

**Scarborough Junction
Grade Separation Project:
Revised Final
Environmental Project
Report**

Prepared for:
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File: 165011004
January 25, 2021

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Note to Reader

This Scarborough Junction Grade Separation Project: Final Revised Environmental Project Report has been updated to reflect the specific additions/revisions outlined in the Errata to the Environmental Project Report, dated January 25, 2021, including revisions to the following Environmental Technical Studies:

- Appendix A2 Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment
- Appendix A4 Socio-Economic and Land Use Study
- Appendix A6-2 Noise and Vibration Study Lakeshore East Corridor, GO Rail Network Electrification Project
- Appendix A6-3 Noise and Vibration Study Stouffville Corridor, GO Rail Network Electrification Project
- Appendix A7 Transportation Impact Assessment
- Appendix A8 Tree Inventory


As such, this Scarborough Junction Grade Separation Project: Final Revised Environmental Project Report and associated Environmental Technical Studies identified in the preceding list, supersede the previous final versions dated December 2020.

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Sign-off Sheet

This document entitled Scarborough Junction Grade Separation Project: Final Revised Environmental Project Report was prepared by Stantec Consulting International Ltd. ("Stantec") for the account of Metrolinx (the "Client").

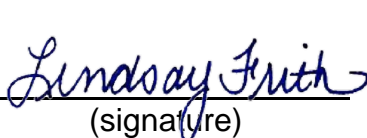
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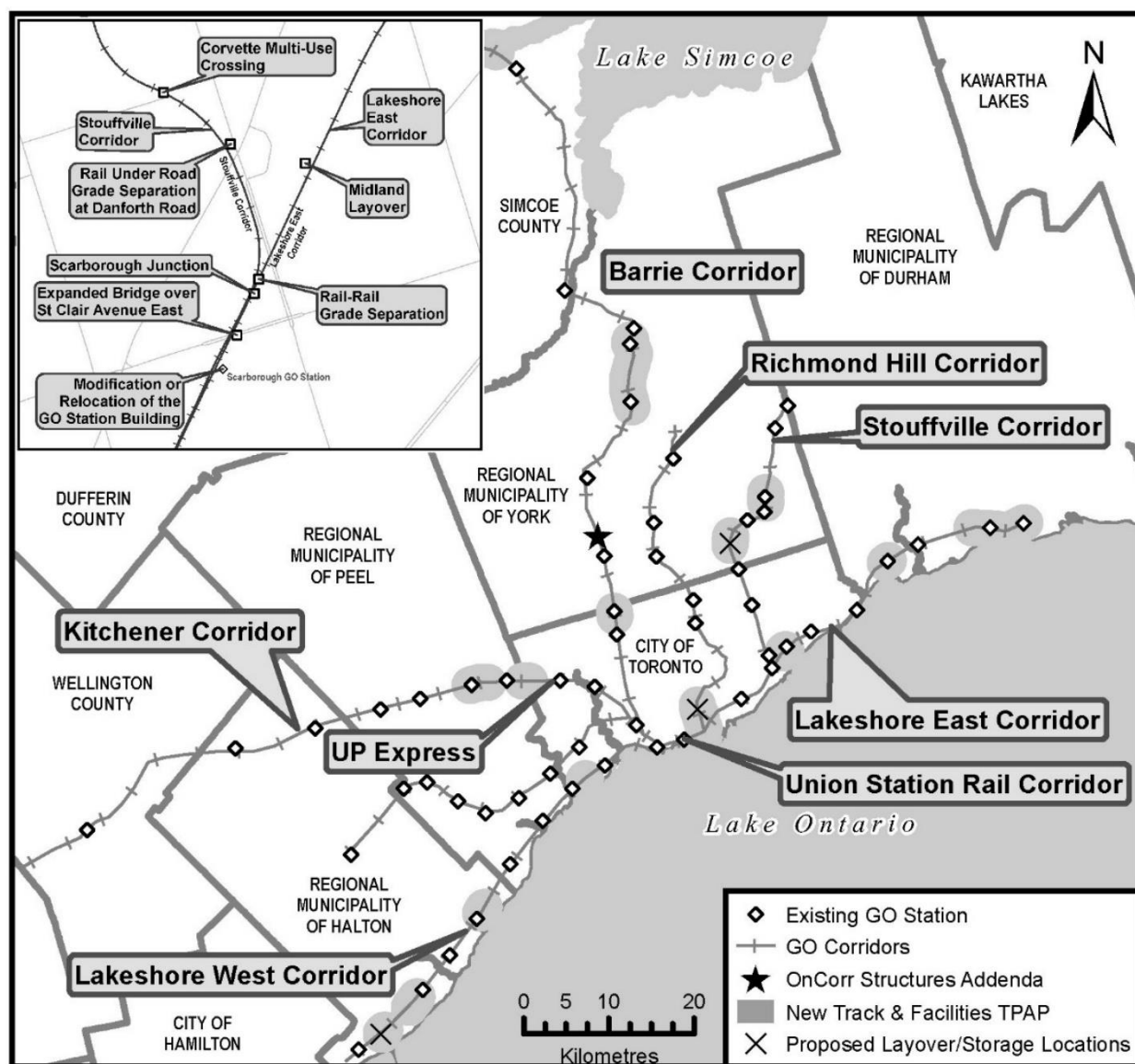
Executive Summary

Project Overview

Metrolinx is completing a Transit Project Assessment Process (TPAP) under *Ontario Regulation (O. Reg.) 231/08, Transit Project and Metrolinx Undertakings*. Metrolinx is expanding its services as part of the GO Expansion Program which will increase services both in terms of train frequency and availability across its seven rail corridors. Metrolinx is committed to providing new travel choices for commuters, significantly increasing transit ridership, cutting journey times and helping manage congestion across the Greater Golden Horseshoe (GGH). GO Expansion Program is an investment program that will transform GO Rail into a comprehensive regional rapid transit network that provides the expanded mobility the GGH needs to accommodate growth and maintain a high quality of life and prosperous economy. With major investment in GO Rail infrastructure, Metrolinx will be quadrupling GO Rail service and nearly doubling GO Rail ridership. By 2055, annual ridership is expected to exceed 200 million, compared to 105 million without GO Expansion. Ongoing Metrolinx initiatives are shown in Figure ES.1. The long-term goal and vision of the GO Expansion Program is to provide 15-minute two-way all-day service along the Lakeshore East and Stouffville Rail Corridors. System upgrades are being planned along these rail corridors, including the modifications of the infrastructure necessary to support the introduction of additional trains to meet these needs.

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Figure ES.1: Ongoing Metrolinx Initiatives



The Lakeshore East and Stouffville Rail Corridors both run east from Union Station along the same corridor until separation at the Scarborough Junction. From the Scarborough Junction, the Stouffville Rail Corridor runs north to the Lincolnville GO Station in Whitchurch-Stouffville and the Lakeshore East Rail Corridor runs east to the Oshawa GO Station (see Figure ES.1). A grade separation at the Scarborough Junction (the Project) is being planned to support Metrolinx GO Expansion Program along these two rail corridors.

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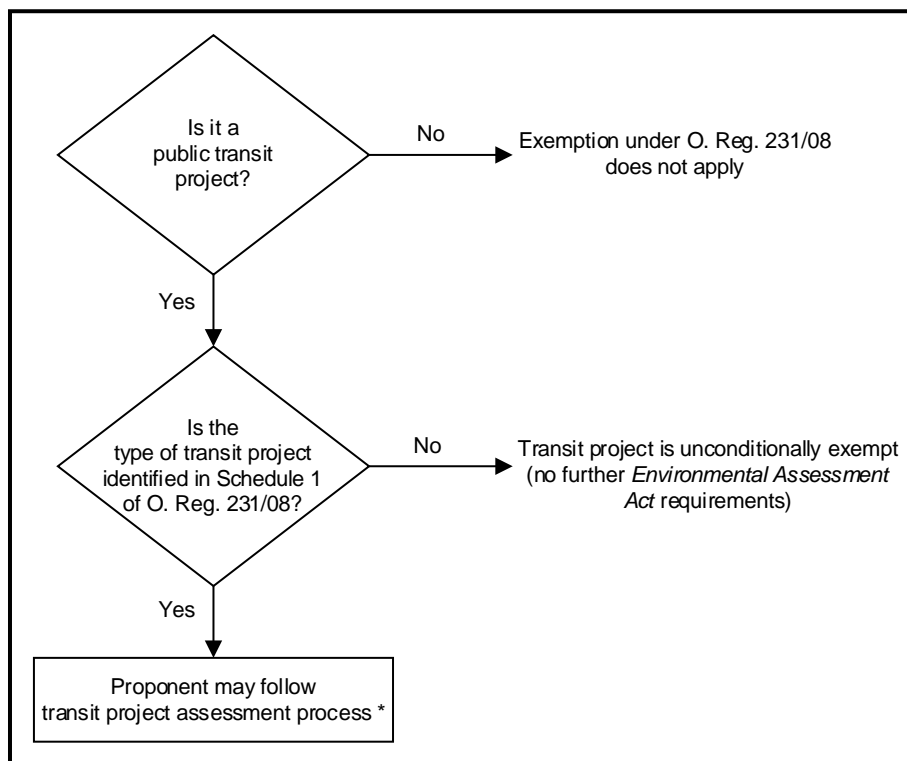
The purpose of the proposed Project is to accommodate increased service on the Stouffville and Lakeshore East Rail Corridors at this location through infrastructure improvements at the Scarborough Junction. These improvements will reduce train and traffic conflicts, while maintaining pedestrian/cyclist access. The Project will address these key objectives and facilitate the GO Expansion Program, including the construction of the previously approved new track.

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). Under *O. Reg. 231/08*, certain types of transit projects can follow the TPAP, an Ontario Ministry of the Environment, Conservation and Parks (MECP) approved, streamlined approach to Environmental Assessments (EA). The method for determining if the TPAP is an appropriate assessment process for a proposed project is described in Figure ES.2.

Figure ES.2: Determination of Applicability of TPAP



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The Project meets the TPAP requirements as presented in Schedule 1 of O. Reg. 231/08, as it relates to the following undertakings:

1. (1) – 5. *Construction of new grade separation*
2. (1) – 4. *Construction or modification of tracks required to increase the commuter rail service (including a change to All-Day Service) on an existing rail corridor, including such activities as,*
 - ii. *modification of existing mainline tracks*
 - iv. *construction, reconstruction or widening of structures*

The TPAP is a proponent-driven, self-assessment process that provides a defined framework for the proponent to follow in order to complete the assessment of the potential environmental effects and decision-making within a 120-day regulated assessment timeline. Following this period, the regulation provides a 30-day public and agency review, and a further 35-day MECP review. By following the TPAP, the Transit Projects Regulation exempts the proponent of the transit project from the requirements under Part II of the *Environmental Assessment Act*.

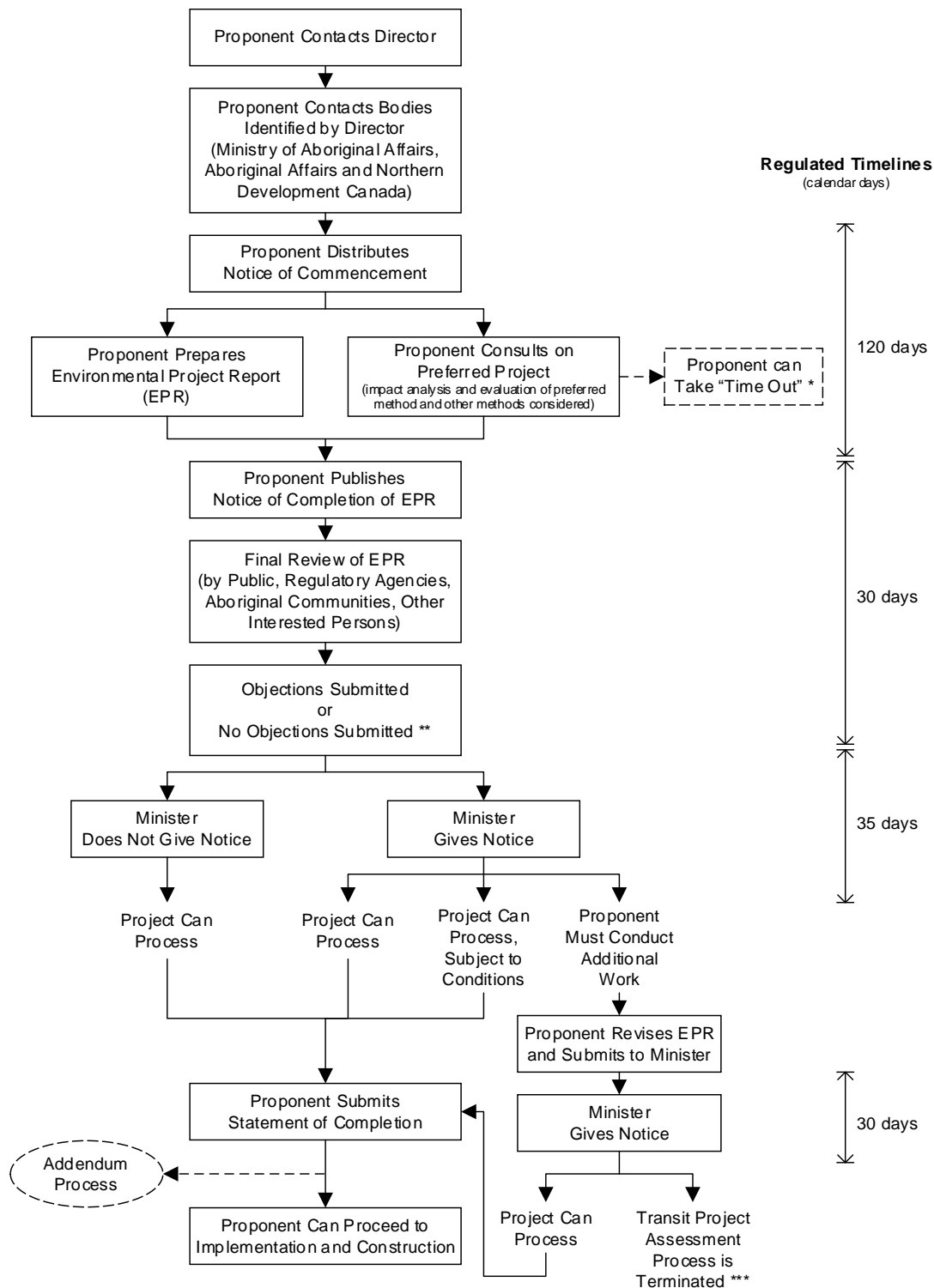
Prior to formal commencement of the TPAP, proponents are urged to undertake introductory activities and consultation through pre-planning activities. The proponent initiates the TPAP by issuing the Notice of Commencement following completion of the Pre-Planning activities and the regulated 120-day timeframe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

The Pre-Planning phase involved a number of key activities, which were undertaken in preparation for the commencement of this TPAP. Environmental and technical studies were undertaken between 2018 and 2020 to determine the existing environmental conditions within and in the vicinity of Scarborough Junction, which informed design work to determine how best to implement the required upgrades.

Further details describing the TPAP requirements, activities, and associated timelines are provided in Section 1.6 of this EPR. The steps and timelines in the TPAP are illustrated in Figure ES.3.

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Figure ES.3: Steps in the Transit Project Assessment Process



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Project Components

The Scarborough Junction is located just east of the existing Scarborough GO Station, near the intersection of Midland Avenue and St. Clair Avenue East in the City of Toronto. As part of the GO Expansion Program, a new track will be built at the Scarborough Junction heading north on the Stouffville Rail Corridor (total of two north-south tracks). This new track was assessed and approved as part of the Stouffville Corridor Rail Service Expansion Class EA. Given the service increases and resulting increased train volumes, current track configuration at the Scarborough Junction will not provide for effective train movement between the Stouffville and Lakeshore East Rail Corridors. Currently, north-south trains along the Stouffville Rail Corridor cross three tracks at-grade by switching, creating potential train conflicts and delays. With future increased service and the additional track, at-grade switching will not be feasible to maintain train flow. Therefore, a grade separation between the Stouffville Rail Corridor and the Lakeshore East Rail Corridor is proposed at the Scarborough Junction for the purpose of removing train conflicts between the Stouffville and Lakeshore East Rail Corridors and meeting service targets. A rail under road grade separation at Danforth Road is also proposed to eliminate potential rail-road conflicts. In addition, a grade separation is proposed at the current at-grade Corvette Avenue multi-use crossing to facilitate pedestrian/cyclist activity over the rail corridor.

The key Project components required to accommodate the increased level of service include (Figure ES.4):

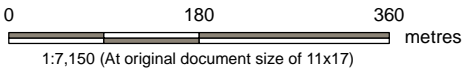
- New rail-rail grade separation through a tunnel traveling under the Lakeshore East (LSE) Rail Corridor to accommodate the second track on the Stouffville Rail Corridor
- Modification or relocation of the Scarborough GO Station building to accommodate the additional track
- Expanded bridge at St. Clair Avenue East to accommodate the new track
- Layover area for train storage (Midland Layover)
- Depressed rail under road grade separation at Danforth Road to maintain Danforth Road at the existing grade
- Depressed rail corridor from St. Clair Avenue East Bridge to Corvette Park
- Multi-use crossing to replace the existing at-grade crossing at Corvette Park
- Retaining walls and barriers to protect the corridors
- Utility realignments where conflicts occur
- Temporary areas of disturbance such as detours, access roads and laydown areas required during construction

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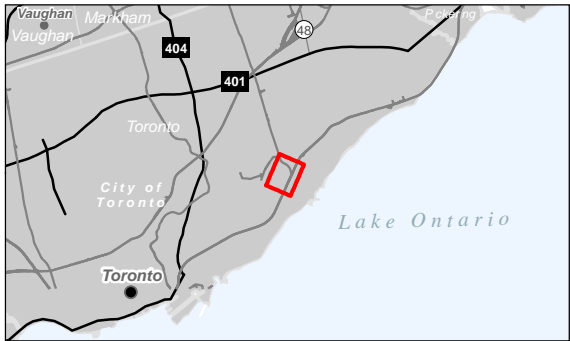


Legend

- Retaining Wall
- Storm Sewer Realignment
- Sanitary Sewer Realignment
- Rail Bridge
- Railway
- Tunnel
- Below Grade Track
- Reinstated Road Conditions
- New Sidewalk
- Reinstated Sidewalk
- Corvette Multi-use Crossing (Bridge or Tunnel)
- Midland Layover



- Notes
1. Coordinate System: NAD 1983 CSRS MTM 10
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
 3. Orthoimagery © First Base Solutions, 2016. Imagery Date, 2017.



Project Location
Greater Toronto Area

165011004 REVA
Prepared by BCC on 2020-12-17

Client/Project
METROLINX
SCARBOROUGH JUNCTION GRADE SEPARATION
ENVIRONMENTAL PROJECT REPORT

Figure No.

ES.4

Title

Key Project Components

Disclaimer: This figure has been prepared based on information provided by others as cited under the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

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Assessment of Potential Effects and Proposed Mitigation Measures

Potential environmental effects resulting from the construction and operation of the Project components were identified, analyzed, and described based on potential changes to natural, social, cultural and technical environment. Potential effects to matters of provincial importance, as defined in Ontario Regulation 231/08, that relate to the natural environment or having cultural heritage value or interest are specifically assessed in Sections 4.2 and 4.5, respectively.

Changes to existing environmental conditions have been considered through consultation with the public, City of Toronto, stakeholders and Indigenous Nations throughout the Pre-Planning and TPAP phases of the Project. Following identification of existing conditions, an assessment of potential effects and proposed mitigation measures was 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
- A description of the means to monitor or verify the effectiveness of the proposed mitigation measures to reduce or eliminate adverse effects

Section 4.0 of this report presents the conclusions of the effects assessment in more detail, and Section 4.11 highlights potential effects, mitigation measures, and monitoring requirements. The potential effects of the Project are well understood and can be addressed through the proposed mitigation measures.

The following table (Table ES.1) is a summary of potential effects associated with the proposed Project that will require mitigation measures, and anticipated monitoring activities. A potential effect is denoted by a “•”. If no potential effects are anticipated, a “-” is indicated.

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Table ES.1: Potential Effects, Mitigation Measures and Monitoring

Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
Natural Environment						
Aquatic Environment	No effects to the aquatic environment are anticipated as a result of construction or operations activities.	-	-	All Project Components	<ul style="list-style-type: none">As no effects are anticipated, no mitigation measures are required.	<ul style="list-style-type: none">No monitoring activities are required.
Terrestrial Environment	Tree/vegetation removal, injury and protection.	<ul style="list-style-type: none">	-	All Project Components	<ul style="list-style-type: none">If the final limits of the Project Footprint are altered and fall outside of the assessed study area of the Arborist Report, an additional Arborist Report or an addendum to the existing Arborist Report, will be prepared which meets regulatory requirements and is completed by an I.S.A. Certified Arborist. The report will also be completed with regard to the Metrolinx <i>Vegetation Guideline</i> (2020), the <i>Ontario Forestry Act R.S.O. 1990</i>, the <i>Endangered Species Act</i>, and other regulations, municipal by-laws and best management practices as applicable.Retain existing vegetation within the Natural Environment Assessment Area to the extent practicable. Removals will be kept to a minimum to limit direct effects to vegetation communities and vascular flora, as well as indirect effects (e.g., soil compaction and changes to topography and drainage).If a tree requires removal or injury, compensation and permitting/approvals (as required) will be undertaken in accordance with the Metrolinx <i>Vegetation Guideline</i> (2020). Metrolinx will adhere to all applicable bylaws and regulations for tree removals outside of Metrolinx properties.Pruning of branches will be conducted through the implementation of proper arboricultural techniques.Tree Protection Zone (TPZ) fencing will be established to protect and prevent tree injuries in accordance with local by-law requirements.Prior to the undertaking of tree removals, a Tree Removal Strategy, building upon the considerations and elements set out in the Metrolinx <i>Vegetation Guideline</i> (2020), will be developed and implemented in adherence with best practices, standards and regulations on safety, environmental and wildlife protections.Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx <i>Vegetation Guideline</i> (2020). Adhere to all	<ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.The success of vegetation compensation activities will be monitored in accordance with the Metrolinx <i>Vegetation Guideline</i> (2020). The approach to compensation monitoring will be determined by property ownership, applicable governing bylaws/regulations and location with respect to ecological functioning.Monitoring requirements will be undertaken in accordance with conditions of permits and approvals.Monitoring and management of trees/vegetation within the rail corridor right-of-way will be undertaken in accordance with the IVM Program. Low maintenance plantings are encouraged for all future plantings within Metrolinx corridors.

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Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
					applicable bylaws and regulations for tree removals outside of Metrolinx properties. <ul style="list-style-type: none">Vegetation removals will also consider and mitigate potential impacts to sensitive species, e.g., migratory birds and Species at Risk (SAR), and features, e.g., Designated Natural Areas and Significant Wildlife Habitat.For trees where City bylaws are applicable, including City parks, Metrolinx will follow all bylaw requirements for tree removals and associated compensation requirements.	
Terrestrial Environment	Potential for the spread of emerald ash borer, <i>Agrilus planipennis</i> (Fairmaire) associated with removal, handling and transport of ash trees.	<ul style="list-style-type: none">	-	All Project Components	<ul style="list-style-type: none">Removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive 'D-03-08: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the emerald ash borer, <i>Agrilus planipennis</i> (Fairmaire)'. To comply with this Directive, all ash trees requiring removal, including any wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada.	<ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.Ensure precautions are being taken to minimize the spread of invasive species by cleaning equipment prior to moving sites.
Terrestrial Environment	Footprint impacts and potential for the establishment of invasive species and other incompatible species.	<ul style="list-style-type: none">	<ul style="list-style-type: none">	Scarborough GO Station Building	<ul style="list-style-type: none">An IVM Plan will be developed and implemented that is in adherence with the Metrolinx Vegetation Guideline (2020) and the IVM Program. The Guideline's selection criteria will be used to assess the vegetation present as compatible or incompatible, and manage it, if necessary, in a way which meets safety needs in a timely manner, is sensitive to environmental conditions, and maximizes cost-effectiveness.	<ul style="list-style-type: none">The presence, density, and location of compatible and incompatible species will be monitored as per the frequency and methodology established in the Bi-Annual Monitoring Program within the Metrolinx Vegetation Guideline (2020). The Bi-Annual Monitoring Program is made up of pre-treatment and post-treatment monitoring events that will be carried out via field, aerial, and high-rail vehicle or train surveys conducted by qualified specialists.
		<ul style="list-style-type: none">	<ul style="list-style-type: none">	St. Clair Avenue East Bridge		
		<ul style="list-style-type: none">	<ul style="list-style-type: none">	Midland Layover		
		<ul style="list-style-type: none">	<ul style="list-style-type: none">	Danforth Road/Midland Avenue Intersection		
		<ul style="list-style-type: none">	<ul style="list-style-type: none">	Linear Facilities		
		<ul style="list-style-type: none">	<ul style="list-style-type: none">	Corvette Multi-use Crossing		
		<ul style="list-style-type: none">	<ul style="list-style-type: none">	Utilities		
		<ul style="list-style-type: none">	<ul style="list-style-type: none">	Laydown Areas		

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Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
Wildlife	Disturbance, displacement or mortality of wildlife.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Prior to construction, investigation of the Project Footprint for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate. If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease or be reduced, and wildlife will be encouraged to move offsite and away from the construction area on its own. A qualified biologist will be contacted to define the appropriate buffer required from wildlife. 	<ul style="list-style-type: none"> On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
		•	•	St. Clair Avenue East Bridge		
		•	•	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	•	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		
Significant Wildlife Habitat	Disturbance or destruction of Migratory Butterfly Stopover Areas (i.e., meadow communities) used by Monarch Butterflies (low probability, no milkweed observed).	-	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Opportunities to plant milkweed or forage vegetation outside of and within the rail Right-of-Way (ROW) will be undertaken, where possible, and in accordance with the Metrolinx Vegetation Guideline (2020). If vegetation clearing will proceed when Monarch larvae may be present (April 1 to September 30), milkweed plants should be inspected for Monarch larvae prior to their removal. If larvae are present, they may be moved to a location that is suitable and safe under the direction of a qualified biologist. Monarch caterpillars may be moved to other milkweed plants; for other larval stages (i.e., eggs and chrysalis). Entire milkweed plants should be transplanted. Provide mitigation measures for additional migratory butterfly species as required. 	<ul style="list-style-type: none"> Regular monitoring will be undertaken during construction to prevent unauthorized impacts to the Migratory Butterfly Stopover Areas (i.e., meadow communities).
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		
Migratory Breeding Birds and Nests	Disturbance or destruction of migratory bird nests.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none"> All works must comply with the <i>Migratory Birds Convention Act</i> (MBCA), including timing windows for the nesting period (April 1 to August 31 in Ontario). If activities are proposed to occur during the general nesting period a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified biologist no more than 48 hours prior to vegetation removal. If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection. 	<ul style="list-style-type: none"> Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		

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Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
		•	-	Laydown Areas		
Species at Risk	Habitat loss, disturbance and/or mortality to Barn Swallow (detailed design will determine if construction activities have the potential to disturb potential nesting structures).	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active. Where loss or disturbance cannot be avoided (e.g., due to work on bridges), all requirements under the <i>Endangered Species Act, 2007</i> (ESA) will be met, including any registration, compensation, replacement structures and/or permitting requirements. If construction activities are scheduled during the nesting season for Barn Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn Swallow are nesting on structures or banks that may be affected by construction activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting. 	<ul style="list-style-type: none"> On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize effects. Additional monitoring measures will be developed with the MECP, if required.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Significant Natural Features	No potential effects during construction and operations as there are no Significant Natural Areas within the Natural Environment Assessment Area.	-	-	All Project Components	<ul style="list-style-type: none"> As no effects are anticipated, no mitigation measures are required. 	<ul style="list-style-type: none"> No monitoring activities are required.
Geology and Groundwater						
Landforms and Physiography	No effects to landforms or physiographic environmental components are anticipated as a result of construction activities.	-	-	All Project Components	<ul style="list-style-type: none"> As no effects are anticipated, no mitigation measures are required. 	<ul style="list-style-type: none"> No monitoring activities are required.
Bedrock Geology	No effects to bedrock geology are anticipated as a result of construction activities.	-	-	All Project Components	<ul style="list-style-type: none"> As no effects are anticipated, no mitigation measures are required. 	<ul style="list-style-type: none"> No monitoring activities are required.
Soils	Construction operations could expose contaminated materials and/or result in the spreading of contaminated materials.	•	-	All Project Components	<ul style="list-style-type: none"> Develop a Soil and Excavated Materials Management Plan (SEMMP) for the handling, management and disposal of all excavated material (i.e., soil, rock and waste) that is generated or encountered during the Works. The plan will be overseen by a Qualified Person (QP) pursuant to Ontario Regulation 153/04 under the <i>Environmental Protection Act</i> and will comply with Ontario Regulation 406/19 (On-Site and Excess Soil Management – to be enacted into law on July 1, 2020), the MECP, formerly the Ministry of the Environment and Climate Change (MOECC)'s Management of Excess Soils: A Guide for Best 	<ul style="list-style-type: none"> A Soil and Excavated Material Monthly Monitoring Report will be submitted by the Constructor for Metrolinx review on a monthly basis that includes monitoring and performance data related to the management of excavated materials. Upon completion of the work, the Constructor will submit a Soil and Excavated Material Management Implementation Report to Metrolinx

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					<p>Management Practices, (MECP, April 2019, as amended) and all Applicable Law. The plan will describe how to address the management of the excavated materials, imported materials, contaminated materials, and impacted railway ties, including handling, transportation, testing, documentation and reuse and disposal of excavated materials generated as part of the works and in accordance with applicable regulatory requirements and the project contract documents/agreement as applicable.</p> <ul style="list-style-type: none">• Non-soil materials, including railway bedding, railway ties, or ballast materials encountered during the earthworks will also require waste classification as documented by testing where applicable to determine management and disposal requirements as per Ontario Regulation 347 (as amended) and All Applicable Law.• The SEMMP will be reviewed and approved by Metrolinx prior to construction.	
Groundwater Resources	Construction operations could expose groundwater and associated contamination.	<ul style="list-style-type: none">•	-	All Project Components	<ul style="list-style-type: none">• Develop a Groundwater Management and Dewatering Plan (GMDP) to guide the handling, management, and disposal of groundwater encountered during the Works. The GMDP will be overseen by a QP and will comply with Ontario Regulations 406/19 (On-Site and Excess Soil Management – to be enacted into law on July 1, 2020), 64/16 and 387/04, as amended under the <i>Ontario Water Resources Act</i>.• The GMDP will describe the handling, transfer, testing, monitoring, disposal of groundwater generated as part of the Works and in accordance with applicable regulatory requirements and the project contract documents/agreement as applicable. The GMDP will outline general groundwater monitoring considerations during the Works and provide guidance for groundwater monitoring following the Works where considered applicable.• The GMDP will describe the anticipated groundwater quantity and dewatering Zone of Influence that will be encountered during the Works, and if approvals are needed for the water taking, such as a Permit to Take Water (PTTW) from the MECP, or an Environmental Activity Sector Registry (EASR).	<ul style="list-style-type: none">• A Groundwater Management Monthly Dashboard Report will be developed by the Constructor for Metrolinx review to document performance monitoring data/results and any corrective actions implemented during the previous month.• Upon completion of the work, the Constructor will submit a Groundwater Management and Dewatering Implementation Report to Metrolinx.

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					<ul style="list-style-type: none">The GMDP will describe the storage, transfer, and disposal and or treatment of the groundwater collected during the Works, and approvals for the water disposal, and or treatment if applicable based on the quantity and quality.The GMDP will be reviewed and approved by Metrolinx prior to construction.	
Stormwater Management						
Potential Impacts and Proposed Mitigation Measures for Stormwater and Site Drainage	The proposed construction activities pose a potential impact due to sediment transport into municipal drainage infrastructure.	<ul style="list-style-type: none">	-	All Project Components	<ul style="list-style-type: none">Prepare and implement a Drainage and Stormwater Report, an Erosion and Sediment Control Plan, detailed drainage design and erosion and sediment control drawings in accordance with the Ministry of the Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design Manual (2003), Toronto and Region Conservation Authority's (TRCA) Erosion and Sediment Control Guideline for Urban Construction (2019), as amended from time to time, and the guidelines and regulatory requirements of the Conservation Authority having jurisdiction.The overall stormwater quality and quantity control strategy will be developed in accordance with all relevant municipal, provincial and federal requirements, as amended, as well as the requirements of Conservation Authorities having jurisdiction.A detailed assessment of proposed ditches along the rail corridor is required to ensure adequate drainage conveyance in accordance with municipal requirements and American Railway Engineering and Maintenance-of-Way Association Manual for Railway Engineering (2019).Infiltration requirements for municipalities will be determined as per the design guidelines and standards.	<ul style="list-style-type: none">Turbidity levels within discharges from sites to be monitored visually. Turbidity levels will be monitored upstream and downstream of sites at watercourse crossings or adjacent to watercourses. Turbidity levels within discharges from sites and within receiving storm sewers will also be monitored visually to determine potential impacts from construction.Grab samples for existing watercourses and/or wetlands, when runoff from the site discharges to a watercourse and/or wetland will be conducted for pre-construction, during construction, and post construction conditions until the site is considered stabilized. Grab samples for watercourses and wetlands will be taken for non-precipitation event and for precipitation events to obtain a reasonable understanding of the turbidity levels. Post-construction monitoring of wetland areas may be required depending on input from Conservation Authorities.Monitoring will be conducted for potential oil spills and containment of spills to be conducted as per provincial requirements.Functionality of stormwater quantity controls including peak flows and water levels for storm events within the design range. Monitoring would require local rainfall data.Infiltration targets, measured by flow monitoring on infiltrative Low Impact Development Best Management Practices.Stormwater quality measures will be assessed to provide a minimum 80% Total Suspended Solids removal as per the MECP Stormwater Management Planning and Design Manual (2003).

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Cultural Environment						
Archaeological Resources	Potential for the disturbance of unassessed or documented archaeological resources.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none">Additional Stage 2 AA work will be undertaken for the proposed laydown area in Corvette Park and the undeveloped portion of the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection; and Stage 3 and 4, where recommend by previous stages will be undertaken by a licensed archaeologist early in and prior to the completion of detail design and submitted to MHSTCI for review. Metrolinx and/or the Contractor will confirm that any AA reports submitted to MHSTCI for review have been entered into the Ontario Public Register of Archaeological Reports prior to commencing any ground disturbing activities.The Constructor will develop and implement an Archaeological Risk Management Plan that addresses any recommendations resulting from Archaeological Assessments and documents all protocols for the discovery of human remains and undocumented archaeological resources. The Archaeological Risk Management Plan shall be amended to incorporate any additional actions required resulting from subsequent Archaeological Assessment Reports and/or subsequent changes to Applicable Law.All work shall be performed in accordance with Applicable Law, including but not limited to the <i>Ontario Heritage Act</i>, the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI), formerly the Ministry of Tourism, Culture and Sport (MTCS) <i>Standards and Guidelines for Consultant Archaeologists</i> (2011), and the MHSTCI document, <i>Engaging Aboriginal Communities in Archaeology: A Draft Bulletin for Consultant Archaeologists in Ontario</i> (2011).In the event that archaeological materials are encountered or suspected of being encountered during construction, all work will cease. The location of the findspot should be protected from impact by employing a buffer in accordance with requirements of the MHSTCI. A professionally licensed archaeologist will be consulted to complete the assessment. If materials are confirmed to possess cultural heritage value/interest then they will be reported to the MHSTCI, and further Archaeological Assessment of the materials may be required. If it is determined that there is a potential for Indigenous	<ul style="list-style-type: none">Performance of the work will occur within land previously subject to an Archaeological Assessment.Any site personnel responsible for carrying out or overseeing land-disturbing activities will be informed of their responsibilities in the event that an archaeological resource is encountered.Further Archaeological Assessment may identify the need for monitoring during construction.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		

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					<p>artifacts, Metrolinx should be contacted, and Applicable Law will be followed.</p> <ul style="list-style-type: none">• If final limits of the Project Footprint are altered and fall outside of the assessed study area, additional Archaeological Assessments will be conducted by a professionally licensed archaeologist prior to disturbance and, prior to construction activities. This will include completing all required Archaeological Assessments resulting from the Stage 1 Archaeological Assessment (Stage 2, Stage 3 and Stage 4, as required) as early as possible, prior to the completion of design, and in advance of any ground disturbance.• For areas determined to have archaeological potential or contain archaeological resources that will be impacted by project activities, additional Archaeological Assessment will be conducted by a professionally licensed archaeologist prior to disturbance.• If human remains are encountered or suspected of being encountered during project work, all activities must cease immediately and the local police/coroner as well as the Bereavement Authority of Ontario on behalf of the Ministry of Government and Consumer Services must be contacted. Archaeological investigations of human remains will not proceed until police have confirmed the remains are not subject to forensic investigation. Once human remains have been cleared of police concern, the MHSTCI will also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the <i>Ontario Heritage Act</i>. If the human remains are determined to be of Indigenous origin, Metrolinx should be contacted, and all applicable law must be adhered to.• All Archaeological Assessment findings will be shared with Indigenous Nations, as per Metrolinx procedures.	

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Built Heritage Resources and Cultural Heritage Landscapes	Indirect impacts to the built heritage resources of a property of known or potential Cultural Heritage Interest or Value (CHVI) due to installation of new/modified infrastructure.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">All work shall be performed in accordance with Applicable Law, including but not limited to the <i>Ontario Heritage Act</i>, the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) <i>Standards and Guidelines for Provincial Heritage Properties: Metrolinx Identification and Evaluation (I&E) Process</i> (2014), the MHSTCI guidance on <i>Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment</i> (2019) (Cultural Heritage Report), and the forthcoming <i>Standards and Guidelines for Provincial Heritage Properties: Metrolinx Identification and Evaluation (I&E) Process</i> (2020). In the event that the <i>Metrolinx I&E Process</i> (2020) is not approved, follow the Metrolinx <i>Interim Cultural Heritage Management Process</i> (2013).Follow the recommendations outlined in the heritage reporting completed including Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (2020) (Cultural Heritage Report), or the Heritage Impact Assessment (HIA).For known and potential properties of Cultural Heritage Value or Interest (CHVI) that will experience indirect or direct impacts and where no previous assessment has been completed or a Statement of Cultural Heritage Value (SCHV) has not been approved by Metrolinx, undertake a Cultural Heritage Evaluation Report (CHER) as per the forthcoming <i>Metrolinx I&E Process</i> (2020). In the event that the <i>Metrolinx I&E Process</i> (2020) is not approved, follow the Metrolinx <i>Interim Cultural Heritage Management Process</i> (2013).Given the importance and location of some Cultural Heritage Resources, consultation with Municipal heritage staff and other jurisdictions will be undertaken as appropriate to determine if proposed infrastructure will be subject to specific policies within heritage districts or conservation areas (including parks).Use preventative measures to avoid the 87 Granger Avenue (CHR-1), 112 Granger Avenue (CHR-2), 70 Granger Avenue (CHR-3), and 1 Granger Avenue (CHR-4) by establishing a buffer zone around the residence. This should use appropriate preventative measures such as mapping of the CHR on construction maps and temporary fencing.	<ul style="list-style-type: none">Implement and comply with monitoring requirements and commitments pertaining to Cultural Heritage Resources (CHRs)/properties as per previously completed Metrolinx and/or GO Transit EPRs and/or Environmental Study Reports (ESRs) and Addenda and the recommendations contained in the Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment.Alternatively, where construction activities are anticipated within the 50 metre buffer zone of 87 Granger Avenue (CHR-1), 112 Granger Avenue (CHR-2), 70 Granger Avenue (CHR-3), and 1 Granger Avenue (CHR-4), pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures.
		-	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		

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Built Heritage Resources and Cultural Heritage Landscapes	Potential indirect impacts on known or potential properties of CHVI resulting from construction activities.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">Selection of construction staging and laydown areas will follow Metrolinx selection procedures, which include avoiding built heritage resources and cultural heritage landscapes wherever possible or effectively mitigating impacts where not possible.For 1 Granger Avenue (CHR-4) , where laydown areas are required within the 50 metre buffer zone, pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures.	<ul style="list-style-type: none">Implement and comply with monitoring requirements and commitments pertaining to CHRs/properties as per previously completed Metrolinx and/or GO Transit EPRs and/or ESRs and Addenda and the recommendations contained in the Scarborough Junction Grade Separation Project Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment.
		-	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		•	-	Laydown Areas		
Built Heritage Resources and Cultural Heritage Landscapes	For any additional potentially affected Cultural Heritage Resources/properties not previously identified within a previous Metrolinx/GO Transit EA/TPAP/Other Study	•	-	All Project Components	<ul style="list-style-type: none">If the Project study limits change or there is a change in impact that is not captured or documented in previously completed Metrolinx and/or GO Transit EPRs and/or ESRs post EA/TPAP, and which causes any additional heritage properties to be impacted by the proposed design/infrastructure, all applicable legislation will be followed to carry out additional impact assessment work and heritage studies to identify any known or potential built heritage resources and cultural heritage landscapes, and to identify potential impacts and appropriate mitigation measures.	<ul style="list-style-type: none">Implement and comply with monitoring requirements and commitments pertaining to Cultural Heritage Resources/properties as per the recommendations contained in any/all of the following documents: Cultural Heritage Reports, CHARs, CHERs, HIAs and SCPs.
Socio-Economic and Land Use						
Planning Policy Context	Use of a portion of Corvette Park as a laydown area is not consistent with existing park land use. For other Project Components, no effects to planning policies are anticipated as a result of construction and operations activities.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">To the extent feasible, the laydown area will be situated within the splash pad area and in an area approved by the City of Toronto Parks, Forestry & Recreation Department. This laydown area will be used as a laydown area for the multi-use crossing only.Impacts to the playground, including the need for closure or opportunities to maintain operation during construction will need to be confirmed with the City of Toronto during detailed design, and in consideration of the City of Toronto's revitalization plans.	<ul style="list-style-type: none">None anticipated at this time.
		-	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		•	-	Laydown Areas		
Neighbourhood Characteristics	Property acquisition - permanent and temporary.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">Specific property requirements will be confirmed during design. Where access to property is required,	<ul style="list-style-type: none">None anticipated at this time.

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		<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	St. Clair Avenue East Bridge	<ul style="list-style-type: none"> ongoing consultation with affected landowners will help identify appropriate site-specific mitigation measures. Select staging/laydown areas in accordance with Metrolinx procedures. Staging/laydown areas should be located in areas that minimize adverse effects to sensitive receptors. 	
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		•	•	Corvette Multi-use Crossing		
		•	•	Utilities		
		•	-	Laydown Areas		
Neighbourhood Characteristics	Nuisance effects from construction activities.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Mitigation measures related to potential nuisance effects are outlined below under Air Quality and Noise and Vibration. An Erosion and Sediment Control (ESC) Plan will be developed in accordance with the Greater Golden Horseshoe Area Conservation Authorities' <i>Erosion and Sediment Control Guideline for Urban Construction</i> (2019), as amended from time to time, that addresses sediment release to adjacent properties and roadways. Develop a Communications Protocol in accordance with the Project Agreement, which will indicate how and when surrounding property owners and tenants will be informed of anticipated upcoming construction works, including work at night, if any. Develop a Complaints Protocol in accordance with the Project Agreement. 	<ul style="list-style-type: none"> When applicable, monitoring related to potential nuisance effects are outlined under Air Quality and Noise and Vibration. Erosion and sediment control monitoring to be conducted as per Project Agreement. Number and resolution of complaints received.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		
Neighbourhood Characteristics	Land use and access disruption.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Provide well connected, clearly delineated, and appropriately signed walkways and cycling route options, with clearly marked detours where required. Provide temporary lighting and wayfinding signs and cues for navigation around the construction site. Develop a plan to reduce the effects of light pollution in accordance with the Project Agreement. Access to nearby land uses will be maintained for vehicular, pedestrian and cyclist traffic. Potentially affected residents, tenants and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur. Temporary vehicular and pedestrian facilities will comply with accessibility and applicable City standards. 	<ul style="list-style-type: none"> Temporary access paths, walkways, cycling routes and fencing should be monitored. Number and resolution of complaints received.
		•	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		

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					<ul style="list-style-type: none">• Provide advance community notification to address school year and potential pedestrian route changes; provide construction timing consideration optimized to minimize school year disruption and need for rerouting children travelling to schools such as Corvette Junior Public School and Robert Service Senior Public School east of Midland, from both sides of the rail corridor.• The area where the current splashpad is situated will be restored in a manner that is consistent with existing vegetation within Corvette Park and in consultation with the City of Toronto.• Further discussions with City of Toronto will occur during detailed design to confirm the appropriate mitigation measures to maintain the functionality and assets of Corvette Park.	
Neighbourhood Characteristics	Visual effects from construction areas/activities.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none">• A screened enclosure for the development site may be provided, with particular attention to the waste disposal and material storage areas.• Consideration will be given to providing temporary landscaping along the borders of the construction site between site fencing/enclosure and walkways, where space allows, and where necessary.• Construction schedule delays will be avoided to the extent possible in order to minimize the duration of construction and corresponding visual impacts.• Retain existing vegetation to the extent practicable.• Clearing the area within Corvette Park to be used as a laydown area to support construction of the multi-use crossing.	<ul style="list-style-type: none">• Construction activities will be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
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Neighbourhood Characteristics	Safety concerns (i.e., resulting from single point of egress on the ramps, concealed corners due to multiple ramp turns, lack of clear sightlines from street level and on the ramps, the potential for materials to be thrown from the bridge and ramps).	-	-	Scarborough GO Station Building	<p>Corvette multi-use crossing:</p> <ul style="list-style-type: none">The design of the Corvette multi-use crossing will be further refined during detailed design, taking into consideration the potential effects identified in this EPR.Additional screening will be added to the ramps to prevent individuals from throwing items from the ramps.EPBs will be placed along the bridge and will help prevent individuals from throwing items from the bridge.Noise barriers placed along the rail corridor adjacent to the Corvette multi-use crossing may be transparent to provide increased visibility across the rail corridor. <p>General:</p> <ul style="list-style-type: none">Additional lighting to provide increased visibility and eliminate dark/concealed areas.	<ul style="list-style-type: none">None anticipated at this time.
		-	•	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		-	•	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Aesthetics/Visual Character	Visual effects during operation.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">Exterior wall facings that are visible to the public will receive a permanent concrete facing and a plain finish. In conjunction with the City of Toronto, Metrolinx will determine the appropriate finish(es) for the retaining walls based on municipal planning and urban design policies and objectives, surrounding land uses, adjacent built form, and pedestrian, cycle and automobile traffic levels.Metrolinx will consider options to increase the visibility/transparency of the Corvette multi-use crossing structure and guardrails the use of tempered laminated glass panels or low profile barriers.Metrolinx will consider maintenance of vegetation to the extent possible and replanting of vegetation to maintain natural buffers where appropriate and feasible.To reduce visual effects from new barriers at Danforth Road/Midland Avenue, barrier transparency will be maximized to maintain sightlines and design solutions to limit the visual impact (i.e., location of installing the barriers) will be further investigated.	<ul style="list-style-type: none">None anticipated at this time.
		-	-	St. Clair Avenue East Bridge		
		-	•	Midland Layover		
		-	•	Danforth Road/Midland Avenue Intersection		
		-	•	Linear Facilities		
		-	•	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		

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Aesthetics/Visual Character	Loss of privacy.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> The surrounding community will be notified of initial construction plans, as well as any future modifications as they occur. The ability to see from the Corvette multi-use crossing into private property is anticipated to be limited given the location of the bridge and ramps. 	<ul style="list-style-type: none"> None anticipated at this time.
		-	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	•	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Aesthetics/Visual Character	Light trespass, glare and light pollution effects.	•	-	All Project Components	<ul style="list-style-type: none"> Comply with all local applicable municipal by-laws and Ministry of Transportation (MTO) practices for lighting in areas near or adjacent to highways and roadways regarding outdoor lighting for both permanent and temporary construction activities, and incorporate industry best practices provided in <i>ANSI/IES RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting</i>, as described in the Project Agreement. The Constructor will perform the Works in such a way that any adverse effects of construction lighting are controlled or mitigated in such a way as to avoid unnecessary and obtrusive light with respect to adjoining residents, communities and/or businesses. 	<ul style="list-style-type: none"> Measure illuminance levels using an illuminance meter in accordance with ANSI/IES RP-8-18 Chapter 4. Number and resolution of complaints received.
Utilities	Utility serviceability effects due to design requirements and construction.	•	-	Only applies to Utilities	<ul style="list-style-type: none"> Develop and implement a detailed Utility Infrastructure Relocation Plan that identifies all utilities anticipated to be impacted by the construction works, all relevant utility agencies and authorities, and outlines the approach to the utility relocation process. The Utility Infrastructure Relocation Plan will be developed in accordance with the Project Agreement. Additional surveys shall be performed prior to construction to field locate and verify the existing utilities within the project area and document their condition. Perform all work identified in the Utility Infrastructure Relocation Plan to protect, support, safeguard, remove, and relocate all Utility Infrastructure. 	<ul style="list-style-type: none"> Maintain regular communication and coordination through issuance of regular progress reports and updates to applicable utility agencies. Record all installation tolerances and how they are to be monitored. Perform inspection and testing to ensure successful utility relocation and safe and efficient installation. In the event of potential impacts to critical utilities, instrumentation and monitoring shall be carried out to protect the critical utilities and structures and reduce risks of damage due to construction activities.

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					<ul style="list-style-type: none">Obtain permits and consents from and with all Utility Companies with respect to the design, construction, installation, servicing, operation, repair, preservation, relocation, and or commissioning of Utility Infrastructure.Ensure minimizing impact to the Train Service Plans and to continuity of service and disruption to property owners and customers of the Utility Companies to the satisfaction of the Utility Companies and Metrolinx.	
Utilities	Future Utility Maintainability.	-	<ul style="list-style-type: none">	Only applies to Utilities	<ul style="list-style-type: none">Where new utility crossings are proposed, application for a new utility crossing agreement will be required. Where modifications to an existing utility crossing takes place, updates to an existing utility crossing will be needed.Post-construction inspections of the new utility infrastructure shall be undertaken for applicable works upon completion of the construction works to document condition.Obtain as-built plans of the relocated infrastructure from utility agencies per as-built preparation standards Canadian Standards Association (CSA) S250-11 – <i>Mapping of Underground Utility Infrastructure</i> (2011), as amended from time to time.	<ul style="list-style-type: none">Develop and implement tracking system for as-built deliverables.
Air Quality						
Air Quality	Construction related air pollution may pose risks to human health and wellbeing.	<ul style="list-style-type: none">	-	All Project Components	<ul style="list-style-type: none">Prior to commencement of construction, develop and implement a detailed Construction Air Quality Management Plan (AQMP). The AQMP will:<ul style="list-style-type: none">Demonstrate compliance with the specific air quality criteria and limits in the Metrolinx <i>Environmental Guide for Air Quality and Greenhouse Gas Emissions Assessment</i> (2019).Define the Project's air quality impact zone and identify all sensitive receptors within this area.Assess the baseline air quality by continuous measurement of local ambient concentrations of PM_{2.5} and PM₁₀ over a minimum period of one week, where large local sources of pollution, such as highways, directly affect the zone of influence of the Project.Estimate and document the predictable worst-case air quality impacts of the Project on sensitive receptors within the air quality impact zone, develop appropriate mitigation measures,	<ul style="list-style-type: none">Develop and implement Weekly Air Quality Monitoring Plans that document how air quality monitoring has been conducted and compliance assessed to effectively prevent unacceptable rates of air emissions in accordance with the following guidelines:<ul style="list-style-type: none">The construction related air contaminants of primary concern are in the form of particulate matter, with the principal construction related fractions of PM_{2.5} and PM₁₀ - particulate matter of less than 2.5 and 10 micron in diameter, respectively. Other contaminants of concern include crystalline silica and oxides of nitrogen. The list of contaminants will be expanded with any and all air pollutants that may be produced as a result of the work.The criteria for PM_{2.5}, PM₁₀ and crystalline silica are provided in Metrolinx's <i>Environmental Guide for Air Quality and Greenhouse Gas Emissions Assessment</i>

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					<p>demonstrate their effectiveness, and commit to their timely implementation.</p> <ul style="list-style-type: none"> – Monitor continuously any contaminant, in addition to PM_{2.5} and PM₁₀, which is predicted to exceed its relevant air quality exposure criterion during any phase of the Project and at any receptor. – Include explicit commitment to the implementation of all applicable best practices identified in the Environment Canada document, <i>Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities</i> (2005). • Develop a Communications Protocol and a Complaints Protocol to respond to issues that develop during construction • Refer to the Construction Phase Air Quality Impact Assessment Report (Appendix A5) for further detailed mitigation measures. 	<p>(2019). The applicable criteria for all other air contaminants of concern are to be found in the various schedules of <i>Ontario Regulation 419/05</i>.</p> <ul style="list-style-type: none"> • Siting of the monitors should generally follow the guidelines provided in the Ministry of the Environment, Conservation and Parks (MECP) <i>Operations Manual for Air Quality Monitoring in Ontario</i> (2018). • Refer to the Construction Phase Air Quality Impact Assessment Report (Appendix A5) for detailed monitoring activities
Air Quality	Exhaust emissions of diesel powered trains contribute to local and regional air pollution.	-	•	Linear Facilities	<p><u>Mitigation Measures:</u></p> <ul style="list-style-type: none"> • A detailed Operations Air Quality Management Plan will be developed and implemented to limit the generation and dispersion of airborne particulate matter, NOx and other air contaminants associated with the project operations. • New traction engines or propulsion systems and new auxiliary engines and power units will meet higher emission standards (i.e., Tier 4 diesels rather than lower tier diesels). • Engines and their emission control equipment will be maintained to manufacturers' specifications. • Rebuilt diesel engines will meet Tier 4 emission standards at the time of major engine rebuilds. • Unnecessary train/engine/propulsion system idling will be minimized through technical and operational measures. • Unnecessary non-revenue equipment runs will be minimized through design and planning. <p><u>Mitigation Criteria:</u></p> <ul style="list-style-type: none"> • Diesel engines used for traction and auxiliary power in locomotives and DMUs are subject to corresponding US EPA and Transport Canada heavy-duty diesel engine exhaust emission standards for CO, PM, NOx and HC. 	<ul style="list-style-type: none"> • On-site inspections will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. • Annually, test train propulsion and auxiliary power units, which produces exhaust emissions and ensure that they remain in compliance with applicable Transport Canada heavy-duty diesel engine exhaust emission standards for CO, PM, NOx and HC. Engine testing will include: <ul style="list-style-type: none"> – Testing at no load – Testing at 50% load – Testing at 100% load • Test rebuilt traction and auxiliary power diesel engines, before being placed into service, to the exhaust emission standards they are rebuilt to meet. • Develop an Air Sampling and Monitoring Plan and submit an annual report summarizing all sampling and monitoring results accumulated over the preceding year.

