundaries should follow standards set-out in the Ontario Wetland Evaluation System for Southern Ontario and be recorded using high-accuracy equipment. The results should be used to adjust the wetland boundaries received through MNRF's Land Information Ontario (LIO) base mapping data to reflect in-field existing conditions, supporting a detailed analysis of impacts through accurate calculations of removals required. | Detailed Design        | N/A  | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline  | Mitigation Measure (or related action)   | Relevant Project Phase | Monitoring Activity Requirements   | Relevant Project Phase       |
|---|--|------------------------|--|------------------------------|
|   |  | Mitigation             |  | Monitoring                   |
| <b>Natural Environment - Terrestrial Features</b> | ANSI reports will be reviewed in order to cross-reference the sensitive species listed therein against the sensitive species documented during 2014 and 2015 AECOM field investigations. The results should include a compiled, collective list of sensitive species recorded within ANSI boundaries, and discussion undertaken with TRCA to determine if the compensation strategies proposed in the Ecosystem Service Compensation Protocol for Metrolinx Projects are sufficient. | Detailed Design        | N/A  | N/A                          |
|   | Butternut genetic sampling should be undertaken at all Butternut identified during the TPAP phase which had not been tested at that time;  | Detailed Design        | N/A  | N/A                          |
|   | Butternut Health Assessments should be undertaken by qualified Butternut Health Assessor for those Butternuts which test positive for purity;  | Detailed Design        | Retain arborist and/or certified Butternut Health Assessor to monitor the health of retainable Butternut trees in proximity to construction areas during construction.                             | Construction                 |
|   | If required, a Butternut compensation plan will be developed following certain ratios and planting requirements and will include monitoring and reporting. A permit or authorization under the ESA will be required if more than ten (10) retainable (Category 2) Butternuts or Archivable (Category 3) Butternuts are to be removed.  | Detailed Design        | Any Butternut compensation plantings will be monitored for health and success for two years post-construction, or according to requirements set-out by MNRF as apply specifically to this project. | Operations/Post-construction |
|   | Bank Swallow colony survey should be undertaken during the breeding season to confirm species presence/absence and level of use at the existing colony.  | Detailed Design        | N/A  | N/A                          |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                                    | Mitigation Measure (or related action)  | Relevant Project Phase                                       | Monitoring Activity Requirements   | Relevant Project Phase       |
|---|---|--|--|------------------------------|
|   |   | Mitigation   |  | Monitoring                   |
| Natural Environment -<br>Terrestrial Features | Bat SAR habitat assessment should be undertaken via a desktop analysis by implementing the MNRF Bat Technical Note protocols, where ELC communities of FOM, FOD, FOC, SWM, SWD, and SWC overlapping or adjacent/abutting the ROW are considered candidate bat SAR habitat.  | Detailed Design  | N/A  | N/A                          |
|   | Bat SAR snag/cavity tree surveys for the identified candidate bat SAR habitat should be undertaken during leaf-off season to determine if sufficient density of suitable roosting trees are available to confirm candidate bat SAR habitat.   | Detailed Design  | Perform additional SAR bat monitoring surveys prior to construction and carry out mitigation/compensation. Monitoring will be undertaken in compliance with requirements set-out in permitting, if permitting is required for bat SAR. | Tender/ Pre-construction     |
|   | SAR observed during any project phase prior to operations should be recorded and submitted annually by December 31 of each year to MNRF's online NHIC database.   | Detailed Design , Tender/ Pre-Construction, and Construction | N/A  | N/A                          |
|   | Conduct a detailed arborist analysis for changes in limits of disturbance via desktop review to determine information gaps in accordance with an <i>Ecosystem Service Compensation Protocol for Metrolinx Projects</i> , if any.  | Detail Design  | Monitor installation of compensation plantings to ensure they are installed properly and survival.   | Operations/Post-Construction |
|   | Conduct a detailed tree inventory for: <ul style="list-style-type: none"> <li>• Areas outside of the 2015 arborist Study Area and thus lacking information as a result of design changes.</li> <li>• Proposed enclosed tunnel entrance/exit structure south of Rouge Hill GO Station.</li> <li>• Detailed inventory for individual trees within the 2015 arborist polygons impacted by the Project.</li> <li>• Provide results in a Detailed Design Tree Inventory and Preservation Plan.</li> <li>• Identify trees requiring permit to injure outside of Lakeshore East Rail Corridor.</li> <li>• Adhere to the pending Ecosystem Service Compensation Protocol for</li> </ul> | Detailed Design  | N/A  | N/A                          |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                                    | Mitigation Measure (or related action)   | Relevant Project Phase |            |
|---|--|------------------------|------------|
|   |  | Mitigation             | Monitoring |
| Natural Environment -<br>Terrestrial Features | Metrolinx Projects and/or consult with City of Toronto and City of Pickering Arborist to discuss requirements for tree removal/tree injury/tree protection.  |                        |            |
|   | The new proposed enclosed tunnel entrance/exit building requires a tree inventory as it lies outside of the arborist Study Area of 2015; this work should be combined with ELC as well as a SAR/SWH assessment in-field.   | Detailed Design        | N/A        |
|   | Metrolinx is currently consulting with Conservation Authorities and Municipalities to establish an Ecosystem Service Compensation Protocol for Metrolinx projects. It will address items such as tree and vegetation removal from within the Lakeshore East Rail Corridor, from within woodlots, wetlands as well as trees immediately adjacent to Metrolinx-owned properties, compensation approach, and tree limb pruning protocols for construction. The requirements of this protocol will be carried forward as future commitments for the Project. | Detailed Design        | N/A        |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                                 | Mitigation Measure (or related action)  | Relevant Project Phase | Monitoring Activity Requirements  | Relevant Project Phase                |
|--|---|------------------------|---|---------------------------------------|
|  |   | Mitigation             |   | Monitoring                            |
| Natural Environment - Terrestrial Features | Given that portions of the Study Area reside within areas protected by the Ravine and Natural Feature Protection By-law a restoration plan will be required under separate cover to meet the regulations of the By-law. A Ravine Stewardship Plan will be required for any proposed disturbances within Ravine and Natural Feature areas. The Ecosystem Service Compensation Protocol for Metrolinx Projects currently being drafted in consultation with municipalities and conservation authorities may address these requirements. | Detailed Design        | N/A   | N/A                                   |
|  | Metrolinx will consult with the City of Toronto to adhere to municipal by-laws regarding tree planting, tree protection fencing and other related activities, as required.  | Detailed Design        | N/A   | N/A                                   |
|  | Metrolinx will consult with the City of Toronto to discuss potential opportunities for natural regeneration / salvaging existing vegetation for transplanting within or near project boundaries in specification locations, as required.  | Detailed Design        | N/A   | N/A                                   |
|  | Where avoidance of breeding bird habitat is not possible, appropriate nesting prevention and exclusion measures will be developed in consultation with applicable regulatory agencies.  | Detailed Design        | If active nests are observed during construction, an environmental monitor should be notified immediately.  | Tender/Pre-Construction, Construction |
|  | Tree removal in Significant Bat Maternity Colony Habitat confirmed through snag/cavity tree density surveys should be scheduled to occur outside of the bat roosting season of April 30 to September 1, and should especially be avoided during the bat maternity period of June 1 to July 31.  | Detailed Design        | Additional mitigation, compensation measures, and monitoring may be required based on the results of additional surveys and consultation with MNRF. | All (where required)                  |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline  | Mitigation Measure (or related action)   | Relevant Project Phase | Monitoring Activity Requirements | Relevant Project Phase |
|---|--|------------------------|----------------------------------|------------------------|
|   |  | Mitigation             |                                  | Monitoring             |
| <b>Natural Environment -<br/>Terrestrial Features</b> | Surveys should be conducted following the protocols described in the Use of Buildings and Isolated Trees by Species at Risk Bats Survey Methodology developed by the MNRF (2014).  | Detailed Design        |                                  |                        |