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Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
Noise and Vibration						
Construction and Maintenance-related Noise	<p>Environmental noise may cause annoyance, disturb sleep and other activities, and affect human health.</p> <p>The severity of the noise effects resulting from construction projects varies, depending on:</p> <ul style="list-style-type: none">• Scale, location and complexity of the project• Construction methods, processes and equipment deployed• Total duration of construction near sensitive noise receptors• Construction activity periods (days, hours, time period) <p>Number and proximity of noise-sensitive sites to construction area(s)</p>	<ul style="list-style-type: none">•	-	All Project Components	<ul style="list-style-type: none">• Prior to commencement of construction, develop and submit a detailed Construction Noise Management Plan.• The Construction Noise Management Plan shall:<ul style="list-style-type: none">- Document and commit to all measures to be taken for meeting the noise exposure limits documented in the Metrolinx <i>Guide for Noise and Vibration Assessment</i> (2020) at every directly exposed sensitive receptor and throughout the entire project.- Determine the Zone of Influence for construction related noise based on the noise exposure limits outlined in the Metrolinx <i>Guide for Noise and Vibration Assessment</i> (2020) and taking into consideration the construction site, staging and laydown sites and hauling routes, each stage of the construction (including demolition), the overall construction schedule along with the schedule of each major component and associated major construction processes and equipment usage.- Identify all sensitive receptors that fall within the Zone of Influence for construction related noise. Mitigation measures will be proposed for these sensitive receptors, and the effects of the proposed mitigation measures will then be evaluated using noise modelling. If results of the modelling indicate that any sensitive receptors still remain within the Zone of Influence for construction related noise, then the following shall apply:<ul style="list-style-type: none">✓ Additional mitigation is proposed and subsequently modelled until the sensitive receptor does not fall within the Zone of Influence; or✓ If mitigation strategies are not viable, receptor based mitigation will be proposed.• The Construction Noise Management Plan will include the temporary/permanent noise barriers indicated in the applicable noise and vibration construction impact assessment report (2020). Where additional work sites are identified which were not assessed as part of the applicable noise and vibration construction impact assessment report (2020), or where construction activities at any given site differ from those considered in this report,	<ul style="list-style-type: none">• The Construction Noise Management Plan will incorporate the following requirements related to monitoring of noise and noise related complaints:<ul style="list-style-type: none">- Monitor noise where the Construction Noise Management Plan indicates that noise exposure limits may be exceeded. At these locations, monitor noise continuously at each geographically distinct, active construction site with one monitor located strategically to capture the highest exposure level based on planned construction activities and the number, geographic distribution and proximity of noise sensitive receptors. Develop weekly reports describing the monitoring conducted and summarizing the data collected for the reporting period. The reports will include but not be limited to the number and duration of any incident during which any of the noise exposure limits documented in the Metrolinx <i>Guide for Noise and Vibration Assessment</i> (2020) were exceeded, the probable cause of each exceedance, the incident-specific measure(s) implemented, the resulting mitigated noise levels and the complaints investigation procedure.- Establish a Communications Protocol and a Complaints Protocol to respond to issues that develop during construction.

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Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
					conduct modelling to evaluate the need for additional noise barriers as part of the Construction Noise Management Plan.	
Operational Noise (<i>Trains</i>)	<p>Environmental noise may cause annoyance, disturb sleep and other activities, and affect human health.</p> <p>If operations are projected to cause a 5-dB increase or greater in the average energy equivalent noise (referred to as “Leq”) relative to the existing noise level or the MECP objective of 55 dBA for daytime and 50 dBA for night-time, whichever is higher, then mitigation is required.</p>	-	•	Linear Facilities and Midland Layover	<p><u>Mitigation per TPAP Study Report (Noise Barriers):</u></p> <ul style="list-style-type: none"> Deploy the noise barriers defined in the <i>Noise and Vibration Study Reports GO Rail Network Electrification Project, 2020</i> (RWDI). Maintain noise barriers so as to ensure their continued effectiveness in noise reduction. If deviating from the assessments made in the <i>Noise and Vibration Study Reports GO Rail Network Electrification Project, 2020</i> (RWDI), comply with the noise impact and assessment criteria in the Metrolinx <i>Guide for Noise and Vibration Assessment</i> (2020). <p><u>Mitigation at the Source:</u></p> <ul style="list-style-type: none"> Deploy vehicle and track technology and related maintenance measures to maintain compliance with the noise and vibration exposure criteria defined below. <p><u>Mitigation Criteria:</u></p> <ul style="list-style-type: none"> Meet the following long-term day-time/ night-time maximum noise exposure objectives at all noise sensitive receptors across the system, where background noise levels allow their realization: <ul style="list-style-type: none"> 10-year objective: 70/60 dBA 20-year objective: 60/50 dBA 25-year objective: 55/50 dBA Meet the airborne noise exposure criteria in the 1995 MOEE/GO Transit Draft Noise and Vibration Protocol. Meet the ground-borne (vibration induced) noise exposure criteria in the 1995 MOEE/GO Transit Draft Noise and Vibration Protocol. Meet any additional future criteria or guidance developed by regulatory agencies, as applicable. 	<ul style="list-style-type: none"> Measure and document the Leq (16-hour) and Leq (8-hour) noise levels, under predictable worst-case conditions, at locations where new noise mitigation barriers have been provided per the 2020 noise and vibration studies and per the Metrolinx Enhanced Mitigation Program. Outdoor measurements will be carried out in accordance with MECP requirements and US FTA Report No. 0123, Transit Noise and Vibration Impact Assessment Manual (2018). The primary purpose of these measurements is to ascertain the effectiveness of the implemented mitigation measure(s). Assess the condition and performance of locomotives, coaches, DMUs and EMUs with respect to noise emissions as part of maintenance to ensure continued compliance with manufacturer specifications Assess the condition and performance of the rail tracks and switches with respect to noise as part of maintenance to ensure continued compliance with manufacturer specifications.
Construction and Maintenance-related Vibration	Exposure to vibration may result in public annoyance and complaints. Vibration may also cause damage to buildings and other structures.	•	-	All Project Components	<ul style="list-style-type: none"> Adhere to the following vibration exposure limits: <ul style="list-style-type: none"> Vibration, as a human irritant, is assessed in terms of its average level. Vibration velocity should not exceed 0.14 mm/s or current conditions (whichever is higher) by more than 25%. As a threat to buildings, vibration is assessed in terms of its peak value. The Zone of Influence for 	<p>The Construction Vibration Management Plan will incorporate the following requirements related to monitoring of vibration and vibration related complaints:</p> <ul style="list-style-type: none"> The Construction Vibration Management Plan will incorporate the following requirements related to monitoring of vibration and vibration related complaints:

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					<p>vibration shall be the area where structures are expected to experience vibration peak particle velocities that exceed 5 mm/s. Vibration velocity should be limited to 8-22 mm/s, depending on vibration frequency. These limits are prescribed by the City of Toronto by-law <i>Vibration: Chapter 363 dated November 27, 2019</i> for typical structures (not building with special needs).</p> <ul style="list-style-type: none">• Adhere to the ground-born (vibration induced) noise exposure criteria in the US FTA Report No. 0123, <i>Transit Noise and Vibration Impact Assessment Manual</i> (2018).• Develop and implement a detailed Construction Vibration Management Plan for Metrolinx review and approval with minimum requirements outlined below.<ul style="list-style-type: none">– Complete a detailed construction related vibration assessment prior to the commencement of construction that includes assessment of the vibration Zone of Influence. The Zone of Influence for vibration shall be established by using the methodology and input data provided in Section 7.2 of the US FTA Report No. 0123 (2018), <i>Transit Noise and Vibration Impact Assessment Manual</i> (2018).– Complete pre-construction condition surveys for properties within the vibration Zone of Influence of the planned work to establish their condition and establish a baseline prior to any work beginning.– Identify any heritage structures and other sensitive structures, buildings or infrastructure vulnerable to vibration damage, assess requirements and, if necessary, develop mitigation measures.– Identify buildings, where vibration sensitive activities such a sound recording or medical image processing take place, assess requirements and, if necessary, develop mitigation measures.– Establish a 15-metre setback distance between the construction vibration source and nearby buildings, where possible, to minimize impacts. If this is not possible, then monitor the vibration levels associated with the activity.– Select construction/maintenance methods and equipment with the least vibration impacts.	<ul style="list-style-type: none">– Monitor vibration continuously at structures where the Construction Vibration Management Plan indicates that structures are deemed to be within the Zone Of Influence for construction related vibration or at additional structures as requested by Metrolinx.– The type of Vibration Monitoring Program that is established is based on the vibration Zone Of Influence, the project location, duration, presence of night-time activity, and receptor proximity. The monitoring types include:<ul style="list-style-type: none">✓ Type 1: Monitoring continuously throughout the project (for receptors within the Zone Of Influence).✓ Type 2: Monitoring during most impactful phases of the project only (for receptors outside of the Zone Of Influence but within 50 m of the boundary of the construction site).✓ Type 3: Monitoring in response to complaints only (for receptors outside of the Zone Of Influence and beyond 50 m of the boundary of the construction site).• Establish a Communications Protocol and a Complaints Protocol to respond to issues that develop during construction.

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					<ul style="list-style-type: none">In the presence of persistent complaints and subject to the results of a field investigation, identify alternative vibration control measures, where reasonably available.	
Operational Vibration (Trains)	<p>Vibration can cause annoyance, interfere with human activity and affect human health. It may also cause building damage.</p> <p>A change in vibration levels may occur where there are changes in track alignment, addition of new track, and changes to or addition of special track work.</p> <p>Vibration levels may also change with changes in rail vehicle specifications and operating conditions.</p>	-	<ul style="list-style-type: none">	Linear Facilities and Midland Layover	<p><u>Mitigation per TPAP Study Report:</u></p> <ul style="list-style-type: none">Deploy mitigation recommended in the <i>OnCorr Noise and Vibration Study Report</i> (RWDI). Review and update the vibration assessment during the design of new infrastructure at representative receptor locations to ensure compliance with the vibration exposure criteria in the <i>MOEE/GO Transit Draft Protocol for Noise and Vibration Assessment</i> (1994). <p><u>Mitigation at the Source:</u></p> <ul style="list-style-type: none">Deploy vehicle and track technology and related maintenance measures to maintain compliance with the noise and vibration exposure criteria defined below. <p><u>Mitigation Criteria:</u></p> <p>Meet the ground-borne vibration criteria in the 1995 MOEE/GO Transit Noise and Vibration Protocol.</p>	<ul style="list-style-type: none">Measure and document the vibration impacts, under predictable worst-case conditions, of each distinct type of GO Transit train consistently operating in the corridor of interest at locations where the 2020 noise and vibration studies recommends mitigation of vibration impacts. Measurements will be carried out at or near representative vibration sensitive receptors in accordance with MECP requirements and US FTA Report No. 0123, Transit Noise and Vibration Impact Assessment Manual (2018). The primary purpose of these measurements is to ascertain the effectiveness of the implemented mitigation measure(s).Assess the condition and performance of locomotives, coaches, DMUs and EMUs with respect to vibration levels as part of maintenance to ensure continued compliance with manufacturer specifications.Assess the condition and performance of the rail tracks and switches with respect to vibration levels as part of maintenance to ensure continued compliance with manufacturer specifications.
Traffic and Transportation						
Road Network	Construction may result in the need for temporary road or lane closures changing access to nearby land uses.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">Traffic Control and Management Plan(s) will be developed prior to construction to maintain reasonable access through work zones, to the extent possible.Access to nearby land uses will be maintained for vehicular, pedestrian and cyclist traffic. Potentially affected residents, tenants and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur.Temporary vehicular and pedestrian facilities will comply with accessibility and applicable City standards.Potential effects to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate wayfinding, regulatory, and	<ul style="list-style-type: none">Pedestrian, cyclist, and vehicular traffic impacts are to be monitored in accordance with a Traffic and Transit Management Plan and adjusted as necessary during the construction period. Cycling network impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and adjusted as necessary during the construction period.
		<ul style="list-style-type: none">	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		<ul style="list-style-type: none">	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		<ul style="list-style-type: none">	-	Utilities		
		-	-	Laydown Areas		

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					<p>warning signs.</p> <ul style="list-style-type: none">• Traffic signal timing optimization may be assessed/implemented to increase capacity of affected intersections and to aid in the movement of traffic. Traffic signal timing adjustments would require coordination between Metrolinx and City of Toronto, and will be undertaken if required, to determine appropriate changes to traffic signal timings.• During construction at the Danforth Road/Midland Avenue intersection, three lanes of traffic are proposed to remain open through a staged detour, to maintain traffic flow along Danforth Road.• During construction of the St. Clair Avenue East bridge:<ul style="list-style-type: none">– Use of the delineated shoulder lanes to shift traffic during construction works, which will retain the same amount of lane capacity underneath the structure. This will be coordinated with the City of Toronto.– To minimize the impacts to nearby traffic signals, it is recommended that any lane reductions only be implemented during off-peak hours where possible (i.e., between 9:00 am and 4:00 pm).• Existing sidewalks and crossings will be maintained to the extent possible.• Construction schedules will be shared with the public in advance of any construction works to reduce traffic during peak hours.• No consecutive pedestrian crossings will be closed, unless otherwise authorized by the Road. Authority..	
Road Network	Changes to traffic flow at Danforth Road/Midland Avenue during operations.	-	•	Only applies to Danforth Road/Midland Avenue Intersection	<ul style="list-style-type: none">• As appropriate, the signal timing at the Danforth Road/Midland Avenue intersection may need to be adjusted to account for removal of the right-turn channels.	<ul style="list-style-type: none">• Traffic impacts to be monitored in accordance with the Traffic Control and Management Plan.
Transit Network	Construction may result in access restrictions to local bus routes, temporary changes in bus stop shelters/locations and temporary disruptions to the existing rail corridor.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">• Ensure that the public is notified in advance of any potential service disruptions.• Consult with local transit agencies to establish a suitable mitigation strategy to be implemented.	<ul style="list-style-type: none">• Traffic impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and adjusted as necessary during the construction period.
		--		St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		

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Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Cycling, Pedestrian and Trail Network	Temporary effects on cyclists/ pedestrians such as temporary partial or full sidewalk closures.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none">• Potential effects to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate way finding, regulatory, and warning signs.• Special directional signage will be considered to help pedestrians and cyclists avoid any potential construction activities.• Existing sidewalks and crossings will be maintained to the extent possible.• No consecutive pedestrian crossings will be closed, unless otherwise authorized by the Road Authority.• Design elements were incorporated into the exit of the ramp structure on the west side of the rail corridor at the Corvette multi-use crossing (bridge option) to prevent cyclists from having direct access to Magnolia Avenue.	<ul style="list-style-type: none">• Cycling network effects to be monitored in accordance with the Traffic Control and Management Plan and adjust as necessary during the construction period.
		•	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		-	-	Laydown Areas		
Cycling, Pedestrian and Trail Network	Increased distance to travel and greater exposure to weather elements	-	•	Only applies to the Corvette Multi-use Crossing	<ul style="list-style-type: none">• During detailed design, further examination can be undertaken to reduce ramps lengths (if possible) and the addition of stairs to the bridge could also be considered.	<ul style="list-style-type: none">• None anticipated at this time.
Cycling, Pedestrian and Trail Network	Cyclist safety at the ramp exit of the Corvette multi-use crossing	-	•	Only applies to the Corvette Multi-use Crossing	<ul style="list-style-type: none">• Design elements were incorporated into the exit of the ramp structure on the west side of the rail corridor at the Corvette multi-use crossing (bridge option) to prevent cyclists from having direct access to Magnolia Avenue.	<ul style="list-style-type: none">• None anticipated at this time.

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Consultation Process

Metrolinx consulted with government agencies, municipality departments, elected officials, members of the public (including local residents, businesses and interest groups), and Indigenous Nations through various communication methods during both the Pre-Planning and TPAP activities.

Consultation for this Project occurred in two main stages – Pre-Planning activities undertaken prior to the Notice of Commencement of the TPAP on September 8, 2020; and regulated TPAP consultation activities undertaken following the Notice of Commencement of the TPAP. Pre-Planning activities included obtaining input from government agencies, municipality departments, elected officials, members of the public, interested parties, and Indigenous Nations. Figure ES.3 shows how public consultation is integrated into steps of the TPAP.

Following the Pre-Planning activities, the TPAP follows six required key steps that include consultation activities (illustrated in Figure ES.3):

1. Contact with the MECP and identification of interested agencies and Indigenous Nations
2. Issuance of the Notice of Commencement of TPAP
3. Assessment process and consultation with project stakeholders (government agencies, municipality, elected officials, members of the public) and Indigenous Nations
4. Issuance of the Notice of Completion of the Environmental Project Report (EPR) (within 120 days following the Notice of Commencement)
5. Provision of 30 days for government agencies, elected officials, members of the public, and Indigenous Nations to review the EPR
6. 35 days for the Minister of the Environment, Conservation and Parks to review the EPR, followed by the submission of a Statement of Completion by the proponent

A summary of consultation activities is provided below and detailed in Section 6.0.

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Project Website

The Project website www.metrolinxengage.com was maintained to service as a virtual library of materials from public meetings and other Project reports and documentation, as well as a posting location for public notices. The project website also acted as a forum for the public to provide comments on the Project as an alternative to attending public meetings. A copy of the draft and final environmental studies and display boards were made available for review.

Stakeholder and Indigenous Consultation and Engagement

Metrolinx provided an opportunity to review agencies, the municipality, Indigenous Nations, adjacent property owners, and community groups to participate in meetings and discussions.

Public Meetings

Metrolinx hosted an initial public meeting on February 24, 2020 to share general information about the Project and the GO Expansion Program. The purpose of the public meeting was to introduce the Project and Project team to the community, with the intention of providing information as early in the process as possible allowing the public to have input and provide feedback. There were 80 attendees at the Public Meeting.

Due to the COVID-19 pandemic and related concerns regarding social distancing and indoor gathering restrictions, second series of Public Meetings were hosted virtually from August 18, 2020 to September 1, 2020. The purpose of the public meeting was to provide additional details regarding the Project, including results of the environment studies undertaken in support of the Project. There were over 1,000 webpage views.

A third and final series of virtual Public Meetings were hosted from November 27, 2020 to December 11, 2020. The purpose of the public meeting was to provide current information regarding the Corvette multi-use crossing, the Midland Layover and Utilities.

Notifications and Newspaper Advertisements

A Notice of Public Meeting #1 was prepared to invite residents, agencies, municipalities, Indigenous Nations and other interested persons to attend the meeting to learn about the Project and provide their questions and/or comments to members of the Project Team. This Notice was also published in the Toronto Star (February 1 and 8, 2020), Le Metropolitan (January 30 and February 6, 2020) and L'Express (January 31 and February 7, 2020) as well as being advertised through radio announcements on 680 News and 97.3 FM, from January 27 through to February 8, 2020.

On August 18, 2020, notifications were posted on Metrolinx social media platforms and emails were sent to contacts on the distribution list to advertise Public Meeting #2.

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The Notice of Commencement was published in newspapers beginning on September 8, 2020 and distributed via email to the contact list as well as via a posting to www.metrolinxengage.com. The Notice of Commencement was also provided via bulk mailout to properties within 100 metres on either side of rail corridors where GO Expansion infrastructure is proposed.

On Between November 27, 2020 and December 11, 2020, notifications for Public Meeting #3 were posted on Metrolinx social media platforms and emails were sent to contacts on the distribution list. Notification was also provided via bulk mailout to properties within 100 metres on either side of rail corridors where GO Expansion infrastructure is proposed.

The Notice of Completion was published in newspapers beginning on December 21, 2020 and distributed via bulk mailout (properties within 100 m of Project Footprint) and via email to the contact list. The Notice of Completion was also posted to www.metrolinxengage.com.

Project Updates Distribution List

Potentially interested parties (including members of the public, property owners, review agencies, Indigenous Nations, elected officials, and interested groups) were initially identified through review of MECP's Government Review Team (GRT) list, by reaching out to local and regional municipal bodies and agencies with jurisdiction in the Study Area, obtaining a list of Indigenous Nation contacts from the MECP and MTO, and obtaining a list of property owners within close proximity to the Study Area. The contact list for the Project has evolved throughout the EA process, based on the level of interest expressed by individuals or additional guidance received by regulatory bodies. A stakeholder mailing list and mailing distribution map were prepared and are included in Appendix B.

Project E-mail

A direct email address (GOexpansionTPAP@metrolinx.com) was created and monitored regularly by Metrolinx staff. In addition, a regional email was provided for public feedback in response to the public meetings. Project stakeholders were encouraged to provide feedback via TorontoEast@metrolinx.com.

Mailings

Project notices were mailed to all residents, agencies, municipalities, Indigenous Nations and other interested persons on the distribution list via Canada Post. On January 31, 2020, in advance of the first public meeting, a letter was sent to potentially impacted property owners notifying the recipients that their property may be affected by

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the Project. A similar letter was sent on August 12, 2020 in advance of the second public meeting.

Climate Change Considerations

The MECP has prepared a guide titled *Considering Climate Change in the Environmental Assessment Process* (MECP 2017), to describe how EA processes can incorporate consideration of climate change effects. Considering climate change in accordance with the guide is meant to result in a project that is more resilient to future changes in climate and helps maintain the ecological integrity of the local environment in the face of a changing climate.

The climate change assessment contained in this EPR focuses on the various design and mitigation measures that will support climate change mitigation and adaptation during construction and operations of the Project.

Since the Project will be operational for the foreseeable future, it will likely be affected by future climate change-related events such as droughts or intense precipitation. As a result, designs, construction and operation stages of the Project should consider the potential for these future events. The Project will continue to take climate change considerations into account as the design progresses.

Future Commitments and Monitoring

O. Reg. 231/08 requires future commitments, including required permits and approvals to be documented as part of the TPAP. The intent of this requirement is to facilitate project implementation in accordance with project-specific mitigation measures and monitoring activities described in this EPR 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.

This EPR outlines the commitments made by Metrolinx as a part of the TPAP to continue to obtain permits and approvals required for the construction of improvements to, and as applicable, ongoing operations of the Project. Metrolinx has also committed to monitoring and adaptive management of mitigation measures throughout construction activities.

All applicable permits, 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 7.0 of this EPR.

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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 Permissions Branch of the MECP and the MECP 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 1.8 of this EPR.

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Glossary of Terms and Acronyms

AA	Archaeological Assessment
AAQC	Ambient Air Quality Criteria
ANSI	Areas of Natural and Scientific Interest
AODA	<i>Accessibility for Ontarians with Disabilities Act</i>
APEC	Areas of Potential Environmental Concern
APS	Accessible Pedestrian Signals
AQ	Air Quality
ARA	Archaeological Research Associates Ltd.
ASI	Archaeological Services Inc.
asl	above sea level
Assessment Area	Geographic area examined for discipline-specific Project studies
BIA	Business Improvement Area
CAAQS	Canadian Ambient Air Quality Standards
CC	Coefficient of Conservatism
CHER	Cultural Heritage Evaluation Report
CHR	Cultural Heritage Resource
CHSR	Cultural Heritage Screening Report
CHVI	Cultural heritage value or interest
CN	Canadian National Railway
COI	contaminants of interest
CPTED	Crime Prevention Through Environmental Design

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CSA	Canadian Standards Association
DBH	Diameter at breast height
DMU	Diesel Multiple Unit
DRM	Design Requirements Manual
EA	Environmental Assessment
EAA	<i>Environmental Assessment Act</i>
EAB	Environmental Assessment Branch
EASR	Environmental Activity Sector Registry
ECCC	Environment and Climate Change Canada
ELC	Ecological Land Classification
EMMP	Environmental Mitigation and Management Plan
EMU	Electric Multiple Unit
Env.MS	Environmental Management System
EPB	Electrification Protection Barrier
EPR	Environmental Project Report
ESA	<i>Endangered Species Act, 2007 (Ontario)</i>
ESC	Erosion and Sediment Control
ESR	Environmental Study Reports
GGH	Greater Golden Horseshoe
GHG	greenhouse gas
GIS	Geographic Information System
GMDP	Groundwater Management and Dewatering Plan
GPS	Global Positioning System
GRT	Government Review Team

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GTHA	Greater Toronto and Hamilton Area
HIA	Heritage Impact Assessment
I.S.A.	International Society of Arboriculture
IAA	<i>Impact Assessment Act</i>
IVM	Integrated Vegetation Management
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LIO	Landscape Information System
LSE	Lakeshore East
MBCA	<i>Migratory Birds Convention Act</i>
MECP	Ministry of the Environment, Conservation and Parks
MHSTCI	Ministry of Heritage, Sport, Tourism, and Culture Industries
MMA	Ministry of Municipal Affairs
MMAH	Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of the Environment and Climate Change
MTCS	Ministry of Tourism, Culture and Sport
MTO	Ministry of Transportation
N&V	noise and vibration
NAPS	National Air Pollution Surveillance Network
NHIC	Natural Heritage Information Centre
O. Reg.	Ontario Regulation
O. Reg. 231/08	<i>Ontario Regulation 231/08, Transit Projects and Metrolinx Undertakings</i> (a.k.a. Transit Projects Regulation)

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OHT	Ontario Heritage Trust
OLA	Outdoor Living Area
OMB	Ontario Municipal Board
OPSS	<i>Ontario Provincial Standard Specification</i>
OWRA	<i>Ontario Water Resources Act, R.S.O. 1990, c. O.40</i>
PIF	Project Information Form
POR	Point of Reception
PPS	Provincial Policy Statement, 2014
PSW	Provincially Significant Wetlands
PTTW	Permit to Take Water
QP	Qualified Person
RCD	Reference Concept Design
RoC	Record of Consultation
ROW	Right-of-Way
RTP	Regional Transportation Plan
SAR	Species at Risk
SEMMP	Soil and Excavated Materials Management Plan
SOCC	Species of Conservation Concern
SWH	Significant Wildlife Habitat
SWHTG	Significant Wildlife Habitat Technical Guide
TAC	Technical Advisory Committee
TBD	To be determined
TDSB	Toronto District School Board
TIA	Transportation Impact Assessment

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TPAP	Transit Project Assessment Process
TPZ	Tree Protection Zone
TRCA	Toronto and Region Conservation Authority
TSS1+	Train Service Schedule 1+
TTC	Toronto Transit Commission
USFTA	United State Federal Transit Administration
ZOI	Zone of influence

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Units and Measurements

cm	centimetre
dB	Decibel
dBA	Decibel, A-weighted
ha	hectare
km	kilometre
m	metre
m asl	metre above sea level
m bgs	metre below ground surface
mm	millimetre
mm/s	millimetre(s) per second
PPV	Peak Particle Velocity
RMS	Root Mean Square

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Introduction and Study Process
January 25, 2021

1.0 Introduction and Study Process

Metrolinx is expanding its services as part of the GO Expansion Program which will increase services both in terms of train frequency and availability across its seven rail corridors. Metrolinx is committed to providing new travel choices for commuters, significantly increasing transit ridership, cutting journey times and helping manage congestion across the Greater Golden Horseshoe (GGH). The GO Expansion Program is an investment program that will transform GO Rail into a comprehensive regional rapid transit network that provides the expanded mobility the GGH needs to accommodate growth and maintain a high quality of life and prosperous economy. Metrolinx completed a full business case for the GO Expansion Program to illustrate the proposed investment program, its benefits and costs, and core requirements to successfully implement the program to decision makers, the public, and funding partners (Metrolinx 2018c). With major investment in GO Rail infrastructure, Metrolinx will be quadrupling GO Rail service and nearly doubling GO Rail ridership. By 2055, annual ridership is expected to exceed 200 million, compared to 105 million without GO Expansion. Ongoing Metrolinx initiatives are shown in Figure 1.1. The long-term goal and vision of the GO Expansion Program is to provide 15-minute two-way all-day service along the Lakeshore East and Stouffville Rail Corridors. System upgrades are being planned along these rail corridors, including the modifications of the infrastructure necessary to meet these needs.

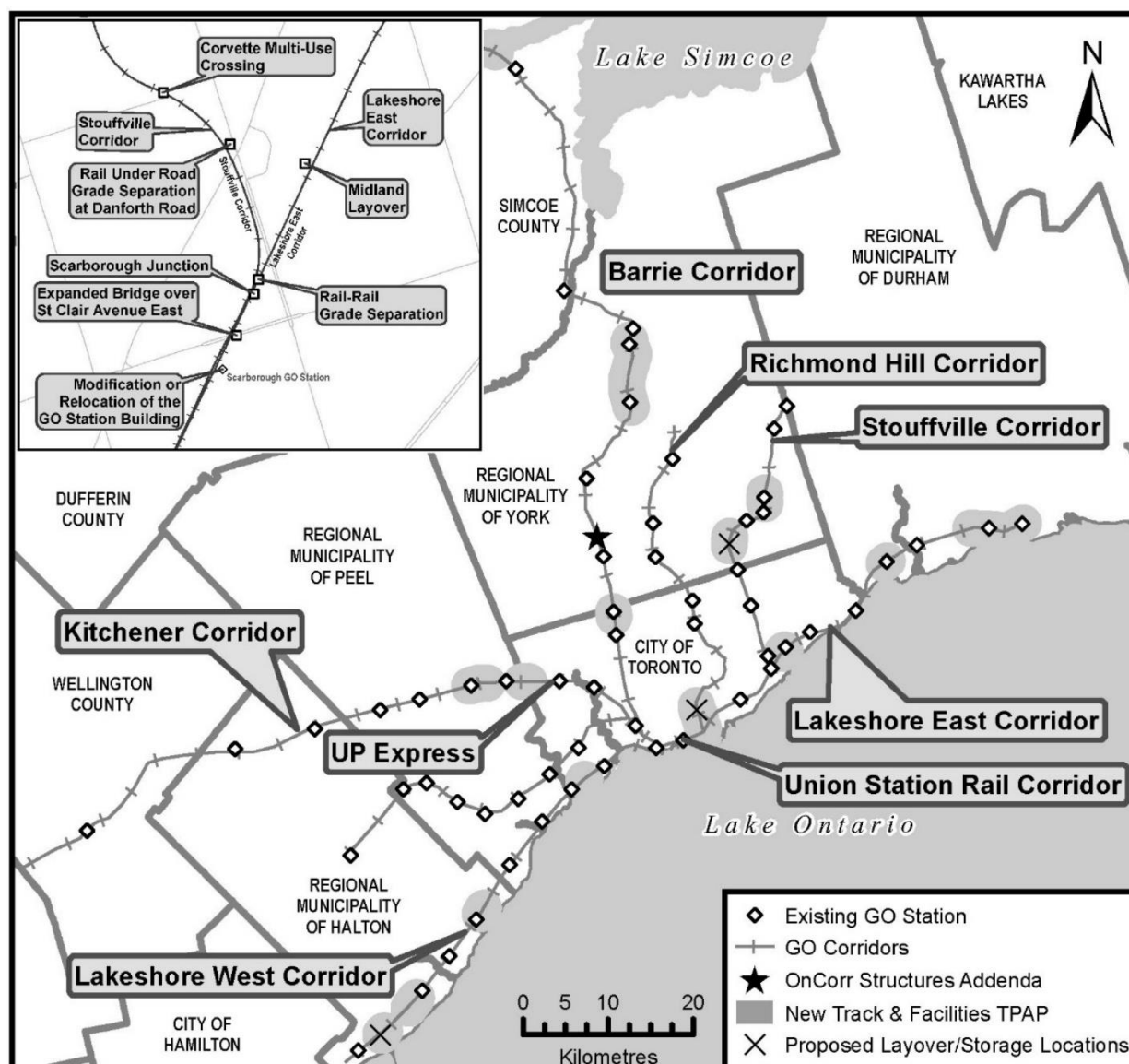
The Lakeshore East and Stouffville Rail Corridors both run east from Union Station along the same corridor until separation at the Scarborough Junction (Figure 1.1). From the Scarborough Junction, the Stouffville Rail Corridor runs north to the Lincolnville GO Station in Whitchurch-Stouffville and the Lakeshore East Rail Corridor runs east to the Oshawa GO Station. A grade separation at the Scarborough Junction is being planned to support the Metrolinx GO Expansion Program along these two rail corridors.

The Scarborough Junction Grade Separation Project (the Project) is being assessed in compliance with the Transit Project Assessment Process (TPAP) under *Ontario Regulation (O. Reg.) 231/08, Transit Projects and Metrolinx Undertakings* under the *Environmental Assessment Act*. Further information on the TPAP can be found in Section 1.6.

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Figure 1.1: Ongoing Metrolinx Initiatives



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1.1 Project Proponent

The *Environmental Assessment Act* (EAA) defines “proponent” as a person who:

- a) Carries out or proposes to carry out an undertaking; or
- b) Is the owner or person having charge, management or control of an undertaking.

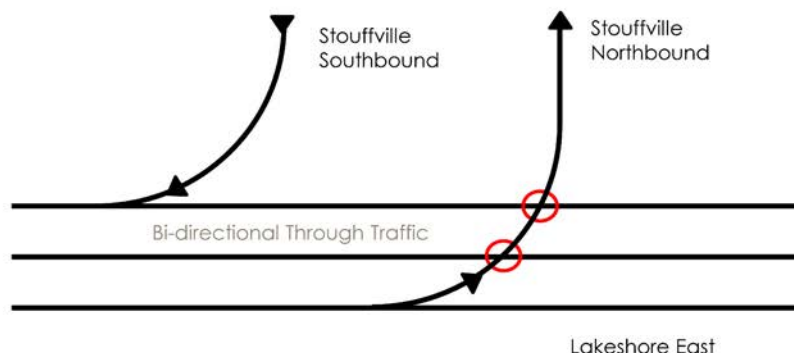
For the purposes of this Environmental Project Report (EPR), Metrolinx is the proponent of the Scarborough Junction Grade Separation Project.

1.2 Project Overview and Purpose of the Transit Project

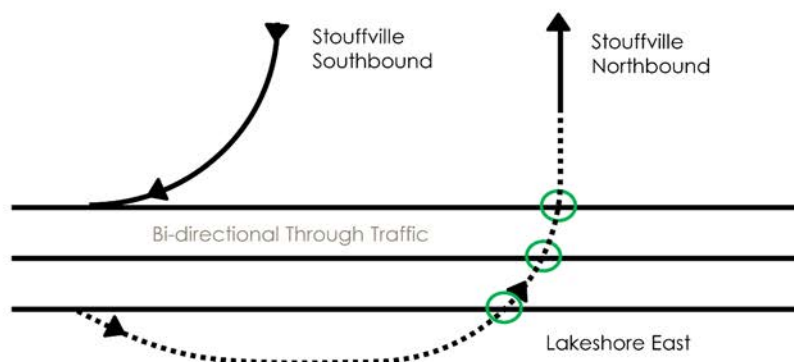
Metrolinx is completing a TPAP under *O. Reg. 231/08*, to assess potential environmental impacts of the proposed Scarborough Junction Grade Separation Project, and to recommend mitigation measures. The purpose of the proposed Project is to accommodate increased service on the Stouffville and Lakeshore East Rail Corridors through infrastructure improvements at the Scarborough Junction. These improvements will reduce train and traffic conflicts, while maintaining pedestrian and cycling access. The Project will facilitate the GO Expansion Program, including the construction of the previously approved new track and accommodating increased train frequency along the corridor.

The Scarborough Junction is located just east of the existing Scarborough GO Station, near the intersection of Midland Avenue and St. Clair Avenue East in the City of Toronto. As part of the GO Expansion Program, a new track will be built at the Scarborough Junction heading north on the Stouffville Rail Corridor (total of two north-south tracks). This new track was assessed and approved as part of Stouffville Corridor Rail Service Expansion Class EA (see Section 1.3.3.3 for further details). Given the service increases and resulting increased train volumes, current track configuration at the Scarborough Junction will not provide for effective train movement between the Stouffville and Lakeshore East Rail Corridors. Currently, north-south trains along the Stouffville Rail Corridor cross three tracks at-grade by switching; creating potential train conflicts and delays (Figure 1.2). With future increased service and the additional track, at-grade switching will not be feasible to maintain train flow. Therefore, a grade separation between the Stouffville Rail Corridor and the Lakeshore East Rail Corridor is proposed at the Scarborough Junction for the purpose of removing train conflicts between the Stouffville and Lakeshore East Rail Corridors and meeting service targets. A rail under road grade separation at Danforth Road is also proposed to eliminate potential rail-road conflicts. In addition, a grade separation is proposed at the current at-grade Corvette multi-use crossing to facilitate pedestrian/cyclist activity over the rail corridor.

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Expanded Service without Grade Separation – northbound trains create conflicts by switching across two tracks



Expanded Service with Grade Separation – depressed crossing removes conflicts across tracks



Project Location
Greater Toronto Area, ON

Prepared by BCC on 2020-12-09

Client/Project
METROLINX
SCARBOROUGH JUNCTION GRADE
SEPARATION

165011004 REVA

Figure No.
1.2

Title
**Track Configuration and Need for
Proposed Rail-Rail Grade
Separation**

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The key Project components required to accommodate the increased level of service include:

- New rail-rail separation through a tunnel traveling under the Lakeshore East (LSE) Rail Corridor to accommodate the second track on the Stouffville Rail Corridor
- Modification or relocation of the Scarborough GO Station building to accommodate the additional track
- Expanded bridge at St. Clair Avenue East to accommodate the new track
- Layover area for train storage (Midland Layover)
- Depressed rail under road grade separation at Danforth Road to maintain Danforth Road at the existing grade
- Depressed rail corridor from St. Clair Avenue East Bridge to Corvette Park
- Multi-use crossing to replace the existing at-grade crossing at Corvette Park
- Retaining walls and barriers to protect the corridors
- Utility realignments where conflicts occur
- Temporary areas of disturbance such as detours, access roads and laydown areas required during construction

Further details on the key Project components, including figures, can be found in Section 2.0.

1.3 Planning Context and Other Projects

The following provincial and regional plans, policies and initiatives have helped inform this assessment and the design considerations for the proposed Project:

- Provincial and Regional Plans and Initiatives:
 - GO Expansion Program (GO Expansion Full Business Case; Metrolinx 2018c)
 - 2041 Regional Transportation Plan (Metrolinx 2018a)
 - Metrolinx Five-Year Strategy 2017 – 2022 (Metrolinx 2017a)

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- Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing (MMAH)) 2020
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (GGH), 2019 (Ministry of Municipal Affairs and Housing (MMAH)) 2019)
- Municipal Plans and Policies:
 - Developing Toronto's Transit Network Plan to 2031 (City of Toronto 2016a)
 - City of Toronto Official Plan (2015)

In addition, other studies have been completed within vicinity of the Study Area and have helped inform the preparation of this EPR. These include:

- GO Rail Network Electrification TPAP (2017)
- Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) TPAP (2017)
- Stouffville Corridor Rail Service Expansion Class EA (2014)

These policies, plans and studies and their relevance to the Project are described below.

1.3.1 Provincial and Regional Plans and Initiatives

1.3.1.1 GO Expansion Program (GO Expansion Full Business Case)

Metrolinx is transforming the GO Transit system by introducing more services and a better rail network and plans to quadruple GO rail service to over 6,000 weekly trips within the next ten years. Metrolinx completed a full business case for the GO Expansion Program to illustrate the proposed investment program, its benefits and costs, and core requirements to successfully implement the program to decision makers, the public, and funding partners (Metrolinx 2018c). Metrolinx is committed to providing new travel choices for commuters, significantly increasing transit ridership, cutting journey times and helping manage congestion across the GGH. As part of these commitments, Metrolinx is planning for expanded service on the Stouffville and Lakeshore East Rail Corridors. To support the increased train service on both rail corridors, rail improvements to the corridors are required, including the grade separation and other enhancements at the Scarborough Junction.

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1.3.1.1.1 GO Expansion Program

Metrolinx has initiated a review of previous planning work against current system requirements and expansion objectives to evaluate the need for new or redesigned infrastructure to support GO Expansion. The GO Expansion Program is intended to support the planning, design and construction of new infrastructure within existing GO rail corridors and includes consideration of the need for new structures or facilities (such as grade separations and layover sites), track work and electrification systems.

As part of the GO Expansion Program, corridor-wide studies have been undertaken for operational air quality, operational noise and vibration and vegetation removal and compensation. Additional planning work to update previous studies related to electrification and other infrastructure is also proceeding, along with new EA processes such as for this Project. As applicable, information from the corridor-wide studies was integrated into the EPR as relevant.

1.3.1.2 2041 Regional Transportation Plan

The 2041 Regional Transportation Plan (2041 RTP) for the GGH builds upon the Metrolinx 2008 transportation plan, 'The Big Move', and identifies the process through which governments and transit agencies will work to create an integrated, multi-modal regional transportation system that serves the need of residents, businesses and institutions (Metrolinx 2018b). The 2041 RTP supports the Province of Ontario's 2019 Growth Plan. Five strategies with associated priority actions such as optimizing the transportation system, connecting more of the region with frequent rapid transit and integrating transportation and land use are included within the 2041 RTP.

A major focus of the 2041 RTP (included in Strategy 1 and 2) is to continue building and improving upon the GO Expansion Program initiated under 'The Big Move'. To support the increased train service, rail corridor improvements are required, including the grade separation and other enhancements at the Scarborough Junction.

1.3.1.3 Metrolinx Five-Year Strategy 2017 – 2022

The Metrolinx Five-Year Strategy shapes Metrolinx decision making, influences investment and project priorities, as well as how they are delivered. The strategy outlines four strategic priorities, one of which is to lead the transformation of regional mobility (Metrolinx 2017a). The approaches to achieving this priority includes expanding the transit network. The Project will help support this priority by providing key infrastructure to facilitate expanded service levels on the Stouffville and Lakeshore East Rail Corridors.

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1.3.1.4 Places to Grow Act, 2005

Recognizing that an integrated and coordinated decision-making process across all levels of government is required to build complete and strong communities, make efficient use of existing infrastructure, preserve natural and agricultural resources, and identify where and how growth should occur (e.g., determining priority infrastructure investments), the Government of Ontario passed the *Places to Grow Act, S.O. 2005, C.13 (Places to Grow Act, 2005, c.13, S. Preamble)*. The *Places to Grow Act, 2005* enables the Provincial Government to:

- Designate any geographic region of the province as a growth area with a specific focus.
- Develop growth plans in consultation with local officials, stakeholders, public groups, and members of the public and Indigenous Nations for a particular region.
- Make decisions about growth in ways that increase and promote greater housing and transportation options, investments in regional public service facilities in downtown areas, and benefits from infrastructure investments in communities while balancing regional needs for farmland and natural areas
- Identify provincially significant employment zones and set out policies that protects these employment areas as they are critical to the local and provincial economy (Ontario Ministry of Municipal Affairs and Housing 2013).

Under the *Places to Grow Act, 2005* the Government of Ontario passed growth plans for Northern Ontario and the Greater Golden Horseshoe.

1.3.1.5 Growth Plan for the Greater Golden Horseshoe, 2019

Prepared and approved under the *Places to Grow Act, 2005*, *A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019* (The Growth Plan), which was built upon and replaced the 2006 Growth Plan (as amended in 2012, 2013, and 2017), is a long-term planning document that is designed to plan for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life (MMAH 2019). The Growth Plan identifies growth areas and growth targets, including the promotion of intensification. The Growth Plan also encourages growth near transit corridors, by providing connectivity among transportation modes and multi-modal access to jobs, housing, and schools (Policy 3.2.2.2 (b) (d)). The Lakeshore East and Stouffville Rail Corridors are identified as Priority Transit Corridors, which includes all forms of rapid transit. The Growth Plan also identifies that public transit should be fast, convenient and affordable as part of an integrated transportation network. The Plan encourages increasing the capacity of

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existing transit systems (Policy 3.2.3.2 (d)), and facilitation of improved linkages between and within municipalities (Policy 3.2.3.2 (e)). The 2019 Growth Plan targets a minimum density of 150 residents and jobs combined per hectare for major transit station areas that are served by the GO Transit rail network. In addition, the Growth Plan also identifies Provincially Significant Employment Zones and set out policies that protects these employment areas as they are critical to the local and provincial economy (Policy 2.2.2.12). The Project supports the continued and increased use of GO Transit along the Lakeshore East and Stouffville Rail Corridors.

1.3.1.6 Provincial Policy Statement, 2020

The PPS was created under the *Planning Act* and serves as a policy direction document on matters of provincial interest related to land use planning and development. The PPS promotes transit-supportive land use patterns where transit is planned, exists or may be developed. It also promotes land uses that minimize the length and number of vehicle trips that support current and future use of transit and active transportation. Key policies within the PPS that apply to this Project are described below.

Policy 1.6.7.1 of the PPS states that “Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs” (MMAH 2020).

Long-term economic prosperity is described in Policy 1.7 as promoting opportunities for economic development and community investment-readiness (1.7.1 (a), MMAH 2020), while providing for an efficient, cost-effective and reliable multimodal transportation system that is integrated with adjacent systems (1.7.1 (g), MMAH 2020). The Project is consistent with the objectives of the PPS that outline the need for transit and related facilities be planned to meet current and future needs, and the provision for an efficient and cost-effective multi-modal transportation system that supports Ontario’s economic prosperity.

1.3.2 Municipal Plans and Policies

1.3.2.1 Developing Toronto’s Transit Network Plan to 2031

The Developing Toronto’s Transit Network Plan Phase 1 (City of Toronto 2016b) brings together transit projects under study in the City at the time, in order to consider each within the context of their contribution to the transit network as a whole. Key projects identified in 2016 included: SmartTrack Stations Program, Eglinton West Light Rail Transit extension, Scarborough Subway Extension, Eglinton East Light Rail Transit extension, Waterfront Transit and the Relief Line.

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Since release of the Developing Toronto's Transit Network Plan Phase 1, the City of Toronto, in conjunction with the TTC and Metrolinx, continue to work together to implement transit expansion projects across the City. The transit projects outlined in the 2041 Regional Transportation Plan (refer to Section 1.3.1.2) and the GO Expansion Program are among those initiatives currently considered to improve connectivity within Toronto and throughout the GGH.

1.3.2.2 City of Toronto Official Plan

The City of Toronto Official Plan (City of Toronto 2015) is intended to ensure that the City of Toronto evolves, improves and realizes its full potential in areas such as transit, land use development, and the environment. The Official Plan states that the integration of transportation and land use planning is critical to achieving the overall aim of increasing accessibility throughout the City of Toronto. The Plan protects the integrity of the City's transportation network and provides for its planned expansion through the designation of public right-of-way (ROW) and transit corridors. This Project aligns with the strategies in the Official Plan by promoting public transportation and accessibility.

1.3.3 Previous Projects and Studies Completed

1.3.3.1 GO Rail Network Electrification TPAP

The population of the GGH is increasing, and with it, traffic congestion. As part of the GO Expansion Program, Metrolinx is committed to providing electrification as an alternative for the GO Transit system to bring 15-minute, two-way service to core parts of the network.

The GO Rail Network Electrification undertaking will entail design and implementation of a traction power supply system and power distribution components including: an Overhead Contact System along the rail corridors, electrical feeder routes, and a number of traction power facilities located within the vicinity of the rail corridors. The purpose of the GO Rail Network Electrification project is to convert six GO-owned rail corridors from diesel to electric propulsion, including the Stouffville Rail Corridor (from Scarborough Junction (off Lakeshore East Corridor) to Lincolnville GO Station) and the Lakeshore East Rail Corridor (from the Don Yard Layover (Don River Area) to Oshawa). In order to electrify the system, there is new infrastructure that needs to be built as well as modifications to existing infrastructure (such as existing GO Stations and Maintenance Facilities).

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A Notice of Completion for the GO Rail Network Electrification TPAP was issued on October 11, 2017. Following the Ministry of the Environment, Conservation and Parks (MECP) Minister's review, the Minister issued a Notice to Proceed (approved without conditions) on December 11, 2017. A Statement of Completion was submitted to MECP on December 17, 2017, identifying Metrolinx intent to proceed with the transit project in accordance with the EPR. A Significant Addendum to the GO Rail Network Electrification EPR is now being undertaken to assess additional electrification infrastructure required for new tracks and layover facilities (which are being studied as part of a separate Metrolinx study called "New Track & Facilities TPAP") proposed across various portions of the GO rail network that were not previously examined as part of the 2017 EPR.

Relevant existing conditions data and effect assessment results/recommendations from the GO Rail Network Electrification EPR have been drawn upon and included in this assessment. The Project will be designed to accommodate any new infrastructure required to support the GO Rail Network Electrification project.

1.3.3.2 Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) TPAP

As part of the GO Expansion Program, specifically the Lakeshore East Expansion, the corridor between the Don River bridge and the Scarborough GO Station requires additional track capacity to support increasing GO service on the Lakeshore East and Stouffville Rail Corridors. The Lakeshore East Rail Corridor Expansion, Don River to Scarborough GO Station Project involves the addition of a fourth railway track and associated bridge widenings and culvert modifications on the Lakeshore East Rail Corridor between the Don River and the Scarborough GO Station.

A Notice of Completion for the Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) TPAP was issued on October 11, 2017. Following the MECP Minister's review, the Minister issued a Notice to Proceed (approved without conditions) on November 20, 2017. A Statement of Completion was submitted to MECP on November 20, 2017, identifying Metrolinx intent to proceed with the transit project in accordance with the EPR. The construction of the approved additional track will be facilitated by the construction of the Project. Relevant existing conditions data and effect assessment results/recommendations from the Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) EPR have been drawn upon and included in this assessment. The Project will be designed to accommodate any new infrastructure required to support the Lakeshore East Rail Corridor Expansion project.

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1.3.3.3 Stouffville Corridor Rail Service Expansion GO Transit Class EA

As part of the GO Expansion Program, portions of the Stouffville Rail Corridor require additional track capacity to support increasing GO service on the Stouffville Rail Corridor. The Stouffville Corridor Rail Service Expansion Project assessed the addition of a second railway track and associated infrastructure modifications on the Stouffville Rail Corridor between the Unionville and the Scarborough GO Stations.

The Environmental Study Report (ESR) for the Stouffville Corridor Rail Service Expansion was completed under the GO Transit Class EA in July 2014. The construction of the approved additional track will be facilitated by the construction of the Project. Relevant existing conditions data and effect assessment results/recommendations from the Stouffville Corridor Rail Service Expansion ESR have been drawn upon and included in this assessment. The Project will be designed to accommodate any new infrastructure required to support the Stouffville Rail Corridor Expansion project.

1.4 Description of the Study Area

The TPAP Study Area for the Project includes the Project Footprint and a one kilometre (km) buffer around the Project Footprint. The Study Area is located in the east side of the City of Toronto and is presented in Figure 1.3.

The Project Footprint represents the area required to carry out all physical works and activities either directly for infrastructure or for associated Project uses (e.g., construction laydown areas). The one km buffer area has been included as part of the Study Area as it is recognized that some effects may be experienced outside the Project Footprint. This buffer area represents an area where effects associated with Project construction and/or operation could potentially occur. For example, the off-site migration of dust and noise. Collectively, these areas represent the geographic range over which the potential effects associated with the Project could occur.

The Study Area represents the geographic area within which the required technical studies were completed in support of this EPR. For each technical study, discipline-specific Assessment Areas have been defined based on the anticipated area of effect within the Study Area. These Assessment Areas are described in greater detail in Section 3.0 of this EPR and summarized in Table 1.1.

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Table 1.1: Assessment Areas for Technical Studies

Environments	Technical Studies	Assessment Area
Biophysical Environment	Natural Environment Technical Report	Project Footprint plus 120 m surrounding area
	Tree Inventory Report	Project Footprint for recommended actions (i.e., retain and protect or remove) Project Footprint plus a 30 m buffer to delineate the potential presence of threatened, rare or endangered trees
	Air Quality Evaluation	Construction: Project Footprint plus 500 m surrounding area; Truck haul route(s) boundaries plus 100 m Operation: Stouffville Rail Corridor (from St. Clair Avenue East, Toronto to Lincolnville GO Station) Lakeshore East Rail Corridor (east of the Don River to Oshawa GO Station)
	Noise and Vibration Assessment	Construction Noise: Project Footprint plus 383 m Construction Vibration: Project Footprint plus 383 m Operation: Stouffville Rail Corridor (from St. Clair Avenue East, Toronto to Lincolnville GO Station) Lakeshore East Rail Corridor (east of the Don River to Oshawa GO Station for vibration; Carlaw Avenue to Oshawa GO Station for noise)
Social and Economic Environment	Socio-Economic and Land Use Study	Network approximately bounded by Kennedy Road, Eglinton Avenue, Brimley Road, St Clair Avenue, and the Lakeshore East Rail Corridor just south of Scarborough GO Station
	Transportation Impact Assessment (TIA)	Network approximately bounded by Kennedy Road, Eglinton Avenue, Brimley Road, St Clair Avenue, and the Lakeshore East Rail Corridor just south of Scarborough GO Station
Cultural Environment	Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment	Project Footprint plus 50 m surrounding area
	Stage 1 Archaeological Assessment Report	Project Footprint plus 50 m surrounding area

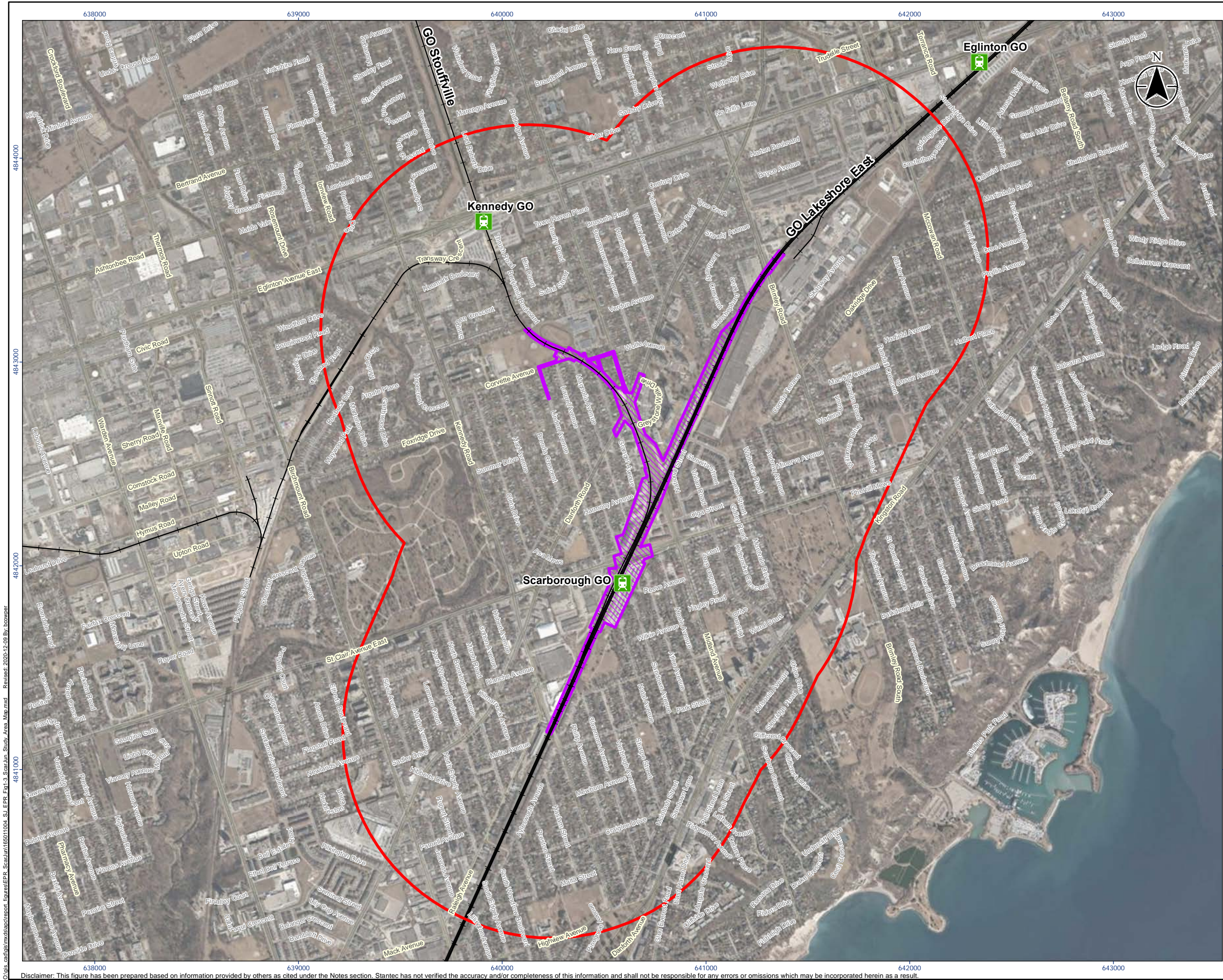
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It is noted that parts of the Study Area were previously assessed as part of three previous Environmental Assessment (EA) projects:

- Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station): Scarborough GO Station and 300 m surrounding buffer
- GO Rail Network Electrification: the existing GO rail ROW (Stouffville and Lakeshore East Rail Corridors) and 7 m surrounding buffer
- Stouffville Corridor Rail Service Expansion: Scarborough GO Station

As applicable, technical information from these three previous EA projects have been incorporated into this TPAP.



- Legend
- Study Area
 - Project Footprint
 - GO Stations
 - Railway

0 475 950 metres
1:19,000 (At original document size of 11x17)

- Notes
- Coordinate System: NAD 1983 UTM Zone 17N
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
 - Orthimagery © First Base Solutions, 2016. Imagery Date, 2017.



Project Location
Greater Toronto Area
165011004 REVA
Prepared by BCC on 2020-12-09

Client/Project
METROLINX
SCARBOROUGH JUNCTION GRADE SEPARATION
ENVIRONMENTAL PROJECT REPORT

Figure No.

1.3

Title

Study Area – Scarborough Junction
Grade Separation

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1.5 Pre-Planning Activities

A feasibility study for the Scarborough Junction Grade Separation was completed in August 2018. The feasibility study evaluated a number of potential solutions to accommodate expansion of the GO Transit rail service based on a set of criteria including social/environment, cost, operations/safety/punctuality and construction impact. The evaluation confirmed the preferred approach to accommodate the proposed level of service at Scarborough Junction. The Project is described in Section 2.0.

In advance of commencing the TPAP for the proposed Project, Metrolinx consulted with Project stakeholders (including government agencies, municipality departments, elected officials, and members of the public) and Indigenous Nations to determine the level of interest in the Project and to get feedback on the preliminary design details. Key activities were undertaken before, and in preparation for the commencement of the TPAP.

Although not required under the legislation, the MECP recommends that Pre-Planning activities are undertaken in advance of commencing the TPAP (MOECC 2014). The TPAP is a time-limited process, therefore Pre-Planning allows proponents to enter the TPAP well-prepared, and with an understanding of, and proposed resolution for the key issues. Pre-Planning activities undertaken in advance of releasing the Notice of Commencement of this TPAP included the development of a draft EPR, updating design decisions based on input received from consultation activities, and circulating the draft EPR and technical studies for review to the Government Review Team (GRT).

The following sections outline the planning process conducted during the key phases of the Project prior to commencing the TPAP, namely:

- Technical Studies
- Pre-Planning Consultation

1.5.1 Environmental Technical Studies

Technical studies were undertaken between 2018 and 2020 to support the preparation of the EPR to determine the existing environmental conditions within and in the vicinity of the Study Area and to assess the extent of the potential effects associated with the proposed improvements, identify appropriate mitigation measures and inform progressive design decisions.

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The effects of the Project on natural, technical, social and cultural conditions were assessed through the completion of the following Project-specific environmental technical studies:

- Biophysical Environment
 - Natural Environment Technical Report
 - Tree Inventory Report
 - Construction Phase Air Quality Impact Assessment Report
 - Construction Noise and Vibration Assessment Report
 - Corridor-wide technical studies for air quality and noise and vibration assessed the operational effects of the proposed GO Expansion service levels (refer to Section 1.3.1.1.1). As applicable to the Project, the results of these studies have been incorporated into this assessment.
 - o Regional Air Quality Study GO Rail Network Electrification Project
 - o Noise and Vibration Study, Lakeshore East Corridor, GO Rail Network Electrification Project
 - o Noise and Vibration Study, Stouffville Corridor, GO Rail Network Electrification Project
- Social and Economic Environment
 - Socio-Economic and Land Use Study
 - Transportation Impact Assessment
- Cultural Environment
 - Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment
 - Stage 1 Archaeological Assessment Report

The results of these studies are summarized in Section 3.0. The detailed environmental technical studies are available in Appendix A.

1.5.2 Pre-Planning Consultation

Consultation for this Project occurred in two main stages – Pre-Planning activities undertaken prior to the Notice of Commencement of the TPAP on September 8, 2020; and regulated TPAP consultation activities undertaken following the Notice of Commencement of the TPAP.

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Pre-Planning consultation involved the majority of early consultation to inform the development of the preliminary design and the preparation of this EPR. This included input related to the planning and completion of the technical studies.

Pre-Planning activities included consultation to help inform the eventual TPAP and were undertaken to help inform design decisions and identify possible environmental effects and required mitigation measures. Pre-Planning consultation activities included obtaining input from government agencies, municipalities, elected officials, members of the public, and Indigenous Nations. In addition, the draft EPR and environmental technical studies were circulated to the GRT for review and comment as part of Pre-Planning consultation.

A key venue for Pre-Planning consultation was the hosting of regular Technical Advisory Committee (TAC) meetings between the City of Toronto, Toronto Transit Commission (TTC) and Metrolinx. The TAC meetings provided an opportunity for the City and TTC to provide input into the development of the design of the Project.

Details of Pre-Planning consultation activities, comments and questions received, and Metrolinx responses are provided in Section 6.2 of this EPR.

1.6 Transit Project Assessment Process (TPAP)

This EPR has been prepared in accordance with the EAA and *O. Reg. 231/08: Transit Projects and Metrolinx Undertakings* (O. Reg. 231/08).

The EAA defines the environment as:

- Air, land and water
- Plant and animal life, including human life
- The social, economic and cultural conditions that influence the life of humans or a community
- Any building, structure, machine or other device or thing made by humans
- Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities
- Any part of or combination of the foregoing and the interrelationships between any two or more of them

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An EA is required for all large-scale projects undertaken by public bodies that have the potential to affect the environment. These projects require approval from the Government of Ontario before proceeding to the next phase.

O. Reg. 231/08 acknowledges that certain types of transit projects have more predictable environmental effects that are more readily managed, and that a more streamlined approach to EA is appropriate for these projects. This EA process for transit projects is known as the TPAP and involves a planning process that protects the environment but shortens the timeline for the completion of transit projects approval to six months for commencement, review and approval. 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 EAA.

O. Reg. 231/08 describes the requirements of the TPAP for transit projects and defines the types of transit projects that can be assessed under the TPAP. Schedule 1 of O. Reg. 231/08 describes the types of undertakings to which the TPAP applies.

The Project meets the TPAP requirements as presented in Schedule 1 of O. Reg. 231/08, as it relates to the following undertakings:

1. (1) – 5. *Construction of new grade separation*
2. (1) – 4. *Construction or modification of tracks required to increase the commuter rail service (including a change to All-Day Service) on an existing rail corridor, including such activities as,*
 - ii. *modification of existing mainline tracks*
 - iv. *construction, reconstruction or widening of structures*

The TPAP is focused on an assessment of the environmental effects of a transit project and allows for decision-making to be completed within approximately six months. The TPAP follows six key steps, illustrated in Figure 1.4 (below). The six key steps were completed for the Project as follows:

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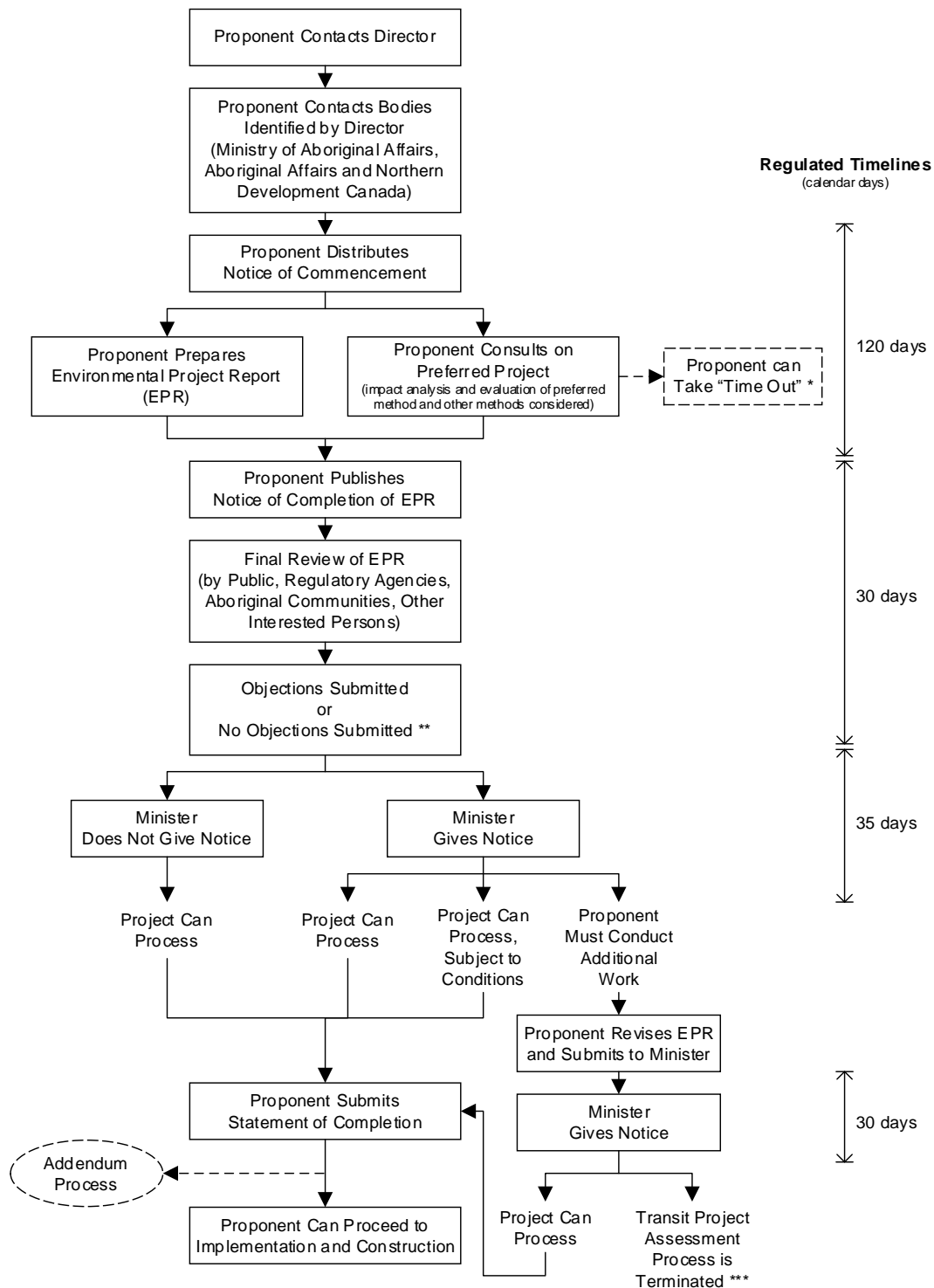
Table 1.2: TPAP Key Steps and Dates of Completion

TPAP Key Step	Date Completed
1. Contact with the MECP and identification of interested agencies and Indigenous Nations.	Letter sent to MECP on September 13, 2019 Confirmation from MECP on September 17, 2019
2. Issuance of the Notice of Commencement of TPAP.	September 8, 2020
3. Assessment Process and Consultation with project stakeholders (government agencies, municipalities, elected officials, and members of the public) and Indigenous Nations.	September 9, 2020 to December 20, 2020
4. Issuance of the Notice of Completion of the EPR (up to 120 days following the Notice of Commencement).	December 21, 2020
5. Provision of 30 days for the government agencies, municipalities, elected officials, members of the public, and Indigenous Nations (and other interested persons) to review the EPR	December 22, 2020 to January 20, 2021
6. 35 days for the Minister of the Environment, Conservation and Parks to review the EPR, followed by the submission of a Statement of Completion by the proponent.	January 21, 2021 to February 24, 2021

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Figure 1.4: The Transit Project Assessment Process (MOECC 2014)



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A TPAP study must assess the potential effects of a proposed project on the natural, technical, social, and cultural environments, and identify mitigation measures to reduce or eliminate any potential negative effects. Monitoring activities will also be proposed to monitor or verify the effectiveness of the proposed mitigation to reduce or eliminate adverse effects. Technical, safety, and economic considerations are also included in the assessment of effects and determination of project feasibility. Public consultation is an important component of the TPAP, and this TPAP study has provided opportunities to government agencies, municipalities, elected officials, members of the public, Indigenous Nations, and other interested persons such as businesses and special interest groups to review and comment on Project documents and decisions. Given the universally recognized benefits of transit projects, *O. Reg. 231/08* does not require proponents to document the planning alternatives to public transit (alternatives to the undertaking), or the rationale and planning alternatives to the particular transit project. Identification of the selected project is completed within the Pre-Planning phase (described in Section 1.5) and may include feasibility studies, master planning, preliminary environmental technical studies (inventories, potential effects), consideration of project alternatives, and pre-consultation activities with the public, regulatory agencies, Indigenous Nations communities and other interested parties.

The details of the steps followed for this TPAP, and the outcome of those steps are described in Sections 2.0 through 7.0 of this EPR.

1.7 Objection Process, Minister's Review and Statement of Completion

The submission of this EPR and the issuance of the Notice of Completion trigger the beginning of the 30-day public/agency review period. During this time, if government agencies, municipalities, elected officials, members of the public, Indigenous Nations or other interested persons have concerns about the transit project described herein, objections can be submitted to the MECP. 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, email address (where possible)
- Contact details of the proponent, including name, address, and phone number
- Brief description of the proponent's undertaking

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- Basis for why further study is required, including identification of any negative effects concerning a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest (CHVI), or a constitutionally protected Aboriginal or treaty right that was not identified in the proponent's EPR
- Summary of how the person(s) objecting has participated in the Project's consultation process

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

1. A notice to proceed with the transit project as planned in its EPR
2. A notice that requires the proponent to take further steps, which may include further study or consultation
3. A 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 a potential for a negative effect on a matter of Provincial importance that relates to the natural environment or has CHVI, 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 the Minister does not act within the 35-day period, Metrolinx will issue a Statement of Completion and proceed to implementation.

Where issues related to such matters or constitutionally protected Aboriginal or treaty rights remain unresolved during the up to 120-day consultation and documentation period, the proponent can initiate a "time out" to address these issues. No time out has been taken for this transit project.

Where issues related to such matters or constitutionally protected Aboriginal or treaty rights remain unresolved at the time of Notice of Completion, the Minister may request that the proponent give further consideration to the transit project, for example by conducting additional investigations and consultation. Following additional investigation and consultation and submission of a Revised EPR, the Minister may allow Notice to Proceed or, if of the opinion that the Revised EPR does not appropriately address the negative effect, may provide notice terminating the TPAP and requiring the proponent to comply with Part II of the EAA or an approved Class EA before proceeding with the transit project.

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The TPAP will be completed when Metrolinx submits a Statement of Completion to the Director of the Environmental Assessment and Permissions Division of the MECP and the MECP Regional Director. Metrolinx will also post the Statement of Completion on the Project website, at www.metrolinxengage.com. The Statement of Completion will indicate that Metrolinx intends to proceed with the transit project in accordance with either:

1. The EPR
2. The EPR subject to conditions set out by the Minister
3. The Revised EPR

Construction or implementation of a transit project subject to the TPAP cannot begin until the requirements of the process have been met. Subject to these requirements, the transit project may proceed once additional required permits and approvals are received.

1.8 TPAP Addendum Process

The transit project presented in this EPR is not a static plan, nor is the context in which it is being assessed, reviewed, approved and constructed. *O. Reg. 231/08* includes an addendum process for proponents to make changes to a transit project after the Statement of Completion is submitted to the MECP. An addendum to the EPR may be required if Project developments during the approvals, detailed design, and construction processes result in design variations from what was assessed in the EPR. This addendum process is intended to address the possibility that in implementing a transit project, certain modifications may be made that are inconsistent with the EPR. 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.

If a proponent wishes to make a change to a transit project that is inconsistent with the EPR, the proponent must prepare an EPR addendum. This must contain:

- a description of the change
- the reasons for the change
- the proponent's assessment and evaluation of any effects that the change might have on the environment
- a description of any proposed measures for mitigating any negative effects that the change might have on the environment

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- a statement of whether the proponent is of the opinion that the change is significant (or not) and the reasons for the opinion

If the proponent considers the change to the transit project to be significant, the proponent must publish a Notice of EPR Addendum in a local newspaper and post the notice on its website. The notice must also be provided to the Director of the Environmental Assessment and Permissions Division of the MECP, the Regional Director of the MECP, every property owner within 30 m of the site of the change, Indigenous Nations that were given the Notice of Commencement, and any other person who the proponent thinks may be interested in the change to the transit project.

The process and timelines for making objections and for the Minister to act with respect to the proposed change are essentially the same as in the process following the Notice of Completion (see Section 1.7).

1.9 Environmental Project Report Organization

The documentation of the TPAP, as provided in this EPR, will be submitted to the MECP within 120 days of publishing the Notice of Commencement. This EPR documents the existing environmental conditions within the Study Area (and discipline-specific Assessment Areas where applicable), the potential environmental effects of the Project, recommended mitigation measures, the consultation process followed, and future commitments for the Project. This EPR fulfills the requirements of Section 3.2.4 (Documentation requirements) of the Guide to Ontario's Transit Project Assessment Process (MOECC 2014) as presented in Table 1.3.

Table 1.3: TPAP Documentation Requirements

Required Information	Section within this EPR
A statement of the purpose of the transit project and a summary of background information relating the transit project.	Section 1.2
A final description of any other design methods that were considered once the project commenced the transit project assessment process.	Section 2.0
A map showing the site of the transit project.	Figure 1.3
A description of the local environmental conditions at the site of the transit project.	Section 3.0
A description of all studies carried out, including a summary of all data collected or reviewed and a summary of all results and conclusions.	Section 3.0, Appendix A
The assessments, evaluation and criteria for any effects of the preferred design method (described above) that were considered once the project's transit project assessment process commenced (does not include Pre-Planning work).	Section 4.0

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Required Information	Section within this EPR
A description of any proposed measures for mitigating any negative effects the transit project might have on the environment.	Section 4.0
If mitigation measures are proposed, a description of the proposal for monitoring or verifying the effectiveness of mitigation measures.	Section 4.0
A description of any municipal, provincial, federal or other approvals or permits that may be required.	Section 7.0
A consultation record including: a description of the consultations and follow up efforts carried out with interested persons, including Indigenous Nations; a list of the interested persons, including Indigenous Nations who participated in the consultations; summaries of the comments submitted by interested persons including Indigenous Nations; summary of any discussions with Indigenous Nations including discussions of any potential effects of the Project on constitutionally protected Aboriginal or treaty rights, and copies of all written comments submitted by Indigenous Nations; and, a description of what the proponent did to respond to concerns expressed by interested persons including Indigenous Nations.	Section 6.0, Appendix B
If a “time out” was taken during the transit project assessment process, a summary of each issue including: a description of the issue; a description of what the proponent did to respond to the issue and the results of those efforts; the dates that notices for the “time out” were given to the Director, MECP Environmental Assessment and Permissions Division, and the Regional Director (MECP Central Region Office).	Not Applicable – No time out has been taken

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2.0 Project Description

2.1 Key Project Components

The Project includes proposed modifications required to meet the service goals of the GO Expansion Program and to remove the potential for train conflicts and delays (refer to Section 1.3.1.1).

As part of the GO Expansion Program, a new track will be built at the Scarborough Junction heading north on the Stouffville Rail Corridor to achieve Metrolinx goal of providing 15-minute two-way service on the Stouffville Rail Corridor south of Unionville GO Station (total of two north-south tracks). This track was assessed and approved as part of the Stouffville Corridor Rail Service Expansion GO Transit Class EA (R.J. Burnside and Associates Limited 2014b). Other modifications in the area of the Scarborough Junction required to support the additional track and increased level of service include the following anticipated key components:

- New rail-rail grade separation through a tunnel traveling under the Lakeshore East Rail Corridor to accommodate the second track on the Stouffville Rail Corridor
- Modification or relocation of the Scarborough GO Station building to accommodate the additional track
- Expanded bridge at St. Clair Avenue East to accommodate the new track
- Layover area for train storage (Midland Layover)
- Depressed rail under road grade separation at Danforth Road to maintain Danforth Road at the existing grade
- Depressed rail corridor from St. Clair Avenue East Bridge to Corvette Park
- Multi-use crossing to replace the existing at-grade crossing at Corvette Park
- Retaining walls and barriers to protect the corridors
- Utility realignments where conflicts occur
- Temporary areas of disturbance such as detours, access roads and laydown areas required during construction

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Key Project components and other design details are illustrated conceptually in Figure 2.1. Further details are provided in subsequent sections.

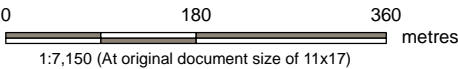
The conceptual design shown in this EPR considered mitigation measures to reduce or eliminate environmental effects, and to improve environmental features or functions where possible, based on the recommendations of supporting studies. The Project details provided herein are considered conceptual and are subject to refinement as planning progresses. Measures and dimensions are approximate and may vary as they are refined during the detailed design process.

C:\git\cadd\mxd\diagram\report_figures\EPR_ScarJunc165011004_SJ_EPR_Fig2.1_Kev_Project_Components.mxd Revised: 2020-12-16 By: bccwpr

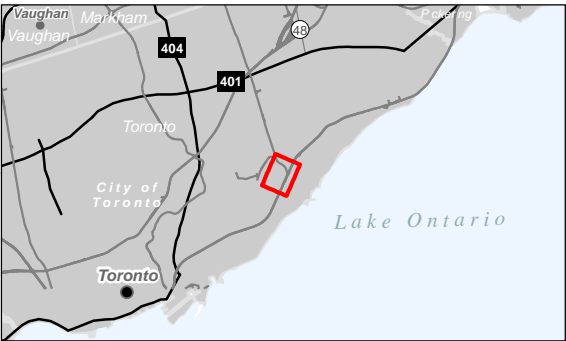


Legend

- Retaining Wall
- Storm Sewer Realignment
- Sanitary Sewer Realignment
- Rail Bridge
- Railway
- Below Grade Track
- Below Grade Track
- Tunnel
- Reinstated Road Conditions
- New Sidewalk
- Reinstated Sidewalk
- Corvette Multi-use Crossing (Bridge or Tunnel)
- Midland Layover



- Notes
- Coordinate System: NAD 1983 CSRS MTM 10
 - Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
 - Orthoimagery © First Base Solutions, 2016. Imagery Date, 2017.



Project Location
Greater Toronto Area

165011004 REVA
Prepared by BCC on 2020-12-16

Client/Project
METROLINX
SCARBOROUGH JUNCTION GRADE SEPARATION
ENVIRONMENTAL PROJECT REPORT

Figure No.

2.1

Title

Key Project Components

Disclaimer: This figure has been prepared based on information provided by others as cited under the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

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2.1.1 Scarborough GO Station

The Scarborough GO Station is situated to the east of the existing Stouffville and Lakeshore East Rail Corridor.

The new track alignment for the Stouffville northbound track may not be able to be accommodated in the space between the existing tracks and station building. As such, the GO Station building may be modified or relocated; the building will remain within the existing property boundaries of the Scarborough GO Station. The building modification or relocation will at a minimum provide the same amenities as the existing station. There is currently parking for approximately 628 vehicles, which will be maintained during construction. The design of the modified or relocated Scarborough GO Station will limit impact to the existing Station car park. Modification or relocation of the Scarborough GO Station building may result in the need to relocate the pedestrian tunnels associated with the south platform as well as the associated elevators. The south platform will be accessible via stairs or elevators from the south parking lot.

The design of the modified or relocated Scarborough GO Station building will be compliant with Metrolinx design criteria. Sanitary and water services would be realigned to accommodate the modified or relocated station.

Design details for the building modification or relocation are currently in the preliminary stages. Available information is presented in this EPR to provide a conceptual consideration of potential effects. As more detail is confirmed on the design approach for the GO Station, it will be made available in the final EPR, or through ongoing post-EA consultation with stakeholders.

2.1.2 St. Clair Avenue East Bridge

Both the Stouffville and Lakeshore East tracks cross over St. Clair Avenue East on a grade separated bridge. A new span is required at St. Clair Avenue East to accommodate the addition of the new track along the Stouffville Rail Corridor. The expanded bridge will be located immediately south of the existing bridge.

A through-plate girder bridge is anticipated; however, the final bridge type and design will be determined through detailed design and will address standard maintenance issues, such as the inclusion of de-icing requirements.

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The bridge will meet minimum vertical and horizontal clearance requirements based on rail design standards and applicable City of Toronto municipal standards. Elevated sidewalks will be maintained under the bridge and any impacted portions of sidewalk will be reinstated to existing conditions as per applicable City of Toronto standards. As required and in accordance with applicable standards, lighting will be placed under the expanded bridge to improve visibility for traffic, and pedestrians and cyclists using the sidewalk.

Artistic conceptual renderings of the proposed St. Clair Avenue East bridge are provided in Figure 2.2 and Figure 2.3.

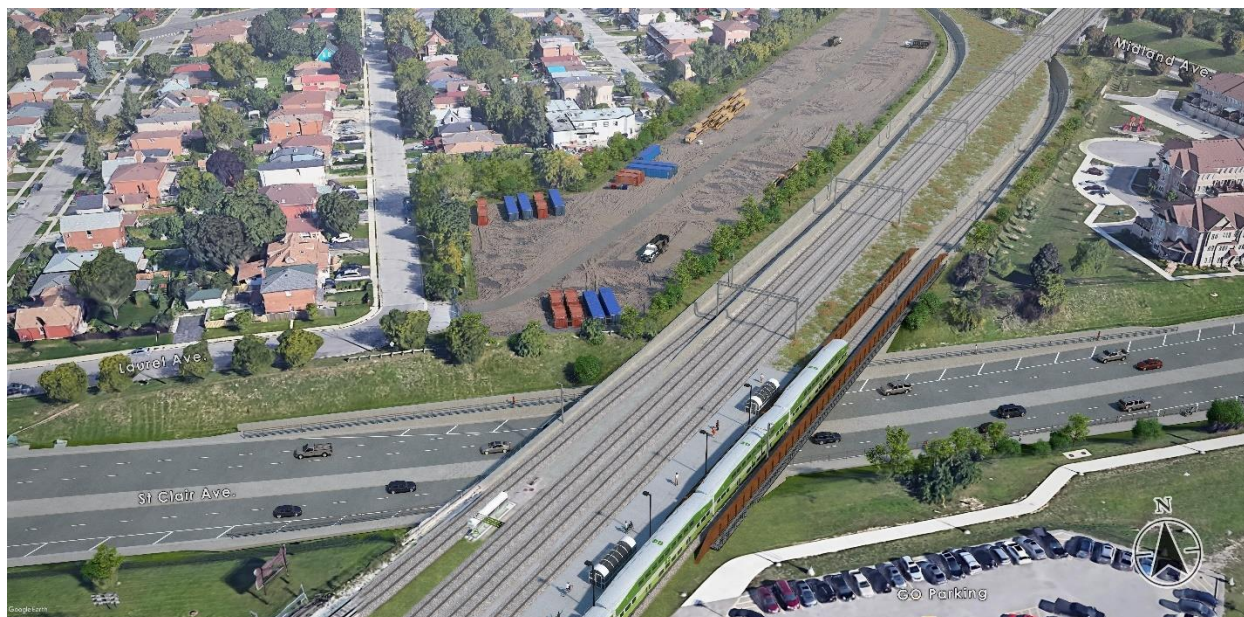
Figure 2.2: Pedestrian View, Artistic Conceptual Rendering of the St. Clair Avenue East Bridge



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Figure 2.3: Aerial View, Artistic Conceptual Rendering of the St. Clair Avenue East Bridge



2.1.3 Midland Layover

With the planned increase in service along the Stouffville and Lakeshore East Rail Corridors, Metrolinx anticipates the need to have storage for railcars to accommodate passenger demand. The current design includes five layover tracks and electrification infrastructure, which will accommodate electric and diesel revenue trains during off-peak hours. The electrification infrastructure is being assessed under the GO Rail Network Electrification TPAP. The Midland Layover (refer to Figure 2.1) will be located to the north of the Lakeshore East Rail Corridor, within the existing Metrolinx ROW. In order to provide access to the facility to/from both west and east directions, the track layout includes a pullback track and crossovers. New Lakeshore East Rail Corridor main track crossovers installed west from the Midland Layover will allow eastbound trains to access the Layover from all three main tracks, as well as an access to the Layover from two eastbound trains simultaneously.

In addition to the train storage tracks, the layover will include a Maintenance of Way track for storage of miscellaneous rail equipment required for track construction and maintenance.

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The Midland Layover will be serviced from an existing access road off Midland Avenue. The access road will continue to a proposed traction power substation; the access road will be located between the outmost storage track/maintenance of way track and Metrolinx property limits.

2.1.4 Danforth Road/Midland Avenue Intersection

A grade separated crossing is proposed to replace the existing at-grade rail crossing at Danforth Road. The tracks will pass beneath Danforth Road in a tunnel, allowing Danforth Road to remain at grade. Based on discussion with the City of Toronto on current municipal standards, all right turn channels at the intersection of Danforth Road and Midland Avenue will be removed and the intersection will be reconfigured to account for the removal of these turn channels. Installation of Accessible Pedestrian Signals (APS) for its crosswalks will be undertaken in conjunction with the intersection reconfiguration.

TTC bus platforms and shelters located in the northwest and northeast quadrants of the Danforth Road/Midland Avenue intersection will be relocated to accommodate the intersection reconfiguration. The platforms and shelters will be relocated in close proximity to their current locations. Impacted bus shelters and platforms will be relocated and reinstated to TTC standards and coordinated with TTC and the City of Toronto.

Artistic conceptual renderings of the proposed Danforth Road/Midland Avenue intersection are provided in Figure 2.4 and Figure 2.5.

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Figure 2.4: Pedestrian View, Artistic Conceptual Rendering of the Danforth Road/Midland Avenue Intersection



Figure 2.5: Aerial View, Artistic Conceptual Rendering of the Danforth Road/Midland Avenue Intersection



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2.1.5 Depressed Corridors

The current track alignment at Scarborough Junction includes the Stouffville track splitting from the Lakeshore East tracks and running north through an at-grade crossing at Danforth Road. The new second Stouffville track will drop below grade and cross from the south side of the Lakeshore East tracks, going under the Lakeshore East tracks before meeting with the existing Stouffville track. The existing Stouffville track will also be depressed to match grade with the new track as it runs northwards from the Lakeshore East tracks. Both Stouffville tracks will be located in a single depressed corridor past Danforth Avenue, so that the street remains at grade.

Final design and construction techniques for the structure will be confirmed as design advances.

Stormwater servicing for the depressed corridors will follow City of Toronto, Toronto and Region Conservation Authority (TRCA) and MECP requirements and standards. The stormwater management features will collect and store water through piping, trench drains, and drainage ditching with corrugated steel pipe culverts to convey the site drainage to stormwater infrastructure.

Final servicing plans will be determined through detailed design.

Metrolinx will use as much of the existing infrastructure as possible to promote positive drainage on the site.

2.1.6 Trackwork

As identified in Section 1.3.3.3, a new track is proposed for the Stouffville Rail Corridor as part of the GO Expansion Program. Although this new track was assessed under a separate project, modifications to the alignment of the Lakeshore East tracks are required to accommodate the new northbound Stouffville track and will be assessed as part of this Project.

The existing Lakeshore East tracks will be re-aligned to allow for the northbound Stouffville track to pass beneath the Lakeshore East tracks in a depressed corridor. The tracks will be re-aligned but will remain within the existing Metrolinx ROW.

A track diversion along the Stouffville Rail Corridor will be required to accommodate construction staging. A temporary Stouffville track will be constructed along the west side of the rail corridor, within the Metrolinx ROW, from approximately St. Clair Avenue East to north of Corvette Park.

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2.1.7 Corvette Multi-Use Crossing

An existing at-grade multi-use crossing at Corvette Avenue allows pedestrians to cross the Stouffville track. Based on the anticipated additional level of service on the Stouffville Rail Corridor, the electrification initiative (refer to Section 1.3.3.1), and the need to depress the corridor, an alternate grade separated multi-use crossing will be required to replace the existing at-grade crossing. A new multi-use crossing will be constructed within the approximate location of the existing at-grade crossing. To maintain pedestrian and cyclist connectivity, Metrolinx is considering options for the new multi-use crossing to either pass over or under the rail corridor (through a new bridge or tunnel). A final crossing option will be confirmed following further engagement with the City of Toronto, so the potential effects of both options are considered in this report.

Ramps and walkways for the bridge or tunnel option will connect with the existing sidewalk along Corvette Avenue on the west side of the rail corridor and will direct users along a path to Wolfe Avenue. A new sidewalk may be constructed along the north side of Wolfe Avenue to facilitate pedestrian connectivity to Midland Avenue.

For the bridge option, Metrolinx and the City of Toronto are exploring options to include stairs on both sides of the bridge in addition to barrier-free ramps. Access to adjacent Toronto District School Board (TDSB) and private property along the path to Wolfe Avenue will be restricted.

The crossing and connections will be compliant with the *Accessibility for Ontarians with Disabilities Act* (AODA) and will meet City of Toronto standards, at a minimum. Additional design details such as appropriate barriers to protect the rail corridor, lighting, guardrails and screening to prevent objects from being thrown over the ramps will be confirmed as the design advances.

The structure will be designed to rely on natural light to the extent possible, but artificial lighting will be provided for nighttime and to illuminate any areas where direct natural lighting is limited. Artificial lighting will be incorporated as per applicable standards.

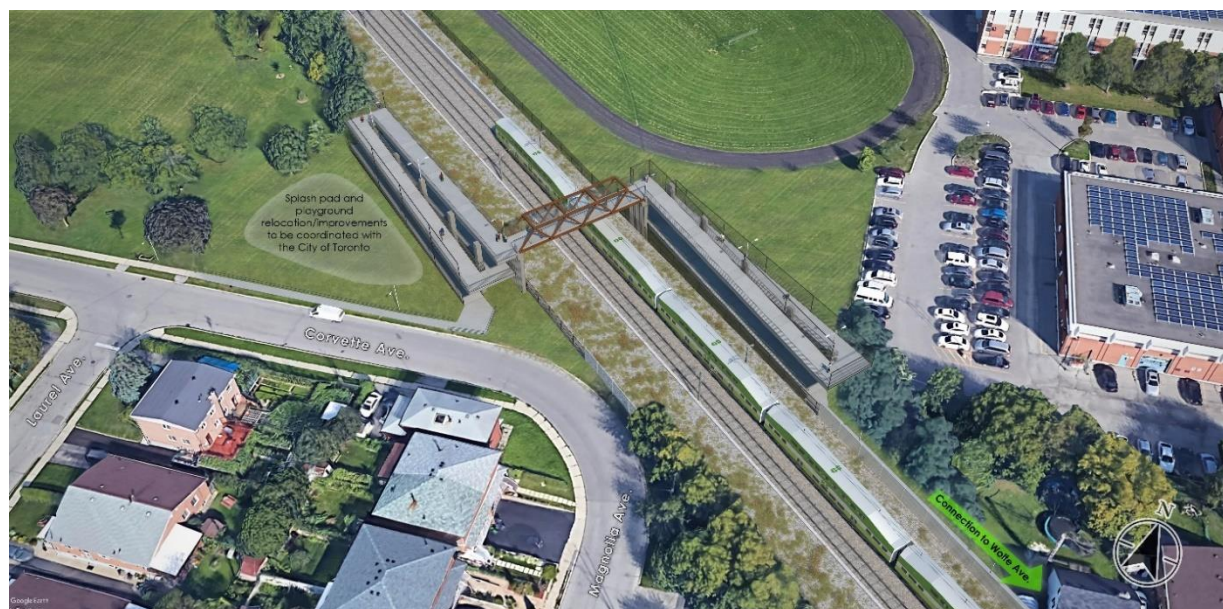
The structure is anticipated to impact the existing splash pad. Metrolinx will continue discussions with the City of Toronto to coordinate the relocation or reconstruction of a new splash pad within Corvette Park to replace the current splash pad affected by construction and new infrastructure. Metrolinx is working towards establishing an agreement outside of the EPR with the City of Toronto.

An artistic conceptual rendering of a potential Corvette multi-use bridge crossing is provided in Figure 2.6.

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Figure 2.6: Aerial View, Artistic Conceptual Rendering of the Corvette Avenue Multi-Use Crossing (bridge option)



2.1.8 Retaining Walls and Barriers

Retaining walls are required to provide track protection and to accommodate variations in grading along the length of the depressed corridor.

Exterior wall facings that are visible to the public will receive a permanent concrete facing and a plain finish. In conjunction with the City of Toronto, Metrolinx will determine the appropriate finish(es) for the retaining walls based on municipal planning and urban design policies and objectives, surrounding land uses, adjacent built form, and pedestrian, cycle and automobile traffic levels.

Where necessary, electrification protection barriers (EPBs) will be placed along the corridors, including on top of the retaining walls, to prevent access to the tracks and the overhead contact system wires that will be in place for electrification. EPBs are currently planned on top of the parapet walls at the Danforth Road/Midland Avenue intersection and along the Corvette multi-use crossing (bridge option).

As part of the GO Rail Network Electrification TPAP, noise barriers were identified within the Project Footprint along the Stouffville Rail Corridor from approximately Danforth Road to the southern boundary of Corvette Park. The requirement for noise barriers was re-evaluated as part of the Noise and Vibration Study Stouffville Corridor (RWDI 2020). Refer to Appendix A6-3.

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2.1.9 Utilities

The Project will result in potential conflicts with existing utilities. Recommendations to address these conflicts are suggested in Section 4.7 (see Table 4.4 through Table 4.9), and will be confirmed as the Project progresses into subsequent phases.

Two conflicts identified to date which require advanced engineering consideration include potential effects to sanitary and storm sewers resulting from the depressed corridor that must cross Danforth Road. Realignment of the existing sanitary sewers will direct flow north along Midland Avenue, west along Wolfe Avenue, below the rail corridor, along Corvette Avenue and south on Linden Avenue where it will connect to the existing sanitary network. A pump and short forcemain will be required near the point where the realigned sanitary sewer is depressed beneath the rail corridor.

Additionally, realignment of the existing storm sewer under Danforth Road as well as two smaller storm sewers north of Danforth Road is required. Diversion of storm sewer pipes from east of corridor to near Danforth Road will require a depressed sewer equipped with a grit chamber (sediment removal) allowing the new depressed storm sewer pipe or pipes will pass beneath the depressed corridor. A pump chamber will be required to drain the depressed rail corridor.

The final realignment option for the sanitary and storm sewers will be advanced in consultation with the City of Toronto.

Utility conflicts related to the Corvette multi-use crossing will be resolved through relocation and/or realignment as required. While the potential for conflicts is greater for a tunnel option due to the depth of construction (e.g., potential disruption of a storm sewer pipe), the conflicts related to either option will be addressed through design as required.

2.1.10 Temporary Areas of Disturbance

Several laydown areas have been proposed for the Project, including:

- An existing graveled laydown area, St. Clair Yard, will be used during construction. The area is owned by Metrolinx and is currently used for staging.
- An area within Corvette Park, in proximity to the playground/splash pad area.
- An existing laydown area near the northwest quadrant of the Danforth Road/Midland Avenue intersection. The area is owned by Metrolinx and is currently used for staging. This area may be extended towards the rail under road grade separation at Danforth Road to facilitate construction.

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No additional laydown areas are anticipated to be required for the Project, however, the final area required for laydown will be confirmed during detailed design.

Other areas may be temporarily disturbed to facilitate construction activities, including but not limited to areas required for rail detours and access roads.

2.2 Construction

Construction will be required in approximately six different zones, although some aspects of track and road work will be contiguous. This includes work centred at the Danforth Road/Midland Avenue intersection, Scarborough Junction, St. Clair Avenue East, Corvette Park, the Midland Layover, and the Scarborough GO Station. Final construction sequencing will be determined during detailed design, but the general activities associated with these zones is described below. Some activities may be most efficiently completed in parallel (such as the road and utility work at Danforth Road/Midland Avenue), while other aspects may have more flexibility.

Affected utilities will be relocated and/or protected as required. The storm sewer realignment will be constructed in conjunction with the intersection improvements and rail under road grade separation at Danforth Road/Midland Avenue to limit the effects of construction for traffic, pedestrians, cyclists and potential nuisance effects to the surrounding area. Work associated with the storm sewer realignment will occur adjacent to the eastern side of the rail corridor from approximately Autumn Avenue south to the Danforth Road/Midland Avenue intersection. The sanitary sewer realignment will be constructed along portions of Midland Avenue, Wolfe Avenue, Corvette Avenue and Linden Avenue.

Temporary track diversions for the Stouffville Rail Corridor will be constructed prior to the rail under road grade separation at Danforth Road. Construction for the grade separation will occur over two stages to maintain three lanes of traffic, pedestrian and cyclist movements. For the first stage, Danforth Road will be shifted south, while the tunnel is constructed to the north. Once tunnel construction is complete to the north, Danforth Road will be shifted to the north to allow for tunnel construction to the south. Danforth Road will be returned to its original alignment, with four lanes of traffic (two lanes in each direction) at the end of construction. Removal of the right turn channels from the Danforth Road/Midland Avenue intersection in addition to installation of APS for its crosswalk will be undertaken in conjunction with the construction of the grade separation.

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Retaining walls are required along the Stouffville Rail Corridor, from Corvette Park to the St. Clair Avenue East bridge. Retaining walls will first be constructed north and south of Danforth Road to accommodate the grade separation and construction of the retaining walls will continue along the corridor to the St. Clair Avenue East bridge. Where required, EPBs will be placed along the rail corridor, and are currently proposed on top of the parapet walls at the Danforth Road/Midland Avenue intersection and along the Corvette multi-use crossing (bridge option).

Construction of the St. Clair Avenue East bridge will require the demolition of a portion of the existing elevated sidewalk, retaining walls and wingwalls. Once removed, new abutments will be installed and the elevated sidewalks and retaining walls will be reinstated. Girders and the new structure will be constructed.

Construction of the rail-rail grade separation will occur over four stages. First the Lakeshore East Rail Corridor will be temporarily shifted to the south to allow for the construction of the north end of the tunnel. The shoring, secant pile wall and pile cap beam will be installed before the superstructure and approach slab are put in place. During stage two, one of the three Lakeshore East Rail Corridor tracks will be shifted to the north. The south shoring will be constructed, followed by installation of the secant pile wall and pile cap beam. The mid-portion of the superstructure and approach slab will then be installed. The third stage of construction requires the northward shift of a second track on the Lakeshore East Rail Corridor. As with the second stage, the shoring, secant pile wall and pile cap beam will be installed prior to the superstructure and approach slab. The final stage of construction for the rail-rail grade separation shifts the final Lakeshore East track to the north. The shoring, secant pile wall and pile cap beam will be installed prior to the final section of the superstructure. Installation of track drainage and track works also occurs during this final stage.

If the bridge option is chosen, construction of the new Corvette multi-use crossing will commence with the footings and piers for the bridge and the ramps. The bridge superstructure, consisting of a prefabricated steel truss, will be erected onto the piers by crane. A short duration track block, approximately 30 minutes, will be required during erection. The concrete decking for both the bridge and the ramps would then be placed, followed by railings, glazing, and joint systems. If the tunnel option is chosen, a staged construction will be required under the tracks with the tunnel constructed in two stages with a track protection system (shoring) between the stages. Excess soil removal is required for the ramps and for tunneling beneath the rail corridor, and 4 to 6 m high retaining walls (final height dependent on design) required adjacent to the rail corridor.

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Following any necessary grading, the Midland Layover will follow typical rail installation, including assembly of track, ties and fastenings. The continuation of the access road to the proposed traction power substation will be constructed to the north of the layover tracks using typical road construction methods.

Details regarding the construction of the GO Station building and associated modifications to platforms, elevators and stairs are currently in development. Construction could include providing new or relocated utility, electrical, and mechanical infrastructure to ensure the modified or relocated station has all functionality of the existing station. If required, the existing underground tunnels will be extended to facilitate barrier-free access between the new or relocated station and the boarding platforms. During construction, a temporary ticketing office will be available on-site.

Activities associated with construction are described in Table 2.1. These activities have the potential to interact with the existing environment and are used to determine the potential environmental effects of the Project during construction (refer to Section 4.0). Mitigation measures and monitoring requirements are described in Section 4.11. Further refinements to the construction activities and proposed equipment may be made as detailed design progresses.

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Table 2.1: Anticipated Construction Activities

Activity	Description	Associated Equipment
Site Preparation	<ul style="list-style-type: none"> • Delivery of equipment and materials to the laydown area • Removal of vegetation • Installation of erosion and sediment control measures • Installation of temporary fencing 	<ul style="list-style-type: none"> • Grading and grubbing equipment (if required) • Excavation equipment including backhoe, dump trucks, and soil removal equipment
Excavation and Grading	<ul style="list-style-type: none"> • Excavation of soils for tunnel construction • Grading going into/coming out of tunnels • Grading of areas associated with the realigned and new track • Progressive excavation for retaining walls 	<ul style="list-style-type: none"> • Grading equipment • Excavation equipment including backhoe, dump trucks, and soil removal equipment
Construction of St. Clair Avenue East Bridge	<ul style="list-style-type: none"> • Installation of temporary and permanent barriers for track and road safety • Demolition of a portion of the existing wingwall, footing, elevated sidewalks and retaining walls • Installation of roadway protection shoring system • Excavation and pile driving • Construction of expanded bridge and trackwork • Construction of elevated sidewalks and retaining walls • Reconstruction of road • Removal of temporary shoring and barriers 	<ul style="list-style-type: none"> • Small cranes • Pile driving rigs • Excavators, backhoes, loaders, dump trucks • Concrete mixer trucks • Truck cranes • Bulldozers, compaction rollers, road rollers • Road paving machines
Temporary Lane Closures/Detours	<ul style="list-style-type: none"> • Temporary sidewalk and vehicular lane closures, realignments, and detours required on Danforth Road as part of implementation of the 2-stage, 3-lane detour and realignment of existing lanes on St. Clair Avenue East 	<ul style="list-style-type: none"> • Temporary traffic control devices such as signs, signals, barriers, traffic barrels

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Activity	Description	Associated Equipment
Construction of Tunnels	<ul style="list-style-type: none"> • Relocation of utilities • Installation of track diversions • Implementation of lane closures on applicable roadways • Installation of roadway and track protection • Excavation (local areas with limited disturbance) • Installation of concrete caissons • Concrete work for tunnel construction • Excavation to depressed track level between concrete caissons • Track work and drainage • Road construction (where applicable) • Removal of roadway and track protection shoring systems 	<ul style="list-style-type: none"> • Backhoes, loaders, dump trucks • Augering machines for caisson construction, concrete mixer trucks • Bulldozer, compaction rollers • Road rollers and road paving machines (where road construction is applicable)
Installation of Trackwork	<ul style="list-style-type: none"> • Assembly of track, ties and fastenings 	<ul style="list-style-type: none"> • Thermal welding • Tie placement (cranes, lifting equipment) • Ballast placement equipment • Concrete pouring equipment
Temporary Track Diversion	<ul style="list-style-type: none"> • Connection of temporary diversions and removal following completion of the new permanent track 	<ul style="list-style-type: none"> • Thermal welding • Tie placement (cranes, lifting equipment) • Ballast placement equipment • Concrete pouring equipment

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Activity	Description	Associated Equipment
Construction of Retaining Walls and Barriers	<ul style="list-style-type: none"> Local excavations Installation of soldier piles and caissons Construction of cap beams and permanent struts where required Temporary struts where required and excavation to final track levels Installation of drive points and construction of facing between walls Track work and drainage Construction of exterior facing, drainage, and barriers (e.g., fencing) 	<ul style="list-style-type: none"> Backhoes, loaders, dump trucks Cranes for soldier pile installation, augering machines for caisson construction, concrete mixer trucks Bulldozer, compaction rollers
Construction of the Corvette Multi-Use Crossing (bridge option)	<ul style="list-style-type: none"> Removal of the Corvette Park splash pad and playground Removal of the existing at-grade multi-use crossing Installation of appropriate foundations and piers Assembly and launching of the main bridge structure Installation of east and west ramps and associated retaining walls (if necessary) 	<ul style="list-style-type: none"> Pile driving, cranes, concrete trucks
Construction of the Corvette Multi-Use Crossing (tunnel option)	<ul style="list-style-type: none"> Removal of the Corvette Park splash pad Removal of the existing at-grade multi-use crossing Installation of retaining walls Excavation (local areas with limited disturbance) Installation of concrete caissons Concrete work for tunnel construction 	<ul style="list-style-type: none"> Backhoes, loaders, dump trucks, concrete trucks Augering machines for caisson construction, concrete mixer trucks Bulldozer, compaction rollers Concrete pouring equipment

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Activity	Description	Associated Equipment
Midland Layover	<ul style="list-style-type: none"> Assembly of track, ties and fastenings 	<ul style="list-style-type: none"> Thermal welding Tie placement (cranes, lifting equipment) Ballast placement equipment Concrete pouring equipment
Scarborough GO Station	<ul style="list-style-type: none"> Modification or relocation of the GO station building to follow standard civil construction techniques As required, the south platform associated with the GO Station may be shifted 	<ul style="list-style-type: none"> Demolition equipment, as required Excavation equipment including backhoe, dump trucks, soil removal equipment, jack hammers Scissor lift Concrete pouring equipment Rig mounted hammers
Modifications to Utilities	<ul style="list-style-type: none"> Removal and realignment of the sanitary and storm sewers at Danforth Road Relocation and encasement of other utilities Removal and/or realignment of utilities in conflict with the Corvette multi-use crossing 	<ul style="list-style-type: none"> Concrete pouring equipment Excavation equipment including backhoe, dump trucks, soil removal equipment, jack hammers
Laydown Areas	<ul style="list-style-type: none"> No modifications would be required to use St. Clair Yard or the area northwest quadrant of the Danforth Road/Midland Avenue intersection Clearing the area within Corvette Park to be used as a laydown area to support construction of the multi-use crossing 	<ul style="list-style-type: none"> Grading and grubbing equipment (if required) Excavation equipment including backhoe, dump trucks, and soil removal equipment
Construction Dewatering	<ul style="list-style-type: none"> The need for dewatering during construction activities will be confirmed during detailed design 	<ul style="list-style-type: none"> Groundwater pumping

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Activity	Description	Associated Equipment
Management of Stormwater	<ul style="list-style-type: none">• During construction, stormwater management will follow best management practices and align with applicable standards and regulatory requirements• Surface flows will be discharged to municipal storm sewers• Installation of erosion and sediment control measures	<ul style="list-style-type: none">• Grading equipment

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2.3 Operations

As identified previously, the long-term goal and vision of the GO Expansion Program is to provide 15-minute two-way service on the Lakeshore East Rail Corridor and the Stouffville Rail Corridor south of Unionville GO Station. This Project will assist in meeting that goal by adding rail-rail and road-rail grade separations. The improved level of service was anticipated in the GO Rail Network Electrification EPR (2017) and therefore the potential effects of increased train movements was evaluated in that EPR and will not be evaluated in this report.