|   | If surveys confirmed that no significant bat maternity colonies or SAR bats were recorded, the above timing restrictions need not apply.   | Detailed Design        |                                  |                        |
|   | Consultation with the MNRF and TRCA will be initiated during the Detailed Design phase regarding whether the significance of the unevaluated wetland west of Highland Creek needs to be evaluated prior to construction.   | Detailed Design        | N/A                              | N/A                    |
|   | Metrolinx is currently consulting with Conservation Authorities and Municipalities to establish an <i>Ecosystem Service Compensation Protocol</i> for Metrolinx projects. It will address items such as tree and vegetation removal from within the Lakeshore East Rail Corridor, from within woodlots, wetlands as well as trees immediately adjacent to Metrolinx-owned properties, compensation approach, and tree limb pruning protocols for construction. | Detailed Design        | N/A                              | N/A                    |
|   | Consultation with TRCA will further determine the appropriate timing window for the wetland removal during construction (e.g. “in the dry”, over winter, etc.) as well as offsetting impacts, through compensation via wetland creation elsewhere within the same wetland unit, or within the region, or improvements to the quality of remaining wetland, e.g. through removal of any exotic/invasive species (if present), native species plantings.         | Detailed Design        | N/A                              | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                                    | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements   | Relevant Project Phase                |
|---|--|---------------------------------------|--|---------------------------------------|
|   |  | Mitigation                            |  | Monitoring                            |
| Natural Environment -<br>Terrestrial Features | Appropriate sediment and erosion control measures will be developed in consultation with TRCA during the design phase to prevent sedimentation and erosion from construction areas entering adjacent wetland communities.  | Detailed Design                       | N/A  | N/A                                   |
|   | Metrolinx will consult with TRCA to minimize effects on wildlife and habitat within the Petticoat Creek Conservation Area.   | Detailed Design                       | N/A  | N/A                                   |
|   | Prior to the commencement of construction, tree protection fencing must be installed at the locations outlined in the Tree Inventory and Preservation Plan ( <b>Appendix B2</b> ).   | Tender/Pre-construction               | N/A  | N/A                                   |
|   | No construction activity including grade changes, surface treatments or excavations of any kind is permitted within a Tree Preservation Zone (TPZ). No root cutting or storage of material, vehicles, equipment or fill is permitted within the TPZ. TPZ signage should be installed on the fence. | Tender/Pre-construction               | N/A  | N/A                                   |
|   | Protect and avoid the Garrett Millar Memorial Tree and plaque on the Waterfront Trail during construction activities.  | Tender/Pre-Construction               | N/A  | N/A                                   |
|   | Limbs that may interfere with construction should be pruned under the supervision of the contract administrator or qualified tree worker prior to construction, as required and in accordance with the Metrolinx Ecosystem Service Compensation Protocol.  | Tender/Pre-construction, Construction | Monitor tree limb pruning to ensure safe and effective pruning while also in compliance with any applicable regulation/permitting requirement. | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                                    | Mitigation Measure (or related action)  | Relevant Project Phase                | Monitoring Activity Requirements   | Relevant Project Phase                |
|---|---|---------------------------------------|--|---------------------------------------|
|   |   | Mitigation                            |  | Monitoring                            |
| Natural Environment -<br>Terrestrial Features | Root damage will be minimized by restricting equipment in the vicinity of the existing trees, where possible. Root pruning by a Certified Arborist prior to construction will be implemented where required to prevent desiccation of roots, increase root regeneration and minimize damage to root systems during construction. Any root pruning will be 15 to 30 cm back from the edge of the TPZ and to a depth of 1 m or the maximum depth of root penetration (whichever is deeper). | Tender/Pre-Construction, Construction | Monitor construction activities to ensure any equipment and machinery is contained within the designated staging areas and work zones.   | Tender/Pre-Construction, Construction |
|   | Removal of true Butternut trees should be avoided and protective fencing 50 m be installed around the tree to limit any possible disturbance during construction. If a pure retainable (Category 2) Butternut tree must be harmed or removed, a Butternut Health Assessment completed by a qualified Butternut Health Assessor will be required. A notice of activity will have to be registered with the MNR by submitting a notice of Butternut Impact Form to the MNR Registry.        | Tender/Pre-Construction, Construction | N/A  | N/A                                   |
|   | A total of 41 trees were identified within felling distance of the railway corridor with elevated risk potential. These trees should be removed to mitigate the risk associated to rail service and workers within the Lakeshore East Rail Corridor.  | Tender/Pre-Construction, Construction | Monitor installation of silt fencing and/or tree protection fencing to ensure it is properly maintained. Monitor such tree removals to ensure safe and effective removal, while also in compliance with any applicable regulation/permitting requirements. | Tender/Pre-Construction, Construction |
|   | Tree protection measures must be implemented prior to the construction phase (grading) to ensure that trees identified for preservation are not impacted. If any roots are exposed through the grading activities they must be pruned by a qualified tree worker in accordance with good arboricultural practices.  | Tender/Pre-Construction, Construction | Monitor installation of tree protection barriers to ensure they are constructed properly and thereafter monitor fencing to ensure it is properly maintained.   | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline  | Mitigation Measure (or related action)  | Relevant Project Phase                   | Monitoring Activity Requirements   | Relevant Project Phase                |
|---|---|--|--|---------------------------------------|
|   |   | Mitigation                               |  | Monitoring                            |
| <b>Natural Environment -<br/>Terrestrial Features</b> | Efforts will be made to avoid construction of the rail bridge structure crossing the Rouge River during the breeding bird season (March 31 to September 1) to minimize potential effects to the Cliff Swallow colony. Appropriate nesting prevention and exclusion measures will be developed in consultation with applicable regulatory agencies, as required, where timing windows are restrictive to construction and other measures such as advanced nesting surveys are not sufficient. During the breeding season, the area should be checked to ensure that no Cliff Swallows have managed to nest in the area.  | Tender/Pre-Construction,<br>Construction | A qualified monitor should survey potential nesting habitat/areas for evidence of nesting activity no more than three (3) days prior to construction activities in such areas. If active nests are observed during construction, an environmental monitor should be notified immediately.  |                                       |
|   | Vegetation removal should be scheduled to occur outside of the breeding bird season (March 31 to September 1). If this is not possible, active nest surveys should be completed by a qualified Biologist 24 hours prior to vegetation removal within habitat considered “simple” as defined by Environment Canada – Canadian Wildlife Services: <ul style="list-style-type: none"> <li>• “an urban park consisting mostly of lawns with a few isolated trees;</li> <li>• a vacant lot with few possible nest sites;</li> <li>• a previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil, for instance); or</li> <li>• a structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawks, gulls and others)” (CWS 2014).</li> </ul> | Tender/Pre-Construction,<br>Construction | A qualified monitor should survey potential nesting habitat/areas for evidence of nesting activity no more than three (3) years prior to construction activities in such areas. If active nests are observed during construction, an environmental monitor should be notified immediately. | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline   | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements  | Relevant Project Phase                |
|--|--|---------------------------------------|---|---------------------------------------|
|  |  | Mitigation                            |   | Monitoring                            |
|  | <p>Similarly, nest searches can also be considered when investigating:</p> <ul style="list-style-type: none"> <li>“conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);</li> <li>cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or</li> <li>colonial-breeding species that can often be located from a distance (such as a colony of terns or gulls)” (CWS 2014).</li> </ul> | Tender/Pre-Construction, Construction | N/A   | N/A                                   |