Once modified (i.e., through relocation or encasement), the operations associated with utilities will revert back to the applicable Owner (as identified in Section 4.7) and any potential effects associated with operations are not evaluated in this report.

Regular maintenance activities such as inspections, graffiti removal, debris/garbage removal, lighting replacements, structure refurbishment and snow removal are anticipated.

Operational activities associated with the Project are listed in Table 2.2. These activities have the potential to interact with the existing environment and are used to determine the potential environmental effects of the Project during operations (refer to Section 4.0). Mitigation measures and monitoring requirements are described in Section 4.11. Further refinements to the operations activities may be made as detailed design progresses and during operations. Operational activities may be the responsibility of Metrolinx or the City of Toronto, depending on agreement on final ownership of structural components.

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Table 2.2: Anticipated Operations Activities

Activity	Description
General Operations	Maintenance of the: <ul style="list-style-type: none">• Scarborough GO Station• expanded bridge over St. Clair Avenue East• depressed corridors/tunnels• multi-use crossing• retaining walls• EPBs• stormwater and sanitary infrastructure• Midland Layover access roads• snow clearing• debris/garbage clean-up• graffiti management• lighting replacement

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3.0 Existing Conditions

This Section of the EPR describes the existing environmental conditions within the Study Area (and discipline-specific Assessment Areas, where applicable). The existing conditions are used as the basis for measuring the potential environmental effects of the proposed works and to inform the identification of appropriate avoidance or mitigation measures.

The following subsections describe the key environmental components of the site:

- Natural Environment
 - Aquatic Environment
 - Terrestrial Environment
 - Wildlife
 - Significant Wildlife Habitat (SWH)
 - Species at Risk
 - Significant Natural Heritage Features
- Tree Inventory
- Geology and Groundwater
 - Landforms and Physiography
 - Soils and Bedrock Geology
 - Groundwater Resources
- Cultural Environment
 - Built Heritage Resources and Cultural Heritage Landscapes
 - Archaeology
- Socio-Economic and Land Use
 - Planning Policy Context
 - Neighbourhood Characteristics
 - Aesthetics/Visual Character
 - Utilities
- Air Quality

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- Noise and Vibration
- Traffic and Transportation
 - Road Network
 - Transit Network
 - Cycling, Pedestrian and Trail Network
 - Existing Travel Demand
 - Collision Analysis

Detailed information for each of the environmental components, including discipline-specific assessment areas, is provided in the environmental technical studies located in Appendix A.

3.1 Natural Environment

The following sections describe existing conditions and the methodology used to identify existing conditions related to the natural environment.

3.1.1 Methodology

A desktop screening was conducted to confirm and update aquatic and terrestrial information, including potential species at risk (SAR) and rare species, designated natural areas (i.e., Areas of Natural and Scientific Interest (ANSI), Provincially Significant Wetlands (PSW), and Environmentally Significant Areas) and other relevant natural heritage data within the Natural Environment Assessment Area. Information was compiled through aerial photo interpretation and a review of relevant federal and provincial databases as follows:

- Ministry of Natural Resources and Forestry's (MNRF) Land Information Ontario (LIO) database (MNRF 2018)
- MNRF's Natural Heritage Information Centre (NHIC) database (MNRF 2018)
- Species at Risk (SAR) in Ontario List
- Ontario Nature's Reptile and Amphibian Atlas (Ontario Nature 2018)
- Atlas of the Breeding Birds of Ontario (Cadman et al. 2007)
- Online eBird database (eBird 2018)

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- Fisheries and Oceans Canada Species at Risk Mapping (Fisheries and Oceans Canada 2018)
- Ontario Butterfly Atlas (Toronto Entomologists' Association 2018)
- Ontario Mammal Atlas (Dobbyn 1994)

Additional secondary sources reviewed, as available, include existing Lakeshore East Expansion Project, Network Electrification Project, Stouffville Corridor Rail Service Expansion Project and Danforth Road Grade Separation Project reports, and the City of Toronto Official Plan.

Field Investigations were conducted by qualified ecologists for the Natural Environment Assessment Area, which is shown in Appendix A1, Figure 1. Terrestrial natural heritage features examined included vegetation communities, vegetation species, breeding birds, candidate SWH including potential bat roost locations, and potential SAR habitat. Incidental wildlife observations were also recorded during field investigations. Desktop review confirmed no aquatic habitats within the Natural Environment Assessment Area, so no aquatic assessment was completed.

Ecological Land Classification (ELC) mapping was completed using the ELC field guide for Southern Ontario (Lee et al. 1998), including the 2008 updated catalogue. Vegetation communities were first identified on aerial imagery and then confirmed in the field. SAR and rare species were recorded by location using a hand-held Global Positioning System (GPS). Surveys were conducted during a suitable season to identify potential SAR and provincially rare species.

A breeding bird survey was conducted, consisting of recording all species of birds that were seen or heard within each of the surveyed vegetation communities. A highest breeding evidence code was assigned to each of the species based on the field observation. All birds seen or heard in suitable habitat during the breeding season were assumed to be breeding in the Natural Environment Assessment Area.

A bat maternity colony survey was conducted by Stantec on May 3, 2019 during leaf-off. The survey protocol followed the recommended methods in the MNRF Guelph District Bat and Bat Habitat Surveys of Treed Habitats (MNRF 2017) which was based in part on the Bat and Bat Habitat Guidelines (MNRF 2011).

Wildlife habitat assessments took place concurrently with vegetation surveys to identify potential SWH features. The wildlife habitat assessment was conducted according to the Significant Wildlife Habitat Technical Guide (SWHTG; MNR 2000), Ecoregion Criteria Schedules (MNRF 2015) and the Natural Heritage Reference Manual (MNR 2010). SWH features documented during field studies were carried forward to the

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effects assessment. In addition, incidental wildlife observations were recorded during all field investigations. All wildlife species identified by sight, sound or distinctive signs were recorded.

Habitat assessments took place concurrently with vegetation surveys to identify suitable habitat for significant species, including SAR and provincially rare species. The assessment was based on a list of significant species that have the potential to occur in the Natural Environment Assessment Area obtained from the background review. The assessment included provincially SRank (S1-S3) which are those species considered provincially rare/unique or species locally rare (L1-L3) flora within the municipality, or highly sensitive plants of conservation concern (Coefficient of Conservatism (CC) = 9-10)) most susceptible to change. Locations where field encounters of SAR and provincially rare species and/or their habitat were identified with hand-held GPS units.

The Natural Environment Technical Report (Stantec 2020a) is available in Appendix A1.

3.1.2 Description of Existing Conditions

3.1.2.1 Aquatic Environment

A City of Toronto stormwater management pond (0.63 ha) occurs outside of the Project Footprint but within the Natural Environment Assessment Area, between Midland Avenue and National Street, approximately 30 m south of the Lakeshore East Rail Corridor. This pond could provide some habitat for fish and water dependent reptiles and amphibians. Despite the potential presence of fish, stormwater management ponds are not regulated under the *Fisheries Act*.

Taylor-Massey Creek is located outside of the Project Footprint and is also considered outside of the zone of influence. Storm water discharge will use existing systems that discharge to Taylor-Massey Creek to the north.

3.1.2.2 Terrestrial Environment

Four natural vegetation communities were identified in the Natural Environment Assessment Area, dominantly along the vegetated corridor and in parks, including meadows, woodlands and hedgerows. Vegetation communities generally demonstrated a high degree of disturbance that is typical of urban environments, including a high proportion of non-native and invasive plant species. No rare or unique communities were documented. In addition, the Project Footprint area includes ornamental and streetscape trees that are found along roadways and parking lots. Overall, the area includes some disturbed natural communities but is dominantly urban streetscape with limited/no sensitive species.

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No flora SAR, provincially (S1-S3) or locally rare (L1-L3), or highly sensitive plant (CC = 9-10) species were documented during the botanical inventory. Twenty-six (26) species of vascular plants were recorded in the Natural Environment Assessment Area, of which 14 (54%) were native. All native plants documented had a provincial rank of S5, indicating they are common and secure within Ontario.

Table 3.1: Summary of Vegetation Communities

ELC Code	Description	Dominant Species
FOD	Deciduous Forest (along Taylor-Massey Creek in the Pine Hills Cemetery)	Crack Willow, Siberian Elm, Manitoba Maple, Green Ash, Tartarian Honeysuckle, Common Buckthorn, Garlic Mustard, Dog-strangling Vine, Goldenrod species
FODM11	Naturalized Deciduous Hedgerow	Manitoba Maple, Siberian Elm
WOD	Deciduous Woodland	Manitoba Maple
ME	Meadow	Kentucky Bluegrass, Smooth Brome, Staghorn Sumac, Dog-strangling Vine, Goldenrod species, Manitoba Maple

3.1.2.3 Wildlife

A total of 10 bird species were observed during the breeding bird survey. All species were presumed to be breeding in the Natural Environment Assessment Area and they are all provincially ranked as common species in Ontario. No bird nests were confirmed in the Assessment Area; however, nests of common urban adapted species are expected to occur.

No incidental wildlife observations were recorded during the field investigations, however, common species that are tolerant of urban conditions are expected to occur throughout the Natural Environment Assessment Area.

Overall, bird species are expected to be nesting in the area but are urban adapted.

3.1.2.4 Significant Wildlife Habitat

Habitat for species of conservation concern (SOCC) includes habitat for those species that are not covered under the *Endangered Species Act* including species ranked as special concern and provincially ranked as S1-S3. Data from the background review and field surveys were used to assess the potential for habitat of species of conservation concern to occur within the Natural Environment Assessment Area.

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A habitat assessment identified suitable habitat for Monarch in the Assessment Area (i.e., meadow habitat).

3.1.2.5 Species at Risk

There were no recent records (within the past 30 years) of SAR or provincially-rare species identified in the NHIC database during a search on November 22, 2018.

A wildlife atlas search conducted on November 22, 2018 and a desktop habitat assessment prior to conducting field investigations identified SAR species as having the potential to reside in the Natural Environment Assessment Area.

However, field investigations confirmed that no federally protected SAR, or habitat for federally protected SAR are present in the Natural Environment Assessment Area. No flora SAR, provincially (S1-S3) or locally rare (L1-L3) flora, or highly sensitive plant (CC = 9-10) species were documented during the botanical inventory.

Some potential SAR bat habitat exists but field investigations confirmed there are no species in the area. Two potential bat roost trees were observed during the bat roost assessment within the Project Footprint area with the potential to be affected. Both trees were mid-aged Manitoba Maples growing at the edge of a small cultural meadow located near the intersection Midland Avenue and Danforth Road. The trees exhibited some characteristics that are preferred by bats including a relatively large DBH, an open canopy and early signs of decay. However, the trees were short and cavities were low in the trees; two characteristics that are not preferred by bats due to the increased chance of predation that occurs with roosts located close to the ground.

On July 11, 2019 an evening exit/entrance survey was completed at the two trees to determine if bats were using the trees for maternity roosting. Conditions were noted to be clear and warm, appropriate for surveying. During the surveys no bats were observed entering or exiting the trees and no bats were observed flying in the area. These results are consistent with the lack of habitat in the immediate area. No further surveys were conducted at this location based on the lack of bat observations in the area and the known limited habitat conditions. Based on the assessment of potential bat maternity habitat trees on May 3, 2019 and July 11, 2019, no bat maternity roosts were observed in the Natural Environment Assessment Area.

3.1.2.6 Significant Natural Heritage Features

A review of Designated Natural Areas such as wetlands, ANSI and Environmentally Sensitive Areas was conducted for the Natural Environment Assessment Area. No Designated Natural Areas were identified in the Natural Environment Assessment Area during the background review. The closest feature is the Scarborough Bluffs Life

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Science ANSI that is found greater than 1 km from the Natural Environment Assessment Area along the shores of Lake Ontario.

3.2 Tree Inventory

3.2.1 Methodology

The tree inventory and assessment for the sites was completed by on September 18, 2020.

Trees within the Project Footprint were inventoried and geolocated. The data collected for each tree includes tree species, general health condition, diameter at breast height (DBH) or diameter class, dripline radius, height, hazard probability and various other parameters were collected. The tree locations were recorded with a hand-held GPS unit.

A Tree Management Plan was prepared as part of the Tree Inventory to identify the approximate existing tree locations, tree tag identification numbers, the adjusted dripline radius as well as the recommended action for each inventoried tree (i.e., remove or retain and protect).

The site was reviewed for threatened, rare or endangered trees. A 30 meter buffer from the limit of construction was used to delineate the potential presence of threatened, rare or endangered trees. The Tree Inventory Report (Stantec 2021a) is available in Appendix A9.

3.2.2 Description of Existing Conditions

A total of 360 trees were identified in the inventory. The inventory included the following tree species:

Table 3.2: Observed Species

Family	Genus Species (common name)
<i>Betulaceae</i> (birch family)	<i>Betula alleghaniensis</i> (yellow birch)
<i>Cannabaceae</i> (hemp family)	<i>Celtis occidentalis</i> (hackberry)
<i>Cupressaceae</i> (cypress family)	<i>Thuja occidentalis</i> (eastern white cedar)
<i>Elaeagnaceae</i> (silverberry family)	<i>Elaeagnus augustifolia</i> (Russian olive tree)
<i>Fabacea</i>	<i>Gymnocladus dioicus</i> (Kentucky coffeetree)

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Family	Genus Species (common name)
(legume family)	<i>Gleditsia triacanthos</i> var. <i>inermis</i> (thornless honeylocust) <i>Robinia pseudoacacia</i> (black locust)
<i>Fagaceae</i> (beech family)	<i>Quercus rubra</i> (red oak)
<i>Juglandaceae</i> (walnut family)	<i>Juglans nigra</i> (black walnut)
<i>Malvaceae</i> (linden family)	<i>Tilia americana</i> (American basswood)
<i>Moraceae</i> (mulberry family)	<i>Morus alba</i> (white mulberry)
<i>Oleaceae</i> (olive family)	<i>Fraxinus</i> sp. (ash species)
<i>Pinaceae</i> (pine family)	<i>Picea glauca</i> (white spruce) <i>Picea pungens</i> var. <i>glauca</i> (Colorado blue spruce) <i>Pinus banksiana</i> (jack pine) <i>Pinus nigra</i> (Austrian pine) <i>Pinus resinosa</i> (red pine) <i>Pinus strobus</i> (white pine)
<i>Rosaceae</i> (rose family)	<i>Crataegus</i> sp. (hawthorn sp.) <i>Malus</i> sp. (apple sp.) <i>Prunus</i> sp. (cherry sp.)
<i>Salicaceae</i> (willow family)	<i>Populus deltoides</i> ssp. <i>deltoides</i> (eastern Cottonwood) <i>Populus</i> sp. (poplar sp.) <i>Populus tremuloides</i> (trembling aspen) <i>Salix alba</i> (white willow) <i>Salix</i> sp. (willow sp.)
<i>Sapindaceae</i> (soapberry family)	<i>Acer negundo</i> (Manitoba maple) <i>Acer platanoides</i> (Norway maple) <i>Acer saccharinum</i> (silver maple)
<i>Ulmaceae</i> (elm family)	<i>Ulmus pumila</i> (Siberian elm) <i>Ulmus</i> sp. (elm sp.)

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3.2.2.1 Rare and Endangered Trees

Two Kentucky coffee-trees (*Gymnocladus dioica*) both under <10 cm DBH and in good condition were observed within the surveyed area. Kentucky coffee-tree is designated 'Threatened' in Canada under the *Species at Risk Act* (SARA).

3.3 Geology and Groundwater

Geology refers to surface and below-ground conditions of the organic and inorganic compounds that make up the soil and rock that support plant and animal life and human activities and structures, including chemical or other compounds that may have entered the soil as a result of human activities.

Groundwater refers to below-ground water conditions, including the flow of water from the surface into the groundwater, and the presence or absence of drinking water wells.

3.3.1 Methodology

A desktop review of geological and topographic maps as well as relevant soils information and existing literature was undertaken.

A geotechnical and hydrogeological investigation was completed in 2020 (Stantec 2020h)

The geotechnical component of the investigation determined the subsurface conditions in order to provide the required information, recommendations and parameters for use in design of the rail cut, fills and abutments (and pier) for the bridge structures. A field investigation program was undertaken, including 48 boreholes drilled to depths between 5.2 to 8.7 m and installation of 28 monitoring wells. The geotechnical laboratory testing program included the following:

- Routine tests (consisting of natural water content test, Atterberg Limits test and Grain Size Distribution test) on approximately 15% of the samples obtained from the boreholes
- Unit weight tests on select samples from the boreholes
- Unconsolidated Undrained and Consolidated Drained Triaxial tests on undisturbed samples from soft soils
- Consolidation tests on undisturbed samples from soft soils
- Standard proctor tests

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- Chemical analysis tests (specific to assessing the soil corrosion potential and determining the cement type for use in buried concrete)

The hydrogeological component of the investigation characterized the groundwater flow conditions to establish a baseline condition from which future changes (i.e., temporary changes due to construction or permanent changes following completing of the rail cut) could be compared. The hydrogeological assessment also established a baseline of water table elevation and groundwater quality, developed estimates of soil hydraulic conductivity based on in-situ test results, and in the event of excavation below water table, completed an evaluation of the dewatering zone, influence, pumping rates, and groundwater disposal options with regard to compliance with applicable Sewer Use By-Laws. The field component of the hydrogeological investigation included:

- Installation of twenty-two (22) monitoring wells in conjunction with the geotechnical investigation program
- Development and in-situ hydraulic testing of seventeen (17) monitoring wells nearest to the proposed grade separation
- Measurement of groundwater levels in the monitoring wells after sufficient time to permit equilibration to static levels
- Sampling of the groundwater in four (4) monitoring wells to establish a baseline water quality

3.3.2 Description of Existing Conditions

3.3.2.1 Landforms and Physiography

The Study Area is situated within the “South Slope” physiographic region within drumlinized till plain landform (Chapman and Putnam 1984). Till plains are large expanses of unstratified glacial drift deposited by glaciers and consisting of clay, sand, gravel or boulders intermixed in any proportion (Department of Agriculture 1976:40). The till plain was exposed in the Study Area, following the retreat of the Laurentian glacier’s Ontario lobe (Karrow and Warner 1990:15).

The “South Slope” physiographic region constitutes the southern aspect of the Oak Ridges Moraine. The region has an average breadth of approximately 10 to 11 kilometres (km) with an average elevation of between approximately 800 feet (244 metres (m)) and 1,000 feet (305 m) above sea level (asl) and spans from the Niagara Escarpment in the west to the Trent River in the east. The surficial geology of the Study Area indicates that it is underlain by deposits of glacial till. These till deposits are stone-poor and sandy-silt to silty sand in texture and overlay a Paleozoic terrain (Ontario

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Geological Survey 2010). In Scarborough, the region is characterized by gently rolling till plain with bold fluting and low drumlins, possessing a variety of different soils (Chapman and Putnam 1984:172-174).

3.3.2.2 Soils and Bedrock Geology

The surficial geology of the area is typically described as consisting of surficial glaciolacustrine deposits underlain by glacial till strata. The glaciolacustrine deposits consist predominantly of fine sands, silts and clays. The deposits are typically quite thin, though locally they can be several meters thick. The glaciolacustrine deposits are typically underlain by the Halton Till (Quaternary Geology Map – Ontario Geological Survey, 2000). The Halton Till is generally described as a sandy silt to clayey silt till interbedded with silt, clay, sand and gravel. The Halton Till is typically 3 m to 6 m thick but can exceed 15 m to 30 m locally. The Halton Till is typically firm to hard and slightly to heavily over-consolidated.

Although not present across the entire area, interstadial and tunnel/channel infill deposits can exist between the overlying Halton Till and underlying Newmarket Till. These deposits, where present, are often described in the context of a regional unconformity. These deposits can vary greatly in composition (often though not exclusively granular in nature), thickness, and consistency/compactness condition. These deposits are generally consolidated/dense; however, loose conditions may exist perhaps due to groundwater influence after glacial pressure relief.

The Halton Till (and interstadial deposits where present) is underlain by a much thicker stratum of glacial till referred to as Newmarket Till (Quaternary Geology Map – Ontario Geological Survey, 2000). The Newmarket Till is commonly described as having a sandy silt to silty sand matrix and a coarse fraction (stone content) in the range of 5% - 15%. Isolated sand lenses are known to be present in the till. The Newmarket Till is typically characterized as being in a dense to very dense state and is known to be “over-consolidated” as a result of the application of load from glaciation.

The references suggest the depth of bedrock in the area of Scarborough Junction ranging from 45 m to 90 m. Bedrock was not encountered to the maximum depth of the boreholes (e.g., 31 m).

Historically, the Study Area consisted of a variety of soils, which would have been suitable for agricultural activities (Department of Agriculture 1954). Subsequent soils surveys in the City of Toronto since the 1950s have documented that most of the City is now highly urbanized and most natural soils have been obscured by development activities.

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The Phase I ESA (Stantec 2019) identified five medium-risk and two high-risk Areas of Potential Environmental Concern (APEC). The presence of the rail corridor and of fill of unknown environmental quality across the Project Footprint represents a high-risk APEC applicable to the Project components. Further soil and groundwater sampling was undertaken. Chemical analysis results were compared to analytical parameters specified under *O. Reg. 153/04*, depending on Site Condition Standards (SCS), which are presented in Table 1 to Table 9 of the *Provincial Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011*. Based on the further soil analytical results (Stantec 2020h), the concentrations of contaminants of concern in soil in the areas sampled were less than the applicable *O. Reg. 153/04* Table 3 (Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition) SCS with the exception of electrical conductivity (EC) and/or sodium adsorption ratio (SAR) at three borehole locations.

The soil analytical results were also compared to *O. Reg. 153/04* Table 1 (Full Depth Background Site Condition Standards) SCS and the following exceedances were identified: EC and/or SAR at five boreholes; antimony, cobalt, copper, molybdenum and nickel in one or more of four boreholes; and, methylnaphthalene (total) in one borehole (Stantec 2020h).

It should be noted *O. Reg. 406/19* includes an expanded exemption for elevated values of electrical conductivity (EC) and sodium adsorption ratio (SAR) in scenarios where a substance (e.g., road salt) had been applied to surfaces for the purpose of safety of vehicular or pedestrian traffic. Under this exemption EC and SAR parameters may not be considered contaminants depending on the placement of the excess soil.

The Study Area presently includes Taylor-Massey Creek; however, this feature is outside of the Project Footprint. Early 20th century mapping (Department of Militia and Defence 1909) shows that the Study Area includes historic tributaries of both Taylor-Massey Creek and Highland Creek. These historic tributaries have since been buried and incorporated within the City of Toronto's storm water management infrastructure.

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3.3.2.3 Groundwater Resources

Based on topographic mapping from the MNRF, and the observed topography in the vicinity of the Project Footprint, the regional surface drainage (inferred regional ground water flow direction) is west toward Taylor-Massey Creek, located approximately 700 m west of the area along the Lakeshore East Rail Corridor between Kennedy Road and St. Clair Avenue East and between Midland Avenue and Brimley Road, which flows southerly towards Lake Ontario, located approximately 1.5 km south of the southwest end of the Project Footprint. Groundwater flow direction was not determined in any of the previous investigations available for review.

Free groundwater was observed in fourteen (14) of the open boreholes on completion of drilling. The levels ranged from 1.5 m to 10.7 m below grade corresponding to Elevations 162.3 m to 152.9 m, respectively. Due to the low permeability of the till deposits, the level of free groundwater observed in open boreholes on completion of drilling may not represent the static groundwater level. However, it can be representative of short-term conditions encountered at the time of initial excavation and exposure.

Groundwater elevation monitoring data indicates the water table is a subdued reflection of the surface topography, generally ranging between 158 masl and 164 masl throughout the Project Footprint. The Study Area straddles the elevated area, separating the valleys of the Don River (to the west) and Highland Creek (to the east). It is expected that the flat water table elevation reflects a divide between the two catchment areas.

The water table is highest (163.7 masl) at the rail-rail grade separation. From this high point, the water table slopes to low points at the northwestern and southwestern limits of the Project Footprint.

The static groundwater levels recorded in the monitoring wells ranged from 1.0 m to 6.6 m below the existing ground surface. The range in depth translates to elevations ranging from approximately 169.0 m to 156.6 m.

Groundwater quality samples were collected at four monitoring wells. Laboratory results indicate the following:

- Collected water samples were in compliance with City of Toronto Sanitary Sewer Use By-Law parameters.
- Relative to the City of Toronto Storm Sewer Use By-Law, collected samples consistently exceeded the criteria for manganese and total suspended solids.

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- Concentration of total suspended solids at one of the boreholes was excessive, at 700 mg/L. The elevated concentration of phosphorous within this sample is expected to be a product of the elevation suspended solids.

Information gathered as part of the Phase 1 ESA indicated that multiple monitoring/observation wells are present at or in the vicinity of Project Footprint. No potable water wells were identified within 250 m of the Project Footprint. Based on the well record obtained from the MECP well record database, six monitoring wells were installed along the Lakeshore East Rail Corridor between Midland Avenue and Brimley Road in 2011. The soil stratigraphy along this area was listed as sandy silt to silty clay.

3.4 Stormwater Management

Stormwater management refers to the elements of the environment (natural or human-made) that affect the flow of precipitation through the environment once it hits the ground.

3.4.1 Methodology

The stormwater design for the Project considers the drainage and stormwater objectives of relevant guidance documents from authorities having jurisdiction that are released prior to the approvals phase of the Project. These documents include the MECP Stormwater Management Planning and Design Manual (2003), the City of Toronto's Design Criteria for Sewers and Watermains (2019d); the City of Toronto's Wet Weather Flow Management Guidelines (2006); and TRCA Stormwater Management Criteria (2012).

A detailed Stormwater Management Report will be developed to demonstrate that the proposed Project complies with drainage and stormwater management requirements with respect to stormwater conveyance, quantity, quality, and water balance prior to the construction phase of the Project. Analysis of the effects of the proposed works on existing and new stormwater infrastructure and drainage patterns will be quantified using the approved hydrology/hydraulics model.

The City of Toronto is currently experiencing basement flooding incidents caused by rain events of increased intensity and greater frequency (Stantec 2020d). The City has developed a work plan for an engineering review to address the basement flooding problem, the Basement Flooding Remediation and Water Quality Improvement Master Plan Class EA - Study Area 34 (WSP 2008). Through the basement flooding study, a calibrated and validated InfoWorks model was created. The model was used to establish the performance of the storm sewer system under several storm events, including the 2-, 5-, 10-, 25- and 100-year design storms, as well as the May 12, 2000

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storm event. The InfoWorks model developed through the City of Toronto's Basement Flooding Remediation and Water Quality Improvement Master Plan Class EA - Study Area 34 (WSP 2008) was reviewed for the Project and updated to include the realigned sanitary sewer.

3.4.2 Description of Existing Conditions

The Project falls within Taylor Massey Creek Subwatershed (part of the Don River watershed), which is under TRCA jurisdiction. There are three storm sewers that cross the section of the Stouffville Rail Corridor that is proposed to be depressed below grade, from east to west. The storm sewers discharge into the Massey Creek about 15 m south of Foxridge Drive (Stantec 2020d).

In addition, a PVC culvert crosses the rail corridor about 100 m north of Danforth Road. This culvert provides drainage relief at a low point on the east side of the rail corridor allowing railside ditch and rear yard flows to travel under the tracks to the west. The culvert appears to discharge into the rear yard of a residential lot.

Refer to Section 3.1.2.1 for a description of the City of Toronto stormwater management pond located between Midland Avenue and National Street.

3.5 Cultural Environment

The following sections describe existing conditions related to the cultural environment, including protected heritage properties, built heritage resources, cultural heritage landscapes, archaeological resources and areas of archaeological potential.

3.5.1 Built Heritage Resources and Cultural Heritage Landscapes

Built heritage resources include buildings, structures, monuments, installations, or other similar features that contribute to a property's cultural heritage value or interest as identified by a community (Government of Ontario 2020). Cultural heritage landscapes refer to specific areas that may have been modified by human activity, such as buildings, structures, spaces, views, archaeological sites or other natural elements that are valued collectively for their interrelationship, meaning or association (Government of Ontario 2020).

3.5.1.1 Methodology

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment was undertaken by Stantec Consulting Ltd. for the Project (refer to Appendix A2). This technical report consisted of data collection, background historic research, review of secondary source material and field review conducted in March and November 2019 to

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identify the presence of known and potential built heritage resources and cultural heritage landscapes in or adjacent to the Cultural Heritage Assessment Area. This report also identified preliminary potential impacts on the known and potential built heritage resources and cultural heritage landscapes as well as recommended measures to avoid or mitigate negative impacts to those resources.

As heritage reports have been completed for portions of the Cultural Heritage Assessment Area, the initial step in this Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment was a gap analysis that included a review of previous reports to determine which areas had not been previously assessed. The three Cultural Heritage Screening Reports (CHSRs) and one Cultural Heritage Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes reviewed include:

- Archaeological Services Inc. (ASI)'s Cultural Heritage Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes (ASI 2014a)
- AECOM's Cultural Heritage Screening Report for Built Heritage Resources and Cultural Heritage Landscapes, Lakeshore East Rail Corridor Expansion – Don River to Scarborough GO Station (Segment 1), City of Toronto (AECOM 2016a)
- Stantec's Cultural Heritage Screening Report, Danforth Road (Stantec 2017a)
- ASI's GO Rail Network Electrification TPAP Final Cultural Heritage Screening Report (ASI 2017a)

The Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment completed for this Project considered properties identified in these previous reports as built heritage resources, cultural heritage landscapes, or conditional heritage properties.

Listings of provincially and locally designated properties, districts, and easements for each municipality were collected from the City of Toronto, the Ontario Heritage Trust (OHT), and the Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI). Consultation with agencies and municipalities within which the Project is proposed was undertaken to determine the presence of designated, listed, or otherwise recognized heritage properties within or adjacent to the Cultural Heritage Assessment Area. In addition, a field visit was conducted to confirm existing conditions of previously identified heritage resources and identify any new potential heritage resources, including both potential built heritage resources and cultural heritage landscapes, to supplement the findings of the desktop review. The Cultural Heritage Assessment Area is illustrated in Appendix A2, Figure 2.

Where a built heritage resource or cultural heritage landscape was identified within or across the Cultural Heritage Assessment Area, an assessment of potential impacts as

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a result of the Project was undertaken. The assessment of potential impacts was undertaken according to MHSTCI's *Information Bulletin 3: Heritage Impact Assessment* (Information Bulletin 3) (approved January 31, 2017) (MHSTCI 2017).

3.5.1.2 Description of Existing Conditions

During the field survey, a total of 155 properties were identified as containing potential built heritage resources (Stantec 2021b). This determination was based solely on the 40-year old threshold as the majority of these potential resources consisted of properties located within mid-20th century subdivisions. Of the 155 potential built heritage resources identified, five were determined to be built heritage resources based on the evaluation criteria (refer to Appendix A2 for further details). The five built heritage resources within the Cultural Heritage Assessment Area include:

- 87 Granger Avenue (CHR-1)
- 112 Granger Avenue (CHR-2)
- 70 Granger Avenue (CHR-3)
- 1 Granger Avenue (CHR-4)
- 23 Laurel Avenue (CHR-5)

Full details on cultural heritage conditions, potential effects and mitigation measures can be found in Appendix A2. The location of the built heritage resources are shown on Figure 3.5 in Appendix A2.

3.5.2 Archaeological Resources

Archaeological resources include artifacts, archaeological sites, marine archaeological sites, as defined under the *Ontario Heritage Act*. The identification and evaluation of such resources are based upon archaeological fieldwork undertaken in accordance with the *Ontario Heritage Act*.

3.5.2.1 Methodology

A Stage 1 Archaeological Assessment (AA) was undertaken on April 3, 2019 by Stantec Consulting Ltd. for the Archaeology Assessment Area under Project Information Form (PIF)# P392-0254-2019. A Stage 1 AA consists of a review of geographic, land use and historical information for the property and the relevant surrounding area, a property visit to inspect its current condition and contacting MHSTCI to find out whether or not there are any known archaeological sites on or near the property. Its purpose is to identify

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areas of archaeological potential and further archaeological assessment (e.g., Stage 2-4) as necessary. The Stage 1 AA is included in Appendix A3-2.

The Stage 1 AA (Stantec 2020b) compiled available information about the known and potential archaeological resources within the Archaeology Assessment Area. Five previous archaeological assessments conducted within 50 m of the Archaeology Assessment Area were reviewed, including:

- ASI's Stage 1 Archaeological Assessment (Background Study and Property Inspection) Stouffville Corridor Rail Service Expansion GO Transit Class Environmental Assessment Study and Preliminary Design Former Township of Scarborough and Former Township of Markham, York County City of Toronto and Regional Municipality of York, Ontario (ASI 2014b)
- ARA's Stage 1 and 2 Archaeological Assessments 362 - St. Clair Avenue East Lot 2 Proposed Storage Area for the Stouffville Railway Corridor Expansion Project City of Toronto Part of Lot 27, Concession C Geographic Township of Scarborough Former York County, Ontario (ARA 2016)
- AECOM's Stage 1 Archaeological Assessment Lakeshore East Rail Corridor Expansion Don River to Scarborough GO Station (Segment 1) City of Toronto, Ontario (AECOM 2016b)
- Stantec's Stage 1 Archaeological Assessment Report Stouffville Rail Corridor Grade Separation Program (Danforth Road) RQQ-2014-C1-092 (Stantec 2017b)
- ASI's GO Rail Network Electrification TPAP Final Stage 1 Archaeological Assessment Report (ASI 2017b)

In addition, Toronto's municipal Archaeological Management Plan, entitled A Master Plan of Archaeological Resources for the City of Toronto – Interim Report (ASI 2004), and also available online (City of Toronto 2019b), was also consulted.

Archaeological potential can be identified based on a variety of factors, including proximity to previously registered archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography, and the general topographic variability of an area.

The Stage 1 AA was provided to the following Indigenous Nations for review:

- Williams Treaties First Nations
 - Alderville First Nation

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- Beausoleil First Nation
 - Chippewas of Georgina Island First Nation
 - Chippewas of Rama First Nation
 - Curve Lake First Nation
 - Hiawatha First Nation
 - Mississaugas of Scugog Island First Nation
- Mississaugas of the Credit First Nation
 - Huron-Wendat Nation
 - Kawartha Nishnawbe First Nation
 - Métis Nation of Ontario
 - Six Nations of the Grand River
 - Haudenosaunee Confederacy Chiefs Council

The Stage 1 AA was submitted to the MHSTCI as a condition of licensing in accordance with the *Ontario Heritage Act*. On June 3, 2020, the Stage 1 AA was entered into the Ontario Public Register of Archaeological Reports. Further archaeological assessment is required in certain areas and a Stage 2 AA will be undertaken prior to the start of construction activities.

3.5.2.2 Description of Existing Conditions

The property inspection identified that the majority (approximately 90%) of the Archaeology Assessment Area consists of land disturbed through residential housing developments, road construction, and the existing railway corridor. The remaining portion of the Assessment Area (approximately 10%) consists of park areas composed of manicured lawn, treed areas, a baseball diamond, and meadowland.

Based on the results of the property inspection, parts of the Archaeology Assessment Area were identified to possess archaeological potential and a Stage 2 AA will be required for an area near the intersection of Danforth Road and Midland Avenue and an area along the Stouffville Rail Corridor within the Corvette Park

The Archaeology Assessment Area includes a registered archaeological site, the Heinze site (AkGt-15). While this site is registered as undergoing disturbance at its original date of registration it has not been formally investigated. Some lands within 70 m of the Heinze site (AkGt-15) are considered likely to have been subject to previous disturbance.

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Full details on the Stage 1 AA can be found in Appendix A3.

3.6 Socio-Economic and Land Use

The following section describes existing conditions related to the social and economic environment. This includes descriptions of the political and policy designations associated with the Socio-Economic and Land Use Assessment Area and the land uses allowed as a result. It also includes a description of the ways in which people use the land within the Socio-Economic and Land Use Assessment Area.

3.6.1 Methodology

A desktop assessment was undertaken to review existing planning documents and mapping. The desktop review included a review of the land designations within the Socio-Economic and Land Use Assessment Area and adjacent properties, as well as a desktop search of:

- Project documents and supporting studies (e.g., design drawings, technical presentations, Project TIA)
- GO Expansion Program (GO Expansion Full Business Case; Metrolinx 2018c)
- 2041 Regional Transportation Plan (Metrolinx 2018a)
- Metrolinx Five-Year Strategy 2017 – 2022 (Metrolinx 2017a)
- Information on existing institutional uses found on the Open Data Catalogue (City of Toronto 2018a)
- Provincial, Regional, and Municipal Plans, Legislation and Policy Statements
- City of Toronto Official Plan (including land use maps, secondary plans, site and area specific maps, and special policy areas as relevant)
- City of Toronto Zoning maps and by-laws
- Development applications (from City of Toronto)
- Statistics Canada Census information

Potential effects on socio-economic and land use features within the Socio-Economic and Land Use Assessment Area were assessed for Project construction and operation (Stantec 2021c). The Socio-Economic and Land Use Assessment Area is illustrated in

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Appendix A5, Figure 2. Characterization of potential effects was informed through a combination of three analytical techniques, including Geographic Information System (GIS)-based overlay mapping and analysis tools, qualitative assessment methods, and characterization of existing conditions and effects on aesthetics/visual character.

The Socio-Economic and Land-Use Study can be found in Appendix A4.

3.6.2 Description of Existing Conditions

3.6.2.1 Planning Policy Context

The Socio-Economic and Land Use Assessment Area is located within the City of Toronto, identified as Ward 20 (Scarborough Southwest) (City of Toronto 2018b). As required under Section 17 of the *Planning Act*, R.S.O. 1990, C. P.13 (*Planning Act*, 1990), the City of Toronto's Official Plan (2015) is a legal document that establishes a vision for future growth, describes the locations of current land uses (e.g., housing, industry, and parks), establishes policies for the built environment, and describes policies and objectives for future land uses (City of Toronto 2019c). The Official Plan is prepared in consultation with residents and is approved by City Council (City of Toronto 2019c).

The City of Toronto's Official Plan (2015) states that park designs and their associated amenities should enhance park users' experience of place and promote comfort, safety, accessibility, and year-round use. Developments in parks will preserve or improve public visibility and access except when doing so would damage natural features or unreasonably restrict private property rights. The design of developments within parks should respect the form and function of the park or open space.

Section 2.1.1 of the Official Plan (2015) states the City of Toronto will work with nearby municipalities, the Province of Ontario and Metrolinx to implement the Provincial framework for addressing growth in the Greater Toronto Area. The framework looks to focus urban growth into centres, mobility hubs, and corridors connected by regional transportation. Growth should enhance use of existing urban infrastructure and services.

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The Official Plan (2015) also encourages active transportation through integrating pedestrian and cycling infrastructure into the design of streets and neighborhoods. The City will implement Travel Demand Management measures that reduce auto dependency while increasing the number of trips made by walking, cycling, and transit. Policies, programs, and infrastructure will be implemented to enhance pedestrian and cyclist safety throughout the City. Section 2.4.14 states that grade-separated crossings of rail corridors should be provided where appropriate to support pedestrian movement. Connections to public walkaways in parks and open spaces should also be maximized.

The Official Plan (2015) has stated that new neighborhoods should be viable as their own communities. New streets should be designed with a Complete Streets approach that includes full consideration for the needs of pedestrians, cyclists, and public transportation users. Neighborhoods should include a mix of uses and integrate into the surrounding City with access to public transit and connections to surrounding streets and open spaces.

The City of Toronto Official Plan (2015) land use designations overlapped by the Assessment Area include 'Neighbourhoods', 'Apartment Neighbourhoods', 'Parks and Open Spaces', 'Mixed use Areas' and 'Employment Areas'. Zoning categories overlapped by the Assessment Area include: 'Residential', 'Residential Apartment', 'Employment Use', 'Commercial', 'Institutional and Other Uses', 'Open Space', 'TBD', 'Utility and Transportation' and 'Mixed Use' (City of Toronto 2015).

According to the City of Toronto Official Plan (2015) the Socio-Economic and Land Use Assessment Area does not overlap any Secondary Plans.

3.6.2.2 Neighbourhood Characteristics

The following sections provide information on existing residential, commercial, mixed use, institutional, employment, and park and recreational use areas overlapped by the Assessment Area.

3.6.2.2.1 Residential Uses

The Socio-Economic and Land Use Assessment Area is comprised primarily of low-density residential housing with some higher-density apartments with five or more storeys. Mixed residential and commercial uses are concentrated along Danforth Road south of Midland Avenue, and along the Eglinton Avenue East corridor in the northern boundaries of the Socio-Economic and Land Use Assessment Area.

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There are 3,786 residential properties and 52 residential apartment properties within the Socio-Economic and Land Use Assessment Area. The Official Plan designates apartment buildings as residential properties with five or more dwelling units (City of Toronto 2015).

Clusters of higher-density residential apartments are distributed throughout the Socio-Economic and Land Use Assessment Area. There are development applications for 31 residential properties located within the residential zoning of the Socio-Economic and Land Use Assessment Area.

3.6.2.2.2 Commercial Uses

There are approximately 51 surveyed properties in the commercial use zone within the Socio-Economic and Land Use Assessment Area. They consist of small-scale shopping plazas and retail uses that serve the local community.

The following main commercial areas are found within the Socio-Economic and Land Use Assessment Area:

- Kennedy Park Plaza and surrounding corridor
- East of the Danforth Road and Midland Avenue intersection
- Southeast of the Brimley Road and Danforth Road intersection

There are four active development applications for commercial use properties in the Socio-Economic and Land Use Assessment Area. All four development applications are located more than approximately 400 m from the Project Footprint.

3.6.2.2.3 Mixed Use

There are 264 mixed use properties within the Socio-Economic and Land Use Assessment Area. The Official Plan designates the largest mixed-use corridor within the Socio-Economic and Land Use Assessment Area as Eglinton Avenue East, which extends from west of Kennedy Road to east of Brimley Road (City of Toronto 2015). The Eglinton Avenue East corridor consists of higher-density residential buildings with commercial use on the ground floor.

There are three active development application proposed for minor variance to a mixed-use property within the Socio-Economic and Land Use Assessment Area. Development application #167304 is considered the closest in proximity to the Project with approximately 185 m from the alignment.

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3.6.2.2.4 Institutional and Other Uses

There are 35 surveyed institutional properties within the Socio-Economic and Land Use Assessment Area.

There are eleven active development applications proposed for variance to institutional and other use properties within the Socio-Economic and Land Use Assessment Area. The status of all development applications is under Ontario Municipal Board (OMB) appeal.

There are seven schools within the Socio-Economic and Land Use Assessment Area, including elementary and secondary schools. There are also pre-schools.

There are 17 religious places of worship in the Socio-Economic and Land Use Assessment Area.

There are eight medical institutions identified within the Socio-Economic and Land Use Assessment Area that include medical clinics, a methadone clinic, a community health centre and two animal hospitals.

There are a number of other institutional uses located within the Assessment Area, including cemeteries, daycare centres, a shelter, an early learning centre, employment centre, and emergency services.

3.6.2.2.5 Employment Uses

There are 137 employment surveyed properties and two main designated employment areas within the Socio-Economic and Land Use Assessment Area. No development applications are present in the employment use areas.

Employment uses in the East of Knob Hill Employment District include Atlantic Packaging, Nike distribution service, Pandor Productions, Delta Recycling, Townson Fitness, Versatech Mechanical Limited, J&J Trading, Charlie's Meat & Seafood, Straight Blast Gym Scarborough, home improvement stores, food suppliers and wholesalers, and manufacturing and warehousing businesses.

Employment uses in the Danforth Road and Canadian National Railway (CN) Employment corridor include Elizabeth Grant International Inc., car dealerships, auto body shops and home improvement services.

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3.6.2.2.6 Parks and Open Space

A total of seven parks and open spaces fall within the Socio-Economic and Land Use Assessment Area. The parks and open spaces located within the Socio-Economic and Land Use Assessment Area offer playgrounds, recreational trails, outdoor sports fields, and splash pads. A portion of the Project is located adjacent to Corvette Park. Corvette Park is widely used for recreational purposes and includes a playground area, three baseball diamonds, and a splash pad. The City of Toronto has identified that it plans to revitalize Corvette Park in the future and upgrade the playground area.

3.6.2.2.7 Neighbourhoods

This section provides a summary of the 2016 census information from the City of Toronto on the population, housing stock, and housing costs for neighbourhoods wholly and partially overlapped by the Socio-Economic and Land Use Assessment Area.

3.6.2.2.7.1 Kennedy Park

Also known as Scarborough Junction, Kennedy Park is roughly 3.59 km² in size and in 2016, the population of Kennedy Park was 17,123 persons with a population density of 4,770 people/km². There were 6,885 private dwellings, and the median shelter cost for owner- and tenant-occupied households in 2016 were \$1,449 and \$881 per month, respectively. In 2016, 47.1% of labour force residing in Kennedy Park took public transit to work.

3.6.2.2.7.2 Clairlea-Birchmount

Clairlea-Birchmount is approximately 7.43 km² in size. In 2016, the population of Clairlea-Birchmount was 26,984 persons, with a population density of 3,632 people/km². There were 9,259 private dwellings and the median shelter costs for owner-and-tenant-occupied households in 2016 were \$1,640 and \$1,009, respectively. In 2016, 44% of the labour force in Clairlea-Birchmount neighborhood took public transit to work.

3.6.2.2.7.3 Birchcliffe-Cliffside

Birchcliffe-Cliffside is approximately 5.92 km². In 2016, the population of Birchcliffe-Cliffside was 22,291 persons, with a population density of 3,765 people/km². There were 9,637 private dwellings and the median shelter costs for owner-and-tenant-occupied households in 2016 were \$1,584 and \$938, respectively. In the Birchcliffe-Cliffside area, 32% of the labor force took public transit to work.

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3.6.2.2.7.4 Eglinton-East

The Eglinton-East neighbourhood is approximately 3.23 km². In 2016, the population of Eglinton East was 22,776 persons with a population density of 7,051 people/km². There were 8,199 private dwellings in Eglinton-East in 2016. The median shelter cost for owner- and tenant-occupied households in 2016 were \$1,339 and \$1,040 per month, respectively. At that time, 50% of labour force residing in Eglinton-East took public transit to work.

3.6.2.2.7.5 Cliffcrest

Cliffcrest is roughly 7.01 km². In 2016, the population of Cliffcrest was 15,935 persons with a population density of 2,273 people/km². There were 6,094 private dwellings in Cliffcrest. The median shelter cost for owner- and tenant-occupied households in 2016 were \$1,439 and \$1,027 per month, respectively. In 2016, 34% of labour force residing in Cliffcrest took public transit to work.

3.6.2.2.7.6 Ionview

Ionview is approximately 1.94 km². In 2016, the population of Ionview was 13,641 persons with a population density of 7,031 people/km². There were 5,312 private dwellings in Ionview. The median shelter cost for owner- and tenant-occupied households in 2016 were \$1,305 and \$1,001 per month, respectively. In 2016, 50% of labour force residing in Ionview took public transit to work.

3.6.2.3 Built Form, Topography, and Visual Character

The general visual character of the Socio-Economic and Land Use Assessment Area is urban/suburban with a small amount of parkland. The area has level topography, with no prominent visible natural features. Lake Ontario, located to the south, provides lakeview vistas to some Study Area properties. Baseline visual characteristics at three locations along the Project Footprint are described below.

The rail corridor crosses St. Clair Avenue East via a road under rail grade separated crossing. Single family residential neighbourhoods are located northwest and southeast of the crossing, a multifamily complex is located northeast, and an industrial area located to the southwest. The rail corridor is partially shielded by vegetation that parallels the tracks north of St. Clair Avenue East. However, train movements are visible from numerous residences near this crossing.

The rail corridor crosses Danforth Road at grade just west of Midland Avenue. Single family residences are located north and west of the crossing. Several residential towers are located east of the crossing, while a light industrial area is located to the south.

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Vegetation provides some screening of the rail tracks to residences located west of the rail corridor. However, the rail corridor is visible to residential tower residents with westward views.

The rail corridor runs adjacent to Corvette Park, which is located west of the tracks. The rail corridor is crossed by an at-grade multi-use crossing located at the southeast corner of the park. The rail corridor is screened by parallel vegetation strips on both sides of the track. However, train movements are visible from residences along Corvette Avenue and Magnolia Avenue, located south of the park.

3.6.2.4 Existing Utilities

A preliminary list of the owners of utilities in the Project Footprint is presented below (Table 3.3). Additional utility lines may be identified as the Project progresses through detailed design.

Table 3.3: Utilities in Study Area

Utility Type	Owners
Watermains, Sanitary Sewers and Storm Sewers	City of Toronto
Pipelines and Gas	Enbridge Gas Inc.
Hydro and Street Lighting	Toronto Hydro, City of Toronto
Communications	Bell Canada, Rogers Cable Communications Inc., Telus, CN, Cogeco, Metrolinx

Source: Stantec Consulting Ltd. 2020c. Scarborough Junction Grade Separation Reference Concept Design RQQ-2014-CI-092 [maps].

3.7 Air Quality

Air quality refers to the presence or absence of substances in the air that could cause harm to humans in large enough quantities. This includes substances in gaseous or solid (particulate) form.

3.7.1 Methodology

The updated air quality impact assessments have three elements:

- local air quality impacts of operations
- local air quality impacts of construction

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- regional air quality and GHG emission impacts of operations

The rest of this text provides the rationale for the update, followed by a brief description of the methodology used in each of the three elements of the update.

3.7.1.1 Construction

The Air Quality Assessment Area was identified based on the Project Footprint and geographic limits within which the Air Quality (AQ) impact was assessed. Assessment Areas were also identified for the footprints of the two selected modelling assessment locations (refer to Appendix A5). The Project Footprint encompasses the area potentially affected by the extent of proposed physical works (i.e., roadway detours, temporary laydown areas, retaining walls, existing new bridges, tunnels, and railway realignment). The Air Quality Assessment Area includes the Project Footprint and a 500 m buffer around the Project Footprint.

Background air quality levels for representative contaminants of interest (COI) were established based on review and analyses of ambient monitoring data available from the National Air Pollution Surveillance Network (NAPS) and the MECP (Stantec 2020f). Sensitive receptors were identified in the Assessment Area for each location. Two modelling assessment locations (i.e., Danforth Road Grade Separation as a representative construction location and St. Clair Avenue East as a worst-case) were selected for the detailed quantitative assessment (including air dispersion modelling) based on a review of the available Project design, construction duration, the expected Project footprint and the receptor types/proximity to the construction area. A maximum construction emission scenario was developed based on available construction equipment and scheduling data, identification of laydown and staging areas, and road and rail detours. Construction emissions were then quantified using standard methods and references (refer to Appendix A5), and dispersion modelling using U.S. EPA AERMOD model predicted changes in air quality during construction (Stantec 2020f).

Construction impacts, unlike with train operations, are difficult if not impossible to predict at the environmental assessment stage when the construction schedule, methods, equipment, the operating mode and location of the equipment, and many other relevant variables are not defined. Hence, this element of environmental assessment constitutes an investigation or a stress test of potential worst-case air quality impacts of construction and guidance on how these impacts can be addressed. The principal utility of this assessment is to inform the development and execution of the Project's construction air quality management plan.

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The construction phase impacts may arise from construction and related activities along the rail corridor, and at staging and laydown sites. They may also arise from rail or road detours necessitated by the construction. As part of this investigation or stress test, worst-case assumptions are made on methods of construction, equipment and their operation to estimate potential impacts. These potential impacts are compared with applicable air quality criteria and standards to identify a zone of influence for the Project, where ambient air concentration of relevant pollutants (primarily particulate matter and oxides of nitrogen) may, at times, exceed applicable air quality criteria or standards. In those instances, where there are sensitive receptors within a zone of influence, appropriate best practices, mitigation measures and air quality monitoring are recommended.

Air quality analysis focused on the potential changes in ambient air quality that can be expected from the proposed Project and included recommendations for additional mitigation and monitoring, where exceedances may be expected even with the application of standard mitigation measures.

3.7.1.2 Operations

The Scarborough Junction Grade Separation Project is part of the Metrolinx system improvements to be undertaken for enabling frequent rail service along the Lakeshore East and Stouffville Rail Corridors. With the completion of construction, expansion and reconfiguration of the infrastructure, electrification of the two corridors, decommissioning of temporary facilities, and optimization of rail operations, Metrolinx will have created the necessary conditions for more frequent and efficient future rail service.

The local air quality implications of this future service and the associated infrastructure are assessed in corridor-wide air quality studies by RWDI Consulting Engineers and Scientists as part of an Amendment to the 2017 TPAP of the Metrolinx Rail System Electrification. The regional air contaminant and GHG emission implications of the future service across the system are studied in a separate system-wide study (RWDI 2020a) (refer to Appendix A5). This latter study is not relevant to local air quality implications for the Air Quality Assessment Area.

Since diesel fuel powered trains are the only significant source of air contaminant emissions of GO Transit rail service, local air quality impacts are assessed only for those corridors and corridor segments in which the future (2037) diesel train activity is expected to exceed the corresponding pre-Project (2015) diesel train activity. The Stouffville Rail Corridor is not going to experience any diesel train activity with almost all service (at least 337 out of 351 weekday trips) being delivered with electricity powered trains. Hence, the Stouffville Rail Corridor is not assessed for local air quality impacts. In contrast, the Lakeshore East Rail Corridor may experience a significant increase in

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diesel service, if GO Transit Rail service is expanded from Oshawa to Bowmansville without electrifying this segment of the corridor. Hence, the Lakeshore East Rail Corridor is assessed for local air quality impacts and is directly relevant to the assessment of air quality impacts for the Scarborough Junction Air Quality Assessment Area. This EPR summarizes the results of the Local Air Quality Study – Lakeshore East Rail Corridor (RWDI 2020) directly relevant to the Air Quality Assessment Area of the Project. For more information, the Local Air Quality Study – Lakeshore East Rail Corridor can be consulted (Appendix A5).

The future conditions refer to post-project conditions in 2037 when the GO Transit Rail System is expected to have reached the design capacity of the expanded and improved infrastructure. Electrification and grade separations, particularly at the Scarborough Junction, are key components of the improved infrastructure. The pre-Project conditions are assessed for the year 2015, in which all GO Transit rail service was delivered by diesel fuel powered trains.

The future (2037) air quality conditions are assessed under a predictable worst-case post-project scenario including the following assumptions:

- Maximum planned service levels along the Lakeshore East and Stouffville Rail Corridors.
- Additional 10% (above and beyond the maximum) rail service during each of the 5 peak hours of weekday rail service.
- Future revenue rail service in these segments (including the added 10% during peak service periods) will consist of 351 trips per day, of which only 14 trips per day will be fueled by diesel powered trains.
- Assuming that the current composition of Tier 0, Tier 2, Tier 3, and Tier 4 diesel locomotives will continue to be in operation in 2037 while Metrolinx is committed to a gradual conversion of the fleet to Tier 4 compliant locomotives.
- Modelling potential service expansion to Bowmansville: trains travelling beyond Oshawa will be powered by diesel locomotives, if the corridor is extended from Oshawa to Bowmansville and is not electrified. At present, this extension is under consideration; however, it is not approved.

The future air quality impacts in the Air Quality Assessment Area of the Project represent the cumulative effects of all revenue and non-revenue rail service (including VIA passenger rail and freight rail service). The train operating conditions (train speed and propulsion unit power output) reflect rail operator practices at this location (mainly east of the Scarborough GO Station) and is informed by recorded train speed and notch

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setting profiles. These modelling inputs along with the rest of the modelling methodology are documented in the Local Air Quality Study – Lakeshore East Rail Corridor (Appendix A5).

3.7.2 Description of Existing Conditions

The Air Quality Assessment Area consists of a mix of land use including Employment Industrial, Residential, Commercial, Institutional and Open Space zones. Land uses that contain residential dwellings, schools, day care facilities, long-term care facilities or other institutional uses were selected as special receptors for the air quality studies.

Air COI for the Project are the products of diesel and gasoline combustion (from road traffic, diesel locomotives and construction equipment), and dust generated from construction operations and route detours.

The background air quality concentrations were based on review and analyses of ambient monitoring data from available NAPS operated monitoring stations located closest to or most representative of the Project locations. Ambient monitoring data from the NAPS program provides accurate and long-term air quality data of a uniform standard across Canada. Background ambient air quality concentrations established for this Project are expected to be conservative (over-estimation of actual ambient concentrations in the Project area), as the closest available stations (such as Toronto, Toronto West, Etobicoke) are located in more urban areas or close to the highway, where concentrations are expected to be higher.

Background levels for the contaminants of interest are well below their applicable objectives within the Air Quality Assessment Area with the exception of benzene and B(a)P. The annual background concentration of benzene exceeds the criteria by 11%. Background concentrations of B(a)P for both 24-hour and annual averaging periods are more than twice and eight times the criteria, respectively. Exceedances of the ambient air quality criteria for B(a)P are commonly measured in Ontario, including rural areas.

3.8 Noise and Vibration

Noise and vibration are the perceptible sound and movement that can be generated by an energy source and can result in nuisance or, if strong enough, effects to human health or built structures.

3.8.1 Methodology

The updated noise and vibration (N&V) assessments have three elements:

- noise impacts of operations

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- vibration impacts of operations
- noise and vibration impacts of construction

The rest of this text provides the rationale for the update, followed by a brief description of the methodology used in each of the three elements of the update.

3.8.1.1 Construction

A predictive noise analysis was carried out to evaluate noise effects on sensitive receptors (i.e., representative locations with noise sensitive areas, including residences, daycares, schools, and churches) associated with proposed construction and operations for the Project. The methodology for the predictive analysis was in accordance with the MECP and GO Transit Draft Protocol for Noise and Vibration Assessment (the MECP/GO Draft Protocol). This analysis includes a review of existing noise sources and existing points of reception (PORs) that may be affected by noise sources. The Noise and Vibration Assessment Area for the Project was defined using set back distances defined within applicable guidance document to determine the Zone of Influence (ZOI) (Stantec 2020g). The most stringent criteria for the Project construction noise (nighttime construction noise criteria for residential receptors) dictated a setback distance of 383 m from the edge of the Project Footprint which was defined as the Noise and Vibration Assessment Area for the Project during construction.

Noise and vibration analysis focused on the changes in noise and vibration that can be expected from the Project. Full detail on the noise and vibration assessment can be found in Appendix A6.

3.8.1.2 Operations

The Scarborough Junction Grade Separation Project is part of the Metrolinx system improvements to be undertaken for enabling frequent rail service along the Lakeshore East and Stouffville Rail Corridors. With the completion of construction, expansion and reconfiguration of the infrastructure, electrification of the two corridors, decommissioning of temporary facilities, and optimization of rail operations, Metrolinx will have created the necessary conditions for more frequent and efficient future rail service.

The potential noise and vibration impacts of increased train service along the Lakeshore East Rail Corridor and Stouffville Rail Corridor was originally assessed by RWDI in 2017, as part of the GO Electrification TPAP. Reassessment of potential noise and vibration impacts were completed by RWDI in 2020 to account for the changes to the future service levels and proposed infrastructure since 2017, as part of the GO Expansion Program.

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The RWDI report includes the assessment of the entire GO Expansion Program that includes all new infrastructure for Scarborough Junction Grade Separation. This includes all the grade separations, bridges, and layover proposed for this Project as the result of increased service, new tracks, new switching stations and electrification of the network. The scope of the 2017 and 2020 noise and vibration assessments are provided below.

3.8.1.2.1 Scope

3.8.1.2.1.1 Description of the 2017 Electrification Study

Metrolinx and Hydro One (as co-proponents) jointly completed the GO Rail Network Electrification TPAP (in 2017 to convert six Metrolinx-owned rail Corridors from diesel to electric propulsion). (Refer to Section 1.3.3.1.) The 2017 EPR assessed the environmental effects associated with:

- the increase in rail traffic associated with the conversion from diesel to electric propulsion;
- infrastructure improvements; and
- installation of proposed traction power supply and power distribution components.

Since 2017, Metrolinx developed a reference concept design that details how increased passenger service will be delivered for the GO Rail Expansion Program in the future. This work led to further proposed changes to rail infrastructure and a revised future train service schedule, referred to as “Train Service Schedule 1+ (TSS1+)”, including descriptions of train type, (diesel locomotive, electric locomotive), and train consists.

These proposed changes for future service required a reassessment of potential noise and vibration effects and the associated consideration of mitigation measures. RWDI completed individual noise and vibration assessments for the GO corridors/corridor segments to be electrified. This included a noise and vibration assessment for the Stouffville Rail Corridor and Lakeshore East Corridor (as detailed below).

3.8.1.2.1.2 Scope and Study Area for Corridor/Network Assessments

The noise and vibration implications of this future service and the associated infrastructure are assessed in two relevant corridor-wide noise and vibration studies by RWDI Consulting Engineers and Scientists as part of an Amendment to the 2017 TPAP of the Metrolinx Rail System Electrification: the Noise and Vibration Study for the Lakeshore East Corridor (RWDI 2020b) and the Noise and Vibration Study for the

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Stouffville Corridor (RWDI 2020c). More information on the two corridor-wide noise and vibration study reports is provided in Appendix A6.

The future conditions refer to post-Project conditions in 2037 when the GO Transit Rail System is expected to have reached the design capacity of the expanded and improved infrastructure. Electrification and grade separations, particularly at Scarborough Junction, are key components of the improved infrastructure. The pre-Project conditions are assessed for the year 2015, in which all GO Transit rail service was delivered by diesel fuel powered trains.

The future (2037) noise and vibration conditions are assessed under a predictable worst-case post-Project scenario including the following assumptions:

- Maximum planned service levels along the Lakeshore East and Stouffville Rail Corridors.
- Additional 10% (above and beyond the maximum) rail service during each of the 5 peak hours of weekday rail service.
- Future revenue rail service in these segments (including the added 10% during peak service periods) will consist of 351 trips per day, of which only 14 trips per day will be fueled by diesel powered trains.
- Modelling of the more impactful train configuration option: the planned 4-car Electric Multiple Unit (EMU) service on the Lakeshore East Rail Corridor is substituted with 6-car electric powered consists, which have higher noise and vibration impacts than 4-car EMUs; all 12-car electric and diesel powered consists are modelled with two rather than one locomotive (one locomotive at each end of the consist).

The future noise levels in the Noise and Vibration Assessment Area of the Scarborough Junction Grade Separation Project represent the cumulative effects of all revenue and non-revenue rail service (including VIA passenger rail and freight rail service) along the Lakeshore East and Stouffville Rail Corridors. The train operating conditions (train speed and propulsion unit power output) reflect rail operator practices at this location (mainly east and north of the Scarborough GO Station) and informed by recorded train speed and notch setting profiles. These modelling inputs along with the rest of the modelling methodology are documented in the individual Noise and Vibration Study for the Lakeshore East Corridor (RWDI 2020) and the Noise and Vibration Study for the Stouffville Corridor (RWDI 2020) (refer to Appendix A6). Unlike noise, vibration is assessed as an individual train pass-by effect rather than as a cumulative effect. Future vibration impacts are modelled with the United States Federal Transit Administration computer model calibrated with measurements to better reflect local conditions.

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The noise and vibration analysis addresses changes to rail infrastructure and the new TSS1+ train service schedules. The TSS1+ train service schedules include descriptions of train type, (diesel locomotive, electric locomotive) and train consists. The scope includes seven Metrolinx-owned rail corridors including Lakeshore East and Stouffville.

3.8.1.2.1.3 Study Inputs & Predictable Worst-Case Scenario

Metrolinx provided pertinent information, such as existing and future train volumes, trip log data including throttle and speed profiles, and track diagrams, for incorporation within this assessment. Where information was not available, assumptions were documented for approval by Metrolinx.

The information provided was used to assess a predictable worst-case scenario, which includes a description of rail traffic, types of locomotives (e.g., diesel, electric), size of consists (e.g., one locomotive and six rail cars, two locomotives with twelve rail cars), etc. The intention was to capture the worst-case scenarios that may be implemented in the future to deliver the required service levels.

The predictable worst-case scenario is based on the minimum infrastructure requirements to achieve a service goal. Regulations and policies based on operational and safety considerations limit the service levels that can be achieved for a given infrastructure design.

3.8.1.2.1.4 Model Selection

The MOEE/GO Protocol stipulates the use of a model known as Sound from Trains Environmental Analysis Method (STEAM) for predicting rail traffic sound levels. STEAM was developed by the MECP (MOE, 1990). As a result of consultations with Metrolinx, the noise modelling for the 2017 EPR and for the current assessment deviated from this guidance in that the rail traffic sound levels were modelled using the “Federal Noise and Vibration Impact Assessment” (the “FTA Protocol”; FTA, 2018) and the “Federal Railroad Administration High-Speed Ground Transportation Noise and Vibration Impact Assessment” (the “FRA Protocol”; FRA, 2012).

The FTA and FRA algorithms are included in Cadna/A, a software package used in the assessment. Cadna/A also includes the stationary source algorithms in ISO 9613 (ISO 1994, ISO 1996) used in the assessment.

Details regarding the implications of using of FTA/FRA in lieu of STEAM are outlined in the GO Rail Network Electrification EPR.

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3.8.1.2.1.5 Receptors

Operational Rail Receptors for this assessment include the following sensitive land uses:

- Residences
- Hotels, motels and campgrounds
- Schools, universities, libraries and daycare centres
- Hospitals and clinics, nursing/retirement homes
- Churches and places of worship
- Planned residential developments with approved building permits from the City of Toronto
- Vacant lots that are currently zoned for residential use

Receptors within the Noise and Vibration Assessment Area are mainly residential houses located adjacent to the Lakeshore East Rail Corridor.

In general, areas of receptors were identified using publicly available address point databases or through visual identification using publicly available satellite aerial images. Data was provided by the City of Toronto on approved building permits for new residential uses, and zoning information. This information was reviewed and included in the assessment. All vacant lots within the Study Area were considered. Representative receptors were chosen to simplify the presentation of results for a much larger number of receptors assessed. The MOEE/GO Protocol considers both daytime and nighttime receptors.

3.8.1.2.1.6 Rail Noise Sources

Sources associated with GO rail activity include:

- Moving trains (applicable to all trains)
- Idling trains at each Station (applicable to all trains)
- Road crossings signals such as horns and whistles (applicable to all trains)
- Engine bells from trains at each Station (applicable to all trains)

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- Crossovers and Switches (applicable to all trains)
- Wheel squeal (applicable to all trains)
- Pantograph (applicable to electric trains only)

Other sources of noise include:

- Rail Yard and Maintenance Facilities
- Electric Traction Power Facilities
- Layover Sites

3.8.1.2.1.7 Vibration

The assessment focus is on changes to vibration effects resulting from the Project. The proximity of all receptors within the rail corridor to changes in track alignment or special trackwork are assessed.

3.8.1.2.1.8 Existing Barriers

Existing noise barriers are those built as of August 2019 or planned barriers identified during Environmental Assessments completed prior to August 2019. Existing barriers do not include barriers triggered by the 2017 assessment. Existing barriers were included in the Pre-project, and Post-project modelling scenarios.

Existing barriers were identified by conducting an investigation using publicly available aerial photography and street-level imagery, as well as Metrolinx's internal RailView software. The approximate location and height of the barriers were identified and recorded during this exercise.

3.8.2 Description of Existing Conditions

The area surrounding the Scarborough Junction Grade Separation Project consists of a mix of commercial, employment industrial, residential, and transportation land uses in the City of Toronto. Two major GO rail corridors, Stouffville and Lakeshore East, meet at the Scarborough Junction. The Noise and Vibration Assessment Area train-related operations include moving and idling trains. Danforth Road, Midland Avenue, St. Clair Avenue East, Kennedy Road and Brimley Road are the major roads surrounding the Project. The acoustical environment in the Noise and Vibration Assessment Area is dominated by traffic from the surrounding road and rail network.

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Sound levels during daytime hours are higher due to increased road and rail traffic and other activities (urban hum) when compared to the nighttime sound levels. Sound levels measured during weekends were observed to be lower than during weekdays, in part since there is decreased train traffic along the rail corridor on weekends.

No impulsive noise sources are currently expected within the Noise and Vibration Assessment Area. The non-impulsive sources are associated with regular operation (idling and moving trains).

3.9 Traffic and Transportation

Traffic (i.e., vehicular, cyclist and pedestrian) and transportation elements of the environment encompass all infrastructure and activities that help people to move from place to place.

3.9.1 Methodology

The methodology for the TIA adopted local and provincial standards to assess and review traffic network operations. The methodology included the following:

- Reviewed background documents and previous studies to identify data gaps, area overlaps and changes to existing conditions;
- Documented existing conditions through municipal, agency and stakeholder liaison and field studies;
- Analyzed the existing (2019) and pre-construction (2025) traffic operational performance;
- Developed, calibrated and validated a mesoscopic model for the study area existing conditions using the traversal origin-destination demand matrices extracted from the regional Emme model and adjusted based on the observed traffic volumes and travel times in the study area;
- Developed a pre-construction (2025) baseline mesoscopic model;
- Estimated the traffic volumes of construction alternatives based on applying construction stage road changes and assigning the future construction year demand in the mesoscopic model and comparing the resulted traffic volumes to the baseline model volumes. The traffic volume changes resulted from mesoscopic model then were applied to the pre-construction (2025) projected TMC volumes to estimate the construction staging traffic volumes;

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- Evaluated construction alternatives and identify deficiencies and mitigation measures to reduce the construction impacts on the transportation network;
- Evaluated the post-construction performance at the intersection of Midland Avenue and Danforth Road; and
- Recommended the preferred construction scenario from a traffic point of view and determined required mitigation measures to minimize the transportation impacts during construction.

Transportation data was provided by the City of Toronto, including turning movement counts, signal timing plans, and collision data. Additional traffic count data was collected by Stantec on November 7, 2018. This included up-to-date turning movement counts at key intersections (i.e., Midland Avenue at Danforth Road, Midland Avenue at Eglinton Avenue, and Midland Avenue at St. Clair Avenue). Travel time data for the purpose of calibrating the mesoscopic model was obtained using Google Maps traffic information.

The TIA assessed the proposed construction staging and operating conditions for the rail under road grade separation at the Danforth Road/Midland Avenue intersection. The TIA also considered the broad-level transportation implications associated with structural works anticipated at the St. Clair Avenue East bridge expansion, utility realignments, Midland Layover and the Corvette multi-use crossing.

Although Kingston Road falls outside of the Traffic and Transportation Assessment Area, selected intersections along Kingston Road were assessed to determine the adequacy of these intersections to accommodate detoured traffic as a result of the construction at Danforth Road and Midland Avenue.

Full details of the TIA (Stantec 2021d) are available in Appendix A7.

3.9.2 Description of Existing Conditions

The following section details the current operations of the transportation network including network description, existing travel demand, volumes, and collision analysis.

3.9.2.1 Road Network

The major roads within the Traffic and Transportation Assessment Area are summarized in Table 3.4. Overall, no parking is permitted along the entire length of any of the major roads within the Traffic and Transportation Assessment Area.

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Table 3.4: Traffic and Transportation Assessment Area Major Roads

Roadway	Classification	Posted Speed (km/h)
Kennedy Road	Four-lane major arterial	60
Midland Avenue	Four-lane major arterial	50 ¹
Brimley Road	Four-lane major arterial	60
Eglinton Avenue East	Six-lane major arterial	60
Danforth Road	Four-lane major arterial	60
St. Clair Avenue East	Four-lane minor arterial	60

3.9.2.2 Transit Network

There are 13 regular TTC routes, four blue night TTC routes, and two express TTC routes within the Traffic and Transportation Assessment Area, all of which are operated by the TTC. The major transit corridors through the Traffic and Transportation Assessment Area are centred on the arterial roads of Kennedy Road, Midland Avenue, Eglinton Avenue East, Danforth Road and St. Clair Avenue East all providing service with headways² of 20 minutes or less.

Figure 3.1 provides an overview of the existing transit network.

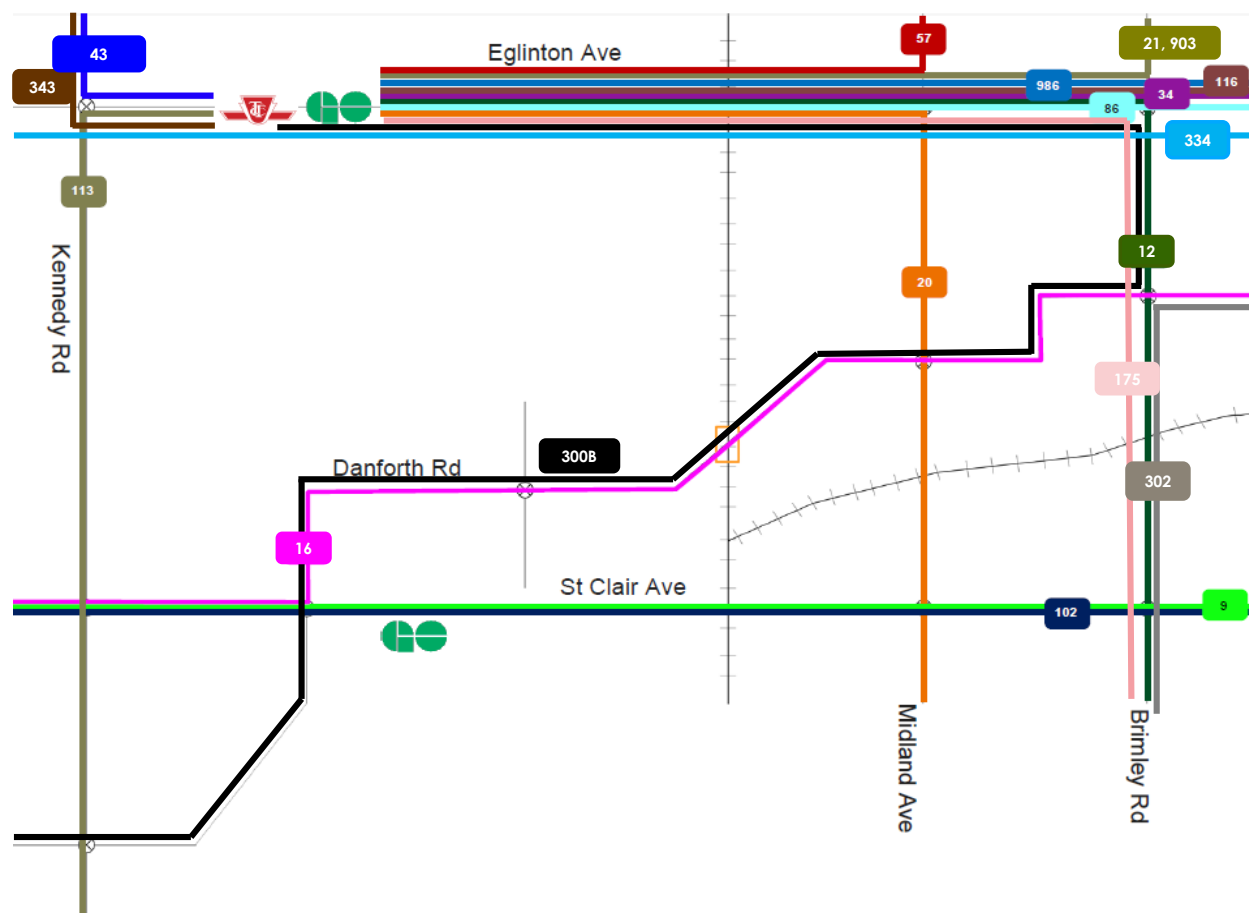
¹ The speed limit for Midland Avenue is a regulatory speed limit.

² Headways refers to the time between transit vehicles.

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Figure 3.1: Existing Transit Network



3.9.2.3 Cycling, Pedestrian and Trail Network

Generally, there are sidewalks on both sides of the street and pedestrian signal heads at each signalized intersection as well as delineated crosswalks within the Traffic and Transportation Assessment Area. Pedestrians currently have opportunities to cross the Stouffville Rail Corridor at Eglinton Avenue (grade separated), a grade separated multi-use tunnel crossing between Saugeen Crescent and Benjamin Boulevard, an at-grade multi-use crossing at Corvette Park, an at-grade multi-use crossing at Danforth Road, and at St. Clair Avenue East (grade separated).

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According to the City of Toronto Cycling Network Map (City of Toronto 2019a) a cycling facility is planned along Transway Crescent which ties into the Kennedy GO Station. However, data from previous analysis (TMCs) indicates there is cyclist movement throughout the Study Area. The cyclist volumes are low when compared to pedestrian and vehicle counts. The intersections at Kennedy Road and St. Clair Avenue East, Danforth Road and St. Clair Avenue East and Brimley Road and Danforth Road experienced the highest cyclist movements in the Study Area.

The number of pedestrians and cyclists crossing the current Corvette Park at-grade multi-use crossing were counted by Metrolinx on March 20, 2019, with additional counts undertaken by Stantec (on June 12 and 15, 2019) and City of Toronto (on September 26 and 29, 2019). Table 3.5 summarizes the number of pedestrians and cyclists observed with the full counts available in Appendix A of Appendix A4: Socio-Economic and Land Use Study.

The pedestrian counts were taken for at least 12 hours, between 7:00 am-7:00 pm, during all five of the days counted. The pedestrian volume observed at Corvette Park is approximately half of the volume that is observed crossing east-west at Danforth Road and Midland Avenue, however, counts were taken in different seasons.

During many hours there were zero or few (i.e., 1-2) cyclists observed. It is noted that the volume of cyclists at Corvette Park appear slightly higher than the volume of cyclists observed at Danforth Road and Midland Avenue for the day, however, counts were taken in different seasons.

Table 3.5: Corvette Park Pedestrian & Cycling Count Summary

Count Date	Wednesday, March 20, 2019	Wednesday, June 12, 2019	Saturday, June 15, 2019	Thursday, September 26, 2019	Saturday, September 29, 2019
Time of Max. Hourly Pedestrian Count	8am-9am and 3pm-4pm (equal)	3pm-4pm	5pm-6pm	5pm-6pm	6pm-7pm
Max. Hourly Pedestrian Count	8	47	19	51	21
Time of Max. Hourly Cyclist Count	11am-12pm	5pm-6pm and 6pm- 7pm (equal)	1pm-2pm	5pm-6pm and 6pm-7pm (equal)	4pm-5pm
Max. Hourly Cyclist Count	1	5	13	8	5
Total Pedestrians Observed	59	313	151	309	139

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Count Date	Wednesday, March 20, 2019	Wednesday, June 12, 2019	Saturday, June 15, 2019	Thursday, September 26, 2019	Saturday, September 29, 2019
Total Cyclists Observed	1	27	19	32	20

3.9.2.4 Existing Travel Demand

The Traffic and Transportation Assessment Area modal splits compared to the entire City of Toronto modal splits are outlined Table 3.6. Modal splits are defined as the percentage of all trips to, from or within the Traffic and Transportation Assessment Area, using a particular mode of transportation.

Table 3.6: Assessment Area AM Peak Mode Split

Area	Transit	Cycling	Walking	Auto	Other	Total
Assessment Area	27%	1%	7%	64%	1%	100%
Toronto	30%	1%	7%	60%	2%	100%

Source: R.A. Malatest & Associates Ltd. 2018

According to the 2016 Transportation Tomorrow Survey (R.A. Malatest & Associates Ltd. 2018), the Traffic and Transportation Assessment Area is predominantly car-oriented with 64% of trips originating and destined in the AM peak period being auto-related. Transit accounts for 27%, while active transportation accounts for 8%³. The Assessment Area modal split is comparable to the modal split for the entire City of Toronto.

³ The travel modal percentages were calculated for all trips originated from or destined to the 2006 GTA Zones 531,532,533, and 545 in the AM peak period (6:00 AM to 9:00 AM) to or from all other areas/regions inclusive of City of Toronto PD.

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4.0 Effects Assessment, Mitigation and Monitoring

4.1 Methodology

The effects assessment of the proposed Project has been developed based on the analysis and results of technical discipline-specific environmental studies documented in the reports listed in Section 1.5.1 (which are located in Appendices A1 through A8 to this EPR). Issues raised by the public, stakeholders and Indigenous Nations during consultation and engagement activities were also considered and incorporated as appropriate (refer to Section 6.0 for further information on consultation).

Where applicable, Project components have been grouped into categories based on proximity in location and attributes of the components, and anticipated similarity of potential effects. These categories form the basis for the effects assessment for the Project.

Table 4.1: Project Component Categorizations

Category	Project Components	Categorization Rationale
Scarborough GO Station	<ul style="list-style-type: none">Scarborough GO Station building	<ul style="list-style-type: none">Anticipated activities at the Scarborough GO Station are focused on managing on-site effects on an existing facility and therefore this component was assessed singularly
St. Clair Avenue East Bridge	<ul style="list-style-type: none">St. Clair Avenue East Bridge	<ul style="list-style-type: none">Anticipated activities at the St. Clair Avenue East Bridge represent a localized potential for effects that differ from other Project components and therefore this component was assessed singularly
Midland Layover	<ul style="list-style-type: none">TrackworkAccess road	<ul style="list-style-type: none">Anticipated activities at the Midland Layover represent a localized potential for effects that differ from other Project components and therefore this component was assessed singularly
Danforth Road/ Midland Avenue Intersection	<ul style="list-style-type: none">Danforth Road BridgeModifications to the roadway and associated infrastructure	<ul style="list-style-type: none">Anticipated activities at Danforth Road represent a localized potential for effects that differ from other Project components and therefore this component was assessed singularly

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Category	Project Components	Categorization Rationale
Linear Facilities	<ul style="list-style-type: none"> Depressed Corridors Retaining Walls and Barriers Trackwork Temporary Area of Disturbance (i.e., rail detours) 	<ul style="list-style-type: none"> Depressed corridor will require mechanical excavation to reach proposed grades Retaining walls and barriers are required to accommodate changes in grading for the depressed corridors; the retaining walls and barriers will be located adjacent to the depressed corridors Trackwork is associated with accommodating the rail-rail grade separation Linear components will have similar construction and operation activities Stormwater management for the depressed corridor will be controlled within the corridor and as such there are no particular effects to be addressed
Multi-Use Crossing	<ul style="list-style-type: none"> Corvette Multi-Use Crossing 	<ul style="list-style-type: none"> The multi-use crossing is anticipated to have a higher community/public sensitivity and localized potential for effects that differ from other Project components, therefore, this component was assessed singularly
Utilities	<ul style="list-style-type: none"> Sanitary Realignment Stormwater Siphon Minor Utility Conflict Resolution 	<ul style="list-style-type: none"> Similar effects anticipated for the minor utility conflict resolution and site servicing The sanitary realignment and stormwater siphon work is proposed within a similar footprint, near the intersection of Danforth Road and Midland Avenue
Laydown Areas	<ul style="list-style-type: none"> St. Clair Yard Corvette Park Northwest quadrant of the Danforth Road/Midland Avenue intersection 	<ul style="list-style-type: none"> Activities at the laydown areas are expected to be similar in effects and duration

The temporal boundaries for the effects assessment are defined based on the timing and duration of Project activities. The purpose of a temporal boundary is to identify when an environmental effect may occur in relation to specific Project phases and activities. The temporal boundaries for the EPR include the Project phases of:

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- Construction: Anticipated duration of two years (within the 2022-2028 timeframe, potentially starting as early as 2022, subject to change⁴)
- Operation: Following construction, ongoing operations and maintenance to support future GO service

The potential for effects has been determined based on an understanding of the RCD and how construction and operation of the proposed Project will interact with existing environmental conditions. Potential environmental effects resulting from the construction and operation of the Project components (see Table 4.1) were identified, analyzed, and described based on potential changes to natural, social, cultural and technical environment. Table 4.2, below, outlines the evaluation factors and related criteria.

The effects assessment is based on conservative (i.e., the most probable scenario) assumptions regarding potential effects that could occur as a result of the Project. They are also based on existing environmental conditions, as outlined in Section 3.0, and information available at the time of the TPAP. The recommendations contained in this EPR will be reviewed by Metrolinx and updated as necessary during subsequent phases of the Project.

Where potential negative effects have been identified, mitigation measures have been recommended, where available, to limit or avoid the potential for those effects. The Project has been designed to prioritize the avoidance of negative environmental effects, and mitigation measures are provided where avoidance is not feasible. Monitoring activities were also identified where warranted to evaluate effectiveness of proposed mitigation measures and provide feedback for adaptive management.

The presentation of potential effects has been organized in this EPR by the following subsections (shown in Figure 4.1):

- Affected environment (e.g., Natural Environment, Geology and Groundwater, Cultural Environment, etc.)
- Project components (e.g., Scarborough GO Station Building, St. Clair Avenue East Bridge, etc.)
- Affected feature (e.g., Aquatic Environment, Terrestrial Environment, Wildlife, etc.)
- Project phase (e.g., construction or operations)

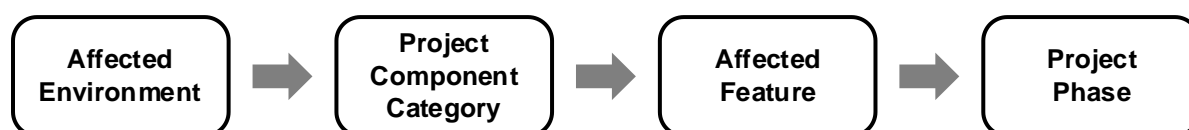
⁴ The actual construction schedule will be determined once a proponent is awarded the contract.

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Corresponding recommended mitigation measures and monitoring activities are provided at the end of the effects assessment, in Section 4.11.

Figure 4.1: Effects Assessment Organization



Section 5.0 of this EPR includes a specific discussion on climate change as it pertains to the Project.

Table 4.2: Criteria for Assessment of Effects for Environmental Components

Environment	Component of the Environment	Criteria
Biophysical Environment	Natural Environment: Aquatic Environment	<ul style="list-style-type: none"> Changes to watercourses providing fish habitat Changes to the sensitivity of fish and fish habitat, extent of fish habitat altered/displaced) Decreased water quality in watercourses
	Natural Environment: Terrestrial Environment	<ul style="list-style-type: none"> Loss of existing vegetation communities
	Natural Environment: Wildlife	<ul style="list-style-type: none"> Loss of wildlife (birds, mammals, and herpetofauna) Impediments to wildlife movement and breeding and increases in animal mortality
	Natural Environment: Significant Wildlife Habitat	<ul style="list-style-type: none"> Loss of SWH (type and quality)
	Natural Environment: Species at Risk	<ul style="list-style-type: none"> Loss of designated species at risk Loss of species at risk habitat
	Natural Environment: Significant Natural Features	<ul style="list-style-type: none"> Loss of designated significant natural features
	Trees	<ul style="list-style-type: none"> Loss of or impacts to trees
	Geology and Groundwater	<ul style="list-style-type: none"> Reduced soil quality and soil loss Potential to encounter contaminated material during construction activities Reduced groundwater quantity/quality

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Environment	Component of the Environment	Criteria
	Stormwater Management	<ul style="list-style-type: none"> Changes to stormwater runoff quantity: Potential for increase in peak flows, impact on storm drainage systems and erosion in receiving watercourses Changes to storm runoff quality: Potential for increase in pollutant loading and effects to water quality
	Air Quality and Greenhouse Gas (GHG)	<ul style="list-style-type: none"> Changes to air quality and increases in GHG emissions effects during construction and operations of the Project
	Noise and Vibration	<ul style="list-style-type: none"> Noise and vibration emissions during construction and operation at sensitive land uses Potential increase in noise during construction at sensitive receptors
Social and Economic Environment	Land Use and Users	<ul style="list-style-type: none"> Potential for land use compatibility conflicts Potential for nuisance effects to neighbouring properties and residences
	Traffic and Transportation	<ul style="list-style-type: none"> Changes to level of service at key Assessment Area intersections
	Utilities	<ul style="list-style-type: none"> Potential for disruption to services Changes to ongoing maintenance activities
Cultural Environment	Archaeological Resources	<ul style="list-style-type: none"> Potential for disturbance or destruction of archaeological resources
	Built Heritage Resources and Cultural Heritage Landscapes	<ul style="list-style-type: none"> Direct and indirect effects to built heritage resources and/or cultural heritage landscapes from construction activities

4.2 Natural Environment

4.2.1 Overview

The Project has the potential to result in temporary effects during construction (i.e., loss of vegetation along the corridor ROW, effects on wildlife due to anticipated vegetation removal, accidental collisions) (Stantec 2020a). The potential for effects during operation will be limited, once permanent infrastructure is established. It is anticipated that effects can be limited or avoided through implementation of mitigation measures (Stantec 2020a). Potential effects are described below, while corresponding mitigation

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measures and monitoring activities relating to the natural environment are described in Section 4.11.

Although not explicitly stated in each of the subsections, it is acknowledged that there is the potential for the establishment of invasive species and other incompatible species in areas disturbed during Project construction activities. Also, there is the potential for the spread of emerald ash borer, *Agrilus planipennis* (Fairmaire) associated with removal, handling and transport of ash trees.

4.2.2 Scarborough GO Station Building

4.2.2.1 Aquatic Environment

4.2.2.1.1 Construction

No direct loss of aquatic habitat will occur as a result of the modification or relocation of the Scarborough GO Station building. Indirect effects to fish and fish habitat (e.g., sediment transport) as a result of the Scarborough GO Station building are not anticipated given the distance to aquatic features and exercising due diligence during construction activities and implementing standard erosion and sediment controls and spill mitigation.

4.2.2.1.2 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations.

4.2.2.2 Terrestrial Environment

4.2.2.2.1 Construction

The Scarborough GO Station building modifications/relocation will be isolated to the existing Metrolinx property, so no natural areas will be affected. Any effects would be limited to on-site landscaping. Therefore, it is not anticipated that the terrestrial environment will be affected by the GO Station building modifications/relocation during construction.

4.2.2.2.2 Operations

It is not anticipated that the terrestrial environment at this location will be affected by the Scarborough GO Station building during operations, as there are no natural areas and overall operations procedures will remain the same.

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4.2.2.3 Wildlife

4.2.2.3.1 Construction

The urban landscape precludes an abundance of wildlife and/or wildlife habitat. The Scarborough GO Station building will be constructed within the existing developed area so no natural areas/wildlife habitat will be affected.

Other slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

4.2.2.3.2 Operations

Following construction, overall operations of the Scarborough GO Station building will resume to current levels and no new effects to wildlife are anticipated.

4.2.2.4 Significant Wildlife Habitat

4.2.2.4.1 Construction

Given that there is no candidate SWH at this location, it is not anticipated that SWH will be affected by the Scarborough GO Station building during construction.

4.2.2.4.2 Operations

Given that there is no candidate SWH at this location, it is not anticipated that SWH will be affected by the Scarborough GO Station building during operations.

4.2.2.5 Species at Risk

4.2.2.5.1 Construction

Since no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the Scarborough GO Station building during construction.

Barn Swallow were not recorded in the Natural Environment Assessment Area and no building structures are scheduled for removal on private lands. However, during detailed design, confirmatory surveys for new Barn Swallow nests should be conducted during the active nesting period (April 1 to August 31).

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4.2.2.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the Scarborough GO Station building during operations.

4.2.2.6 Significant Natural Features

4.2.2.6.1 Construction

Given that no Significant Natural Areas were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected by the Scarborough GO Station building during construction.

4.2.2.6.2 Operations

Given that no Significant Natural Features were identified within the Natural Environment Assessment Area, no direct or indirect effects on Significant Natural Features are anticipated during operations.

4.2.3 St. Clair Avenue East Bridge

4.2.3.1 Aquatic Environment

No direct loss of aquatic habitat will occur as a result of the St. Clair Avenue East bridge. Indirect effects on fish and fish habitat (e.g., sediment transport) as a result of construction activities, are not anticipated given the distance to aquatic features and exercising due diligence during construction activities and implementing standard erosion and sediment controls and spill mitigation.

4.2.3.1.1 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations as a result of the St. Clair Avenue East bridge construction.

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4.2.3.2 Terrestrial Environment

4.2.3.2.1 Construction

Direct loss of vegetation, including ornamental and streetscape trees along the road and rail ROWs, is anticipated during the construction of the expanded St. Clair Avenue East bridge. Vegetation requiring removal is considered to be limited and will have a negligible effect on natural features.

4.2.3.2.2 Operations

Vegetation along the rail corridor will be managed to avoid overgrowth that may affect sightlines and obstruction of vehicles/infrastructure. The expanded St. Clair Avenue East bridge will be constructed adjacent to the existing structure and overall operations procedures will remain the same and revegetation following construction will restore any disturbed areas. Therefore, no effects on the terrestrial environment are anticipated during operations.

4.2.3.3 Wildlife

4.2.3.3.1 Construction

Potential effects on wildlife and wildlife habitat from construction include direct mortality from construction vehicles, habitat destruction through vegetation removal, habitat degradation through spills, and sensory disturbance of wildlife during construction. However, the urban landscape around the St. Clair Avenue East bridge area precludes an abundance of wildlife and/or wildlife habitat.

There is low potential for construction to disturb or destroy nests of migratory birds, however, surveys for Barn Swallow nests within the existing bridge structure adjacent to the construction area should be conducted during the active nesting period (April 1 to August 31) if construction activities have the potential to disturb these structures, as determined during detailed design.

Other slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

4.2.3.3.2 Operations

There is low potential for wildlife to be affected by operational activities due to collisions with trains. It is not anticipated that wildlife will be affected by the St. Clair Avenue East bridge during operations, as fencing and retaining walls will limit the ability of wildlife to enter the rail corridor or cross tracks.

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4.2.3.4 Significant Wildlife Habitat

4.2.3.4.1 Construction

Suitable habitat for Monarch (species of special concern) was identified in the vicinity of the St. Clair Avenue East bridge in the meadow communities that are candidate SWH. Removal and temporary disturbance to meadow habitat is not expected to have a significant effect on this species since there was no milkweed (the larval host plant for Monarch) recorded in the area. However, preconstruction surveys should be undertaken to ensure milkweed patches have not established within the construction footprint to prevent attracting butterflies to an area of elevated risk of mortality due to collisions with trains.

4.2.3.4.2 Operations

Since there will be no disturbance to meadow habitat during operations, it is not anticipated that SWH will be affected by the St. Clair Avenue East bridge.

4.2.3.5 Species at Risk

4.2.3.5.1 Construction

Since no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the St. Clair Avenue East bridge construction.

Based on the assessment of potential bat maternity habitat trees undertaken in support of this Project, no bat maternity roosts were observed in the St. Clair Avenue East bridge area.

Barn Swallow were not recorded in the Natural Environment Assessment Area and no building structures are scheduled for removal on private lands.

4.2.3.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the St. Clair Avenue East bridge during operations.

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4.2.3.6 Significant Natural Features

4.2.3.6.1 Construction

Given that no Significant Natural Areas were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected by the St. Clair Avenue East bridge during construction.

4.2.3.6.2 Operations

No Significant Natural Features were identified within the Natural Environment Assessment Area and no direct or indirect effects on Significant Natural Features are anticipated during operations.

4.2.4 Midland Layover

4.2.4.1 Aquatic Environment

4.2.4.1.1 Construction

No direct loss of aquatic habitat will occur as a result of Midland Layover activities. Indirect effects on fish and fish habitat (e.g., sediment transport) are not anticipated given the distance to aquatic features and exercising due diligence during construction activities through implementation of standard erosion and sediment controls and spill mitigation.

4.2.4.1.2 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations.

4.2.4.2 Terrestrial Environment

4.2.4.2.1 Construction

Direct loss of vegetation will occur to facilitate construction of the Midland Layover. Permanent loss of vegetation will generally be restricted to areas along the existing ROWs, and no habitat fragmentation is anticipated. Affected vegetated areas are considered to be minimal in size and will have a limited effect on natural features.

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4.2.4.2.2 Operations

Vegetation along the layover area will be managed to avoid overgrowth that may affect sightlines and obstruction of trains/infrastructure. However, loss of vegetation will be limited to clearing of unvegetated zone or pruning of existing vegetation.

4.2.4.3 Wildlife

4.2.4.3.1 Construction

Potential effects on wildlife and wildlife habitat from construction include direct mortality from construction vehicles, habitat destruction through vegetation removal, habitat degradation through spills, and sensory disturbance of wildlife during construction. However, the urban landscape precludes an abundance of wildlife and/or wildlife habitat. Limited habitat for wildlife present in the area includes hedgerows and landscape trees along urban street fronts and small culturally influenced vegetated parcels.

There is potential for construction to disturb or destroy nests of migratory birds, particularly during vegetation clearing and structural removal if undertaken from April 1 through August 31.

Other slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

4.2.4.3.2 Operations

There is low potential for wildlife to be affected by operational activities due to collisions with trains. However, it is not anticipated that wildlife will be affected by the Project during operations, as fencing will limit the ability of wildlife to enter the layover area or cross tracks.

4.2.4.4 Significant Wildlife Habitat

4.2.4.4.1 Construction

Suitable habitat for Monarch (species of special concern) was identified in the vicinity of the Midland Layover in the meadow communities that are candidate SWH. Removal and temporary disturbance to meadow habitat is not expected to have a significant effect on this species since there was no milkweed (the larval host plant for Monarch) recorded in the Natural Environment Assessment Area. Preconstruction surveys should be undertaken to ensure milkweed patches have not established within the construction

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footprint to prevent attracting butterflies to an area of elevated risk of mortality due to collisions with construction equipment, vehicles or trains.

4.2.4.4.2 Operations

Since there will be no disturbance to meadow habitat during operations, SWH will not be affected by linear facilities.

4.2.4.5 Species at Risk

4.2.4.5.1 Construction

Since no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the Midland Layover during construction.

4.2.4.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the Midland Layover during operations.

4.2.4.6 Significant Natural Features

4.2.4.6.1 Construction

Given that no Significant Natural Features were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected during construction as a result of Midland Layover construction activities.

4.2.4.6.2 Operations

No Significant Natural Features were identified within the Natural Environment Assessment Area and no direct or indirect effects on Significant Natural Features are anticipated during operations as a result of the Midland Layover.

4.2.5 Danforth Road/Midland Avenue Intersection

4.2.5.1 Aquatic Environment

4.2.5.1.1 Construction

No direct loss of aquatic habitat will occur within the area of Danforth Road/Midland Avenue intersection. Indirect effects on fish and fish habitat (e.g., sediment transport) as a result of construction activities, are not anticipated given the distance to

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aquatic features and exercising due diligence during construction activities and implementing standard erosion and sediment controls and spill mitigation.

4.2.5.1.2 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations.

4.2.5.2 Terrestrial Environment

4.2.5.2.1 Construction

The Danforth Road/Midland Avenue intersection is a highly disturbed area with poor habitat quality. While permanent loss of vegetation is expected, including ornamental and streetscape trees along the road and rail ROW, it will generally be restricted to areas along the existing ROWs and no habitat fragmentation is anticipated. Affected vegetated areas are considered to be minimal in size and will have a limited effect on natural features.

Clearing of work areas may result in short-term disturbance, but no permanent loss or degradation of natural terrestrial habitat is anticipated. Standard mitigation measures will be employed to reduce the extent of permanent effects, to protect vegetation during construction, and revegetate temporary work areas post-disturbance.

4.2.5.2.2 Operations

Loss of vegetation will be limited to clearing of unvegetated zone or pruning of existing vegetation. It is not anticipated that the terrestrial environment will be affected by the Danforth Road/Midland Avenue intersection during operations, as the overall operations procedures will remain the same and revegetation following construction will restore temporarily disturbed areas.

4.2.5.3 Wildlife

4.2.5.3.1 Construction

Potential effects on wildlife and wildlife habitat from construction include direct mortality from construction vehicles, habitat destruction through vegetation removal, habitat degradation through spills, and sensory disturbance of wildlife during construction. However, the urban landscape precludes an abundance of wildlife and/or wildlife habitat. Limited habitat for wildlife present in the area includes meadow communities and landscape trees along urban street fronts and small culturally influenced vegetated parcels.

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Other slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

4.2.5.3.2 Operations

Traffic conditions will not substantially change as they relate to the potential for wildlife mortality. Therefore, it is not anticipated that wildlife will be affected by the Danforth Road/Midland Avenue intersection during operations, as the depressed corridor will limit the ability of wildlife to enter the corridor.

4.2.5.4 Significant Wildlife Habitat

4.2.5.4.1 Construction

Suitable habitat for Monarch (species of special concern) was identified in the vicinity of the Danforth Road/Midland Avenue intersection in the adjacent meadow communities that are candidate SWH. Removal and temporary disturbance to meadow habitat is not expected to have a significant effect on this species since there was no milkweed (the larval host plant for Monarch) recorded in the Danforth Road/Midland Avenue area. However, preconstruction surveys should be undertaken to ensure milkweed patches have not established within the construction footprint to prevent attracting butterflies to an area of elevated risk of mortality due to collisions with construction equipment, vehicles or trains.

4.2.5.4.2 Operations

Since there will be no disturbance to meadow habitat during operations, it is not anticipated that SWH will be affected by the Danforth Road/Midland Avenue intersection.

4.2.5.5 Species at Risk

4.2.5.5.1 Construction

Since no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the construction of the Danforth Road/Midland Avenue intersection.

4.2.5.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the operations in the Danforth Road/Midland Avenue intersection area.

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4.2.5.6 Significant Natural Features

4.2.5.6.1 Construction

Given that no Significant Natural Areas were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected by construction in the Danforth Road/Midland Avenue intersection.

4.2.5.6.2 Operations

No Significant Natural Features were identified within the Natural Environment Assessment Area and no direct or indirect effects on Significant Natural Features are anticipated during operations in the Danforth Road/Midland Avenue intersection area.

4.2.6 Linear Facilities

4.2.6.1 Aquatic Environment

4.2.6.1.1 Construction

No direct loss of aquatic habitat will occur as a result of construction of linear facilities. A City of Toronto stormwater management pond is located between Midland Avenue and National Street, approximately 30 m south of the Lakeshore East Rail Corridor. Although the stormwater management pond is adjacent to the Project Footprint, there are no plans for infrastructure or construction activities within the functional stormwater management pond area.

Indirect effects on fish and fish habitat (e.g., sediment transport) as a result of Project activities are not anticipated given the distance to aquatic features and implementation of standard erosion and sediment controls and spill mitigation measure during construction activities.

4.2.6.1.2 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations.

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4.2.6.2 Terrestrial Environment

4.2.6.2.1 Construction

Direct loss of vegetation will occur in some areas of the linear facilities, including ornamental and streetscape trees that are found along roadways, where vegetation removal is required to facilitate construction. Direct loss of vegetation will occur to facilitate construction, in particular where new infrastructure is required, such as for the construction of the second track on the Stouffville Rail Corridor within the depressed corridor. Permanent loss of vegetation will generally be restricted to areas along the existing ROWs, and no habitat fragmentation is anticipated. Affected vegetated areas are considered to be minimal in size and will have a limited effect on natural features.

4.2.6.2.2 Operations

Vegetation along the corridor will be managed to avoid overgrowth that may affect sightlines and obstruction of trains/infrastructure. However, loss of vegetation will be limited to clearing of unvegetated zone or pruning of existing vegetation. There will be no additional effects on the terrestrial environment during operations, as the overall operations procedures will remain the same and revegetation following construction will restore disturbed areas.

4.2.6.3 Wildlife

4.2.6.3.1 Construction

Potential effects on wildlife and wildlife habitat from construction include direct mortality from construction vehicles, habitat destruction through vegetation removal, habitat degradation through spills, and sensory disturbance of wildlife during construction. However, the urban landscape precludes an abundance of wildlife and/or wildlife habitat. Limited habitat for wildlife present in the area includes hedgerows and landscape trees along urban street fronts and small culturally influenced vegetated parcels.

There is potential for construction to disturb or destroy nests of migratory birds, particularly during vegetation clearing and structural removal if undertaken from April 1 through August 31.

Other slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

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4.2.6.3.2 Operations

There is low potential for wildlife to be affected by operational activities due to collisions with trains, however this potential would be reduced from existing conditions due to the depressed corridor. It is not anticipated that wildlife will be affected by the Project during operations, as fencing and retaining walls will limit the ability of wildlife to enter the corridor or cross tracks.

4.2.6.4 Significant Wildlife Habitat

4.2.6.4.1 Construction

Suitable habitat for Monarch (species of special concern) was identified in the vicinity of linear facilities in the meadow communities that are candidate SWH. Removal and temporary disturbance to meadow habitat is not expected to have a significant effect on this species since there was no milkweed (the larval host plant for Monarch) recorded in the Natural Environment Assessment Area. Preconstruction surveys should be undertaken to ensure milkweed patches have not established within the construction footprint to prevent attracting butterflies to an area of elevated risk of mortality due to collisions with construction equipment, vehicles or trains.

4.2.6.4.2 Operations

Since there will be no disturbance to meadow habitat during operations, SWH will not be affected by linear facilities.

4.2.6.5 Species at Risk

4.2.6.5.1 Construction

Since no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by linear facilities during construction.

Barn Swallow were not recorded in the Natural Environment Assessment Area and no building structures are scheduled for removal on private lands. However, during detailed design, confirmatory surveys for new Barn Swallow nests should be conducted during the active nesting period (April 1 to August 31).

4.2.6.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by linear facilities during operations.

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4.2.6.6 Significant Natural Features

4.2.6.6.1 Construction

No Significant Natural Features were identified within the Natural Environment Assessment Area and no direct or indirect effects on Significant Natural Features are anticipated during construction.

4.2.6.6.2 Operations

No Significant Natural Features were identified within the Natural Environment Assessment Area and no direct or indirect effects on Significant Natural Features are anticipated during operations.

4.2.7 Corvette Multi-Use Crossing

4.2.7.1 Aquatic Environment

4.2.7.1.1 Construction

No direct loss of aquatic habitat will occur as a result of the construction of the multi-use crossing. Indirect effects on fish and fish habitat (e.g., sediment transport) as a result of the multi-use crossing construction activities are not anticipated given the distance to aquatic features and exercising due diligence during construction activities and implementing standard erosion and sediment controls and spill mitigation.