|  | <p>If an active nest of a migratory bird is found, an appropriate buffer depending on the species (i.e., 50 m buffer for Bank Swallow Colony) will be applied to the nest wherein no vegetation removal will be permitted until the young have fledged from the nest.</p>  | Tender/Pre-Construction, Construction | <p>Nest surveys of culverts and rail bridges will be conducted if construction of these structures takes place during the breeding bird season.</p> | Tender/Pre-construction, Construction |
| <p>A nest survey of the culverts and bridges should be conducted prior to construction if it is anticipated to start during the breeding bird season, to ensure that no SAR bird species or migratory birds protected under the <i>MBCA</i> have nested on these structures since the 2014 field investigations.</p> <p>If active nests are observed during construction, an environmental monitor should be notified immediately.</p> |  |                                       | Tender/Pre-Construction, Construction   |                                       |
| <p>The MNRF should be consulted regarding whether an authorization or permit under the <i>ESA</i> would be required and any additional mitigation and/or compensation measures and monitoring requirements</p>   |  |                                       | Detailed Design   |                                       |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                                    | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements  | Relevant Project Phase                |
|---|--|---------------------------------------|---|---------------------------------------|
|   |  | Mitigation                            |   | Monitoring                            |
|   | In-water works will be scheduled to occur outside of the turtle overwintering period of October 1 to April 30. Prior to in-water works, an area search for turtles will be conducted. If a turtle is encountered, it will be safely encouraged to move away from the work area. Prior to turtles moving to overwintering habitat, appropriate wildlife exclusion measures will be developed in consultation with the applicable regulatory agencies as a measure to prevent turtles from overwintering in areas where construction activities may have to occur during their overwintering period. | Tender/Pre-Construction, Construction | If a turtle is observed during construction, an environmental monitor will be notified immediately. | Tender/Pre-Construction, Construction |
|   | Cover objects (e.g. corrugated metal sheets, plywood, particle boards, carpets, etc.) should not be stored within the construction area as they might attract Milksnakes. If a snake is encountered during construction, staff will try to herd it away safely from the construction area.   | Tender/Pre-Construction, Construction | If a snake is observed during construction, an environmental monitor will be notified immediately.  | Tender/Pre-Construction, Construction |
|   | General mitigation is best implemented through avoiding or minimizing the amount of wetland area requiring removal.  | Tender/Pre-Construction, Construction | N/A   | N/A                                   |
| <b>Natural Environment - Aquatic Features</b> | An assessment of the proposed works at the Scarborough Golf Club Road grade separation will be conducted during Detailed Design to confirm the proposed works are outside of the regulatory hazard extent and do not negatively impact flooding upstream of the location. TRCA and City of Toronto will be kept apprised as required.  | Detailed Design                       | N/A   | N/A                                   |
|   | Erosion and sediment control measures will be designed based on the Greater Golden Horseshoe Area Conservation Authorities (GGHACA) Erosion and Sediment Control Guidelines for Urban Construction (2006). TRCA will be consulted on Erosion and Sediment  | Detailed Design                       | N/A   | N/A                                   |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                                    | Mitigation Measure (or related action)  | Relevant Project Phase                | Monitoring Activity Requirements  | Relevant Project Phase                |
|---|---|---------------------------------------|---|---------------------------------------|
|   |   | Mitigation                            |   | Monitoring                            |
| <b>Natural Environment - Aquatic Features</b> | Control measures during Detailed Design.  |                                       |   |                                       |
|   | Drainage design alternatives at Galloway Road will be reviewed to maintain flow connection between the wetland units and ensure wetland units are not drained as a result of the proposed undertakings. This is being completed in conjunction with the detailed flood control strategy for the grade separation. Alternative sealed design and invert sumps would be considered during detailed design and TRCA will be kept apprised. | Detailed Design                       | N/A   | N/A                                   |
|   | A Self-Assessment will be undertaken in accordance with DFO requirements at all watercourse crossings during Detailed Design.   | Detailed Design                       | The Self-Assessment will determine whether, following the implementation of appropriate mitigation measures, further assessment, monitoring and review is required. | Detailed Design                       |
|   | DFO and MNRF will be consulted during Detailed Design to determine an approach to protect aquatic SAR and to determine permitting requirements for work in Rouge River.   | Detailed Design                       | N/A   | N/A                                   |
|   | Additional analysis is required for mitigation of Eastern Pondmussel in consultation with DFO and MNRF.   | Detailed Design                       | N/A   | N/A                                   |
|   | Aquatic restoration plans in the future Rouge National Urban Park will be prepared in consultation with Parks Canada during Detailed Design, as required.   | Detailed Design                       | N/A   | N/A                                   |
|   | It is recommended to protect trees adjacent to the existing crossings during construction, where possible.  | Tender/Pre-Construction, Construction | All sites will install appropriate sediment and erosion controls, which will be monitored daily for   | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                             | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements                        | Relevant Project Phase |
|--|--|---------------------------------------|---|------------------------|
|  |  | Mitigation                            |   | Monitoring             |
| Natural Environment - Aquatic Features | Potential effects as result of culvert modifications will be mitigated to avoid disturbance to watercourses and fish habitat.  | Tender/Pre-Construction, Construction | effectiveness and removed, after all work is completed. |                        |
|  | The removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary high water mark during construction will be minimized, where possible. If material is removed from the waterbody, it will be set aside and returned to the original location once construction activities are completed.    | Tender/Pre-Construction, Construction |   |                        |
|  | Shorelines and banks should be stabilized within TRCA regulated areas as soon as possible once disturbed by any construction activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.   | Tender/Pre-Construction, Construction |   |                        |
|  | Regular inspection and maintenance of erosion and sediment control measures and structures will occur during the course of construction. Repairs to erosion and sediment control measures will be made by the Contractor if damage occurs, and removal of non-biodegradable erosion and sediment control materials will occur by the Contractor once the site is stabilized. | Tender/Pre-Construction, Construction |   |                        |
|  | It is recommended that in-water works will be completed in the dry, meaning the work space be contained by a coffer dam and dewatered prior to work commencing to protect the waterbody from sedimentation and siltation during construction.  | Tender/Pre-Construction, Construction |   |                        |
| Natural Environment – Aquatic Features |  |                                       |   |                        |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                   | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements  | Relevant Project Phase                |
|------------------------------|--|---------------------------------------|---|---------------------------------------|
|                              |  | Mitigation                            |   | Monitoring                            |
|                              | Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials) will be established. Fill will be properly stored on site and stabilized at least 30 m from the watercourse, if possible.   | Tender/Pre-Construction, Construction |   |                                       |
|                              | The permissible timing window for in-water works (i.e., the time when in-water works are permitted) is July 1 to March 31; of any given year, or as otherwise approved by MNR. In-water activities or associated in-water structures will not interfere with fish passage, constrict the channel width, or reduce flows. A qualified environmental professional should be retained to ensure applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. | Tender/Pre-Construction, Construction | The Self-Assessment will determine whether, following the implementation of appropriate mitigation measures, further assessment, monitoring and review is required.   | Detailed Design                       |