4.2.7.1.2 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations.

4.2.7.2 Terrestrial Environment

4.2.7.2.1 Construction

Direct loss of vegetation will occur in the rail ROW and within Corvette Park, adjacent to the proposed multi-use crossing. This includes landscape trees along the rail corridor where vegetation removal is required to facilitate construction, and vegetation disturbance in temporary work and the laydown area within Corvette Park. Permanent loss of vegetation will generally be restricted to areas along the existing rail ROW, and no additional habitat fragmentation is anticipated. Removal of this fringe vegetation will have a limited effect on natural features. Clearing of work areas may also result in short-term disturbance, but no permanent loss or degradation of natural terrestrial habitat is

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anticipated. Standard mitigation measures will be employed to reduce the extent of permanent effects, protect vegetation during construction, and to revegetate temporary work and laydown areas.

4.2.7.2.2 Operations

Vegetation along the corridor and beneath/adjacent to the multi-use crossing will be managed to avoid overgrowth that may affect sightlines. However, loss of vegetation will be limited to clearing of unvegetated zone or pruning of existing vegetation. It is, therefore, not anticipated that the terrestrial environment will be affected by the multi-use crossing during operations, as the overall operations procedures will remain the same and revegetation following construction will restore disturbed areas.

4.2.7.3 Wildlife

4.2.7.3.1 Construction

Potential effects on wildlife and wildlife habitat from construction of the multi-use crossing include direct mortality from construction vehicles, habitat destruction through vegetation removal, habitat degradation through spills, and sensory disturbance of wildlife during construction. However, the urban landscape precludes an abundance of wildlife and/or wildlife habitat. Limited habitat for wildlife present in the multi-use crossing area includes meadow communities and landscape trees along urban street fronts and within Corvette Park and small culturally influenced vegetated parcels.

There is potential for construction to disturb or destroy nests of migratory birds, particularly during vegetation clearing and structural removal if undertaken from April 1 through August 31.

Other slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

4.2.7.3.2 Operations

It is not anticipated that wildlife will be affected by the multi-use crossing during operations.

4.2.7.4 Significant Wildlife Habitat

4.2.7.4.1 Construction

Given that there is no candidate SWH at this location, it is not anticipated that SWH will be affected during construction of the multi-use crossing.

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4.2.7.4.2 Operations

Given that there is no candidate SWH at this location, it is not anticipated that SWH will be affected during operations.

4.2.7.5 Species at Risk

4.2.7.5.1 Construction

Pending confirmation of the preferred multi-use crossing option and depending on the final design, further bat tree roost assessment for trees greater than 10 cm in diameter that are proposed for removal and bat exit surveys for any building removals should be conducted to confirm the absence of bat habitat.

To date, no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the multi-use crossing during construction.

4.2.7.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the multi-use crossing during operations.

4.2.7.6 Significant Natural Features

4.2.7.6.1 Construction

Given that no Significant Natural Areas were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected by the multi-use crossing during construction.

4.2.7.6.2 Operations

Given that no Significant Natural Features were identified within the Natural Environment Assessment Area, no direct or indirect effects on Significant Natural Features are anticipated during operations.

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4.2.8 Utilities

4.2.8.1 Aquatic Environment

4.2.8.1.1 Construction

No direct loss of aquatic habitat will occur as a result of utility realignments. Indirect effects on fish and fish habitat (e.g., sediment transport) as a result of utility realignments are not anticipated given the distance to aquatic features and exercising due diligence during construction activities and implementing standard erosion and sediment controls and spill mitigation.

4.2.8.1.2 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations.

The stormwater sewer realignment at Danforth Road will continue to outlet to Massey Creek in approximately the same quantities as existing conditions. Modelling confirmed the storm sewer realignment could be implemented without significant negative effects on the local drainage system with respect to system performance and flood risk (Stantec 2020d).

4.2.8.2 Terrestrial Environment

4.2.8.2.1 Construction

Utility realignments will predominantly occur within the rail or municipal ROWs. Direct loss of vegetation may occur, including ornamental and streetscape trees that are found along roadways, where vegetation removal is required to facilitate construction. Permanent loss of vegetation will generally be restricted to areas along the existing rail and road ROW and no habitat fragmentation is anticipated. The extent of these areas is considered to be minimal and will have a limited effect on natural features. Clearing of work areas may also result in short-term disturbance, but no permanent loss or degradation of natural terrestrial habitat is anticipated. Standard mitigation measures will be employed to reduce the extent of permanent effects, protect vegetation during construction, and revegetate temporary work areas post-disturbance.

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4.2.8.2.2 Operations

Once construction is complete, no terrestrial effects during operations are anticipated for utilities given the limited requirements for ongoing maintenance activities. Regular maintenance activities associated with the stormwater sewer will occur within the road ROW and will not affect natural areas.

4.2.8.3 Wildlife

4.2.8.3.1 Construction

Utility work will generally occur in proximity to other Project components (e.g., linear facilities, Danforth Road/Midland Avenue intersection, etc.) and construction activities will be undertaken in conjunction with these other components. Therefore, the effects noted below were previously identified in preceding sections.

Potential effects on wildlife and wildlife habitat from construction include direct mortality from construction vehicles, habitat destruction through vegetation removal, habitat degradation through spills, and sensory disturbance of wildlife during construction. However, the urban landscape in the Natural Environment Assessment Area precludes an abundance of wildlife and/or wildlife habitat. In addition, most utility construction is required within the Danforth Road/Midland Avenue intersection area and depressed corridors, areas that are highly disturbed.

There is potential for construction to disturb or destroy nests of migratory birds, particularly during vegetation clearing if undertaken from April 1 through August 31.

Other slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

4.2.8.3.2 Operations

No direct or indirect effects on wildlife are anticipated as a result of operations once utility realignments are complete.

4.2.8.4 Significant Wildlife Habitat

4.2.8.4.1 Construction

Suitable habitat for Monarch (species of special concern) was identified in the vicinity of the areas where utilities will be relocated in the adjacent meadow communities that are candidate SWH. Removal and temporary disturbance to meadow habitat is not expected to have a significant effect on this species since there was no milkweed (the

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larval host plant for Monarch) recorded in the Natural Environment Assessment Area. However, preconstruction surveys should be undertaken, where applicable, to ensure milkweed patches have not established within the construction footprint to prevent attracting butterflies to an area of elevated risk of mortality due to collisions construction equipment and vehicles.

4.2.8.4.2 Operations

Since there will be no disturbance to meadow habitat during operations, SWH will not be affected by the Project operations.

4.2.8.5 Species at Risk

4.2.8.5.1 Construction

Since no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected during utility realignment activities.

4.2.8.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected once utility realignments are complete.

4.2.8.6 Significant Natural Features

4.2.8.6.1 Construction

Given that no Significant Natural Areas were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected during utility realignment activities.

4.2.8.6.2 Operations

Given that no Significant Natural Areas were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected once utility realignments are complete.

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4.2.9 Laydown Areas

4.2.9.1 Aquatic Environment

4.2.9.1.1 Construction

No direct loss of aquatic habitat will occur as a result of laydown areas activities. Indirect effects on fish and fish habitat (e.g., sediment transport) as a result of activities within the laydown areas are not anticipated given the distance to aquatic features and exercising due diligence during construction activities through implementation of standard erosion and sediment controls and spill mitigation.

4.2.9.1.2 Operations

Given the distance to aquatic features, no effects on the aquatic environment are anticipated during operations.

4.2.9.2 Terrestrial Environment

4.2.9.2.1 Construction

It is not anticipated that the terrestrial environment will be affected by the use of laydown areas during construction. The St. Clair Yard and the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection are both Metrolinx properties that are actively used with limited vegetation. The Corvette Park laydown area will be located in proximity to the splash pad/playground area to avoid the need for removal of heavily vegetated areas.

4.2.9.2.2 Operations

It is not anticipated that the terrestrial environment will be affected by the use of the laydown areas during operations, as the St. Clair Yard and the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection are already in use and will likely be maintained during operations. The Corvette Park laydown area will be rehabilitated at end of construction, so no effects are anticipated during operations.

4.2.9.3 Wildlife

4.2.9.3.1 Construction

Clearing of the laydown area within Corvette Park may result in short-term disturbance, but no permanent loss or degradation of natural terrestrial habitat is anticipated. Should the Corvette Park laydown area require removal of trees, there is potential for

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construction to disturb or destroy nests of migratory birds, particularly during vegetation clearing, if undertaken from April 1 through August 31.

Other slow-moving and ground-dwelling wildlife could be encountered during construction, including reptiles (snakes and turtles) and amphibians.

The St. Clair Yard and laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection are both Metrolinx properties that are actively used with no or limited wildlife encounters anticipated.

4.2.9.3.2 Operations

It is not anticipated that wildlife will be affected by the laydown areas during operations, as the St. Clair Yard and the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection are already in use and will likely be maintained during operations for other Metrolinx uses, so no additional effects are anticipated. The Corvette Park laydown area will be rehabilitated at end of construction, so no effects are anticipated during operations.

4.2.9.4 Significant Wildlife Habitat

4.2.9.4.1 Construction

Suitable habitat for Monarch (species of special concern) was identified in the vicinity of the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection in the meadow communities that are candidate SWH. As this laydown area is an area currently used by Metrolinx for storage, no effects to the meadow community are anticipated as a result of the use of this area during construction. Should any additional area be cleared, removal and temporary disturbance to meadow habitat is not expected to have a significant effect on this species since there was no milkweed (the larval host plant for Monarch) recorded in the Natural Environment Assessment Area. Preconstruction surveys should be undertaken to ensure milkweed patches have not established within the construction footprint to prevent attracting butterflies to an area of elevated risk of mortality due to collisions with construction equipment.

4.2.9.4.2 Operations

Since there will be no disturbance to meadow habitat during operations, it is not anticipated that SWH will be affected by the laydown areas.

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4.2.9.5 Species at Risk

4.2.9.5.1 Construction

Since no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the laydown areas during construction.

4.2.9.5.2 Operations

Given that no SAR species were recorded in the Natural Environment Assessment Area, it is not anticipated that SAR will be affected by the laydown areas during operations.

4.2.9.6 Significant Natural Features

4.2.9.6.1 Construction

Given that no Significant Natural Features were identified in the Natural Environment Assessment Area, it is not anticipated that Significant Natural Features will be affected by the laydown areas during construction as a result of laydown areas activities.

4.2.9.6.2 Operations

No Significant Natural Features were identified within the Natural Environment Assessment Area, therefore, no direct or indirect effects on Significant Natural Features are anticipated during operations.

4.3 Tree Inventory

4.3.1 Overview

The Project has the potential to impact trees within the Project Footprint during construction either through removal, injury or pruning. Potential effects are described below, while corresponding mitigation measures and monitoring activities are described in Section 4.11. The number of trees to be removed or protected in place are considered approximate and may change as design progresses.

4.3.2 Scarborough GO Station Building

4.3.2.1 Construction

The Scarborough GO Station building modifications/relocation will be isolated to the existing Metrolinx property and no treed areas are located within the Project Footprint.

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Therefore, no effects are anticipated as a result of the GO Station building modifications/relocation during construction.

4.3.2.2 Operations

It is not anticipated that trees at this location will be affected by the Scarborough GO Station building during operations, as overall operations procedures will remain the same.

4.3.3 St. Clair Avenue East Bridge

4.3.3.1 Construction

There are 10 trees located in the vicinity of the St. Clair Avenue East bridge that will be removed to allow for construction of the bridge expansion (Stantec 2021a). Tree species that will be removed include Norway Maple (*Acer platanoides*), Honey-Locust (*Gleditsia triacanthos*), Cherry species (*Prunus sp.*), and an Apple species (*Malus sp.*). Norway Maple is an invasive species.

Other construction-related affects to trees can include removal or impacts to tree roots, compaction of soil and physical damage to trees through equipment strikes.

4.3.3.2 Operations

It is not anticipated that remaining trees at this location will be affected by the St. Clair Avenue East bridge during operations, as there will be no additional footprint changes associated with the Project and the potential for impacts to existing trees will be limited to regular pruning or maintenance required as needed to maintain rail operations.

4.3.4 Midland Layover

4.3.4.1 Construction

There are approximately 50 trees within the vicinity of the Midland Layover that have the potential to be impacted during construction (Stantec 2021a). It is expected that approximately 23 trees will require removal (one of which is dead) and 27 will be retained and protected. Trees anticipated to be removed include Apple species (*Malus sp.*), Manitoba Maple (*Acer negundo*), White Mulberry (*Morus alba*), and White Willow (*Salix alba*), Eastern Cottonwood (*Populus deltoides ssp. Deltoides*), and Black Willow (*Salix nigra*). Manitoba Maple, White Mulberry, and White Willow are invasive species.

Other construction-related affects to trees can include removal or impacts to tree roots, compaction of soil and physical damage to trees through equipment strikes.

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4.3.4.2 Operations

No additional impacts to trees are anticipated during operations as there will be no additional footprint changes associated with the Project and the potential for impacts to existing trees will be limited to regular pruning or maintenance required as needed to maintain rail operations.

4.3.5 Danforth Road/Midland Avenue Intersection

4.3.5.1 Construction

There are approximately 11 trees located in the vicinity of the Danforth Road/Midland Avenue intersection that have the potential to be impacted during construction (Stantec 2021a). It is anticipated that 6 trees will be removed to allow for construction of the intersection. Tree species that will be removed include Black Walnut (*Juglans nigra*), Manitoba Maple (*Acer negundo*), Ash species (*Fraxinus sp.*), and Cherry species (*Prunus sp.*). Black Walnut is considered to be a high value species. Manitoba Maple is an invasive specie.

Other construction-related affects to trees can include removal or impacts to tree roots, compaction of soil and physical damage to trees through equipment strikes.

4.3.5.2 Operations

It is not anticipated that remaining trees at this location will be affected by the Danforth Road/Midland Avenue intersection during operations as there will be no additional footprint changes associated with the Project and the potential for impacts to existing trees will be limited to regular pruning or maintenance required as needed to maintain rail operations.

4.3.6 Linear Facilities

4.3.6.1 Construction

It is estimated that approximately 87 trees associated with the footprint of linear facilities will require removal. Other construction-related affects to trees can include removal or impacts to tree roots, compaction of soil and physical damage to trees through equipment strikes.

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4.3.6.2 Operations

It is not anticipated that remaining trees along linear facilities will be affected during operations as there will be no additional footprint changes associated with the Project and the potential for impacts to existing trees will be limited to regular pruning or maintenance required as needed to maintain rail operations.

4.3.7 Corvette Multi-Use Crossing

4.3.7.1 Construction

Pending confirmation of the preferred option for the multi-use crossing, approximately 31 trees will require removal during construction.

Other construction-related affects to trees can include removal or impacts to tree roots, compaction of soil and physical damage to trees through equipment strikes.

4.3.7.2 Operations

It is not anticipated that remaining trees at the Corvette Park will be affected during operations as there will be no additional footprint changes associated with the Project and the potential for impacts to existing trees will be limited to regular pruning or maintenance required as needed to maintain rail operations and sight lines for the multi-use crossing.

4.3.8 Utilities

4.3.8.1 Construction

Realignment of utilities has the potential to impact trees through tree removal, removal or impacts to tree roots, compaction of soil and physical damage to trees through equipment strikes. It estimated that approximately 13 trees will require removal during construction.

Potential impacts to trees associated with other Project components that may also impact utilities (i.e., linear facilities, Danforth Road/Midland Avenue intersection, etc.) are reported under applicable sections.

4.3.8.2 Operations

It is not anticipated that remaining trees located near utilities will be impacted during operations as there will be no additional footprint changes associated with the Project.

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4.3.9 Laydown Areas

4.3.9.1 Construction

It is not anticipated that trees will be affected by the use of the St. Clair Yard and the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection during construction. Both of these areas are actively used Metrolinx properties and they do not contain any trees within the active operational area.

The Corvette Park laydown area will be located in proximity to the splash pad/playground area to avoid the impact to trees to the extent feasible. Anticipated tree removals have been included in Section 4.3.7.1.

Other construction-related affects to trees can include removal or impacts to tree roots, compaction of soil and physical damage to trees through equipment strikes.

4.3.9.2 Operations

Following construction, no further impacts to trees are anticipated at the Corvette Park laydown area as the area will be rehabilitated in consultation with the City of Toronto.

4.4 Geology and Groundwater

4.4.1 Overview

The Project is not expected to result in any changes to landforms and physiography or to soils and bedrock geology.

The Project has the potential to result in temporary effects during construction and operations (i.e., effects on water wells due to potential dewatering, accidental spills). It is anticipated that effects can be limited or avoided through implementation of mitigation measures. Potential effects are described below, while corresponding mitigation measures and monitoring activities relating to Geology and Groundwater are described in Section 4.11.

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4.4.2 Scarborough GO Station Building

4.4.2.1 Landforms and Physiography

4.4.2.1.1 Construction

No direct or indirect effects to underlying landforms and physiography are anticipated during construction as activities will be limited to the Project Footprint and surficial activities will not result in any changes to the overall landscape.

4.4.2.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

4.4.2.2 Soils and Bedrock Geology

4.4.2.2.1 Construction

Spills and releases associated with Project construction may affect on-site soil quality. In addition, stripping of the existing surficial organics and topsoil will be required as part of construction. Implementation of standard soils management procedures and spill mitigation measures during construction activities will be employed to reduce potential impacts to soils.

Based on further soil analytical results (Stantec 2020h), for Table 3 SGS exceedances of EC and/or SAR, remedial excavation of the localized impacts followed by further environmental testing of soils during construction would be required to determine the suitability for re-use on-site or at other properties required to meet *O. Reg. 153/04* Table 3 SCS. Remedial excavation of the localized impacts followed by further testing of soils would be required to use the excess soil with exceedances of EC, SAR, antimony, cobalt, copper, molybdenum and nickel, and methylnaphthalene (total) at a receiving facility and/or other properties that are required to meet *O. Reg. 153/04* Table 1 SCS.

No effects to bedrock geology are anticipated as bedrock was not encountered within the maximum depth of the geotechnical investigation (approximately 19 m) (Thurber 2015).

4.4.2.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

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4.4.2.3 Groundwater Resources

4.4.2.3.1 Construction

The design of the modification or relocation of the GO Station building is currently in development. If temporary groundwater dewatering is required during construction, a Permit to Take Water or Environmental Activity and Sector Registry will be obtained where required so that appropriate mitigation will be applied to control the potential for negative impacts on groundwater resources.

Dewatering, if required, will be discharged in accordance with the City of Toronto Storm Sewer Use By-laws. No impacts on groundwater quality are anticipated.

Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential for this interaction to occur at the Scarborough GO Station, however, accidental releases would be localized in nature.

4.4.2.3.2 Operations

The modified/relocated GO Station building will be within the same proximity as the existing building and no additional impacts to groundwater are anticipated during operations of the modified/relocated GO Station building.

4.4.3 St. Clair Avenue East Bridge

4.4.3.1 Landforms and Physiography

4.4.3.1.1 Construction

No direct or indirect effects to underlying landforms and physiography are anticipated during construction as activities will be limited to the Project Footprint and surficial activities will not result in any changes to the overall landscape.

4.4.3.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

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4.4.3.2 Soils and Bedrock Geology

4.4.3.2.1 Construction

Soil conditions for all Project components are similar given the proximity to the existing rail corridor. Refer to Section 4.4.2.2.1 for details on potential effects during construction.

4.4.3.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

4.4.3.3 Groundwater Resources

4.4.3.3.1 Construction

Groundwater control during pier foundations for the bridge may be required during construction. A Permit to Take Water or Environmental Activity and Sector Registry will be obtained where required so that appropriate mitigation will be applied to control the potential for negative impacts on groundwater resources.

Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential for this interaction to occur throughout at the St. Clair Avenue East bridge, however, accidental releases would be localized in nature.

4.4.3.3.2 Operations

During operations, no interaction with groundwater is anticipated for the St. Clair Avenue East bridge and therefore no impacts are expected.

4.4.4 Midland Layover

4.4.4.1 Landforms and Physiography

4.4.4.1.1 Construction

No direct or indirect effects to underlying landforms and physiography are anticipated during construction as activities will be limited to the Project Footprint and surficial activities will not result in any changes to the overall landscape.

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4.4.4.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

4.4.4.2 Soils and Bedrock Geology

4.4.4.2.1 Construction

Soil conditions for all Project components are similar given their proximity to the existing rail corridor. Refer to Section 4.4.2.2.1 for details on potential effects during construction.

4.4.4.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

4.4.4.3 Groundwater Resources

4.4.4.3.1 Construction

The existing grade in the area of the Midland Layover is expected to be raised slightly (approximately 1 m) and therefore construction activities associated with the new tracks are not expected to interact with groundwater.

Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential for this interaction to occur at the Midland Layover, however, accidental releases would be localized in nature.

4.4.4.3.2 Operations

No effects are anticipated during operations as the Midland Layover will have no or negligible interaction with groundwater.

4.4.5 Danforth Road/Midland Avenue Intersection

4.4.5.1 Landforms and Physiography

4.4.5.1.1 Construction

Only localized changes in elevation limited to the Project Footprint will be required, therefore no direct or indirect effects to underlying landforms and physiography are anticipated on a larger geographic scale.

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4.4.5.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

4.4.5.2 Soils and Bedrock Geology

4.4.5.2.1 Construction

Soil conditions for all Project components are similar given the proximity to the existing rail corridor. Refer to Section 4.4.2.2.1 for details on potential effects during construction.

4.4.5.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

4.4.5.3 Groundwater Resources

4.4.5.3.1 Construction

Temporary groundwater dewatering will be required during construction of the depressed rail corridor at the Danforth Road/Midland Avenue intersection. A Permit to Take Water or Environmental Activity and Sector Registry will be obtained where required so that appropriate mitigation will be applied to control the potential for negative impacts on groundwater resources.

For purposes of assessing the construction dewatering requirements, it has been assumed that the shoring system for the rail cut is not designed to be water-tight. If a water-tight shoring system is adopted, the volume of steady state inflow will be substantively reduced.

Dewatering will be discharged in accordance with the City of Toronto Storm Sewer Use By-laws. No impacts on groundwater quality are anticipated.

Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential for this interaction to occur at the Danforth Road/Midland Avenue intersection, however, accidental releases are localized in nature.

4.4.5.3.2 Operations

Given the depressed rail corridor at the Danforth Road/Midland Avenue intersection will penetrate below the static groundwater level, permanent drainage will be required along

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the length of the rail cut to lower and maintain the groundwater level below the bottom of the underpass. Permanent dewatering will result in a zone of influence approximately 70 m from the edge of the permanent drainage system.

Dewatering will be discharged in accordance with the City of Toronto Storm Sewer Use By-laws. No impacts on groundwater quality are anticipated.

4.4.6 Linear Facilities

4.4.6.1 Landforms and Physiography

4.4.6.1.1 Construction

Only localized changes in elevation limited to the Project Footprint will be required, so no direct or indirect effects to underlying landforms and physiography are anticipated on a larger geographic scale.

4.4.6.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

4.4.6.2 Soils and Bedrock Geology

4.4.6.2.1 Construction

Soil conditions for all Project components are similar given the proximity to the existing rail corridor. Refer to Section 4.4.2.2.1 for details on potential effects during construction.

4.4.6.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

4.4.6.3 Groundwater Resources

4.4.6.3.1 Construction

Temporary groundwater dewatering will be required during construction of the linear facilities. A Permit to Take Water or Environmental Activity and Sector Registry will be obtained where required so that appropriate mitigation will be applied to control the potential for negative impacts on groundwater resources.

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For purposes of assessing the construction dewatering requirements, it has been assumed that the shoring system for the rail cut is not designed to be water-tight. If a water-tight shoring system is adopted, the volume of steady state inflow will be substantively reduced.

Dewatering will be discharged in accordance with the City of Toronto Storm Sewer Use By-laws. No impacts on groundwater quality are anticipated.

Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential for this interaction to occur along linear facilities, however, accidental releases would be localized in nature.

4.4.6.3.2 Operations

Given the depressed rail corridor will penetrate below the static groundwater level, permanent drainage will be required along the length of the rail cut to lower and maintain the groundwater level below the bottom of the underpass. Permanent dewatering will result in a zone of influence approximately 70 m from the edge of the permanent drainage system.

Dewatering will be discharged in accordance with the City of Toronto Storm Sewer Use By-laws. No impacts on groundwater quality are anticipated.

4.4.7 Corvette Multi-Use Crossing

4.4.7.1 Landforms and Physiography

4.4.7.1.1 Construction

No direct or indirect effects to underlying landforms and physiography are anticipated during construction as activities will be limited to the Project Footprint and construction activities will not result in any changes to the overall landscape.

4.4.7.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

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4.4.7.2 Soils and Bedrock Geology

4.4.7.2.1 Construction

Soil conditions for all Project components are similar given the proximity to the existing rail corridor. Refer to Section 4.4.2.2.1 for details on potential effects during construction.

4.4.7.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

4.4.7.3 Groundwater Resources

4.4.7.3.1 Construction

Groundwater control during pier foundations for the bridge option may be required during construction. Should the tunnel option be selected, additional investigations will be required to determine the extent of the dewatering area. A Permit to Take Water or Environmental Activity and Sector Registry will be obtained where required so that appropriate mitigation will be applied to control the potential for negative impacts on groundwater resources.

Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential for this interaction to occur at the Corvette multi-use crossing, however, accidental releases would be localized in nature.

4.4.7.3.2 Operations

During operations, no interaction with groundwater is anticipated for the bridge option and therefore no impacts are expected. Further investigations would be required to determine potential effects to groundwater should the tunnel be selected as the preferred option.

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4.4.8 Utilities

4.4.8.1 Landforms and Physiography

4.4.8.1.1 Construction

Only localized changes in elevation limited to the Project Footprint will be required, so no direct or indirect effects to underlying landforms and physiography are anticipated on a larger geographic scale.

4.4.8.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

4.4.8.2 Soils and Bedrock Geology

4.4.8.2.1 Construction

Soil conditions for all Project components are similar given the proximity to the existing rail corridor. Refer to Section 4.4.2.2.1 for details on potential effects during construction.

4.4.8.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

4.4.8.3 Groundwater Resources

4.4.8.3.1 Construction

Excavations for most applications, including for the construction of new municipal and utility services, are anticipated to penetrate below the static groundwater table level.

The excavations for the construction of services and utilities will be limited in extent but will encounter groundwater. Since local soils predominantly reflect glacial till, the use of sump pits and contractor's pumps should be satisfactory for handling any groundwater inflow and no impacts are anticipated. A Permit to Take Water or Environmental Activity and Sector Registry will be obtained where required so that appropriate mitigation will be applied to control the potential for negative impacts on groundwater resources.

Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential

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for this interaction to occur in association with utility work, however, accidental releases would be localized in nature.

4.4.8.3.2 Operations

No effects are anticipated during Project operations. Utilities will have no or negligible interaction with groundwater as utilities will be designed to be watertight, where required.

4.4.9 Laydown Areas

4.4.9.1 Landforms and Physiography

4.4.9.1.1 Construction

No direct or indirect effects to underlying landforms and physiography are anticipated during construction as activities will be limited to the Project Footprint and surficial activities will not result in any changes to the overall landscape.

4.4.9.1.2 Operations

No direct or indirect effects to underlying landforms and physiography are anticipated during operation as there will be no changes to the overall landscape.

4.4.9.2 Soils and Bedrock Geology

4.4.9.2.1 Construction

Soil conditions for all Project components are similar given their proximity to the existing rail corridor. Refer to Section 4.4.2.2.1 for details on potential effects during construction.

4.4.9.2.2 Operations

No effects to soils and bedrock are anticipated during operations.

4.4.9.3 Groundwater Resources

4.4.9.3.1 Construction

No surface disturbance is anticipated for construction of the laydown areas and therefore no interaction with groundwater will occur.

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Spills and releases associated with machinery and equipment operation during construction activities may affect groundwater through contamination. There is potential for this interaction to occur at the laydown areas, however, accidental releases are localized in nature.

4.4.9.3.2 Operations

Once use of laydown areas for construction is complete, land will be returned to pre-construction conditions and use as applicable. Metrolinx will continue to use the established laydown areas at St. Clair Yard and the northwest quadrant of the Danforth Road/Midland Avenue intersection during Project operations to support other initiatives. For these two areas, spills and releases associated with machinery and equipment operation during operations may affect groundwater through contamination. There is potential for this interaction to occur at the laydown areas, however, accidental releases would be localized in nature.

4.5 Stormwater Management

4.5.1 Overview

Stormwater management aims to maintain the natural hydrologic cycle, avoid an increased risk of flooding, prevent undesirable stream erosion, and protect water quality. Project construction activities may result in increased sedimentation. Potential effects are described below, while corresponding mitigation measures and monitoring activities relating to stormwater management are described in Section 4.11.

4.5.2 Scarborough GO Station Building

4.5.2.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

4.5.2.2 Operations

The Scarborough GO Station building will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment or water balance mitigation measures are required. New infrastructure will connect to the existing stormwater system and meet appropriate standards.

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4.5.3 St. Clair Avenue East Bridge

4.5.3.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

4.5.3.2 Operations

The St. Clair Avenue East Bridge will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment or water balance mitigation measures are required.

4.5.4 Midland Layover

4.5.4.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

4.5.4.2 Operations

The Midland Layover will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment or water balance mitigation measures are required.

4.5.5 Danforth Road/Midland Avenue Intersection

4.5.5.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

Refer to Section 4.7.5.4 for further discussion on the realignment of the storm sewer.

4.5.5.2 Operations

The Danforth Road/Midland Avenue Intersection will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment or water balance mitigation measures are required.

The realigned storm sewer will convey runoff from a 37.9 ha drainage area upstream of the Stouffville Rail Corridor. The Basement Flooding Remediation and Water Quality Improvement Master Plan Class EA - Study Area 34 (WSP 2008) InfoWorks model was

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modified to incorporate and evaluate the potential effect of the realigned storm sewer on the infrastructure proposed in the Class EA. Maintaining the projects identified in the Basement Flooding Remediation and Water Quality Improvement Master Plan Class EA - Study Area 34, the proposed storm sewer realignment will not impact the flood mitigation solutions in the ultimate build-out condition of the Class EA. Refer to Section 4.7.5.4 for further discussion regarding the operations and maintenance of the sanitary storm sewer.

4.5.6 Linear Facilities

4.5.6.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

4.5.6.2 Operations

The linear features associated with the Project will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment or water balance mitigation measures are required. Runoff from the depressed rail corridor will be collected and conveyed via subdrains, running along the two retaining walls from the two high points to the low point under Danforth Road. Any overland flow not captured by the subdrains will be collected at two double catch basin structures (one on each side of the tracks), located at the low point in the track profile. New infrastructure will connect to the existing stormwater system and meet appropriate standards.

4.5.7 Corvette Multi-Use Crossing

4.5.7.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

4.5.7.2 Operations

The Corvette multi-use crossing will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment for water balance mitigation measures are required. New infrastructure associated with the tunnel option will connect to the existing system and meet appropriate standards.

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4.5.8 Utilities

4.5.8.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

4.5.8.2 Operations

Utilities will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment or water balance mitigation measures are required. Refer to Section 4.7.5.4 for further discussion regarding the operations and maintenance of the sanitary storm sewer.

4.5.9 Laydown Areas

4.5.9.1 Construction

Construction activities have the potential to result in increased sediment transport into adjacent municipal drainage infrastructure.

4.5.9.2 Operations

Laydown areas will not involve significant changes to land uses and surface cover, as such, no water quantity control, water quality treatment or water balance mitigation measures are required.

4.6 Cultural Environment



4.6.1 Overview

Where a built heritage resource or cultural heritage landscape was identified within or across the Cultural Heritage Study Area, an assessment of potential impacts as a result of the Project was undertaken. The assessment of potential impacts was undertaken according to MHSTCI's *Information Bulletin 3: Heritage Impact Assessment* (Information Bulletin 3) (approved January 31, 2017) (MHSTCI 2017). Impacts to heritage resources may be direct, or indirect. Table 4.3 provides an overview of the identified built heritage resources and cultural heritage landscapes and a brief description of the anticipated Project impacts based on the preliminary design. The table also describes the mitigation measures and recommendations included in the Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (Appendix A2).

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Table 4.3: Identified Built Heritage Resources and Cultural Heritage Landscapes

CHR Reference Number	Type of Property	Location	Description of Known or Potential CHVI	Photograph	Type and Description of Potential/Anticipated Impact	Mitigation Measures
CHR-1	Residence	87 Granger Avenue	The property contains a two-storey L-shaped residence with a rear wing built in the Victorian style. The gable roof has one offset gable in the front façade of the south section of the structure. The exterior of the residence appears to have clapboard style siding. The roof has projecting eaves, plain fascia, plain soffit, and one side-to-side, single stack, red brick chimney that is offset from the left. The window surrounds are plain and flat with plain lug sills. All windows appear to be recent/replaced. The main entrance is off-centre and is located on the southern section of the front façade. The door trim is plain and is covered by an open porch with plain piers. The house appears on the 1918 historic topographic map of Toronto (ASI 2014). The residence has potential design value as a representative example of a late 19 th to early 20 th century Ontario vernacular structure.		Indirect: The property is situated adjacent to the Project Footprint. Construction activities associated within the railway corridor are proposed east of the residence within less than 10 metres of the identified BHR. The position of the structure within 10 metres of project activities has the potential for indirect impacts resulting from vibration damage during construction activities. In addition, there is also potential for indirect impacts resulting from construction activities associated with the potential storm sewer work along Granger Avenue. Therefore, mitigation measures must be prepared to mitigate potential indirect impacts.	Preferred Option: Avoid the CHR by establishing a buffer zone around the residence. This should use appropriate preventative measures such as mapping of the CHR on construction maps and temporary fencing. Staging and laydown areas should also be selected so that they are non-invasive and avoid the CHR. Where avoidance is not feasible, the alternative option should be applied. Alternative Option: Where construction activities are anticipated within the 50 metre buffer zone, pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures. Vibration velocity, or PPV, should be limited to 8-22 millimetres per second.
CHR-2	Residence	112 Granger Avenue	The property contains a two and one half storey residence built in the Victorian style. The residence has a rectangular plan and includes a wing/addition on the east elevation. It includes a gable roof with projecting eaves, plain fascia, and plain soffit. The house appears to recently updated with vinyl siding, new windows, and new doors. Landscape elements on the property include old/established trees and circulation routes. The house was built during the first half of the twentieth century and appears on the 1949 topographic map of Toronto (ASI 2014). The residence has potential design value as a representative early 20 th century Ontario vernacular structure.		Indirect: The property is situated adjacent to the Project Footprint. Construction activities are proposed north and east of the residence, within less than 10 metres of the identified BHR. The position of the structure within 10 metres of the Project Footprint has the potential for indirect impacts resulting from vibration damage during construction activities. In addition, there is also potential for indirect impacts resulting from construction activities associated with the potential storm sewer work along Granger Avenue. Therefore, mitigation measures must be prepared to mitigate potential indirect impacts.	Preferred Option: Avoid the CHR by establishing a buffer zone around the residence. This should use appropriate preventative measures such as mapping of the CHR on construction maps and temporary fencing. Staging and laydown areas should also be selected so that they are non-invasive and avoid the CHR. Where avoidance is not feasible, the alternative option should be applied. Alternative Option: Where construction activities are anticipated within the 50 metre buffer zone, pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures. Vibration velocity, or PPV, should be limited to 8-22 millimetres per second.


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CHR Reference Number	Type of Property	Location	Description of Known or Potential CHVI	Photograph	Type and Description of Potential/Anticipated Impact	Mitigation Measures
CHR-3	Residence	70 Granger Avenue	This property contains a two and one half storey residence with a steeply pitched hip and gable roof with a brick chimney and asphalt shingles. The residence is clad in red brick and contains modern windows. The residence has a projecting bay with a gable dormer and wood vergeboard. The residence has an enclosed front porch and the foundation is obscured (Stantec 2017b). The residence has potential design value as a representative late 19 th to early 20 th century Ontario vernacular structure.		Indirect: The property is situated adjacent to the Project Footprint. Construction activities associated with the railway corridor and grade separation are proposed east of the residence. This work is proposed more than 50 metres from the identified BHR. However, there is the potential for storm sewer work within Granger Avenue and Summer Drive to occur within 50 metres of the residence, which would have potential for indirect impacts resulting from vibration damage during construction activities. Therefore, mitigation measures must be prepared to mitigate potential indirect impacts.	Preferred Option: Avoid the CHR by establishing a buffer zone around the residence. This should use appropriate preventative measures such as mapping of the CHR on construction maps and temporary fencing. Staging and laydown areas should also be selected so that they are non-invasive and avoid the CHR. Where avoidance is not feasible, the alternative option should be applied. Alternative Option: Where construction activities are anticipated within the 50 metre buffer zone, pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures. Vibration velocity, or PPV, should be limited to 8-22 millimetres per second.
CHR-4	Residence	1 Granger Avenue	This property contains a one and a half storey red brick residence is built in the Edwardian style. It includes a saltbox roof with an extension on the north elevation and covered porch on the south elevation. The residence has projecting eaves, plain fascia, and mouled soffit. The structure includes a bay on the front façade that is clad in green clapboard style siding. The window surrounds have curved, brick voussoirs, with plain lugsills. The majority of the windows appear to have been replaced. The exception to this is the window on the north side of the original structure, which appears to have sash two-over-two panes. The basement window also appears to have original panes. The front door appears to be recent, but the door surround includes a curved brick voussoir that matches the window surrounds on the rest of the structure. The foundation of the original section appears to be concrete. The residence appears on the 1949 historic topographic map of Toronto (ASI 2014). The residence has potential design value as a representative early 20 th century Ontario vernacular structure.		Indirect: The property is situated adjacent to the Project Footprint. Construction activities associated with the railway corridor and grade separation are proposed east of the residence. This work is proposed more than 50 metres from the identified BHR. However, the laydown area associated with the project is immediately adjacent to the residence, which would have potential for indirect impacts resulting from vibration damage during construction activities as equipment and personnel are moved around the site. Therefore, mitigation measures must be prepared to mitigate potential indirect impacts.	Preferred Option: Avoid the CHR by establishing a buffer zone around the residence. This should use appropriate preventative measures such as mapping of the CHR on construction maps and temporary fencing. Staging and laydown areas should also be selected so that they are non-invasive and avoid the CHR. Vibration velocity, or PPV, should be limited to 8-22 millimetres per second. Where avoidance is not feasible, the alternative option should be applied. Alternative Option: Where laydown areas are required within the 50 metre buffer zone, pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures. Vibration velocity, or PPV, should be limited to 8-22 millimetres per second.

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CHR Reference Number	Type of Property	Location	Description of Known or Potential CHVI	Photograph	Type and Description of Potential/Anticipated Impact	Mitigation Measures
CHR-5	Residence	23 Laurel Avenue	This property contains a one and one half storey residence with a steeply pitched cross gable roof and asphalt shingles. The exterior is painted brick and stucco. The residence contains modern windows and an asymmetrical front façade. The residence has a partial width front porch with a modern entrance door. The foundation of the residence is obscured. The residence has potential design value as a representative late 19 th to early 20 th century Ontario vernacular structure.		No Impacts Anticipated The property is situated adjacent to the Project Footprint. Construction activities are proposed east of the residence. Project components are proposed more than 50 metres from the identified BHR. Therefore, the property is not at risk of direct or indirect impacts and no mitigation measures or further cultural heritage evaluation are required.	Not applicable.

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No direct impacts to any built heritage resources or cultural heritage resources are anticipated at this stage of the Project. Indirect impacts were identified for four built heritage resources (Stantec 2021b), 87 Granger Avenue (CHR-1), 112 Granger Avenue (CHR-2), 70 Granger Avenue (CHR-3) and 1 Granger Avenue (CHR-4). No indirect impacts are anticipated for 23 Laurel Avenue (CHR-5) as it is located more than 50 metres from proposed Project components (refer to Figure 3.5 in Appendix A2).

For the purposes of this EPR, 87 Granger Avenue (CHR-1) and 112 Granger Avenue (CHR-2) are assessed under Linear Facilities and Utilities (Sections 4.6.6 and 4.6.8, respectively) and 70 Granger Avenue (CHR-3) is assessed under Danforth Road/Midland Avenue Intersection and Utilities (Sections 4.6.5 and 4.6.8, respectively) based on the proximity of the built heritage resources to these Project components. 1 Granger Avenue (CHR-4) and 23 Laurel Avenue (CHR-5) are described under Laydown Areas (Section 4.6.9).

Although not explicitly stated in each of the subsections, it is acknowledged that there is the potential for additional built heritage resources or cultural heritage landscapes to be affected should the Project Footprint change or if there is a change in impact that is not captured in the previously completed CHSRs (AECOM 2016a; Stantec 2017a; ASI 2017a), Cultural Heritage Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes (ASI 2014a) and the Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment undertaken for this Project.

Based on the results of property inspections, parts of the Archaeological Assessment Area were considered to possess archaeological potential and will require a Stage 2 AA (Stantec 2020b).

Potential effects are described below, while corresponding mitigation measures and monitoring activities relating to the cultural environment are described in Section 4.11.

Although not explicitly stated in each of the subsections, it is acknowledged that there is the potential for disturbance of unassessed or undocumented archaeological resources during construction activities.

4.6.2 Scarborough GO Station Building

4.6.2.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.2.1.1 Construction

No built heritage resources or cultural heritage landscapes were identified at this location. Therefore, potential direct or indirect effects on cultural heritage are not anticipated.

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4.6.2.1.2 Operations

Given that no built heritage resources or cultural heritage landscapes were identified at this location, no direct or indirect effects on cultural heritage are anticipated as a result of operations.

4.6.2.2 Archaeological Resources

4.6.2.2.1 Construction

No archaeological resources were identified during the Stage 1 AA for the Scarborough GO Station building area, therefore no further archaeological work is required. No direct or indirect effects on archaeology are anticipated during construction.

4.6.2.2.2 Operations

As no archaeological resources were identified, and operations will not require additional excavation, no effects on archaeology are anticipated during the ongoing operations at this location.

4.6.3 St. Clair Avenue East Bridge

4.6.3.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.3.1.1 Construction

No built heritage resources or cultural heritage landscapes were identified at this location. Therefore, potential direct or indirect effects on cultural heritage are not anticipated.

4.6.3.1.2 Operations

Given that no built heritage resources or cultural heritage landscapes were identified at this location, no direct or indirect effects on cultural heritage are anticipated as a result of operations.

4.6.3.1 Archaeological Resources

4.6.3.1.1 Construction

No archaeological resources were identified during the Stage 1 AA in the vicinity of the St. Clair Avenue East bridge, therefore no further archaeological work is required. No direct or indirect effects on archaeology are anticipated during construction of the proposed bridge expansion.

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4.6.3.1.2 Operations

As no archaeological resources were identified and operations will not require additional excavation, therefore no effects on archaeology are anticipated during the ongoing operations at this location.

4.6.4 Midland Layover

4.6.4.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.4.1.1 Construction

No built heritage resources or cultural heritage landscapes were identified at this location. Therefore, potential direct or indirect effects on cultural heritage are not anticipated.

4.6.4.1.2 Operations

Given that no built heritage resources or cultural heritage landscapes were identified at this location, no direct or indirect effects on cultural heritage are anticipated as a result of operations.

4.6.4.2 Archaeological Resources

4.6.4.2.1 Construction

As identified in the Stage 1 AA (refer to Appendix A3-2, Figure 8), the area proposed for the Midland Layover has been previously disturbed and has low to no archaeological work. No further archaeological work is required prior to construction.

Based on the conceptual design of the Project, no direct or indirect effects on archaeology are anticipated during construction of the Midland Layover.

4.6.4.2.2 Operations

As no archaeological resources were identified, and operations will not require additional excavation, no effects on archaeology are anticipated during the ongoing operations of the Midland Layover.

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4.6.5 Danforth Road/Midland Avenue Intersection

4.6.5.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.5.1.1 Construction

Construction activities associated with the rail under road grade separation are proposed east of 70 Granger Avenue (CHR-3). This work is proposed more than 50 m from the identified built heritage resource. However, there is the potential for storm sewer work within Granger Avenue and Summer Drive to occur within 50 m of the residence, which would have potential for indirect impacts resulting from vibration damage during construction activities. Further details regarding the Preliminary Impact Assessment for CHR-3 are located in Table 4-1 of Appendix A2 with a map of identified CHRs within the Study Area located in Figure 3.5 of Appendix A2.

4.6.5.1.2 Operations

It is anticipated that ongoing operations will not result in higher vibration levels than those currently generated, or that operations will result in any off-site grading effects. Therefore, CHRs are not anticipated to be affected as a result of operations and no direct or indirect effects on the properties are anticipated as a result of operations.

4.6.5.2 Archaeological Resources

4.6.5.2.1 Construction

As noted in Section 4.6.9.2.1, the Stage 1 AA identified the need to undertake additional archaeological work for the undeveloped area in the northwest quadrant of the Danforth Road/Midland Avenue intersection. A Stage 2 AA will be undertaken prior to any construction activities, to confirm the potential for effects.

4.6.5.2.2 Operations

Operations will not require additional excavation and no effects on archaeology are anticipated during the ongoing operations at this location.

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4.6.6 Linear Facilities

4.6.6.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.6.1.1 Construction

Construction activities proposed within the rail corridor will have no potential direct effects on heritage resources.

Two properties, 87 Granger Avenue (CHR-1) and 112 Granger Avenue (CHR-2), were determined to be situated within 50 metres of rail corridor construction activities and may be at risk of indirect vibration-related effects:

Construction activities associated within the railway corridor are proposed east of 87 Granger Avenue (CHR-1) and north and east of 112 Granger Avenue (CHR-2), within less than 10 metres of the built heritage resources. The position of the structure within 10 metres of Project activities has the potential for indirect impacts resulting from vibration damage during construction activities. Further details regarding the Preliminary Impact Assessment for CHR-1 and CHR-2 are located in Table 4-1 of Appendix A2 with a map of identified CHRs within the Study Area located in Figure 3.5 of Appendix A2.

4.6.6.1.2 Operations

It is anticipated that ongoing operations associated with this Project will not result in higher vibration levels than those currently generated, or that operations associated with this Project will result in any off-site grading effects. Therefore, no direct or indirect effects on 87 Granger Avenue (CHR-1) and 112 Granger Avenue (CHR-2) are anticipated as a result of operations.

4.6.6.2 Archaeological Resources

4.6.6.2.1 Construction

Although areas adjacent to the Lakeshore East Rail Corridor and Stouffville Rail Corridor are considered to possess archaeological potential, (refer to Appendix A3-2, Figure 8) these areas fall outside of the Project Footprint and no construction activities are anticipated in these areas. As such, Stage 2 AA will not be undertaken in these areas.

The Heinze site (AkGt-15) is located within the Project Footprint adjacent to the Lakeshore East Rail Corridor, however no Project components are anticipated in proximity to the Heinze site. A Stage 2 AA would be required to confirm whether previous disturbance has completely removed archaeological potential or whether

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evidence of the Heinze site remains *in situ*, however Stage 2 AA will not be undertaken for the site as no Project-related disturbance is planned in the area.

If, through detailed design, work is proposed in any these areas, a Stage 2 AA would be undertaken prior to any construction activities, to confirm the potential for effects.

Based on the conceptual design of the Project, no direct or indirect effects on archaeology are anticipated during construction of the proposed linear facilities.

4.6.6.2.2 Operations

As no archaeological resources were identified, and operations will not require additional excavation, no effects on archaeology are anticipated during the ongoing operations of the proposed linear facilities.

4.6.7 Corvette Multi-Use Crossing

4.6.7.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.7.1.1 Construction

No built heritage resources or cultural heritage landscapes were identified within the Cultural Heritage Assessment Area at this location. Therefore, potential direct or indirect effects on cultural heritage are not anticipated.

4.6.7.1.2 Operations

Given that no built heritage resources or cultural heritage landscapes were identified at this location, no direct or indirect effects on cultural heritage are anticipated as a result of operations.

4.6.7.2 Archaeological Resources

4.6.7.2.1 Construction

As identified in the Stage 1 AA (refer Appendix A3-2, Figure 8) additional archaeological work for the laydown area within Corvette Park will be required. A Stage 2 AA will be undertaken prior to any construction activities, to confirm the potential for effects.

4.6.7.2.2 Operations

Operations will not require additional excavation and no effects on archaeology are anticipated during the ongoing operations at this location.

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4.6.8 Utilities

4.6.8.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.8.1.1 Construction

There is the potential for storm sewer work within Granger Avenue and Summer Drive to occur within 50 m of 87 Granger Avenue (CHR-1), 112 Granger Avenue (CHR-2) and 70 Granger Avenue (CHR-3), which would have potential for indirect impacts resulting from vibration damage during construction activities. Further details regarding the Preliminary Impact Assessment for CHR-1, CHR 2, and CHR-3 are located in Table 4-1 of Appendix A2 with a map of identified CHRs within the Study Area located in Figure 3.5 of Appendix A2.

4.6.8.1.2 Operations

Typical operation of utilities will not result in direct or indirect effects on 87 Granger Avenue (CHR-1), 112 Granger Avenue (CHR-2) and/or 70 Granger Avenue (CHR-3).

4.6.8.2 Archaeological Resources

4.6.8.2.1 Construction

No archaeological resources were identified during the Stage 1 AA for the proposed utility realignments/relocations, therefore no further archaeological work is required. No direct or indirect effects on archaeology are anticipated during construction of the proposed improvements.

4.6.8.2.2 Operations

As no archaeological resources were identified, and operations will not require additional excavation, therefore no effects on archaeology are anticipated during the ongoing operations at this location.

4.6.9 Laydown Areas

4.6.9.1 Built Heritage Resources and Cultural Heritage Landscapes

4.6.9.1.1 Construction

The existing St. Clair Yard will be used as laydown area for the Project. While two built heritage resources (1 Granger Avenue (CHR-4) and 23 Laurel Avenue (CHR-5)) have been identified within the Cultural Heritage Assessment Area in proximity to St. Clair

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Yard, Project activities are more than 50 m from 23 Laurel Avenue (CHR-5) and no direct or indirect impacts are anticipated at this location.

Construction activities associated with the Project are proposed east of 1 Granger Avenue (CHR-4). This work is proposed more than 50 m from the property. However, St. Clair Yard is immediately adjacent to the residence, which would have potential for indirect impacts resulting from vibration damage during construction activities as equipment and personnel are moved around the site.

Further details regarding the Preliminary Impact Assessment for CHR-4 and CHR-5 are located in Table 4-1 of Appendix A2 with a map of identified CHRs within the Study Area located in Figure 3.5 of Appendix A2.

No built heritage resources or cultural heritage landscapes were identified near the laydown area at the northwest quadrant of the Danforth Road/Midland Avenue intersection or the Corvette laydown area.

4.6.9.1.2 Operations

The St. Clair Yard will likely be maintained for other Metrolinx uses after construction and there is the possibility for indirect effects to 1 Granger Avenue (CHR-4) to continue as a result of ongoing operations. These indirect effects would be consistent with existing conditions as this laydown area is actively used.

4.6.9.2 Archaeological Resources

4.6.9.2.1 Construction

As identified in the Stage 1 AA (refer to Appendix A3-2, Figure 8), two of the proposed laydown areas required additional AA, the proposed laydown area in Corvette Park and the undeveloped portion of the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection. A Stage 2 AA will be undertaken prior to any construction activities, to confirm the potential for effects.

4.6.9.2.2 Operations

Operations will not require additional excavation, and no effects on archaeology are anticipated during the ongoing operations at these locations.

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4.7 Socio-Economic and Land Use

4.7.1 Overview

The Project has the potential to result in temporary and permanent socio-economic effects, including construction-related nuisance effects (e.g., increased noise, vibration, and dust), property acquisition, and visual and aesthetic effects. It is anticipated that potential effects can be avoided/limited through thoughtful Project design, coupled with effective implementation of mitigation measures.

Anticipated property impacts, based on the current RCD, are shown in Figure 4.2 and discussed further in the subsections below.

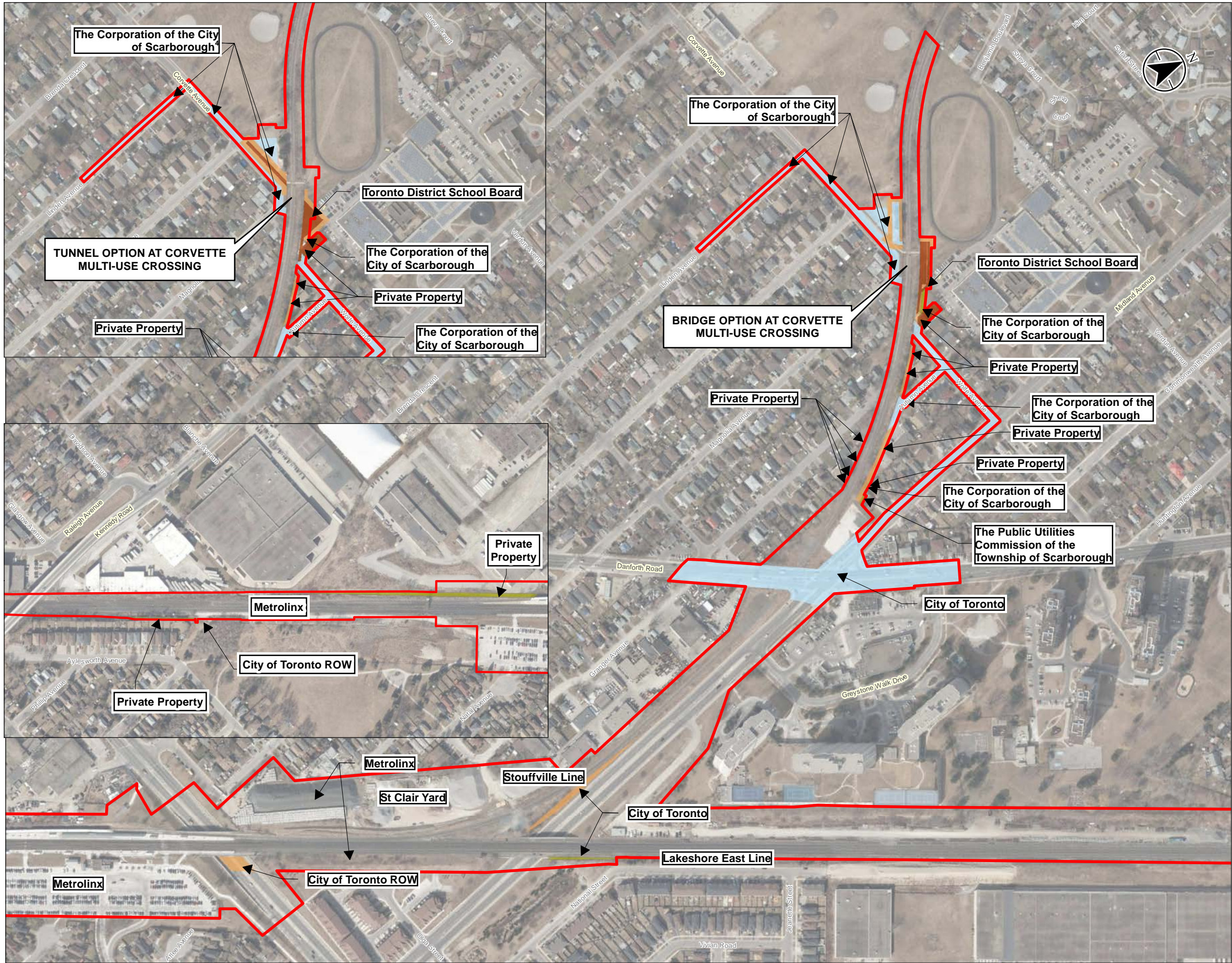
The Project will bring benefits to existing communities along the Stouffville Rail Corridor by improving/expanding public transportation. Ultimately, the proposed Project will benefit the community by improving connectivity and access to public transit, while providing greater mobility for those without access to, or ability to drive, a car.

Potential effects are described below, while corresponding mitigation measures and monitoring activities relating to Socio-Economic and Land Use are described in Section 4.11.

Although not explicitly stated in each of the subsections, it is acknowledged that there is the potential for light trespass, glare and light pollution effects during construction activities.

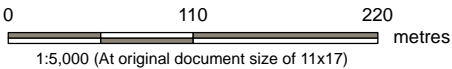
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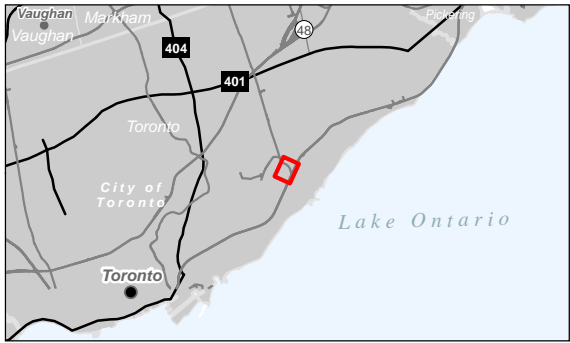


Legend

- Project Footprint
- Permanent Easement
- Land Acquisition
- Temporary Land Use
- Utility Easement



- Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
 3. Orthoimagery © First Base Solutions, 2016. Imagery Date, 2017.
 4. Laydown Area - Subject to City of Toronto approval.



Project Location
Greater Toronto Area

165011004 REVA
Prepared by BCC on 2020-12-09

Client/Project
METROLINX
SCARBOROUGH JUNCTION GRADE SEPARATION
ENVIRONMENTAL PROJECT REPORT

Figure No.
4.2

Title
Anticipated Property Impacts

Disclaimer: This figure has been prepared based on information provided by others as cited under the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

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4.7.2 Scarborough GO Station Building

4.7.2.1 Planning Policy Context

4.7.2.1.1 Construction

There are no proposed changes to the existing land use designations or zoning as a result of the proposed improvements. Therefore, there are no anticipated land use effects associated with the proposed modification/relocation of the GO Station building.

4.7.2.1.2 Operations

The Scarborough GO Station building will be modified/relocated directly south of its existing location. The Scarborough GO Station is situated in an area containing residential, commercial, employment, open space and mixed-use land uses. The Scarborough GO Station building modification/relocation, as a component of the overall Project, conforms with provincial and municipal land use policies, which prioritize developments in major transit corridors through an increase in mix of uses that are supportive of future use of transit.

4.7.2.2 Neighbourhood Characteristics

4.7.2.2.1 Construction

During construction activities, passengers may be temporarily inconvenienced as parking facilities are reduced, site access is temporarily altered or relocated, and pedestrian access to the Scarborough GO Station platform and other station facilities are altered. As a result, some delays may occur, and lineups may be longer than usual for short periods of time.

Modification or relocation of the Scarborough GO Station building may result in the need to relocate the pedestrian tunnels associated with the south platform as well as other access improvements that will be determined as design progresses.

There may be a loss of privacy due to the increased number of workers and traffic in the area. These nuisance effects are expected to be short term during the Project's construction.

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4.7.2.2.2 Operations

There are no anticipated adverse effects anticipated during operations as modification or relocation of the Scarborough GO Station building will at a minimum provide the same amenities as the existing station. There is currently parking for approximately 625 vehicles, which will be maintained.

4.7.2.3 Visual Impacts and Aesthetic Effects

4.7.2.3.1 Construction

There is potential for visual effects from construction areas/activities and visual effects related to vegetation removal and presence of construction equipment.

4.7.2.3.2 Operations

The Scarborough GO Station building modifications or relocation are anticipated to be limited to a minor shift in location or layout and will not substantially alter the visual character of the facility. As such, there are no anticipated visual effects associated with the proposed changes to the Scarborough GO Station building at this location during operations.

4.7.2.4 Existing Utilities

4.7.2.4.1 Construction

Further detail on utility needs will be known as station building modification and relocation design progresses. It is anticipated that there will be a requirement for minor servicing or relocation work, which may result in temporary service interruptions. Utility realignments will be required where conflicts occur with existing utilities. Known utility conflicts and associated effects as a result of the modification/relocation of the station building are listed in Table 4.4.

Table 4.4: Utility Conflicts – Scarborough GO Station Building

Utility Owner	Utility Type	Existing Location	Recommended Action or Resolution
Zayo, CN	Communication	Rail ROW	To be determined
Toronto Hydro	Hydro	Rail ROW	To be determined

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4.7.2.4.2 Operations

There are no anticipated effects on utilities associated with the proposed Scarborough GO Station building during operations. If required, once realignments are complete, service will be reinstated to maintain existing function.

4.7.3 St. Clair Avenue East Bridge

4.7.3.1 Planning Policy Context

4.7.3.1.1 Construction

There are no proposed changes to the existing land use designations or zoning as a result of the proposed improvements. Therefore, there are no anticipated land use effects associated with the proposed St. Clair Avenue East bridge expansion.

4.7.3.1.2 Operations

The proposed St. Clair Avenue East bridge expansion will be constructed in an area containing residential, commercial, employment, open space and mixed-use land uses. The Project conforms with provincial and municipal land use policies, which prioritize developments in major transit corridors through an increase in mix of uses that are supportive of future use of transit.

4.7.3.2 Neighbourhood Characteristics

4.7.3.2.1 Construction

A temporary property impact to the City of Toronto is anticipated for the installation of the bridge pier.

Transit users and surrounding land users may experience nuisance effects, as addressed in Section 4.10 (Traffic and Transportation).

4.7.3.2.2 Operations

No operational impacts to neighborhood characteristics are expected once the St. Clair East Avenue bridge expansion is complete.

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4.7.3.3 Visual Impacts and Aesthetic Effects

4.7.3.3.1 Construction

There is potential for visual effects from construction areas/activities and visual effects related to vegetation removal and presence of construction equipment.

4.7.3.3.2 Operations

The expanded bridge at St. Clair Avenue East is proposed to be located immediately south of the existing bridge. The street view towards the expanded bridge (Figure 2.2) and the aerial view (Figure 2.3) will be similar to the existing crossing and therefore not expected to impact the visual character of the area.

4.7.3.4 Existing Utilities

4.7.3.4.1 Construction

Utility realignments will be required where conflicts occur with existing utilities. Utility conflicts and associated effects as a result of the expanded St. Clair Avenue East bridge are listed in Table 4.5.

Table 4.5: Utility Conflicts – St. Clair Avenue East

Utility Owner	Utility Type	Existing Location	Recommended Action or Resolution
Bell, Bell 360, Rogers, Telus	Utility Pole, Fibre Optic Cable, Communication Cable, Manhole	Rail ROW, Municipal ROW	Relocate the Utility, Protect in place
City of Toronto	Catch Basin, Curb stop valve, Ditch Inlet Catch Basin, Drainage Manhole, Hand Well, Street Light, Light Standard, Manhole, Terminal Box - Cable, Marker Underground Cable	Rail ROW, Municipal ROW	Relocate the Utility, Protect in place
CN	Signal Cable	Rail ROW	Relocate the Utility
Enbridge	Gas	Rail ROW	Relocate the Utility
Toronto Hydro	Hydro	Rail ROW	Relocate the Utility, Protect in place

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Realignment work may result in the need for temporary road or lane closures changing access to nearby land uses, and could temporarily affect pedestrian, cyclist and vehicle movement.

There is also potential for temporary service interruptions to nearby properties due to utility realignment work.

4.7.3.4.2 Operations

There are no anticipated effects on utilities associated with the proposed St. Clair Avenue East bridge during operations. Once realignments are complete, service will be reinstated to maintain existing function.

4.7.4 Midland Layover

4.7.4.1 Planning Policy Context

4.7.4.1.1 Construction

The Midland Layover facility will be constructed in an area designated for utility and transportation land use. There are no proposed changes to the existing land use designation or zoning as a result of the proposed improvements. Therefore, there are no anticipated land use effects associated with the proposed facility.

4.7.4.1.2 Operations

The Project conforms with provincial and municipal land use policies, which prioritize developments in major transit corridors through an increase in mix of uses that are supportive of future use of transit. Section 2.1.1 of the City of Toronto Official Plan (2015) supports the Provincial growth framework which aims to concentrate urban growth in the Greater Toronto Area into centres, mobility hubs, and corridors connected by regional transportation. The Project, when completed, will allow for enhanced connectivity between growth centres through improvements to the frequency and reliability of the GO network.

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4.7.4.2 Neighbourhood Characteristics

4.7.4.2.1 Construction

Although directly adjacent to the existing Lakeshore East Rail Corridor, the proposed location for the Midland Layover may result in increased nuisance effects, such as construction noise, dust and vibration to the existing high-rise towers and facilities on Greystones Walk Drive. These nuisance effects are expected to be short term during the Project's construction.

Approvals from the City of Toronto (i.e., amendments to the Official Plan and Zoning By-Law and the Plan of Subdivision) have been granted to a developer to construct a residential subdivision at 260 Brimley Road. This location is currently used as a warehouse and distribution centre. Once developed, 260 Brimley Road is proposed to include 332 residential units and a stormwater management pond (City of Toronto 2007). The proposed Midland Layover is located on the opposite side of the rail corridor to this development, but may result in increased nuisance effects, such as construction noise, dust and vibration. These nuisance effects are expected to be short term during the Project's construction.

4.7.4.2.2 Operations

There is potential for nuisance effects related to operation and maintenance, as addressed in Sections 4.8 (Air Quality), 4.9 (Noise and Vibration) and 4.10 (Traffic and Transportation).

4.7.4.3 Visual Impacts and Aesthetic Effects

4.7.4.3.1 Construction

There is potential for visual effects from construction areas/activities and visual effects related to vegetation removal and presence of construction equipment.

4.7.4.3.2 Operations

The Midland Layover will be visible to residents adjacent to the rail corridor, including the high-rise towers surrounding Greystones Walk Drive and the proposed development at 260 Brimley Road.

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4.7.4.4 Existing Utilities

4.7.4.4.1 Construction

Utility realignments will be required where conflicts occur with existing utilities. Utility conflicts and associated effects as a result of the layover are listed in Table 4.6.

Table 4.6: Utility Conflicts – Midland Layover

Utility Owner	Utility Type	Existing Location	Recommended Action or Resolution
Unknown	Unknown utility alignment	Rail ROW	To be determined

4.7.4.4.2 Operations

Investigations regarding potential utilities conflicts associated with the Midland Layover are ongoing.

4.7.5 Danforth Road/Midland Avenue Intersection

4.7.5.1 Planning Policy Context

4.7.5.1.1 Construction

There are no proposed changes to the existing land use designations or zoning as a result of the proposed improvements at the Danforth Road/Midland Avenue intersection and therefore, there are no anticipated land use effects.

4.7.5.1.2 Operations

The Project conforms with provincial and municipal land use policies, which prioritize developments in major transit corridors through an increase in mix of uses that are supportive of future use of transit.

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4.7.5.2 Neighbourhood Characteristics

4.7.5.2.1 Construction

Temporary property impacts will occur within the City of Toronto's ROW to accommodate construction activities and temporary road realignment. Permanent and temporary easements for utilities are anticipated adjacent to the rail corridor to accommodate the proposed sanitary and storm sewer realignments.

There may be a loss of privacy due to the increased number of workers and traffic in the area. These nuisance effects are expected to be short term during the Project's construction.

Transit users and surrounding land users may experience nuisance effects during construction activities, as addressed in Sections 4.8 (Air Quality), 4.9 (Noise and Vibration) and 4.10 (Traffic and Transportation).

4.7.5.2.2 Operations

The Danforth Road/Midland Avenue intersection modifications will convert the current at-grade crossing to a depressed track crossing, which will remove the visual effect of the rail corridor at ground level and may reduce noise effects to nearby residences and businesses.

4.7.5.3 Visual Impacts and Aesthetic Effects

4.7.5.3.1 Construction

There is potential for visual effects from construction areas/activities and visual effects related to vegetation removal, presence of construction equipment and retaining walls.

4.7.5.3.2 Operations

The Danforth Road/Midland Avenue intersection modifications will convert the current at-grade crossing to a depressed track crossing, which will remove the visual effect of the rail corridor at ground level and may result in positive effect on the neighbourhood characteristics.

A new barrier will be placed along the corridor and property line at the southwest corner of the Danforth Road/Midland Avenue intersection. This barrier will create a new visual effect and could potentially affect existing sightlines at the intersection.

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4.7.5.4 Existing Utilities

4.7.5.4.1 Construction

Utility realignments will be required where conflicts occur with existing utilities. Utility conflicts and associated effects as a result of the Danforth Road/Midland Avenue intersection are listed in Table 4.7.

As noted in Section 2.1.9, the realignment of the sanitary and storm sewers resulting from the depressed corridor at Danforth Road will require more substantial disturbance in terms of area affected. Design work to determine the preferred realignment option for the sanitary and storm sewers will be advanced in consultation with the City of Toronto.

Table 4.7: Utility Conflicts – Danforth Road/Midland Avenue Intersection

Utility Owner	Utility Type	Existing Location	Recommended Action or Resolution
Bell, Bell 360, Rogers, Cogeco	Communication Cable, Utility Pole, Utility Box, Manhole, Fiber Optic Cable, Telephone	Rail ROW, Municipal ROW	Relocate the Utility, Protect in place
City of Toronto	Sanitary, Storm, Water, Catch Basin, Drainage Manhole, Sanitary Manhole, Watermain Manhole, Valve Chamber, Fire Hydrant, Terminal Box - Cable, Traffic Light, Traffic Signal Light, Traffic Control Box, Light Standard/Utility Pole, Marker Underground Cable	Rail ROW, Municipal ROW	Relocate the utility; Protect in place; acquire easement
CN	Signal Cable, Railway Signal Light	Rail ROW	Relocate the Utility
Enbridge	Gas	Municipal ROW	Relocate the Utility, Protect in place
Toronto Hydro	Hydro, Hydro Light Standard, Utility Pole, Power Pole, Primary, Secondary, Hand Well	Rail ROW, Municipal ROW	Relocate the Utility, Protect in place
TBD	Anchor	Rail ROW	Relocate the Utility

Project construction will have potential short-term impacts on utilities to residents, businesses, institutions and surrounding communities through temporary service interruptions. In addition, realignment work may result in the need for temporary road or lane closures that may affect pedestrian, cyclist and vehicular travel times, turning/crossing movements, and access to neighbouring properties/facilities.

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4.7.5.4.2 Operations

There will be increased maintenance activities required as a result of the realigned storm sewer including the annual removal of sediment. Discussions regarding responsibility for the maintenance activities are ongoing between Metrolinx and the City of Toronto. The City of Toronto will experience changes to storm and sanitary sewer utility access near the rail corridor due to changes in utility configurations and property conditions. Metrolinx will continue to work closely with the City to ensure that access is provided so that the City can conduct maintenance activities on utilities as needed.

No negative effects to other utilities are anticipated during the operations phase of the Project because utilities will be reinstated to maintain existing function.

4.7.6 Linear Facilities

4.7.6.1 Planning Policy Context

4.7.6.1.1 Construction

The linear facilities associated with the Project will be constructed in an area containing residential, commercial, employment, open space and mixed-use land uses. There are no proposed changes to the existing land use designations or zoning as a result of the proposed improvements. Therefore, there are no anticipated land use effects associated with the proposed linear facilities.

4.7.6.1.2 Operations

The Project conforms with provincial and municipal land use policies, which prioritize developments in major transit corridors through an increase in mix of uses that are supportive of future use of transit. Section 2.1.1 of the City of Toronto Official Plan (2015) supports the Provincial growth framework which aims to concentrate urban growth in the Greater Toronto Area into centres, mobility hubs, and corridors connected by regional transportation. The Project, when completed, will allow for enhanced connectivity between growth centres through improvements to the frequency and reliability of the GO network.

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4.7.6.2 Neighbourhood Characteristics

4.7.6.2.1 Construction

To accommodate the linear facilities, permanent property impacts are anticipated along the corridor for construction of retaining walls and abutments (refer to Figure 4.2). Specific property requirements will be determined during the detailed design stage, should there be any deviations from the RCD.

Properties close to the Project Footprint may experience nuisance effects from construction activities associated with linear facilities such as construction noise, dust and vibration. There may be a loss of privacy due to the increased number of workers and traffic in the area. Furthermore, there is the potential for safety concerns based on additional hazards. Construction zones have the potential to obstruct sight lines to properties resulting in security concerns. These nuisance effects are expected to be short term during the construction of linear facilities.

Construction activities such as site preparation, excavation and construction of the rail detour, tunnels and multi-use crossing, may potentially disrupt the existing rail corridor and GO Transit service schedule.

Construction activities may temporarily affect access to existing commercial and institutional uses in the Socio-Economic and Land Use Assessment Area.

4.7.6.2.2 Operations

There is potential for nuisance effects related to operation and maintenance, as addressed in Sections 4.8 (Air Quality), 4.9 (Noise and Vibration) and 4.10 (Traffic and Transportation).

4.7.6.3 Visual Impacts and Aesthetic Effects

4.7.6.3.1 Construction

There is potential for visual effects from construction areas/activities and visual effects related to vegetation removal, presence of construction equipment and retaining walls.

4.7.6.3.2 Operations

The use of retaining walls to provide track protection and variations in grading will be incorporated at several locations such as east of St. Clair Avenue East bridge along the depressed Stouffville Rail Corridor, north and south of Danforth Road along the length of the depressed rail corridor for the Stouffville Rail Corridor and east of

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Midland Avenue to protect the Lakeshore East Rail Corridor. EPBs will be placed along the corridors where needed, including on top of the parapet walls at the Danforth Road/Midland Avenue intersection. If the bridge option is chosen, EPBs will also be placed along the bridge deck of the Corvette multi-use crossing, and these will be visible as well.

The depressed rail corridor as it approaches Danforth Road will be less visible to residences along Granger Avenue and Midland Avenue at ground level resulting in a positive effect on visual quality (Figure 2.4). Existing vegetation which partially screens the track from view will be maintained to the extent feasible and within the requirements associated with the GO Rail Network Electrification undertaking. While the depressed rail corridor will be visible from the high-rise towers surrounding Greystones Walk Drive, views from these towers will be similar to existing conditions.

4.7.6.4 Existing Utilities

4.7.6.4.1 Construction

Utility realignments will be required where conflicts occur with existing utilities. Utility conflicts and associated effects as a result of linear facilities are listed in Table 4.8.

Table 4.8: Utility Conflicts – Linear Facilities

Location	Utility Owner	Utility Type	Existing Location	Recommended Action or Resolution
Stouffville Rail Corridor	Bell, Bell 360, Cogeco, Rogers	Communication Cable, Utility Pole, Fiber Optic Cable	Rail ROW, Municipal ROW	Relocate the Utility, Protect in place
	City of Toronto	Catch Basin, Drainage Manhole, Manhole, Watermain Manhole, Sanitary, Storm, Water, Traffic Control Box, Fire Hydrant, Utility Pole	Rail ROW, Municipal ROW	Relocate the utility; Protect in place; acquire easement
	CN	Railway Signal Light, Signal Cable	Rail ROW	Relocate the Utility
	Enbridge	Gas	Municipal ROW	Relocate the Utility, Protect in place
	Toronto Hydro	Hydro, Light Standard, Power Pole, Utility Pole, Primary, Secondary, Hand Well	Rail ROW, Municipal ROW	Relocate the Utility
	TBD	Anchor	Rail ROW	Relocate the Utility

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Location	Utility Owner	Utility Type	Existing Location	Recommended Action or Resolution
Stouffville Rail Corridor to Lakeshore East Rail Corridor	Bell, Bell 360, Rogers, Telus, Cogeco	Fibre Optic Cable, Communication Cable, Fiber Optic Cable	Rail ROW, Municipal ROW	Relocate the Utility, Protect in place
	City of Toronto	Catch Basin, Curb Stop Valve, Ditch Inlet Catch Basin, Drainage Manhole, Watermain Manhole, Gas Service Regulator, Light Standard, Marker Underground Cable, Terminal Box - Cable, Sanitary, Storm, Water	Rail ROW, Municipal ROW	Relocate the utility; Protect in place; acquire easement
	CN	Signal Cable	Rail ROW	Relocate the Utility
	Enbridge	Gas	Rail ROW	Relocate the Utility
	Metrolinx	Rail Signal Box, Railway Switch Stand	Rail ROW, Municipal ROW	Relocate the Utility
	Toronto Hydro	Hydro, Primary, Secondary, Utility Pole, Hand Well	Rail ROW, Municipal ROW	Relocate the Utility
	TBD	AT Service x 3	Municipal ROW	Relocate the Utility

Realignment work may result in the need for temporary road or lane closures changing access to nearby land uses, and could temporarily affect pedestrian, cyclist and vehicle movement.

There is also potential for temporary service interruptions to nearby properties due to utility realignment work.

A City of Toronto stormwater management pond is located between Midland Avenue and National Street, approximately 30 m south of the Lakeshore East Rail Corridor. Although the stormwater management pond is adjacent to the Project Footprint, there are no plans for infrastructure or construction activities within the functional stormwater management pond area. No potential effects to the stormwater management plan are anticipated during construction.

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4.7.6.4.2 Operations

The City of Toronto will experience changes to stormwater and sanitary sewer utility access near the rail corridor due to changes in utility configurations and property conditions. Metrolinx will continue to work closely with the City to ensure that access is provided so that the City can conduct maintenance activities on stormwater utilities as needed. Once realignments are complete, service will be reinstated to maintain existing function.

No effects to the stormwater management pond are anticipated during operations as no new infrastructure is planned south of the existing Lakeshore East Rail Corridor.

4.7.7 Corvette Multi-Use Crossing

4.7.7.1 Planning Policy Context

4.7.7.1.1 Construction

There are no proposed changes to the existing land use designations or zoning as a result of the proposed improvements. Therefore, there are no anticipated land use effects associated with the proposed multi-use crossing.

4.7.7.1.2 Operations

The proposed multi-use crossing will be constructed in an area containing residential, commercial, employment, open space and mixed-use land uses. The Corvette multi-use crossing, as a component of the overall Project, conforms with provincial and municipal land use policies, which prioritize developments in major transit corridors through an increase in mix of uses that are supportive of future use of transit.

The Official Plan (2015) states that parks and their associated amenities should promote user comfort and year-round use. Developments within parks should preserve or improve visibility and access while respecting the physical form of the park. The grade-separated multi-use crossing is consistent with Section 3.2.3.1 of the City of Toronto's Official Plan as it provides a new connection to Corvette Park via Wolfe Avenue. A grade-separated crossing enhances accessibility for all park users by removing the possibility of train conflicts while crossing the rail corridor.

The multi-use crossing will alter the physical form of the park as both a bridge or tunnel will be visible at ground level. The required tree removals will also alter the character of Corvette Park. The City of Toronto has identified plans to revitalize Corvette Park in the future, including an initiative to upgrade the playground area. Work associated with the proposed multi-use crossing will be planned in conjunction with the City of Toronto to

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align with relevant Official Plan policies where feasible, maintain the envisioned form and function of Corvette Park and to ensure this community asset remains intact.

Section 2.4.14 of the City of Toronto Official Plan (2015) states that the urban environment should encourage and support pedestrian movement. Connections between the street network and other pedestrian walkways such as parks should be maximized. The multi-use crossing will provide a new connection to Wolfe Avenue which increases connectivity between neighborhood streets and enhances pedestrian routes within the neighborhood. The Official Plan (Section 2.1.14) also states that grade-separated crossings should be provided at rail corridors where warranted. The new grade-separated crossing at Corvette Park will remove barriers to pedestrian and cyclist movements in the neighborhood while encouraging active transportation choices.

4.7.7.2 Neighbourhood Characteristics

4.7.7.2.1 Construction

The multi-use crossing will require acquisition of non-Metrolinx owned land including permanent property acquisitions. As the final design of the Corvette multi-use crossing has not yet been determined, Metrolinx will continue to work closely with affected property owners regarding property acquisition required for either the tunnel or bridge option.

There will be impacts to both the splash pad and the playground area for the bridge option and impacts to the splash pad associated with the tunnel option. For the bridge option, the splash pad and playground will need to be removed to accommodate construction of the bridge option and the laydown area. There are anticipated conflicts with the splash pad utilities associated with the tunnel option.

Surrounding land users may experience temporary nuisance effects due to increased noise, dust, vibration, and traffic associated with construction activities. There may be a loss of privacy due to the increased number of workers and traffic in the area. These nuisance effects are expected to be short term during the Project's construction.

During construction of the multi-use crossing, pedestrian and cyclists' access will not be permitted across the rail corridor in this location for safety reasons. This will affect access to institutional uses in the Socio-Economic and Land Use Assessment Area including, but not limited to, Corvette Avenue Junior School and the Scarborough Centre for Alternative Studies School (refer to Section 4.10.7).

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4.7.7.2.2 Operations

The proposed multi-use crossing at Corvette Park will replace the existing at-grade crossing, removing potential conflicts with trains and providing a crossing from one public right-of-way to another. The new crossing has the potential to affect users through issues such as lengthened crossing distance, reduced crossing visibility, and increased exposure to the elements. Adjacent properties may be affected by garbage thrown from the structure.

A Crime Prevention Through Environmental Design (CPTED) assessment was completed for both the bridge and tunnel multi-use crossing options in Corvette Park. The CPTED assessment found that the bridge option had a medium risk of entrapment areas (Stantec 2020e). There was also a risk of concealment in areas underneath the ramp structure and a lack of sightlines when traversing the ramps and bridge due to corners and the concrete structure of the ramps and bridge. The CPTED assessment found that the tunnel option had a high risk of entrapment and isolation. Opportunities for concealment were identified within the tunnel corridor. There is no visibility of the tunnel from the street, and limited sightlines of the lower ramp landings from the beginning of the ramps. Other safety concerns, including potential for materials to be thrown off of the ramp of the Corvette multi-use crossing (bridge option) will be addressed during detailed design.

The ongoing responsibility of maintenance for the multi-use crossing is currently being discussed between Metrolinx and the City of Toronto and will be included in future agreements between the two parties. There may be financial implications to the City of Toronto if it is determined that the City is responsible for ongoing operations and maintenance of the structure.

4.7.7.3 Visual Impacts and Aesthetic Effects

4.7.7.3.1 Construction

There is potential for visual effects from construction areas/activities and visual effects related to vegetation removal and presence of construction equipment.

4.7.7.3.2 Operations

The Project will have a visual effect upon existing and proposed development.

Whether a bridge or tunnel option is chosen, the proposed Corvette multi-use crossing will be prominent, replacing a portion of the existing treed area along the rail corridor, and it will be visible to nearby residents as well as attendees of the Scarborough Centre for Alternative Studies and park users. The height of bridge and ramps potentially

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provide an opportunity for individuals to overlook private property. However, the ability to see into private property is anticipated to be limited given the location of the bridge and ramps. The new path connecting to Wolfe Avenue will result in increased pedestrian/cyclist traffic and associated nuisance effects for nearby properties.

4.7.7.4 Existing Utilities

4.7.7.4.1 Construction

Utility realignments will be required where conflicts occur with existing utilities. Utility conflicts and associated effects as a result of the multi-use crossing are listed in Table 4.9.

Table 4.9: Utility Conflicts – Corvette Multi-Use Crossing

Utility Owner	Utility Type	Existing Location	Recommended Action or Resolution
Bell 360	Fiber Optic Cable, Communication Cable	Rail ROW	Relocate the Utility
City of Toronto	Sanitary, Storm, Water, Drainage Manhole, Sanitary Manhole, Watermain Manhole, Manhole, Light Standard	Rail ROW, Municipal ROW, Park Land	Relocate the utility; Protect in place
Enbridge	Gas	Municipal ROW	Protect in place
Metrolinx	Railway Signal	Rail ROW	Relocate the Utility
Toronto Hydro	Hydro, Hydro Light Standard, Utility Pole, Power Pole, Primary, Secondary	Rail ROW, Municipal ROW	Relocate the utility; Protect in place
TBD	Anchor, Cable Ped, Water Box, Storm	Rail ROW, Municipal ROW	Relocate the utility; Protect in place

Realignment work may result in the need for temporary road or lane closures at Corvette Avenue changing access to nearby land uses, and could temporarily affect pedestrian, cyclist and vehicle movement.

There is also potential for temporary service interruptions to nearby properties due to utility realignment work.

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4.7.7.4.2 Operations

No negative effects to other utilities are anticipated during the operations phase of the Project because utilities will be reinstated to maintain existing function.

4.7.8 Laydown Areas

4.7.8.1 Planning Policy Context

4.7.8.1.1 Construction

Using a portion of Corvette Park as a laydown area is not consistent with the existing park land use, as discussed further in Section 4.7.7. Based on the RCD, there would be a temporary property impact to City of Toronto to locate a laydown area within Corvette Park to be used for the construction of the multi-use crossing.

Proposed laydown areas at the St. Clair Yard and at the northwest quadrant of the Danforth Road/Midland Avenue intersection are currently in use by Metrolinx as staging and storage areas. There are no proposed changes to the existing land use designations or zoning and therefore, there are no anticipated land use effects associated with the continued use of these laydown area.

4.7.8.1.2 Operations

There are no anticipated effects on planning policy context associated with the laydown areas during operations. Once use of laydown areas for construction is complete, land may be returned to pre-construction conditions and use as applicable. Metrolinx will continue to use the established laydown areas at St. Clair Yard and the northwest quadrant of the Danforth Road/Midland Avenue intersection during Project operations to support other initiatives.

4.7.8.2 Neighbourhood Characteristics

4.7.8.2.1 Construction

Using Corvette Park as a laydown area is not consistent with the existing park use, as discussed further in Section 4.7.7. Proposed laydown areas at the St. Clair Yard and at the northwest quadrant of the Danforth Road/Midland Avenue intersection are currently in use by Metrolinx as staging and storage areas.

Properties close to the laydown areas may experience nuisance effects from construction activities such as construction noise, dust and vibration. Corvette Park users would also experience increased nuisance effects and disruption to Park facilities

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(i.e., splash pad and playground area). There may be a loss of privacy due to the increased number of workers and traffic in the area. These nuisance effects are expected to be short term during the Project's construction.

Operations at the St. Clair Yard have been identified by Metrolinx as a sensitivity due to the potential for disturbance (i.e., dust, mud and noise) regarding the current use of the facility for staging. Metrolinx is actively working to mitigate the potential for nuisance effects.

4.7.8.2.2 Operations

There are no anticipated effects on neighbourhood characteristics associated with the laydown areas during operations. Once use of laydown areas for construction is complete, land will be returned to pre-construction conditions and use as applicable. Metrolinx will continue to use the established laydown areas at St. Clair Yard and the northwest quadrant of the Danforth Road/Midland Avenue intersection during Project operations to support other initiatives.

Metrolinx is actively working to mitigate the potential for nuisance effects due to ongoing operation of these sites.

4.7.8.3 Visual Impacts and Aesthetic Effects

4.7.8.3.1 Construction

Using Corvette Park as a laydown area is not consistent with the existing park land use. There will be effects on the aesthetics and visual character of the park as a result of the laydown areas, however, the laydown area in Corvette Park is in proximity to the proposed multi-use crossing and is proposed to be situated within the former splashpad/playground area so as not to disturb additional park lands.

Proposed laydown areas at the St. Clair Yard and at the northwest quadrant of the Danforth Road/Midland Avenue intersection are currently in use by Metrolinx as staging and storage areas. There would be no change to the existing aesthetics of the area as a result of the Project and therefore no potential effects are anticipated.

4.7.8.3.2 Operations

There are no anticipated effects on aesthetics/visual character associated with the laydown areas during operations. Once use of laydown areas for construction is complete, land may be returned to pre-construction conditions and use as applicable. Metrolinx will continue to use the established laydown areas at St. Clair Yard and the

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northwest quadrant of the Danforth Road/Midland Avenue intersection during Project operations to support other initiatives.

4.7.8.4 Existing Utilities

4.7.8.4.1 Construction

Since laydown areas will require only surficial activities/disturbance, they are not expected to affect existing utilities during construction.

4.7.8.4.2 Operations

Metrolinx will continue to use the established laydown areas at St. Clair Yard and the northwest quadrant of the Danforth Road/Midland Avenue intersection during Project operations to support other initiatives, however no effects to utilities are anticipated during operations.

4.8 Air Quality

4.8.1 Overview

The Project has the potential, at times, to result in temporary air quality impacts during construction as a result of increased fugitive dust emissions, construction equipment tailpipe emissions, vehicle emissions and associated dust, and train locomotive emissions. The future daily total number of diesel locomotive trips will be smaller than the corresponding number in 2015 due to the deployment of the electric trains, therefore local air quality assessments are not warranted. This assessment was conducted on a regional level.

Based on the results of the dispersion modelling assessment, potential air quality exceedances were identified if the maximum construction emissions scenario assumed for the modelling were to occur and coincide with worst-case meteorology. Scheduling construction activities to avoid the maximum emissions scenario occurring will aid in reducing the potential for adverse effects. As predicted by the model, on occasion, the impacts may exceed the regulatory requirements, and when this occurs, the highest concentrations are located close to the construction activities, i.e., within a 30 m distance (see Appendix A5 for details).

It is anticipated that potential effects can be avoided/limited through thoughtful construction scheduling, coupled with implementation of mitigation measures to limit the occurrence or duration of these short-term exceedances.

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Potential effects are described below, while corresponding mitigation measures and monitoring activities relating to Air Quality are described in Section 4.11.

4.8.2 Scarborough GO Station Building

4.8.2.1 Construction

Heavy equipment operation, grade preparation, material handling and construction vehicle movement will result in dust generation, requiring the implementation of monitoring and mitigation measures to limit the potential impacts from construction on sensitive receptors. The closest sensitive receptors identified include residential houses within 5-10 m east and southeast of the Project Footprint. Appropriate construction management should result in minimal and short-term effects to air quality.

4.8.2.2 Operations

No change in air quality is expected from existing conditions as the modified/relocated Scarborough GO Station building will resume current operations.

4.8.3 St. Clair Avenue East Bridge

4.8.3.1 Construction

Grade preparation, infrastructure installation activities, material handling and construction vehicle movement will result in dust generation, requiring the implementation of monitoring and mitigation measures to limit the potential impacts from construction to sensitive receptors. The closest sensitive receptors identified include residential houses within 10 m to the southeast, 15 m to the northeast and 25 m to the northwest of the Project Footprint. Appropriate construction management should result in minimal and short-term effects to air quality.

4.8.3.2 Operations

No change in air quality is expected from existing conditions as the St. Clair Avenue East bridge will not be a source of emissions.

4.8.4 Midland Layover

4.8.4.1 Construction

Heavy equipment use related to grade preparation and infrastructure installation activities, material handling and construction vehicle movement will result in dust generation, requiring the implementation of monitoring and mitigation measures to limit

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the potential for impacts from construction on sensitive receptors. The closest sensitive receptors identified include residential houses approximately 25 m to the northwest and north. To the east, industrial developments and residential houses are approximately 40 m from the Project Footprint. The construction period at this location is projected to be short (6 months) and appropriate construction management should result in minimal and short-term effects to air quality.

4.8.4.2 Operations

The Midland Layover will see increased train traffic when compared with existing conditions. As Metrolinx is currently studying electrification of the Stouffville and Lakeshore East Rail Corridors, the future scenario assessed includes electric trains instead of the diesel trains currently in use. In general, for the Lakeshore East Rail Corridor airshed, in the extreme scenario of 100% fossil-fuel-based electricity generation with 2037 train service levels, emissions from all contaminants (including NO_x, PM_{2.5}, CO, and CO_{2e}) are expected to increase when compared to the baseline of rail emissions in 2015. As the portion of electricity generated from fossil fuels decreases, emissions of contaminants will also decrease. In all cases, including the worst-case scenario of 100% fossil-fuel-based electricity generation, the impact on province-wide emissions of air contaminants is small (<10%). Since only electric trains will be parked at this location, no significant air quality impacts are associated with it. Additional information on operational air quality can be found in Appendix A5.

4.8.5 Danforth Road/Midland Avenue Intersection

4.8.5.1 Construction

Grade preparation, infrastructure installation activities, material handling and construction vehicle movement will result in dust generation, requiring the implementation of monitoring and mitigation measures to limit the potential impacts from construction on sensitive receptors. The closest sensitive receptors identified include residential houses within 5-10 m to the west and south. Residential houses are also located within 20 m to the north. Appropriate construction management should result in minimal and short-term effects to air quality.

4.8.5.2 Operations

No negative change in air quality is expected from existing conditions as the new infrastructure at the Danforth Road/Midland Avenue intersection will not be a source of emissions. As the new rail corridor will be depressed air quality may improve when compared to existing conditions as less fugitive dust and emissions from rail operations will be emitted at ground level.

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In addition, vehicles will no longer be idling at an at-grade crossing which will remove this source of emissions.

4.8.6 Linear Facilities

4.8.6.1 Construction

Grade preparation (such as earth moving activities, excavation, soil stripping, clearing and grubbing, backfilling, landscaping) will result in dust generation, requiring the implementation of monitoring and mitigation measures (wind fencing, water/dust suppressant application) to limit the potential for impacts from construction on sensitive receptors. Appropriate construction management should result in minimal and short-term effects to air quality.

Scarborough Junction Rail-Rail Grade Separation:

- Sensitive receptors identified include residential townhouses approximately 25 m to the east/southeast of the Project Footprint and 40 m to the west.

Below grade Stouffville Rail Corridor:

- Sensitive receptors including residential houses are identified on both east and west sides approximately 10 to 15 m from of the rail corridor between Corvette Avenue and Danforth Road. To the west are commercial/industrial buildings. Residential houses are located approximately 40 to 50 m to the east of the rail corridor between Harmony Road and St. Clair Avenue East.

4.8.6.2 Operations

The Local Air Quality Study – Lakeshore East Rail Corridor includes the cumulative, predictable worst-case, maximum, mean and median concentrations of CO, NO₂, PM_{2.5}, benzene, b(a)pyrene, acrolein, formaldehyde, acetaldehyde, and 1,3-butadiene for baseline (2015) and future (2037) conditions. Cumulative concentrations are obtained by adding modelled concentrations to the 90th percentile of background concentrations as recorded at the nearest NAPS air quality monitoring stations. The modelled sources include GO Transit, VIA, and freight train operations as well as other major local sources.

The maximum cumulative concentrations are compared with the applicable provincial (AAQC) and national (CAAQS) objectives, which represent desirable levels rather than compliance criteria. In particular, the CAAQS for NO₂ is a new and ambitious standard intended to guide provincial policies intended for improving regional air quality across Canada. It is not intended to be used in the assessment of the implications of a single

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project. Nevertheless, comparison is made with all applicable AAQC and CAAQS to help inform potential long-term actions.

The results in the Local Air Quality Study – Lakeshore East Rail Corridor pertaining to Segment 1 of the corridor (from East Harbour GO Station to the east of the future Midland Layover) apply to the Scarborough Junction Grade Separation Project. Specifically, the study area of Segment 1 includes the Air Quality Assessment Area of the Scarborough Junction Grade Separation Project. The results are provided in the form of tables that present concentrations at representative receptors as well contour diagrams that represent concentrations across the study area.

The maximum, cumulative concentrations of CO, PM_{2.5}, acrolein, formaldehyde, acetaldehyde and 1,3-butadiene are found to meet all applicable objectives under baseline and future conditions across the Air Quality Assessment Area. The 24-hour average maximum NO₂ concentration meets all applicable criteria. The 1-hour NO₂ concentration meets the AAQC but exceeds CAAQS under baseline and future conditions. Similarly, the maximum annual NO₂ concentration exceeds the very ambitious CAAQS. However, the contribution of GO Transit rail operations to NO₂ concentrations is, on average, approximately 12%.

The 24-hour maximum benzene concentration meets AAQC but the maximum annual average exceeds the AAQC both under baseline and future conditions. Future benzene concentrations are however predicted lower than corresponding baseline levels. The maximum b(a)pyrene concentrations exceed the AAQC under baseline and future conditions. However, similar to benzene, future b(a)pyrene concentrations are predicted to be lower than corresponding baseline levels. For both benzene and b(a)pyrene background concentrations are dominant.

With all pollutants the mean and median concentrations in ambient air across the Air Quality Assessment Area are significantly lower than indicated by the maximum levels discussed above.

The results indicate that GO Transit rail operations will remain a relatively small contributor to the concentration of air contaminants across the study area identified in the Air Quality Study for Lakeshore East Corridor, despite the worst-case assumptions made in the study. Metrolinx is committed to further reduce its contribution to air contaminant concentrations by gradually upgrading its diesel locomotive fleet to comply with the strict Tier 4 engine exhaust emission standard and by electrifying the system to the maximum extent possible.

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4.8.7 Corvette Multi-Use Crossing

4.8.7.1 Construction

Heavy equipment use related to grade preparation, material handling and construction vehicle movement will result in dust generation, requiring implementation of monitoring and mitigation measures to limit the potential impacts from construction on sensitive receptors. The closest sensitive receptors identified include residential houses within 5 to 10 m to the southwest, southeast and east. A school is located 30 m to the northeast and sports fields are located 20 m to the north and northwest. The construction period at this location is projected to be short (4 months) and appropriate construction management should result in minimal and short-term effects to air quality.

4.8.7.2 Operations

No change in air quality is expected from existing conditions as the Corvette Multi-Use Crossing will not be a source of emissions.

4.8.8 Utilities

4.8.8.1 Construction

Heavy equipment use related to grade preparation (such as earth moving activities, excavation, soil stripping, clearing and grubbing, backfilling, landscaping) associated with utility relocations will result in dust generation, however through the implementation of monitoring and mitigation measures (wind fencing, water/dust suppressant application) the impacts from construction on sensitive receptors is expected to be minimal.

4.8.8.2 Operations

As operations will not require additional excavation, negligible impacts to air quality are anticipated during the ongoing operations at these locations.

4.8.9 Laydown Areas

4.8.9.1 Construction

Storage piles and material handling and transfer will result in dust generation, requiring the implementation of monitoring and mitigation measures (wind fencing, water/dust suppressant application, pile height restrictions, set back requirements, secure and cover loads) to limit the potential impacts from construction on sensitive receptors.

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Appropriate construction management should result in minimal and short-term effects to air quality.

4.8.9.2 Operations

As operations will not require additional excavation, minimal impacts to air quality are anticipated during the ongoing operations at these locations.

4.9 Noise and Vibration

4.9.1 Overview

The Project has the potential to result in noise and vibration effects during construction from Project detours (e.g., operation of the road and rail corridor detours during the construction) and Project construction activities (e.g., heavy equipment operation, piling driving, etc.).

The Scarborough Junction Noise/Vibration Assessment Area is quite extensive and is exposed, to various degrees, to both the Lakeshore East and Stouffville Rail Corridor trains. It is understood that the rail corridor west of the Scarborough Junction carries both Lakeshore East and Stouffville trains, while the rail corridor east of Scarborough Junction only carries Lakeshore East trains.

It is anticipated that effects can be limited or avoided through implementation of mitigation measures as described in the Noise and Vibration Assessments (Appendix A6). Potential effects are described below, while corresponding mitigation measures and monitoring activities relating to Noise and Vibration are described in Section 4.11.

4.9.2 Scarborough GO Station Building

4.9.2.1 Construction

The relocation of the Scarborough Go Station building will require grade preparation activities including earth moving, excavation, and backfilling which uses heavy construction equipment. Pile driving may also be required to construct the building foundation and other heavy equipment will be required to construct the station and tunnels. The construction equipment used for these activities may have noise and vibration impacts on nearby sensitive receptors including GO transit users boarding and alighting trains at the station. The effects are expected to be short-term in duration and will be mitigated within the ZOI to the extent feasible with appropriate equipment setbacks, the installation of temporary noise barriers as required, and monitoring of noise and vibration levels. Noise and vibration associated with construction activities may occur on evenings and weekends throughout the construction phase.

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4.9.2.2 Operations

No change in noise and vibration from existing conditions is expected as the modified/relocated Scarborough GO Station building will resume current operations.

4.9.3 St. Clair Avenue East Bridge

4.9.3.1 Construction

Construction of the expanded St. Clair Avenue East Bridge will require grade preparation activities including vegetation removal, earth moving, excavation, and backfilling which uses heavy construction equipment. Pile driving may also be required to construct the expanded bridge foundation. Heavy equipment use related to grade preparation, infrastructure installation activities and bridge construction may have noise and vibration impacts on nearby sensitive receptors. The impacts of noise and vibration within the ZOI will be mitigated to the extent feasible with appropriate equipment setbacks, the installation of temporary noise barriers, and monitoring of noise and vibration levels. Noise and vibration associated with construction activities may occur on evenings and weekends throughout the construction phase.

4.9.3.2 Operations

No change in noise and vibration from existing conditions is expected as the expanded St. Clair Avenue East Bridge will not be an additional source of noise or vibration once operational.

4.9.4 Midland Layover

4.9.4.1 Construction

Construction of the Midland Layover site will require heavy equipment use related to vegetation removal, grade preparation activities and infrastructure installation activities. The operation of construction equipment in the layover area may have noise and vibration impacts on nearby sensitive receptors. The impacts of noise and vibration within the ZOI will be mitigated to the extent feasible with appropriate equipment setbacks, the installation of temporary noise barriers, and monitoring of noise and vibration levels. Noise and vibration associated with construction activities may occur on evenings and weekends throughout the construction phase.

4.9.4.2 Operations

The future noise impacts of the planned Midland Layover, which will be capable of housing up to five full-size electric trains (two locomotives and 12 cars), are expected to

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be significant with maximum 1-hour energy-equivalent average noise levels ($L_{eq,1h}$) of 56 – 61 dBA during the day/evening and 60 – 63 dBA during the night. These levels exceed the 55 dBA limit set in MECP's Publication NPC-300 (Environmental Noise Guideline: Stationary and Transportation Sources – Approval Planning).

The Noise and Vibration Study for the Lakeshore East Corridor recommends the installation of 820 m of 5.0 m noise walls on the north side and 320 m of 5.0 m noise walls on the south side of the Midland Layover. These noise walls are deemed to be economically feasible and constructible.

4.9.5 Danforth Road/Midland Avenue Intersection

4.9.5.1 Construction

Construction of the rail under road grade separation at the Danforth Road/Midland Avenue intersection will require the use of heavy equipment associated with grade preparation including vegetation removal, earth moving, excavation, and backfilling and infrastructure installation activities. Construction activities may also involve pile driving to construct the grade separation foundation. These construction activities may have noise and vibration impacts on nearby sensitive receptors. The impacts of noise and vibration within the ZOI will be mitigated to the extent feasible with appropriate equipment setbacks, the installation of temporary noise barriers, and monitoring of noise and vibration levels. Noise and vibration associated with construction activities may occur on evenings and weekends throughout the construction phase.

4.9.5.2 Operations

No negative change in noise and vibration is expected from existing conditions as the new infrastructure at the Danforth Road/Midland Avenue intersection will not be an additional source of noise or vibration. As the new rail corridor will be depressed, audible noise and perceptible vibration may be reduced when compared to existing conditions at ground level.

4.9.6 Linear Facilities

4.9.6.1 Construction

Heavy equipment use related to grade preparation and infrastructure installation activities including vegetation removal, earth moving, excavation, and backfilling may result in noise and vibration impacts along the corridor during construction. Predicted construction sound levels indicate that some of the noise-sensitive land uses, depending on the time of construction and construction equipment under operation, could result in increased noise if construction activities are focused near the receptors.

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This may result in effects requiring the application of construction management practices depending on the level of activity and proximity to sensitive receptors. Noise and vibration associated with construction activities may occur on evenings and weekends throughout the construction phase.

The assessment indicates that the rail detour during construction may increase noise levels at some sensitive receptors along the rail corridor. The effects from an increase in noise levels at sensitive receptors due to the rail corridor detours will be negligible. The potential for increased vibration levels from the rail detour are considered insignificant and do not require mitigation.

4.9.6.2 Operations

Noise and vibration impacts on the Scarborough Junction Noise and Vibration Assessment Area for Lakeshore East Rail Corridor exposure are assessed in the Noise and Vibration Study for the Lakeshore East Corridor (refer to Appendix A6). This segment of the corridor ending at Midland Avenue carries both Lakeshore East and Stouffville Rail Corridor trains.

The most pre-Project noise exposure levels impacts receptors directly exposed to combined Lakeshore East and Stouffville rail traffic in the Noise and Vibration Assessment Area along the Lakeshore East Rail Corridor is estimated at 60.4 dBA ($L_{eq,16h}$) during the day and 56.4 dBA ($L_{eq,8h}$) during the night. This portion of the Noise and Vibration Assessment Area is assessed in the Noise and Vibration Study for the Lakeshore East Corridor, which predicts an average adjusted noise impact (per 1995 Draft MOEE/GO Transit Noise and Vibration Protocol and using the results for year 2015 as pre-project conditions) of -0.1 dBA during the day and +0.6 dBA during the night, which imply an insignificant impact. The principal contributors to this favourable result is the switch to electric trains that consist only six cars and the installation of effective exhaust noise mufflers on all Metrolinx diesel locomotives within the next 5 years (some are already installed). Electric trains are far less noisy than diesel trains during low-speed operation near train stations (Scarborough GO Station). The 6-car trains which will replace 12-car trains during all off-peak periods are significantly less noisy than corresponding 12-car trains. The new diesel exhaust mufflers provide a minimum noise emission reduction of 3 dBA in all operating modes.

Noise mitigation is not triggered in this portion of the Noise and Vibration Assessment Area; however, pre-Project noise levels are relatively high. Hence, Metrolinx is considering construction of a 270 m long and 5 m high noise barrier (wall) on the south side of the corridor between approximately the Scarborough GO Station and the Scarborough Junction. This noise barrier will be part of an “enhanced” or “additional”

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mitigation program, which goes above and beyond the mitigation criteria in the 1995 Draft MOEE/GO Transit Noise and Vibration Protocol.

Similarly, the future noise impacts of the planned Scarborough Junction Switching Station, which are predicted to be significant with maximum 1-hour energy-equivalent average noise levels of 54 dBA during the day/evening and 54 dBA during the night. These levels exceed the 50/45 dBA limits set in MECP's Publication NPC-300 (Environmental Noise Guideline: Stationary and Transportation Sources – Approval Planning).

The Noise and Vibration Study for the Lakeshore East Corridor recommends investigation of mitigation options for this facility at the final design stage. Preferably, mitigation will take place at the source with judicious selection of equipment and its noise isolation. If mitigation at the source is deemed insufficient, noise walls or other noise barriers will be considered.

Due to the addition of new tracks, the predicted vibration levels at receptors to the east of the GO Station (near Mile Marker 325) are expected to exceed, by more than 25%, the 0.14 mm/s RMS vibration velocity limit set in the 1995 Draft MOEE/GO Transit Noise and Vibration Protocol. None of the switches in the Noise and Vibration Assessment Area are expected to cause an exceedance of this limit.

The Noise and Vibration Study for the Lakeshore East Corridor recommends mitigation against vibration over 170 m of track from St. Clair Avenue East to Midland Avenue. One of the recommended mitigation options is the installment of ballast mats, which is the common mitigation measure deployed by Metrolinx.

The noise and vibration impacts of GO Transit rail operations on the Noise and Vibration Assessment Area, most exposed to Stouffville trains rather than Lakeshore East trains, are to be found in the Noise and Vibration Study for the Stouffville Corridor. This report deals with the stretch of the Stouffville Rail Corridor starting at St. Clair Avenue East (approximately 100 m north of the Scarborough GO Station).