|                              | All water intake or outlet pipes will be screened to prevent entrainment or impingement of fish.   | Tender/Pre-Construction, Construction |   |                                       |
|                              | Metrolinx will work with TRCA to identify and implement opportunities for habitat improvements following construction.   | Operations/Post-construction          | N/A   | N/A                                   |
| <b>Stormwater Management</b> | Further assessment of the storm sewer network is required at the Galloway Road and Morningside Avenue grade separation locations to determine the appropriate management for the minor and major systems.  | Detailed Design                       | Erosion monitoring is recommended along the east bank in the vicinity of the rail embankment at Highland Creek based on significant planform changes in the past 50 years, which has resulted in a high yearly erosion rate within the vicinity of the Highland Creek Bridge. | Tender/Pre-Construction, Construction |
|                              | Metrolinx will develop a detailed flood control strategy for all grade separation locations, including Scarborough Golf Club Road, during Detailed Design. This will include further assessment of the storm sewer network to determine the potential for adverse effects to flooding and develop appropriate mitigation to reduce flood risk.   | Detailed Design                       |   |                                       |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline | Mitigation Measure (or related action)  | Relevant Project Phase | Monitoring Activity Requirements | Relevant Project Phase |
|------------|---|------------------------|----------------------------------|------------------------|
|            |   | Mitigation             |                                  | Monitoring             |
|            | Metrolinx will work with TRCA during Detailed Design to develop suitable mitigation to avoid and/or protect the wetland adjacent to Galloway Road and avoid potential flooding effects within the regulatory limit at Scarborough Golf Club Road and Morningside Avenue in accordance with TRCA Guidelines and required permitting.                                       | Detailed Design        |                                  |                        |
|            | LID opportunities will be considered where feasible at Morningside Avenue and Scarborough Golf Club Road due to possible increases in imperviousness.   | Detailed Design        |                                  |                        |
|            | Metrolinx will work with TRCA to explore low impact development options into stormwater management options including swales, ditches, etc.  | Detailed Design        |                                  |                        |
|            | Low points with a combination of significant storage volume and large catchment area will be assessed by a geotechnical engineer to determine if potential stability issues may arise. It is recommended, if possible, that refinements to the drainage ditch are made at low points to remove the low point and direct surface runoff to an existing centreline culvert. | Detailed Design        |                                  |                        |
|            | Further geotechnical assessment will be completed at the Petticoat Creek Culvert to ensure embankment failure and washout will not occur under anticipated conditions.  | Detailed Design        |                                  |                        |
|            | The stormwater management design for grade separations will be undertaken during Detailed Design to meet the current City of Toronto guidelines.  | Detailed Design        |                                  |                        |
|            | A grading plan will be completed during Detailed Design and shared with the TRCA.   | Detailed Design        |                                  |                        |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline            | Mitigation Measure (or related action)  | Relevant Project Phase | Monitoring Activity Requirements | Relevant Project Phase |
|-----------------------|---|------------------------|----------------------------------|------------------------|
|                       |   | Mitigation             |                                  | Monitoring             |
| Stormwater Management | Metrolinx will provide the limits of fill slope, construction access plans and area of disturbance to TRCA during Detailed Design.  | Detailed Design        |                                  |                        |
|                       | Metrolinx will consult with TRCA during Detailed Design regarding grading works and retaining wall proposed on the north side of the Lakeshore East Rail Corridor at the Petticoat Creek crossing to determine preferred approach and minimize effects.                           | Detailed Design        |                                  |                        |
|                       | Metrolinx will consult with TRCA to ensure infrastructure modifications do not have negative effects on flooding and dynamic beaches.   | Detailed Design        |                                  |                        |
|                       | Metrolinx will request clearance letters from the relevant authorities and provide to MOECC, should any ECA application be required for the proposed stormwater works.  | Detailed Design        |                                  |                        |
|                       | Metrolinx will consult with legal counsel to determine the need for and scope of ECA applications (if required) and will consult with the MOECC EAB on the findings of this legal counsel.  | Detailed Design        |                                  |                        |
|                       | A Soil and Groundwater Management Plan will be prepared in accordance with <i>Management of Excess Soil – A Guide for Best Management Practices</i> (MOECC 2014) and industry best practices. A copy of this plan will be provided to MOECC, Toronto District office for comment. | Detailed Design        |                                  |                        |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline            | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements  | Relevant Project Phase                |
|-----------------------|--|---------------------------------------|---|---------------------------------------|
|                       |  | Mitigation                            |   | Monitoring                            |
| Stormwater Management | An Erosion and Sediment Control Plan will be developed in consultation with relevant authorities, including spill provisions, and implementation of the prescribed mitigation will conform to recognized standard specifications such as Ontario Provincial Standards Specification (OPSS). The construction contractor will be required to develop and implement a site-specific Health and Safety Plan and a Spill Prevention and Response Plan outlining steps to prevent and contain any chemicals and/or spills in a timely and effective manner and to avoid soil contamination. | Detailed Design                       |   |                                       |
|                       | Regulation Limit data will be reviewed again to complete hydrological assessment and TRCA permit applications.   | Detailed Design                       | N/A   | N/A                                   |
|                       | Rip rap with a nominal stone size of 800 mm should be applied for scour protection at Highland Creek Bridge, a rip-rap apron overlain with a filter layer and covering the total width of the river bed and total length of the bridge should be installed so as to overlap with bank scour protection.  | Tender/Pre-Construction, Construction | Erosion monitoring is recommended along the east bank in the vicinity of the rail embankment at Highland Creek based on significant planform changes in the past 50 years, which has resulted in a high yearly erosion rate within the vicinity of the Highland | Tender/Pre-Construction, Construction |
|                       | MX will prepare an incremental cut and fill balance assessment demonstrating no cumulative loss in floodplain conveyance and/or storage volume.  | Detailed Design                       | N/A   | N/A                                   |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline  | Mitigation Measure (or related action)  | Relevant Project Phase | Monitoring Activity Requirements  | Relevant Project Phase                |
|-------------|---|------------------------|---|---------------------------------------|
|             |   | Mitigation             |   | Monitoring                            |
|             | If potential areas of contamination are identified during operations, further investigation will be completed to determine presence of contamination and necessary remedial action. All contaminated materials found during operation and maintenance activities will be handled in accordance with applicable provincial and federal legislation, regulations and standard procedures. | Operations             | N/A   | N/A                                   |
|             | If potential areas of contamination are identified during operations, further investigations will be completed to determine if contamination is present and what remedial action is necessary.  | Operations             | N/A   | N/A                                   |
| Groundwater | Prior to construction, a detailed Water Taking Assessment will be conducted to determine anticipated groundwater and surface water taking quantities, groundwater quality, predicted ZOI, evaluate potential impacts to groundwater dependent features, and identify groundwater discharge locations.   | Detailed Design        | A PTTW (if required) will include requirements for monitoring during active construction dewatering for any potential adverse effects identified in the dewatering assessment during Detailed Design.   | Detailed Design                       |
|             | Based on the results of the water taking assessment a PTTW will be acquired from MOECC or water taking activities will need to be registered through EASR.  | Detailed Design        | A monitoring program for groundwater-dependent natural features and private water wells within the anticipated ZOI for dewatering activities will be determined during Detailed Design.   | Detailed Design                       |
|             | Approvals for the discharge of pumped water will be acquired.   | Detailed Design        |   |                                       |
|             | A Groundwater Management Plan describing appropriate areas and methods for discharge and identifying general and site specific mitigations measures and monitoring requirements will be developed and implemented.  | Detailed Design        | Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Groundwater Management Plan are fulfilled. | Tender/Pre-Construction, Construction |
|             | A Spill Prevention and Response Plan will be developed during Detailed Design.  | Detailed Design        | N/A   | N/A                                   |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                               | Mitigation Measure (or related action)  | Relevant Project Phase                | Monitoring Activity Requirements   | Relevant Project Phase                |
|--|---|---------------------------------------|--|---------------------------------------|
|  |   | Mitigation                            |  | Monitoring                            |
|  | Groundwater quality testing will be performed at all construction dewatering locations prior to discharge to the natural environment or sewer and compared to the appropriate regulatory guidelines. Appropriate water quality management will be implemented in the event exceedances to regulatory guidelines or limits are detected. | Tender/Pre-Construction, Construction | N/A  | N/A                                   |
|  | All soil and groundwater identified as being contaminated during the construction program must be treated as such to ensure the health and safety of workers and alignment with MOECC regulations.  | Tender/Pre-Construction, Construction | N/A  | N/A                                   |
|  | Metrolinx will avoid stockpiling during construction activities within the TRCA Regulation Area, where feasible.  | Tender/Pre-Construction, Construction | N/A  | N/A                                   |
| <b>Surface Water and Soil Management</b> | An erosion and sediment control plan will be developed in consultation with TRCA.   | Detailed Design                       | Erosion and sediment control measures shall be maintained during the construction period.  | Tender/Pre-Construction, Construction |
|  | Metrolinx will work with TRCA during Detailed Design to ensure applicable erosion and sediment control guidelines are followed.   | Detailed Design                       |  |                                       |
|  | Prior to construction, a Waste Management Plan will be developed to address proper handling of all excess materials that may be potentially contaminated according to applicable provincial and federal legislation, regulations and standard procedures.   | Detailed Design                       | N/A  | N/A                                   |
|  | The construction contractor will be required to develop and implement a site specific Health and Safety Plan and a Spill Prevention and Response Plan.  | Detailed Design                       | Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Spill Prevention and Response Plan are fulfilled. | Tender/Pre-Construction, Construction |
|  | A Phase I ESA investigation will be completed for additional lands required for the Project (both permanent and temporary) during Detailed Design.  | Detailed Design                       | N/A  | N/A                                   |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                        | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements   | Relevant Project Phase                |
|-----------------------------------|--|---------------------------------------|--|---------------------------------------|
|                                   |  | Mitigation                            |  | Monitoring                            |
| Surface Water and Soil Management | Based on the findings of the Phase I ESA, a Phase II ESA may be required.  |                                       |  |                                       |
|                                   | Metrolinx will consult with the City of Toronto regarding the design and mitigating effects of the noise throughout Detailed Design.   | Detailed Design                       | N/A  | N/A                                   |
|                                   | Stockpiling within the TRCA regulated area will be avoided, where feasible.  | Tender/Pre-Construction, Construction |  |                                       |
|                                   | All soil and groundwater identified as being contaminated during the construction program must be treated as such to ensure the health and safety of workers and alignment with MOECC regulations.   | Tender/Pre-Construction, Construction | N/A  | N/A                                   |
|                                   | Best management practices for handling potential PCB-containing electrical ballast associated with the removal and/or replacement of fluorescent fixtures will be followed. In the event PCB containing electrical ballast is identified, the ballast will be handled in accordance with federal and provincial regulations governing PCB wastes.  | Tender/Pre-Construction, Construction | N/A  | N/A                                   |
|                                   | In all cases the on-site and off-site beneficial reuse of excess soil will be explored and will be undertaken in accordance with Excess Soil – A Guide to Best Management Practices (MOECC, January 2014). It is noted that the MOECC is presently contemplating the creation of a Regulation to govern excess soil management. Should this Regulation come into force within the implementation of the project the requirements will be incorporated as applicable. | Tender/Pre-Construction, Construction | N/A  | N/A                                   |
|                                   | All soil and groundwater identified as being contaminated during the construction program must be treated as such to ensure the health and safety of   | Tender/Pre-Construction, Construction | Perform regular inspections to ensure that equipment and stockpiles do not extend beyond construction areas. | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline         | Mitigation Measure (or related action)  | Relevant Project Phase                | Monitoring Activity Requirements  | Relevant Project Phase                |
|--------------------|---|---------------------------------------|---|---------------------------------------|
|                    |   | Mitigation                            |   | Monitoring                            |
|                    | workers and alignment with MOECC regulations.   |                                       | <p>Erosion and sediment control measures shall be inspected to ensure they are functioning and maintained, as required. If erosion and sediment control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.</p> <p>Monitor the movement of soils to ensure the Soil Management Plan is followed.</p> <p>Monitor construction activities to ensure that topsoil is being separated from other soil materials</p> | Construction                          |
| <b>Air Quality</b> | <p>Apply best management practices to effectively mitigate construction and demolition emissions including mitigation measures detailed in "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005).</p> <p>Where required/feasible:</p> <ul style="list-style-type: none"> <li>Schedule construction activities to avoid overlapping construction activities where possible;</li> <li>Minimize the number of machines operating in any one area at any given point in time;</li> <li>Use heavy equipment that is in good condition of maintenance and compliant with applicable federal regulations for off-road diesel engines;</li> <li>Ensure all machinery is maintained and operated in accordance with the manufacturer's specifications;</li> <li>Minimize idling time and posting signage to this effect around the construction site;</li> <li>Locate stationary equipment (e.g., generators, compressors etc.) as far away from sensitive receptors as</li> </ul> | Tender/Pre-Construction, Construction | <p>Regular inspection of construction work zones to ensure that dust suppression measures are being adequately applied. If dust suppression measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.</p>   | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline          | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements   | Relevant Project Phase                |
|---------------------|--|---------------------------------------|--|---------------------------------------|
|                     |  | Mitigation                            |  | Monitoring                            |
|                     | practical; and <ul style="list-style-type: none"> <li>Implement those measures (to be performed by the Contractor) to minimize the generation of dust via materials handling, vehicle movement and wind erosion.</li> </ul>  |                                       |  |                                       |
|                     | MX commits to achieving Tier 4 emissions standards during operations.  | Operations                            | N/A  | N/A                                   |
| Noise and Vibration | Control noise from construction activities through source mitigation measures, as well as receptor-based mitigation measures.  | Tender/Pre-Construction, Construction | Monitor construction noise regularly to ensure that noise control measures are being adequately applied. If noise control measures are not functioning properly, alternative measures will be implemented immediately and prioritized above other construction activities.             | Tender/Pre-Construction, Construction |
|                     | During construction work adjacent to 90 Morningside Avenue and in proximity to the grade separation work sites if it is determined that there is a need to further reduce noise effects, the following additional mitigation measures may be considered and implemented, where required/appropriate: <ul style="list-style-type: none"> <li>Offset usage of active heavy equipment (schedule non-</li> </ul> | Tender/Pre-Construction, Construction | Monitor construction vibration regularly to ensure that vibration control measures are being adequately applied. If vibration control measures are not functioning properly, alternative measures will be implemented immediately and prioritized above other construction activities. | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline          | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements   | Relevant Project Phase                |
|---------------------|--|---------------------------------------|--|---------------------------------------|
|                     |  | Mitigation                            |  | Monitoring                            |
| Noise and Vibration | concurrent use); <ul style="list-style-type: none"> <li>• Implement noise compliance checks to ensure equipment levels are in compliance with MOECC guideline NPC-115;</li> <li>• Reroute construction and truck traffic, when possible;</li> <li>• Coordinate 'noisy' operations such that they will not occur simultaneously, where possible;</li> <li>• Investigate and implement the use of alternative construction equipment or methods to reduce noise emissions from construction, where possible. Utilize alternative equipment that generates lower noise levels or optimize silencer/muffler/enclosure performance;</li> <li>• Use rubber linings in chutes and dumpers to reduce impact noise;</li> <li>• Install acoustic enclosures, noise shrouds or noise curtains around noisy equipment; and</li> <li>• Install temporary noise barriers/solid construction hoarding on site boundary to screen affected locations.</li> </ul> |                                       | Consideration will be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage.                   | Tender/Pre-Construction, Construction |
|                     | The use of a vibratory roller during construction will be restricted to a set-back distance of at least 8 m to minimise risk of cosmetic or structural building damage.  | Tender/Pre-Construction, Construction | If this set-back distance cannot be maintained, a vibration monitoring program will be implemented to ensure that vibration levels stay below City of Toronto limits at affected properties. | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline          | Mitigation Measure (or related action)   | Relevant Project Phase | Monitoring Activity Requirements | Relevant Project Phase |
|---------------------|--|------------------------|----------------------------------|------------------------|
|                     |  | Mitigation             |                                  | Monitoring             |
| Noise and Vibration | To reduce operational noise effects at 90 Morningside Avenue, site-specific mitigation is recommended subject to administrative, operational, economic and technical feasibility.  | Operations             | N/A                              | N/A                    |
|                     | To reduce operational vibration effects at 90 Morningside Avenue, consider measures such as resilient rail fasteners, resilient supported ties, or ballast mats.   | Operations             | N/A                              | N/A                    |
|                     | <p>Metrolinx is working proactively to examine ways to minimize noise impacts beyond the requirements of the MOEE/GO Transit Protocol. Metrolinx is currently involved in the following activities:</p> <ul style="list-style-type: none"> <li>• Connecting with Transport Canada regarding the existing bells and whistles regulation and some of the challenges they create in an urban environment;</li> <li>• Examining the use of leading-edge infrastructure materials and design which can reduce noise through advances in technology (such as improvements in track structure, curves and welds, the use of rail dampers on track);</li> <li>• Examining options for mitigating noise on hose corridors where service and operations have increased significantly without the additional infrastructure that would trigger provincial requirements to consider noise mitigation;</li> <li>• Investigating noise concerns and undertaking maintenance or other actions to address noise, if possible; and,</li> <li>• Informing communities at least two weeks in advance of the start of construction activities and any noise</li> </ul> | Operations             | N/A                              | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                 |  | Mitigation Measure (or related action)   | Relevant Project Phase   | Monitoring Activity Requirements | Relevant Project Phase |
|----------------------------|--|--|--|----------------------------------|------------------------|
|                            |  |  | Mitigation   |                                  | Monitoring             |
|                            |  | mitigation plans that will be in place during construction.  |  |                                  |                        |
| Socio Economic Environment | Residential, Commercial and Institutional Uses | Potential solutions to mitigate any potential effects regarding the permanent closure of Poplar Road will be explored with the City of Toronto during the Detailed Design phase.   | Detailed Design  | N/A                              | N/A                    |
|                            |  | Local communities will be notified of initial construction plans and likely disturbances, as well as any future permanent modifications to roads. Access to residential, commercial and institutional uses within the Study Area should be maintained at all times.  | Tender/Pre-Construction, Construction                              | N/A                              | N/A                    |
|                            |  | Apply mitigation measures listed under "Noise and Vibration" to mitigate construction/operations noise.  | Tender/Pre-Construction, Construction, Operation/Post-construction | N/A                              | N/A                    |
|                            |  | Apply mitigation measures listed under "Traffic" to mitigate traffic effects.  | Tender/Pre-Construction, Construction                              | N/A                              | N/A                    |
|                            |  | The City of Pickering will be engaged when developing appropriate mitigation measures to ensure that access for bikes and pedestrians are maintained at the waterfront trails, south of Rodd Avenue and in the conservation area, south of Whites Road, and other portions of the corridor within the City of Pickering. | Detailed Design  | N/A                              | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                 | Mitigation Measure (or related action) | Relevant Project Phase  | Monitoring Activity Requirements | Relevant Project Phase |     |
|----------------------------|--|---|----------------------------------|------------------------|-----|
|                            |  | Mitigation  |                                  | Monitoring             |     |
| Socio Economic Environment | Recreational Use, Parks and Open Space | Metrolinx will consult with TRCA regarding potential effects to the Waterfront Trail and users. Should permanent modifications to the existing Waterfront Trail be required as a result of construction activities, the trail will be modified so that unrestricted, safe, and continuous access is maintained, particularly at key crossing locations at the Rouge River and Highland Creek. | Detailed Design                  | N/A                    | N/A |
|                            |  | Where parkland is required, Metrolinx will work with the Parks Canada, TRCA, City of Toronto and/or City of Pickering to ensure that key features are protected, or where this is not possible, appropriately relocated within the vicinity.  | Detailed Design                  | N/A                    | N/A |
|                            |  | A separate study was completed by Metrolinx to determine possible solutions to mitigate the closure of Chesterton Shores. The City of Toronto and Emergency Services and other affected stakeholders should be consulted to confirm that solutions are developed that allow for unhindered access to potential emergencies south of the rail corridor at this location.                       | Detailed Design                  | N/A                    | N/A |
|                            |  | The enclosed tunnel entrance/exit will be designed to be ADOA compliant and Metrolinx will engage stakeholders, including the City of Toronto on its design.  | EPR Addendum/Detailed Design     | N/A                    | N/A |
|                            |  | Metrolinx will consult with TRCA regarding access to Petticoat Creek Conservation Area.   | Detailed Design                  | N/A                    | N/A |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline                 |            | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements | Relevant Project Phase |
|----------------------------|------------|--|---------------------------------------|----------------------------------|------------------------|
|                            |            |  | Mitigation                            |                                  | Monitoring             |
| Socio Economic Environment |            | Safe pedestrian and cyclist access will be maintained as much as possible at grade separation locations during construction activities, in order to continue their onward journey to access the Waterfront Trail or other recreational facilities across the rail corridor through proper signage.   | Tender/Pre-Construction, Construction | N/A                              | N/A                    |
|                            |            | Safety fencing will be used where necessary to separate the work area from pedestrians and cyclists. Signage indicating the presence of construction crews and/or activities will also be utilized.  | Tender/Pre-Construction, Construction | N/A                              | N/A                    |
|                            |            | Protect and avoid the Garrett Millar Memorial Tree (and any other such trees discovered) and plaque on the Waterfront Trail during construction activities.  | Tender/Pre-Construction, Construction | N/A                              | N/A                    |
|                            |            | Pedestrian/cyclist access will be maintained throughout construction activities, where possible. A plan will be developed to inform the public on construction activities and schedule, as well as address any public concerns, taking into consideration peak summer season and provision of signed detours. A temporary sidewalk will be considered as part of any re-alignment. | Construction                          | N/A                              | N/A                    |
|                            |            | Metrolinx will commit to work with and assist TRCA on future projects including necessary planning and design studies and implementation associated with these future improvement/enhancement opportunities (access points, interpretative signage, trail heads, future improved crossings and coordination on projects).  | Operations/Post-construction          | N/A                              | N/A                    |
|                            | Aesthetics | The design of the new structures at the Rouge River Bridge and Highland Creek Bridge will follow HIA recommendations and will be reviewed with MDRP and in consultation with affected stakeholders such as MTCS, Parks Canada and TRCA.  | Detailed Design                       | N/A                              | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline |            | Mitigation Measure (or related action)  | Relevant Project Phase | Monitoring Activity Requirements   | Relevant Project Phase        |
|------------|------------|---|------------------------|--|-------------------------------|
|            |            |   | Mitigation             |  | Monitoring                    |
|            | Aesthetics | Where appropriate, Metrolinx will seek to develop an aesthetically pleasing design for public-facing structures (i.e. retaining walls) in consultation with adjacent landowners and stakeholders.   | Detailed Design        | N/A  | N/A                           |
|            |            | Metrolinx will work with Parks Canada and TRCA to ensure that any aesthetic impacts to parkland is appropriately mitigated through attractive design features and landscaping, where feasible.  | Detailed Design        | N/A  | N/A                           |
|            |            | Metrolinx will consult with the City of Toronto regarding the design of fences, walkways, underpasses and retaining walls, where required.  | Detailed Design        | N/A  | N/A                           |
|            | Utilities  | A review of the existing and proposed future utilities plan, as well as on-going consultation with affected utility companies during the detailed phase, will identify the specific location of utilities within the vicinity of the rail corridor.   | Detailed Design        | N/A  | N/A                           |
|            |            | Any potential conflicts with utilities and associated mitigation measures will be identified as part of Detailed Design.  | Detailed Design        | N/A  | N/A                           |
|            |            | Utility works within TRCA regulated areas, if any, may be subject to TRCA regulation under the <i>Conservation Authorities Act</i> . Such work should be identified where applicable and discussed with Third Party Utilities during Detailed Design. | Detailed Design        | N/A  | N/A                           |
|            | Property   | Specific locations and additional property requirements should be determined during Detailed Design.  | Detailed Design        | If property damage claims are received, a monitoring program may be developed during claim | Pre-Construction/Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline |                               | Mitigation Measure (or related action)   | Relevant Project Phase                | Monitoring Activity Requirements   | Relevant Project Phase        |
|------------|-------------------------------|--|---------------------------------------|--|-------------------------------|
|            |                               |  | Mitigation                            |  | Monitoring                    |
|            |                               | On-going consultation with affected landowners during Detailed Design will help to identify appropriate mitigation measures specific to each location.   | Detailed Design                       | resolution. Where necessary, temporary access roads will be provided during construction, where feasible.  |                               |
|            |                               | Metrolinx's realty team will work with TRCA regarding appropriate compensation once the full scope of loss of conservation lands is identified.  | Detailed Design                       | N/A  | N/A                           |
|            |                               | A construction monitoring program will be implemented prior to construction to mitigate impacts to specific properties.  | Tender/Pre-Construction, Construction | If property damage claims are received, a monitoring program may be developed during claim resolution. Where necessary, temporary access roads will be provided during construction, where feasible. | Pre-Construction/Construction |
|            | <b>Community Benefit</b>      | Metrolinx will look for opportunities to work with groups such as the TRCA to map out possible community benefits related to the expansion of GO service in the area between Guildwood and Pickering GO stations.  | All project phases                    | N/A  | N/A                           |
|            | <b>Sustainability</b>         | Metrolinx will follow the principles of their Sustainability Strategy when considering living green building design choices, energy efficiency and management, LEED features including building design and materials, construction, and maintenance methods. | All project phases                    | N/A  | N/A                           |
|            | <b>Transportation/Traffic</b> | A Traffic Staging and Management Plan will be developed prior to construction.   | Detailed Design                       | N/A  | N/A                           |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline             | Mitigation Measure (or related action)  | Relevant Project Phase | Monitoring Activity Requirements  | Relevant Project Phase                |
|------------------------|---|------------------------|---|---------------------------------------|
|                        |   | Mitigation             |   | Monitoring                            |
| Transportation/Traffic | Consider use of special directional signage when temporary road closures occur as part of construction activities. A Sign Permit will be obtained for signs which are visible from a provincial highway or within 400 m of the provincial highway property line, including alterations or location changes of existing signage. | Detailed Design        | As the construction of the Project proceeds, the proposed Traffic Staging and Management Plan may be monitored and adjusted based on changes to activity in the surrounding area. | Tender/Pre-Construction, Construction |
|                        | Consultation with the City of Toronto will occur during Detailed Design to seek approval for the proposed non-vehicular grade separation at Poplar Road to accommodate pedestrians and cyclists following the permanent closure of the rail crossing.   | Detailed Design        | N/A   | N/A                                   |
|                        | Consultation with the City of Toronto, Emergency Services and other affected stakeholders will occur during Detailed Design to ensure that Emergency Services vehicles maintain access following the permanent closure of the Chesterton Shores rail crossing.  | Detailed Design        | N/A   | N/A                                   |
|                        | Metrolinx will continue to work with City of Toronto, TRCA, and Parks Canada during Detailed Design of the proposed enclosed tunnel entrance/exit.  | Detailed Design        | N/A   | N/A                                   |
|                        | Metrolinx will obtain an Encroachment Permit for any proposed works within an MTO ROW, including survey work and preliminary investigative engineering work (e.g. boreholes and coring).  | Detailed Design        | N/A   | N/A                                   |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline        | Mitigation Measure (or related action)  | Relevant Project Phase                 | Monitoring Activity Requirements | Relevant Project Phase |
|-------------------|---|--|----------------------------------|------------------------|
|                   |   | Mitigation                             |                                  | Monitoring             |
|                   | Metrolinx will obtain a Building and Land Use Permit for any development, entrance, change of entrance use, building, or structure within 45 m of the MTO defined provincial highway property line or within 395 m of the centre point of an intersection or interchange with a provincial highway prior to construction. | Detailed Design                        | N/A                              | N/A                    |
|                   | For construction planned next to MTO property, a Permission to Construct permit is required, including a Stormwater Management Report.  | Detailed Design                        | N/A                              | N/A                    |
|                   | Metrolinx will review Rodd Avenue, Beechgrove Drive, and Manse Drive rail crossings to implement enhanced safety and will continue to meet any safety requirements of the third track.  | Detailed Design                        | N/A                              | N/A                    |
|                   | Complete an Emergency Response Time Analysis to support City of Toronto review of proposed closure of Poplar Road and provision of a non-vehicular grade separation.  | Detailed Design                        | N/A                              | N/A                    |
| Cultural Heritage | For cultural heritage resource that may be indirectly impacted by the project (e.g. grade separations, construction impacts etc.) Metrolinx will complete HIAs prior to completion of Detailed Design and will provide to MOECC, MTCS and municipalities as appropriate for review and comment.                           | Detailed Design                        | N/A                              | N/A                    |
|                   | Metrolinx will complete a CHER and HIA for 90 Morningside Avenue in consultation with City of Toronto during Detailed Design. Metrolinx will provide the reports to MTCS, the City of Toronto   | Prior to completion of Detailed Design | N/A                              | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline         | Mitigation Measure (or related action)   | Relevant Project Phase                 | Monitoring Activity Requirements   | Relevant Project Phase                |
|--------------------|--|--|--|---------------------------------------|
|                    |  | Mitigation                             |  | Monitoring                            |
|                    | and the City's heritage committee for review and comment prior to completion of Detail Design  |  |  |                                       |
|                    | <p>During Detailed Design, HIAs will be completed for Highland Creek Bridge, Petticoat Creek Culvert, and Double Stone Culvert to consider the design impact on identified heritage attributes and determine appropriate mitigation measures for each.</p> <p>The Draft HIA, previously submitted to MTCS for review, will be revised, in consultation and to the satisfactory of MTCS during and prior to the completion of Detail Design.</p> <p>HIA's for Petticoat Creek Culvert and Double Stone Culvert will be completed in consultation with and to the satisfaction of MTCS.</p> <p>Metrolinx will provide the reports to MTCS, the City of Toronto and the City's heritage committee for review and comment prior to completion of Detail Design</p> | Prior to completion of Detailed Design | N/A  | N/A                                   |
|                    | Review during Detailed Design to confirm the design has not changed in this area and that heritage study requirements have not changed.  | Detailed Design/Tender                 | N/A  | N/A                                   |
| <b>Archaeology</b> | Based on the recommendations of the Stage 1 AA, Stage 2 AA is required for portions of the Study Area (rail corridor).   | Prior to completion of Detailed Design | Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. | Tender/Pre-Construction, Construction |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline | Mitigation Measure (or related action)   | Relevant Project Phase                 | Monitoring Activity Requirements | Relevant Project Phase |
|------------|--|--|----------------------------------|------------------------|
|            |  | Mitigation                             |                                  | Monitoring             |
|            | Should the proposed work extend beyond the Study Area, a Stage 1 AA will be completed for those additional areas to determine the archaeological potential and requirement for further Stage 2 AA work of any additional lands.  | Prior to completion of Detailed Design | N/A                              | N/A                    |
|            | Stage 2 AA as required) for the Study Area (rail corridor) will be completed prior to the completion of Detailed Design.   | Prior to completion of Detailed Design | N/A                              | N/A                    |
|            | Requirement for further archaeological assessment as a result of Stage 2 AA (i.e. Stage 3 or Stage 4) will be conducted accordingly.<br><br>All required archaeological assessments (up to Stage 4 as required) for the Study Area (rail corridor) will be completed during and prior to completion of Detail Design. The report recommendations and mitigation measures will be followed for this project. All reports will be submitted by the licensed archaeologist to MTCS for review as required under the S&Gs for Consultant Archaeologists. Indigenous communities have been consulted on this project. Metrolinx will continue to engage with these communities. | Prior to completion of Detailed Design | N/A                              | N/A                    |
|            | MX will continue to engage with Indigenous communities throughout all AA, as required.<br><br>Should previously unknown or unassessed deeply buried archaeological resources be uncovered during construction activities, they may be a new archaeological site and therefore  | Prior to completion of Detailed Design | N/A                              | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline             | Mitigation Measure (or related action)  | Relevant Project Phase                                 | Monitoring Activity Requirements | Relevant Project Phase |
|------------------------|---|--|----------------------------------|------------------------|
|                        |   | Mitigation   |                                  | Monitoring             |
|                        | subject to Section 48 (1) of the Ontario Heritage Act.  |  |                                  |                        |
| Stakeholder Engagement | Continue to engage and communicate with stakeholders and impacted property owners (public and private) during and beyond TPAP approval.   | Detailed Design, Tender /Pre-Construction/Construction | N/A                              | N/A                    |
|                        | Design and implement a response strategy to address/resolve potential construction concerns;  | Detailed Design, Tender /Pre-Construction/Construction | N/A                              | N/A                    |
|                        | Maintain the Project Website throughout Detailed Design and construction phases where the public can access updated information on the Project;   | Detailed Design, Tender /Pre-Construction/Construction | N/A                              | N/A                    |
|                        | Continue discussions/consultation with local stakeholders with respect to potential changes to traffic flow during Detailed Design and construction phase, as appropriate; and,   | Detailed Design, Tender /Pre-Construction/Construction | N/A                              | N/A                    |
| Stakeholder Engagement | Develop a communications protocol to address both community and stakeholder concerns during construction.   | Detailed Design, Tender /Pre-Construction/Construction | N/A                              | N/A                    |
|                        | Metrolinx will work with the City of Toronto, TRCA, Parks Canada and City of Pickering to develop and implement a communications/engagement strategy to include the community and other stakeholders in the design and construction planning. | Detailed Design, Tender /Pre-Construction/Construction | N/A                              | N/A                    |

**Table 7-1: Summary of Future Commitments and Monitoring Requirements**

| Discipline             | Mitigation Measure (or related action)   | Relevant Project Phase                                 | Monitoring Activity Requirements | Relevant Project Phase |
|------------------------|--|--|----------------------------------|------------------------|
|                        |  | Mitigation   |                                  | Monitoring             |
|                        | A plan will be developed to inform the public on construction activities and schedule, as well as address any public concerns. | Detailed Design, Tender /Pre-Construction/Construction | N/A                              | N/A                    |
| Environmental Planning | Undertake an EPR Addendum for the enclosed tunnel entrance/exit to assess the environmental effects of the structure.          | Detailed Design  | N/A                              | N/A                    |
|                        | Engage TRCA and other key stakeholders will continue to be through the enclosed tunnel entrance/exit design process.           | Detailed Design  | N/A                              | N/A                    |

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