The segments of the Stouffville Rail Corridor directly affecting the Noise and Vibration Assessment Area with a significant population of noise sensitive receptors stretch from Scarborough Junction to Danforth Road and from Danforth Road to the Corvette Avenue. The GO Transit related source of noise and vibration in these two segments is rail traffic – there is no traction power facility or layover site in the vicinity of these segments.

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Future revenue rail service in these segments (including the added 10% during peak service periods) will consist of 351 trips per day, of which only 14 will be diesel powered. The Scarborough Junction to Danforth Road segment of the rail corridor is currently not shielded by any noise barrier and is predicted to be exposed to the maximum daytime noise level ($L_{eq,16h}$) of 57 dBA and the nighttime noise level ($L_{eq,8h}$) of 55 dBA. Hence, mitigation was investigated for this segment of the corridor but was found not to be economically feasible. The Danforth Road to Corvette Avenue segment of the rail corridor is shielded from the rail corridor by existing noise walls.

The vibration impacts of the new track to be installed in the above segments of the rail corridor were investigated, and the segment from Danforth Road to Corvette Avenue is expected to be exposed to vibration that exceeds the 0.14 mm/s RMS vibration velocity limit in the 1995 Draft MOEE/GO Transit Noise and Vibration Protocol by more than 25%. Hence, mitigation against vibration is recommended over 360 m of this segment. The mitigation options include the ballast mat, which has been the preferred mitigation option at Metrolinx. No further mitigation against vibration impacts is triggered in these corridor segments.

4.9.7 Corvette Multi-Use Crossing

4.9.7.1 Construction

Construction of the Corvette multi-use crossing will require heavy equipment for vegetation removal, earth moving, excavation, and backfilling of the construction site. Heavy equipment will also be required for the construction of the crossing structure. There is the potential for noise and vibration impacts to surrounding sensitive receptors from the operation of this construction equipment. The effects are expected to be short-term in duration as construction should take no longer than four months, and will be mitigated within the ZOI to the extent feasible with appropriate equipment setbacks, the installation of temporary noise barriers as required, and monitoring of noise and vibration levels. Noise and vibration associated with construction activities may occur on evenings and weekends throughout the construction phase.

4.9.7.2 Operations

No change in noise and vibration from existing conditions is expected as the Corvette Multi-Use Crossing will not be an additional source of noise or vibration once operational.

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4.9.8 Utilities

4.9.8.1 Construction

The relocation of existing utilities within the Project Footprint including sanitary and storm sewers will require grade preparation activities including earth moving, excavation, and backfilling. These activities require heavy construction equipment and may result in temporary noise and vibration effects to nearby sensitive receptors. The effects will be mitigated within the ZOI to the extent feasible with appropriate equipment setbacks, the installation of temporary noise barriers, and monitoring of noise and vibration levels. Noise and vibration associated with construction activities may occur on evenings and weekends throughout the construction phase.

4.9.8.2 Operations

As operations will not require additional excavation, no additional noise and vibration effects are anticipated during the ongoing operations at these locations.

4.9.9 Laydown Areas

4.9.9.1 Construction

Staging and laydown areas will be used to store materials and equipment and to assemble construction equipment. Their use will be temporary in nature to assist with construction of the Project. Noise and vibration generated from the movement of on-site equipment may impact nearby sensitive receptors. The use of heavy construction equipment is not anticipated within the laydown areas. Appropriate mitigation measures including the potential for temporary noise barriers, monitoring of noise and vibration levels within the ZOI, and appropriate equipment setbacks will be considered as required. Laydown area may be accessed during evenings and weekends throughout the construction phase.

4.9.9.2 Operations

There are no anticipated effects associated with noise and vibration within the laydown areas during operations. Once use of laydown areas for construction is complete, land may be returned to pre-construction conditions and use as applicable. Metrolinx will continue to use the established laydown areas at St. Clair Yard and the northwest quadrant of the Danforth Road/Midland Avenue intersection during Project operations to support other initiatives.

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4.10 Traffic and Transportation

4.10.1 Overview

The existing transportation operational analysis indicates that the arterial network is currently operating near capacity. Based on a high-level analysis, to accommodate construction works at St. Clair Avenue East, works can be accommodated through temporary lane closures. Sidewalks will remain open to ensure that pedestrians can be accommodated through the construction zone. A staged closure approach was determined to result in the least level of impact from a traffic movement perspective and is expected to maintain regional mobility and local access as well as pedestrian and cycling connectivity. Once construction is complete, there will be benefits associated with the new rail/road grade separation at Danforth Road/Midland Avenue for the road and transit networks, as well as pedestrians and cyclists, since conflicts with trains will be avoided. In addition, the new multi-use crossing at Corvette Park will replace the existing at-grade crossing, which will avoid potential conflicts with trains.

4.10.2 Scarborough GO Station Building

4.10.2.1 Road Network Overview

4.10.2.1.1 Construction

Design plans for the Scarborough GO Station are currently in progress and a limited amount of information regarding the building modification/relocation is currently available. Based on a high-level qualitative assessment, it is not anticipated that the road network will be affected by construction, as minor traffic disruptions from construction vehicle access is not anticipated to affect road capacity. If required, a separate TIA for the Scarborough GO Station building would be undertaken at a later date.

4.10.2.1.2 Operations

It is anticipated that the road network will not be affected by operations of the GO Station building, as the overall operations procedures will remain the same once construction is complete. The number of parking spaces at the Scarborough GO Station will be maintained. Overall, the number of vehicles accessing the Scarborough GO Station is not expected to increase substantially and no effects on the road network are expected.

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4.10.2.2 Transit Network Overview

4.10.2.2.1 Construction

It is not anticipated that the transit network will be affected by construction, since detour tracks and a mobile platform will be used during construction in order to maintain service levels. No effects to TTC bus routes are anticipated.

4.10.2.2.2 Operations

Once construction is complete, positive effects are anticipated related to GO Station improvements (i.e., new track, more trains, better service levels).

4.10.2.3 Cycling, Pedestrian and Trail Network Overview

4.10.2.3.1 Construction

It is not anticipated that cyclists and pedestrians will be affected by construction, since service levels and overall operations procedures will be maintained during construction.

4.10.2.3.2 Operations

It is anticipated that cyclists and pedestrians will not be affected by the GO Station building during operations, as the overall operations procedures will remain the same once construction is complete. A positive effect on the network is anticipated that a direct cycling and pedestrian connection will be provided between the station building and the multi-use trail on the southern edge of the south parking.

4.10.3 St. Clair Avenue East Bridge

4.10.3.1 Road Network Overview

4.10.3.1.1 Construction

Construction staging plans are currently under development; however, it is anticipated that construction of the abutments will require closure of the delineated shoulder lanes, maintaining the use of the existing four lanes of traffic along St. Clair Avenue East. Pier construction will require closure of the centre two lanes with diversion of traffic to the delineated shoulder lanes. There is the potential for safety concerns based on additional hazards as a result of visual distractions associated with lane restrictions required for construction, which may lead to an increase in traffic delays and possible traffic accidents.

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St. Clair Avenue East currently accommodates upwards of 1200 vehicles in the peak period peak direction. Based on a nominal lane capacity of 700 vehicles per hour, it is anticipated that two lanes of travel in both directions are required to accommodate peak period traffic demands.

4.10.3.1.2 Operations

Once construction of the St. Clair Avenue East bridge is complete, St. Clair Avenue will be returned to existing conditions and no effects are anticipated.

4.10.3.2 Transit Network Overview

4.10.3.2.1 Construction

Full detour of TTC bus services will not be required as there will be no closures associated with construction (refer to Section 4.10.3.1.1) and additional delay would be minimal. It is recommended that bus schedule effects are assessed, and riders are notified of any potential delays that are expected due to the construction.

4.10.3.2.2 Operations

Once construction of the St. Clair Avenue East bridge is complete, St. Clair Avenue will be returned to existing conditions and no effects are anticipated.

4.10.3.3 Cycling, Pedestrian and Trail Network Overview

4.10.3.3.1 Construction

Sidewalks will be retained to the extent possible during construction to allow pedestrian access, however a small portion of sidewalk may be impacted requiring pedestrians to detour.

There are currently no cycling facilities on St. Clair Avenue East and it is assumed cyclists will follow the traffic diversions outlined in Section 4.10.3.1.1. It is not anticipated that cyclists will be affected during construction as a result of the anticipated activities at the St. Clair Avenue East bridge.

4.10.3.3.2 Operations

Once construction of the St. Clair Avenue East bridge is complete, St. Clair Avenue will be returned to existing conditions and no effects are anticipated.

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4.10.4 Midland Layover

4.10.4.1 Road Network Overview

4.10.4.1.1 Construction

Construction activities will not affect the road network, as these activities will occur within the ROW for the rail corridor. The limited increase in construction vehicle access into and out of the site from Midland Road is expected to be negligible given the major and minor arterial roads within the vicinity. Therefore, it is anticipated that the road network will not be affected by construction work as a result of the Midland Layover activities. If warranted, further assessment will be undertaken during the detailed design phase.

4.10.4.1.2 Operations

Once construction work is complete, it is not anticipated that the road network will be affected by operations as a result of the Midland Layover activities. The Midland Layover will be serviced from an existing access road off Midland Avenue. No substantial traffic volumes are anticipated during operations of the Midland Layover and therefore no effects are anticipated.

4.10.4.2 Transit Network Overview

4.10.4.2.1 Construction

Construction activities will not affect the transit network, as detour tracks will be used to maintain service levels. Therefore, it is anticipated that the transit network will not be affected by construction work as a result of the Midland Layover activities.

4.10.4.2.2 Operations

No direct or indirect effects are anticipated as a result of the Midland Layover. It is, therefore, not anticipated that the transit network will be affected by operations.

4.10.4.3 Cycling, Pedestrian and Trail Network Overview

4.10.4.3.1 Construction

No direct or indirect effects on cyclists and pedestrians are anticipated as a result of the Midland Layover. It is, therefore, not anticipated that cyclists and pedestrians will be affected by construction work.

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4.10.4.3.2 Operations

No direct or indirect effects on cyclists and pedestrians are anticipated during operations.

4.10.5 Danforth Road/Midland Avenue Intersection

4.10.5.1 Road Network Overview

4.10.5.1.1 Construction

The bridge over Danforth Road will be constructed in two stages and will require lane reductions on Danforth Road. Two lanes will remain open eastbound, while one lane will remain open westbound. To minimize the amount of driver confusion associated with changing lane configuration between stages, lane configuration will remain the same during both stages of construction.

Under a staged construction approach, the intersection of Danforth Road at Midland Avenue is expected to continue to accommodate traffic demands with very limited effects. In addition, this approach is not expected to result in any significant cut-through traffic on local or neighbourhood collector roadways within the Traffic and Transportation Assessment Area. Signal timing optimization for key intersections within the Traffic and Transportation Assessment Area is recommended to mitigate the effects of temporary construction stages.

No change in traffic speeds are anticipated for the first stage of construction and only a minor change in traffic speeds are expected for the second stage of construction, with the average network speed decreasing by less than 1% (i.e., -0.3%). The total network travel time increases by 1.1% and 1.7% for the first and second stages of construction, respectively. The total distance travelled in the network increases by 1.3% during both stages of construction. This indicates that the partial closure does not have a significant effect on the Traffic and Transportation Assessment Area road network, and effects should be mostly local to the area immediately surrounding the construction area.

There is the potential for safety concerns based on additional hazards as a result of visual distractions associated with detours and lane restrictions required for construction.

Traffic impacts at Kingston Road resulting from construction activity at the Danforth Road and Midland Avenue intersection are expected to be marginal. Kingston Road currently experiences peak period congestion that will be marginally impacted by the estimated traffic volumes diverted to Kingston Road during construction (approximately

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20-25 vehicles in the peak period, westbound/southbound during the AM peak hour, and eastbound/northbound during the PM peak hour).

4.10.5.1.2 Operations

It is expected that the implementation of the grade separation at Danforth Road will improve traffic operations at the intersection of Danforth Road and Midland Avenue by making the operations free-flow instead of having trains pass periodically through the intersection. Removal of the right turn channels and installation of APS at crossings aligns with current City of Toronto standards and the new intersection design will support improved traffic and pedestrian flows.

4.10.5.2 Transit Network Overview

4.10.5.2.1 Construction

Full detour of TTC bus services will not be required. Some delays to TTC Routes 16 and 20 are expected. This staged closure approach is expected to generate limited delay due to the restricted capacity at Danforth Road and Midland Avenue, but in general the amount of diverted traffic should be able to be handled by the road network and additional delay would be minimal.

TTC Route 16 will have an increased delay above 1 minute in the AM peak hour in both construction Stages 1 and 2. This is mainly due to the reduction in the number of through lanes from two to one. Minor delay (i.e., 1 second) is expected to TTC Route 20 in the PM, with slight improvements (i.e., 5 seconds) in the AM related to the optimized signal timing plans.

4.10.5.2.2 Operations

A positive effect on the transit network is anticipated as a result of the new rail under road grade separation at Danforth Road, which is expected to improve traffic operations at the intersection of Danforth Road and Midland Avenue by making the operations free-flow instead of having trains pass periodically through the intersection. For TTC Route 16, the analysis showed reduced delays of less than 4 seconds in the eastbound direction in the AM and increased delays of up to 4 seconds in the westbound direction. Route 20 will experience more significant travel time reductions, with delay reductions of 12 seconds in the northbound direction for both the AM and PM and up to 17 seconds in the southbound direction during the PM.

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4.10.5.3 Cycling, Pedestrian and Trail Network Overview

4.10.5.3.1 Construction

Pedestrian crossings are expected to be affected with the reconfiguration of the intersection, as construction works will require the temporary closures of the crossing on the west and east legs of intersection during construction. Cyclists would continue to ride in mixed traffic through the construction zone. There would be some travel time delay due to congestion for cyclists, but no detours required for either mode and at least one accessible sidewalk on one side of the road will remain open at all times.

4.10.5.3.2 Operations

A positive effect is anticipated as a result of the new rail under road grade separation at Danforth Road, which is expected to improve pedestrian and cyclists movements at the intersection of Danforth Road and Midland Avenue by making the operations free-flow instead of having trains pass periodically through the intersection.

4.10.6 Linear Facilities

4.10.6.1 Road Network Overview

4.10.6.1.1 Construction

Construction activities will not affect the road network, as these activities (i.e., depressed corridors, retaining walls) will occur within the ROW for the rail corridor. Therefore, it is anticipated that the road network will not be affected by construction work as a result of linear facilities improvement activities.

4.10.6.1.2 Operations

Once construction work is complete, it is not anticipated that the road network will be affected by operations as a result of linear facilities improvement activities.

4.10.6.2 Transit Network Overview

4.10.6.2.1 Construction

Construction activities will not affect the transit network, as detour tracks will be used in order to maintain service levels. Therefore, it is anticipated that the transit network will not be affected by construction work as a result of linear facilities improvement activities.

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4.10.6.2.2 Operations

No direct or indirect effects are anticipated as a result of linear facilities improvements. It is, therefore, not anticipated that the transit network will be affected by operations.

4.10.6.3 Cycling, Pedestrian and Trail Network Overview

4.10.6.3.1 Construction

No direct or indirect effects on cyclists and pedestrians are anticipated as a result of linear facilities improvements. It is, therefore, not anticipated that cyclists and pedestrians will be affected by construction work.

Potential effects to pedestrians and cyclists for the Danforth Road/Midland Avenue intersection and the Corvette multi-use crossing are provided in Sections 4.10.5 and 4.10.7, respectively.

4.10.6.3.2 Operations

No direct or indirect effects on cyclists and pedestrians are anticipated during operations. With the implementation of depressed corridors and grade separations, potential conflicts with trains will be avoided.

4.10.7 Corvette Multi-Use Crossing

4.10.7.1 Road Network Overview

4.10.7.1.1 Construction

It is anticipated that construction vehicles will be present at Corvette Avenue, which could affect the road network within the Corvette Park area. The minor increase in vehicles is anticipated to have a negligible effect overall.

4.10.7.1.2 Operations

Once construction of the new multi-use crossing is complete, no effects to the road network are anticipated during operations.

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4.10.7.2 Transit Network Overview

4.10.7.2.1 Construction

It is not anticipated that the transit network will be affected by construction, since detour tracks will be used in order to maintain service levels. There are no TTC bus routes along Corvette Avenue.

4.10.7.2.2 Operations

Once construction of the new multi-use crossing is complete, no effects to the transit network are anticipated during operations.

4.10.7.3 Cycling, Pedestrian and Trail Network Overview

4.10.7.3.1 Construction

Based on a worst-case assessment, should the existing Corvette multi-use crossing be closed off during construction, pedestrians and cyclists would be required to detour through the Danforth/Midland Avenue intersection, requiring a detour of approximately 1.3 km in each direction. Under this worst-case scenario, it was assumed that the start and ending point for travel was the Corvette crossing and only sidewalks along roadways would be used. It does not account for potential travel through Corvette Park. Furthermore, pedestrian and cyclists would typically start and end their detours at points other than the crossing, allowing for more flexibility in choosing alternate routes that would limit delays.

The worst-case assessment would result in an additional travel time of 15 minutes for pedestrians or 5 minutes for cyclists. A simultaneous closure of the existing Corvette multi-use crossing and crossings or sidewalks at Danforth Road and Midland Avenue would require pedestrians/cyclists to travel north to the Saugeen Crescent and Benjamin Boulevard crossing resulting in up to a 1.9 km detour with additional travel times of 23 minutes for pedestrians and 6 minutes for cyclists (assuming that they use the paved path only, not cutting through the park).

As such, closing of any multi-use crossings of the rail corridor would require pedestrians/cyclists to detour significantly. No consecutive multi-use crossings should be closed/inaccessible at any given time, for example, the simultaneous closure of the existing Corvette multi-use crossing and Midland/Danforth crossing.

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4.10.7.3.2 Operations

The new multi-use crossing at Corvette Park will replace the existing at-grade crossing, which will avoid potential conflicts with trains. Traversing the ramps, and crossing will require additional travel time when compared to the existing at-grade crossing.

4.10.8 Utilities

4.10.8.1 Road Network Overview

4.10.8.1.1 Construction

The Project will result in potential conflicts with existing utilities (see Section 4.7). Some utilities will require realignment, which can affect the road network during construction due to road or lane closures, especially in the Danforth Road and Midland Avenue intersection area.

4.10.8.1.2 Operations

Limited and temporary traffic disruption from maintenance vehicles may be required to maintain utilities, but not beyond typical maintenance requirements along roadways.

4.10.8.2 Transit Network Overview

4.10.8.2.1 Construction

Construction of utilities in the Danforth Road and Midland Avenue area may cause some delays to TTC Routes 16 and 20, however this work is anticipated to be undertaken in conjunction with the rail under road grade separation and no new effects on TTC Routes 16 and 20 are anticipated specific to utilities. Refer to Section 4.10.5.1.1 for further details regarding the potential delay to TTC Routes 16 and 20.

Some utilities will require realignment, which can affect the road network during construction due to road or lane closures. The transit network may be affected due to these closures.

4.10.8.2.2 Operations

Once realignment work is completed, it is not anticipated that the transit network will be affected during operations.

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4.10.8.3 Cycling, Pedestrian and Trail Network Overview

4.10.8.3.1 Construction

Some detours may be required due to utility realignment work. However, it is not anticipated that the cyclists and pedestrians will be substantially affected by the construction of utilities.

4.10.8.3.2 Operations

Once realignment work is completed, it is not anticipated that cyclists and pedestrians will be affected during operations.

4.10.9 Laydown Areas

4.10.9.1 Road Network Overview

4.10.9.1.1 Construction

Existing laydown areas at the St. Clair Yard and at the northwest quadrant of Danforth Road/Midland Avenue are proposed to be used during construction. These areas are owned by Metrolinx and are currently used for staging. There may be a minor increase in vehicles entering/exiting the laydown areas, but overall, a negligible effect is anticipated.

A third laydown area is anticipated in Corvette Park, in proximity to the playground/splash pad area. It is anticipated that construction vehicles will be present at Corvette Avenue, which could affect the road network within the Corvette Park area. The minor increase in vehicles is anticipated to have a negligible effect overall.

4.10.9.1.2 Operations

Once construction is complete, the laydown area at Corvette Park will no longer be required and will be revegetated. It is, therefore, not anticipated that the road network will be affected during operations.

The use of the two existing laydown areas may continue into operations, however as they are currently operational, there will be no change from existing conditions.

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4.10.9.2 Transit Network Overview

4.10.9.2.1 Construction

Use of the laydown areas is not anticipated to affect the transit network. There are no bus routes on the roadways immediately adjacent to the Corvette Park laydown area and St. Clair Yard. There may be a minor increase in vehicles entering/exiting the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection, but overall, a negligible effect is anticipated.

4.10.9.2.2 Operations

It is not anticipated that the transit network will be affected during operations as a result of laydown area activities. The laydown area within Corvette Park will be rehabilitated. The use of the two existing laydown areas may continue into operations, however as they are currently operational, there will be no change from existing conditions.

4.10.9.3 Cycling, Pedestrian and Trail Network Overview

4.10.9.3.1 Construction

The St. Clair Yard and laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection are already in operation and no substantial changes from existing conditions are anticipated.

For the Corvette Park laydown area, there may be minor disruption to pedestrians and cyclists in the Corvette Park area as there will be a modest increase in traffic and activity in the area.

4.10.9.3.2 Operations

It is not anticipated that cyclists and pedestrians will be affected during operations. The laydown area within Corvette Park will be rehabilitated. The use of the two existing laydown areas may continue into operations, however as they are currently operational, there will be no change from existing conditions.

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4.11 Summary of Potential Effects, Mitigation Measures and Monitoring Requirements

Table 4.10 summarizes the effects, mitigation measures and proposed monitoring for the various components of the environment described in the previous sections of the EPR. A potential effect is denoted by a “●”. If no potential effects are anticipated, a “-” is indicated.

Metrolinx is responsible for confirming that the recommendations are met but may direct a third party to undertake future activities (i.e., contractor, technical consultant). The intent of this table is to provide a summary of those commitments and responsibility of third-parties where Metrolinx determines applicability. These are recommendations that will be confirmed as Project planning advances.

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Table 4.10: Potential Effects, Mitigation Measures and Monitoring

Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
Natural Environment						
Aquatic Environment	No effects to the aquatic environment are anticipated as a result of construction or operations activities.	-	-	All Project Components	<ul style="list-style-type: none"> As no effects are anticipated, no mitigation measures are required. 	<ul style="list-style-type: none"> No monitoring activities are required.
Terrestrial Environment	Tree/vegetation removal, injury and protection.	<ul style="list-style-type: none"> 	-	All Project Components	<ul style="list-style-type: none"> If the final limits of the Project Footprint are altered and fall outside of the assessed study area of the Arborist Report, an additional Arborist Report or an addendum to the existing Arborist Report, will be prepared which meets regulatory requirements and is completed by an I.S.A. Certified Arborist. The report will also be completed with regard to the Metrolinx <i>Vegetation Guideline</i> (2020), the <i>Ontario Forestry Act R.S.O. 1990</i>, the <i>Endangered Species Act</i>, and other regulations, municipal by-laws and best management practices as applicable. Retain existing vegetation within the Natural Environment Assessment Area to the extent practicable. Removals will be kept to a minimum to limit direct effects to vegetation communities and vascular flora, as well as indirect effects (e.g., soil compaction and changes to topography and drainage). If a tree requires removal or injury, compensation and permitting/approvals (as required) will be undertaken in accordance with the Metrolinx <i>Vegetation Guideline</i> (2020). Metrolinx will adhere to all applicable bylaws and regulations for tree removals outside of Metrolinx properties. Pruning of branches will be conducted through the implementation of proper arboricultural techniques. Tree Protection Zone (TPZ) fencing will be established to protect and prevent tree injuries in accordance with local by-law requirements. Prior to the undertaking of tree removals, a Tree Removal Strategy, building upon the considerations and elements set out in the Metrolinx <i>Vegetation Guideline</i> (2020), will be developed and implemented in adherence with best practices, standards and regulations on safety, environmental and wildlife protections. 	<ul style="list-style-type: none"> On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. The success of vegetation compensation activities will be monitored in accordance with the Metrolinx <i>Vegetation Guideline</i> (2020). The approach to compensation monitoring will be determined by property ownership, applicable governing bylaws/regulations and location with respect to ecological functioning. Monitoring requirements will be undertaken in accordance with conditions of permits and approvals. Monitoring and management of trees/vegetation within the rail corridor right-of-way will be undertaken in accordance with the IVM Program. Low maintenance plantings are encouraged for all future plantings within Metrolinx corridors.

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					<ul style="list-style-type: none">• Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx <i>Vegetation Guideline</i> (2020). Adhere to all applicable bylaws and regulations for tree removals outside of Metrolinx properties.• Vegetation removals will also consider and mitigate potential impacts to sensitive species, e.g., migratory birds and Species at Risk (SAR), and features, e.g., Designated Natural Areas and Significant Wildlife Habitat.• For trees where City bylaws are applicable, including City parks, Metrolinx will follow all bylaw requirements for tree removals and associated compensation requirements.	
Terrestrial Environment	Potential for the spread of emerald ash borer, <i>Agrilus planipennis</i> (Fairmaire) associated with removal, handling and transport of ash trees.	<ul style="list-style-type: none">•	-	All Project Components	<ul style="list-style-type: none">• Removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive ‘D-03-08: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the emerald ash borer, <i>Agrilus planipennis</i> (Fairmaire)’. To comply with this Directive, all ash trees requiring removal, including any wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada.	<ul style="list-style-type: none">• On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.• Ensure precautions are being taken to minimize the spread of invasive species by cleaning equipment prior to moving sites.
Terrestrial Environment	Footprint impacts and potential for the establishment of invasive species and other incompatible species.	<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	Scarborough GO Station Building	<ul style="list-style-type: none">• An IVM Plan will be developed and implemented that is in adherence with the Metrolinx Vegetation Guideline (2020) and the IVM Program. The Guideline’s selection criteria will be used to assess the vegetation present as compatible or incompatible, and manage it, if necessary, in a way which meets safety needs in a timely manner, is sensitive to environmental conditions, and maximizes cost-effectiveness.	<ul style="list-style-type: none">• The presence, density, and location of compatible and incompatible species will be monitored as per the frequency and methodology established in the Bi-Annual Monitoring Program within the Metrolinx Vegetation Guideline (2020). The Bi-Annual Monitoring Program is made up of pre-treatment and post-treatment monitoring events that will be carried out via field, aerial, and high-rail vehicle or train surveys conducted by qualified specialists.
		<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	St. Clair Avenue East Bridge		
		<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	Midland Layover		
		<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	Danforth Road/Midland Avenue Intersection		
		<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	Linear Facilities		
		<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	Corvette Multi-use Crossing		
		<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	Utilities		
		<ul style="list-style-type: none">•	<ul style="list-style-type: none">•	Laydown Areas		

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Wildlife	Disturbance, displacement or mortality of wildlife.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Prior to construction, investigation of the Project Footprint for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate. If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease or be reduced, and wildlife will be encouraged to move offsite and away from the construction area on its own. A qualified biologist will be contacted to define the appropriate buffer required from wildlife. 	<ul style="list-style-type: none"> On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.
		•	•	St. Clair Avenue East Bridge		
		•	•	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	•	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		
Significant Wildlife Habitat	Disturbance or destruction of Migratory Butterfly Stopover Areas (i.e., meadow communities) used by Monarch Butterflies (low probability, no milkweed observed).	-	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Opportunities to plant milkweed or forage vegetation outside of and within the rail Right-of-Way (ROW) will be undertaken, where possible, and in accordance with the Metrolinx Vegetation Guideline (2020). If vegetation clearing will proceed when Monarch larvae may be present (April 1 to September 30), milkweed plants should be inspected for Monarch larvae prior to their removal. If larvae are present, they may be moved to a location that is suitable and safe under the direction of a qualified biologist. Monarch caterpillars may be moved to other milkweed plants; for other larval stages (i.e., eggs and chrysalis). Entire milkweed plants should be transplanted. Provide mitigation measures for additional migratory butterfly species as required. 	<ul style="list-style-type: none"> Regular monitoring will be undertaken during construction to prevent unauthorized impacts to the Migratory Butterfly Stopover Areas (i.e., meadow communities).
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		
Migratory Breeding Birds and Nests	Disturbance or destruction of migratory bird nests.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none"> All works must comply with the <i>Migratory Birds Convention Act</i> (MBCA), including timing windows for the nesting period (April 1 to August 31 in Ontario). If activities are proposed to occur during the general nesting period a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified biologist no more than 48 hours prior to vegetation removal. 	<ul style="list-style-type: none"> Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		

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		•	-	Utilities	<ul style="list-style-type: none"> If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection. 	
		•	-	Laydown Areas		
Species at Risk	Habitat loss, disturbance and/or mortality to Barn Swallow (detailed design will determine if construction activities have the potential to disturb potential nesting structures).	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active. Where loss or disturbance cannot be avoided (e.g., due to work on bridges), all requirements under the <i>Endangered Species Act, 2007</i> (ESA) will be met, including any registration, compensation, replacement structures and/or permitting requirements. If construction activities are scheduled during the nesting season for Barn Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn Swallow are nesting on structures or banks that may be affected by construction activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting. 	<ul style="list-style-type: none"> On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize effects. Additional monitoring measures will be developed with the MECP, if required.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Significant Natural Features	No potential effects during construction and operations as there are no Significant Natural Areas within the Natural Environment Assessment Area.	-	-	All Project Components	<ul style="list-style-type: none"> As no effects are anticipated, no mitigation measures are required. 	<ul style="list-style-type: none"> No monitoring activities are required.
Geology and Groundwater						
Landforms and Physiography	No effects to landforms or physiographic environmental components are anticipated as a result of construction activities.	-	-	All Project Components	<ul style="list-style-type: none"> As no effects are anticipated, no mitigation measures are required. 	<ul style="list-style-type: none"> No monitoring activities are required.
Bedrock Geology	No effects to bedrock geology are anticipated as a result of construction activities.	-	-	All Project Components	<ul style="list-style-type: none"> As no effects are anticipated, no mitigation measures are required. 	<ul style="list-style-type: none"> No monitoring activities are required.
Soils	Construction operations could expose contaminated materials and/or result in the spreading of contaminated materials.	•	-	All Project Components	<ul style="list-style-type: none"> Develop a Soil and Excavated Materials Management Plan (SEMMP) for the handling, management and disposal of all excavated material (i.e., soil, rock and waste) that is generated or encountered during the Works. The plan will be overseen by a Qualified Person (QP) pursuant to Ontario Regulation 153/04 under the <i>Environmental Protection Act</i> and will comply with Ontario Regulation 406/19 (On-Site and Excess Soil 	<ul style="list-style-type: none"> A Soil and Excavated Material Monthly Monitoring Report will be submitted by the Constructor for Metrolinx review on a monthly basis that includes monitoring and performance data related to the management of excavated materials. Upon completion of the work, the Constructor will submit a Soil and Excavated Material

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					<p>Management – to be enacted into law on July 1, 2020), the MECP, formerly the Ministry of the Environment and Climate Change (MOECC)’s Management of Excess Soils: A Guide for Best Management Practices, (MECP, April 2019, as amended) and all Applicable Law. The plan will describe how to address the management of the excavated materials, imported materials, contaminated materials, and impacted railway ties, including handling, transportation, testing, documentation and reuse and disposal of excavated materials generated as part of the works and in accordance with applicable regulatory requirements and the project contract documents/agreement as applicable.</p> <ul style="list-style-type: none">• Non-soil materials, including railway bedding, railway ties, or ballast materials encountered during the earthworks will also require waste classification as documented by testing where applicable to determine management and disposal requirements as per Ontario Regulation 347 (as amended) and All Applicable Law.• The SEMMP will be reviewed and approved by Metrolinx prior to construction.	Management Implementation Report to Metrolinx
Groundwater Resources	Construction operations could expose groundwater and associated contamination.	<ul style="list-style-type: none">•	-	All Project Components	<ul style="list-style-type: none">• Develop a Groundwater Management and Dewatering Plan (GMDP) to guide the handling, management, and disposal of groundwater encountered during the Works. The GMDP will be overseen by a QP and will comply with Ontario Regulations 406/19 (On-Site and Excess Soil Management – to be enacted into law on July 1, 2020), 64/16 and 387/04, as amended under the <i>Ontario Water Resources Act</i>.• The GMDP will describe the handling, transfer, testing, monitoring, disposal of groundwater generated as part of the Works and in accordance with applicable regulatory requirements and the project contract documents/agreement as applicable. The GMDP will outline general groundwater monitoring considerations during the Works and provide guidance for groundwater monitoring following the Works where considered applicable.• The GMDP will describe the anticipated groundwater quantity and dewatering Zone of Influence that will	<ul style="list-style-type: none">• A Groundwater Management Monthly Dashboard Report will be developed by the Constructor for Metrolinx review to document performance monitoring data/results and any corrective actions implemented during the previous month.• Upon completion of the work, the Constructor will submit a Groundwater Management and Dewatering Implementation Report to Metrolinx.

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					<p>be encountered during the Works, and if approvals are needed for the water taking, such as a Permit to Take Water (PTTW) from the MECP, or an Environmental Activity Sector Registry (EASR).</p> <ul style="list-style-type: none">• The GMDP will describe the storage, transfer, and disposal and or treatment of the groundwater collected during the Works, and approvals for the water disposal, and or treatment if applicable based on the quantity and quality.• The GMDP will be reviewed and approved by Metrolinx prior to construction.	
Stormwater Management						
Potential Impacts and Proposed Mitigation Measures for Stormwater and Site Drainage	The proposed construction activities pose a potential impact due to sediment transport into municipal drainage infrastructure.	<ul style="list-style-type: none">•	-	All Project Components	<ul style="list-style-type: none">• Prepare and implement a Drainage and Stormwater Report, an Erosion and Sediment Control Plan, detailed drainage design and erosion and sediment control drawings in accordance with the Ministry of the Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design Manual (2003), Toronto and Region Conservation Authority's (TRCA) Erosion and Sediment Control Guideline for Urban Construction (2019), as amended from time to time, and the guidelines and regulatory requirements of the Conservation Authority having jurisdiction.• The overall stormwater quality and quantity control strategy will be developed in accordance with all relevant municipal, provincial and federal requirements, as amended, as well as the requirements of Conservation Authorities having jurisdiction.• A detailed assessment of proposed ditches along the rail corridor is required to ensure adequate drainage conveyance in accordance with municipal requirements and American Railway Engineering and Maintenance-of-Way Association Manual for Railway Engineering (2019).• Infiltration requirements for municipalities will be determined as per the design guidelines and standards.	<ul style="list-style-type: none">• Turbidity levels within discharges from sites to be monitored visually. Turbidity levels will be monitored upstream and downstream of sites at watercourse crossings or adjacent to watercourses. Turbidity levels within discharges from sites and within receiving storm sewers will also be monitored visually to determine potential impacts from construction.• Grab samples for existing watercourses and/or wetlands, when runoff from the site discharges to a watercourse and/or wetland will be conducted for pre-construction, during construction, and post construction conditions until the site is considered stabilized. Grab samples for watercourses and wetlands will be taken for non-precipitation event and for precipitation events to obtain a reasonable understanding of the turbidity levels. Post-construction monitoring of wetland areas may be required depending on input from Conservation Authorities.• Monitoring will be conducted for potential oil spills and containment of spills to be conducted as per provincial requirements.• Functionality of stormwater quantity controls including peak flows and water levels for storm events within the design range. Monitoring would require local rainfall data.

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						<ul style="list-style-type: none">Infiltration targets, measured by flow monitoring on infiltrative Low Impact Development Best Management Practices.Stormwater quality measures will be assessed to provide a minimum 80% Total Suspended Solids removal as per the MECP Stormwater Management Planning and Design Manual (2003).
Cultural Environment						
Archaeological Resources	Potential for the disturbance of unassessed or documented archaeological resources.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none">Additional Stage 2 AA work will be undertaken for the proposed laydown area in Corvette Park and the undeveloped portion of the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection; and Stage 3 and 4, where recommend by previous stages will be undertaken by a licensed archaeologist early in and prior to the completion of detail design and submitted to MHSTCI for review. Metrolinx and/or the Contractor will confirm that any AA reports submitted to MHSTCI for review have been entered into the Ontario Public Register of Archaeological Reports prior to commencing any ground disturbing activities.The Constructor will develop and implement an Archaeological Risk Management Plan that addresses any recommendations resulting from Archaeological Assessments and documents all protocols for the discovery of human remains and undocumented archaeological resources. The Archaeological Risk Management Plan shall be amended to incorporate any additional actions required resulting from subsequent Archaeological Assessment Reports and/or subsequent changes to Applicable Law.All work shall be performed in accordance with Applicable Law, including but not limited to the <i>Ontario Heritage Act</i>, the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI), formerly the Ministry of Tourism, Culture and Sport (MTCS) <i>Standards and Guidelines for Consultant Archaeologists</i> (2011), and the MHSTCI document, <i>Engaging Aboriginal Communities in Archaeology: A Draft Bulletin for Consultant Archaeologists in Ontario</i> (2011).In the event that archaeological materials are encountered or suspected of being encountered	<ul style="list-style-type: none">Performance of the work will occur within land previously subject to an Archaeological Assessment.Any site personnel responsible for carrying out or overseeing land-disturbing activities will be informed of their responsibilities in the event that an archaeological resource is encountered.Further Archaeological Assessment may identify the need for monitoring during construction.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
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					<p>during construction, all work will cease. The location of the findspot should be protected from impact by employing a buffer in accordance with requirements of the MHSTCI. A professionally licensed archaeologist will be consulted to complete the assessment. If materials are confirmed to possess cultural heritage value/interest then they will be reported to the MHSTCI, and further Archaeological Assessment of the materials may be required. If it is determined that there is a potential for Indigenous artifacts, Metrolinx should be contacted, and Applicable Law will be followed.</p> <ul style="list-style-type: none">• If final limits of the Project Footprint are altered and fall outside of the assessed study area, additional Archaeological Assessments will be conducted by a professionally licensed archaeologist prior to disturbance and, prior to construction activities. This will include completing all required Archaeological Assessments resulting from the Stage 1 Archaeological Assessment (Stage 2, Stage 3 and Stage 4, as required) as early as possible, prior to the completion of design, and in advance of any ground disturbance.• For areas determined to have archaeological potential or contain archaeological resources that will be impacted by project activities, additional Archaeological Assessment will be conducted by a professionally licensed archaeologist prior to disturbance.• If human remains are encountered or suspected of being encountered during project work, all activities must cease immediately and the local police/coroner as well as the Bereavement Authority of Ontario on behalf of the Ministry of Government and Consumer Services must be contacted. Archaeological investigations of human remains will not proceed until police have confirmed the remains are not subject to forensic investigation. Once human remains have been cleared of police concern, the MHSTCI will also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the <i>Ontario Heritage Act</i>. If the human remains are determined to be of Indigenous origin, Metrolinx should be contacted, and all applicable law must be adhered to.	

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					<ul style="list-style-type: none">All Archaeological Assessment findings will be shared with Indigenous Nations, as per Metrolinx procedures.	
Built Heritage Resources and Cultural Heritage Landscapes	Indirect impacts to the built heritage resources of a property of known or potential Cultural Heritage Interest or Value (CHVI) due to installation of new/modified infrastructure.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">All work shall be performed in accordance with Applicable Law, including but not limited to the <i>Ontario Heritage Act</i>, the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) <i>Standards and Guidelines for Provincial Heritage Properties: Metrolinx Identification and Evaluation (I&E) Process</i> (2014), the MHSTCI guidance on <i>Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment</i> (2019) (Cultural Heritage Report), and the forthcoming <i>Standards and Guidelines for Provincial Heritage Properties: Metrolinx Identification and Evaluation (I&E) Process</i> (2020). In the event that the <i>Metrolinx I&E Process</i> (2020) is not approved, follow the Metrolinx <i>Interim Cultural Heritage Management Process</i> (2013).Follow the recommendations outlined in the heritage reporting completed including Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (2020) (Cultural Heritage Report), or the Heritage Impact Assessment (HIA).For known and potential properties of Cultural Heritage Value or Interest (CHVI) that will experience indirect or direct impacts and where no previous assessment has been completed or a Statement of Cultural Heritage Value (SCHV) has not been approved by Metrolinx, undertake a Cultural Heritage Evaluation Report (CHER) as per the forthcoming <i>Metrolinx I&E Process</i> (2020). In the event that the <i>Metrolinx I&E Process</i> (2020) is not approved, follow the Metrolinx <i>Interim Cultural Heritage Management Process</i> (2013).Given the importance and location of some Cultural Heritage Resources, consultation with Municipal heritage staff and other jurisdictions will be undertaken as appropriate to determine if proposed infrastructure will be subject to specific policies within heritage districts or conservation areas (including parks).Use preventative measures to avoid the 87 Granger Avenue (CHR-1), 112 Granger Avenue (CHR-2), 70 Granger Avenue (CHR-3), and 1 Granger Avenue (CHR-4) by establishing a buffer zone around the	<ul style="list-style-type: none">Implement and comply with monitoring requirements and commitments pertaining to Cultural Heritage Resources (CHRs)/properties as per previously completed Metrolinx and/or GO Transit EPRs and/or Environmental Study Reports (ESRs) and Addenda and the recommendations contained in the Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment.Alternatively, where construction activities are anticipated within the 50 metre buffer zone of 87 Granger Avenue (CHR-1), 112 Granger Avenue (CHR-2), 70 Granger Avenue (CHR-3), and 1 Granger Avenue (CHR-4), pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures.
		-	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		

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					residence. This should use appropriate preventative measures such as mapping of the CHR on construction maps and temporary fencing.	
Built Heritage Resources and Cultural Heritage Landscapes	Potential indirect impacts on known or potential properties of CHVI resulting from construction activities.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">Selection of construction staging and laydown areas will follow Metrolinx selection procedures, which include avoiding built heritage resources and cultural heritage landscapes wherever possible or effectively mitigating impacts where not possible.For 1 Granger Avenue (CHR-4) , where laydown areas are required within the 50 metre buffer zone, pre-construction vibration assessment and condition survey, vibration monitoring program, and post-construction condition survey should be carried out by a qualified building condition specialist or geotechnical engineer with previous experience working with heritage structures.	<ul style="list-style-type: none">Implement and comply with monitoring requirements and commitments pertaining to CHRs/properties as per previously completed Metrolinx and/or GO Transit EPRs and/or ESRs and Addenda and the recommendations contained in the Scarborough Junction Grade Separation Project Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment.
		-	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		•	-	Laydown Areas		
Built Heritage Resources and Cultural Heritage Landscapes	For any additional potentially affected Cultural Heritage Resources/properties not previously identified within a previous Metrolinx/GO Transit EA/TPAP/Other Study	•	-	All Project Components	<ul style="list-style-type: none">If the Project study limits change or there is a change in impact that is not captured or documented in previously completed Metrolinx and/or GO Transit EPRs and/or ESRs post EA/TPAP, and which causes any additional heritage properties to be impacted by the proposed design/infrastructure, all applicable legislation will be followed to carry out additional impact assessment work and heritage studies to identify any known or potential built heritage resources and cultural heritage landscapes, and to identify potential impacts and appropriate mitigation measures.	<ul style="list-style-type: none">Implement and comply with monitoring requirements and commitments pertaining to Cultural Heritage Resources/properties as per the recommendations contained in any/all of the following documents: Cultural Heritage Reports, CHARs, CHERs, HIAs and SCPs.
Socio-Economic and Land Use						
Planning Policy Context	Use of a portion of Corvette Park as a laydown area is not consistent with existing park land use. For other Project Components, no effects to planning policies are anticipated as a result of construction and operations activities.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">To the extent feasible, the laydown area will be situated within the splash pad area and in an area approved by the City of Toronto Parks, Forestry & Recreation Department. This laydown area will be used as a laydown area for the multi-use crossing only.Impacts to the playground, including the need for closure or opportunities to maintain operation during construction will need to be confirmed with the City of Toronto during detailed design, and in consideration of the City of Toronto's revitalization plans.	<ul style="list-style-type: none">None anticipated at this time.
		-	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		

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Neighbourhood Characteristics	Property acquisition - permanent and temporary.	-	-	Utilities	<ul style="list-style-type: none"> Specific property requirements will be confirmed during design. Where access to property is required, ongoing consultation with affected landowners will help identify appropriate site-specific mitigation measures. Select staging/laydown areas in accordance with Metrolinx procedures. Staging/laydown areas should be located in areas that minimize adverse effects to sensitive receptors. 	<ul style="list-style-type: none"> None anticipated at this time.
		•	-	Laydown Areas		
		-	-	Scarborough GO Station Building		
		•	•	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		•	•	Corvette Multi-use Crossing		
		•	•	Utilities		
Neighbourhood Characteristics	Nuisance effects from construction activities.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Mitigation measures related to potential nuisance effects are outlined below under Air Quality and Noise and Vibration. An Erosion and Sediment Control (ESC) Plan will be developed in accordance with the Greater Golden Horseshoe Area Conservation Authorities' <i>Erosion and Sediment Control Guideline for Urban Construction</i> (2019), as amended from time to time, that addresses sediment release to adjacent properties and roadways. Develop a Communications Protocol in accordance with the Project Agreement, which will indicate how and when surrounding property owners and tenants will be informed of anticipated upcoming construction works, including work at night, if any. Develop a Complaints Protocol in accordance with the Project Agreement. 	<ul style="list-style-type: none"> When applicable, monitoring related to potential nuisance effects are outlined under Air Quality and Noise and Vibration. Erosion and sediment control monitoring to be conducted as per Project Agreement. Number and resolution of complaints received.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		
Neighbourhood Characteristics	Land use and access disruption.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Provide well connected, clearly delineated, and appropriately signed walkways and cycling route options, with clearly marked detours where required. Provide temporary lighting and wayfinding signs and cues for navigation around the construction site. Develop a plan to reduce the effects of light pollution in accordance with the Project Agreement. 	<ul style="list-style-type: none"> Temporary access paths, walkways, cycling routes and fencing should be monitored. Number and resolution of complaints received.
		•	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		

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		-	-	Linear Facilities	<ul style="list-style-type: none"> Access to nearby land uses will be maintained for vehicular, pedestrian and cyclist traffic. Potentially affected residents, tenants and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur. Temporary vehicular and pedestrian facilities will comply with accessibility and applicable City standards. Provide advance community notification to address school year and potential pedestrian route changes; provide construction timing consideration optimized to minimize school year disruption and need for rerouting children travelling to schools such as Corvette Junior Public School and Robert Service Senior Public School east of Midland, from both sides of the rail corridor. The area where the current splashpad is situated will be restored in a manner that is consistent with existing vegetation within Corvette Park and in consultation with the City of Toronto. Further discussions with City of Toronto will occur during detailed design to confirm the appropriate mitigation measures to maintain the functionality and assets of Corvette Park. 	
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		•	-	Laydown Areas		
Neighbourhood Characteristics	Visual effects from construction areas/activities.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> A screened enclosure for the development site may be provided, with particular attention to the waste disposal and material storage areas. Consideration will be given to providing temporary landscaping along the borders of the construction site between site fencing/enclosure and walkways, where space allows, and where necessary. Construction schedule delays will be avoided to the extent possible in order to minimize the duration of construction and corresponding visual impacts. Retain existing vegetation to the extent practicable. Clearing the area within Corvette Park to be used as a laydown area to support construction of the multi-use crossing. 	<ul style="list-style-type: none"> Construction activities will be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas.
		•	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
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Neighbourhood Characteristics	Safety concerns (i.e., resulting from single point of egress on the ramps, concealed corners due to multiple ramp turns, lack of clear sightlines from street level and on the ramps, the potential for materials to be thrown from the bridge and ramps).	-	-	Scarborough GO Station Building	<p>Corvette multi-use crossing:</p> <ul style="list-style-type: none"> The design of the Corvette multi-use crossing will be further refined during detailed design, taking into consideration the potential effects identified in this EPR. Additional screening will be added to the ramps to prevent individuals from throwing items from the ramps. EPBs will be placed along the bridge and will help prevent individuals from throwing items from the bridge. Noise barriers placed along the rail corridor adjacent to the Corvette multi-use crossing may be transparent to provide increased visibility across the rail corridor. <p>General:</p> <ul style="list-style-type: none"> Additional lighting to provide increased visibility and eliminate dark/concealed areas. 	<ul style="list-style-type: none"> None anticipated at this time.
		-	•	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		-	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		-	•	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Aesthetics/Visual Character	Visual effects during operation.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Exterior wall facings that are visible to the public will receive a permanent concrete facing and a plain finish. In conjunction with the City of Toronto, Metrolinx will determine the appropriate finish(es) for the retaining walls based on municipal planning and urban design policies and objectives, surrounding land uses, adjacent built form, and pedestrian, cycle and automobile traffic levels. Metrolinx will consider options to increase the visibility/transparency of the Corvette multi-use crossing structure and guardrails the use of tempered laminated glass panels or low profile barriers. Metrolinx will consider maintenance of vegetation to the extent possible and replanting of vegetation to maintain natural buffers where appropriate and feasible. To reduce visual effects from new barriers at Danforth Road/Midland Avenue, barrier transparency will be maximized to maintain sightlines and design solutions to limit the visual impact (i.e., location of installing the barriers) will be further investigated. 	<ul style="list-style-type: none"> None anticipated at this time.
		-	-	St. Clair Avenue East Bridge		
		-	•	Midland Layover		
		-	•	Danforth Road/Midland Avenue Intersection		
		-	•	Linear Facilities		
		-	•	Corvette Multi-use Crossing		
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Aesthetics/Visual Character	Loss of privacy.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> The surrounding community will be notified of initial construction plans, as well as any future modifications as they occur. The ability to see from the Corvette multi-use crossing into private property is anticipated to be limited given the location of the bridge and ramps. 	<ul style="list-style-type: none"> None anticipated at this time.
		-	-	St. Clair Avenue East Bridge		
		•	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		•	•	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Aesthetics/Visual Character	Light trespass, glare and light pollution effects.	•	-	All Project Components	<ul style="list-style-type: none"> Comply with all local applicable municipal by-laws and Ministry of Transportation (MTO) practices for lighting in areas near or adjacent to highways and roadways regarding outdoor lighting for both permanent and temporary construction activities, and incorporate industry best practices provided in <i>ANSI/IES RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting</i>, as described in the Project Agreement. The Constructor will perform the Works in such a way that any adverse effects of construction lighting are controlled or mitigated in such a way as to avoid unnecessary and obtrusive light with respect to adjoining residents, communities and/or businesses. 	<ul style="list-style-type: none"> Measure illuminance levels using an illuminance meter in accordance with ANSI/IES RP-8-18 Chapter 4. Number and resolution of complaints received.
Utilities	Utility serviceability effects due to design requirements and construction.	•	-	Only applies to Utilities	<ul style="list-style-type: none"> Develop and implement a detailed Utility Infrastructure Relocation Plan that identifies all utilities anticipated to be impacted by the construction works, all relevant utility agencies and authorities, and outlines the approach to the utility relocation process. The Utility Infrastructure Relocation Plan will be developed in accordance with the Project Agreement. Additional surveys shall be performed prior to construction to field locate and verify the existing utilities within the project area and document their condition. 	<ul style="list-style-type: none"> Maintain regular communication and coordination through issuance of regular progress reports and updates to applicable utility agencies. Record all installation tolerances and how they are to be monitored. Perform inspection and testing to ensure successful utility relocation and safe and efficient installation. In the event of potential impacts to critical utilities, instrumentation and monitoring shall be carried out to protect the critical utilities and structures and reduce risks of damage due to construction activities.

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					<ul style="list-style-type: none"> Perform all work identified in the Utility Infrastructure Relocation Plan to protect, support, safeguard, remove, and relocate all Utility Infrastructure. Obtain permits and consents from and with all Utility Companies with respect to the design, construction, installation, servicing, operation, repair, preservation, relocation, and or commissioning of Utility Infrastructure. Ensure minimizing impact to the Train Service Plans and to continuity of service and disruption to property owners and customers of the Utility Companies to the satisfaction of the Utility Companies and Metrolinx. 	
Utilities	Future Utility Maintainability.	-	<ul style="list-style-type: none"> 	Only applies to Utilities	<ul style="list-style-type: none"> Where new utility crossings are proposed, application for a new utility crossing agreement will be required. Where modifications to an existing utility crossing takes place, updates to an existing utility crossing will be needed. Post-construction inspections of the new utility infrastructure shall be undertaken for applicable works upon completion of the construction works to document condition. Obtain as-built plans of the relocated infrastructure from utility agencies per as-built preparation standards Canadian Standards Association (CSA) <i>S250-11 – Mapping of Underground Utility Infrastructure</i> (2011), as amended from time to time. 	<ul style="list-style-type: none"> Develop and implement tracking system for as-built deliverables.
Air Quality						
Air Quality	Construction related air pollution may pose risks to human health and wellbeing.	<ul style="list-style-type: none"> 	-	All Project Components	<ul style="list-style-type: none"> Prior to commencement of construction, develop and implement a detailed Construction Air Quality Management Plan (AQMP). The AQMP will: <ul style="list-style-type: none"> Demonstrate compliance with the specific air quality criteria and limits in the Metrolinx <i>Environmental Guide for Air Quality and Greenhouse Gas Emissions Assessment</i> (2019). Define the Project's air quality impact zone and identify all sensitive receptors within this area. Assess the baseline air quality by continuous measurement of local ambient concentrations of PM_{2.5} and PM₁₀ over a minimum period of one week, where large local sources of pollution, such as highways, directly affect the zone of influence of the Project. 	<ul style="list-style-type: none"> Develop and implement Weekly Air Quality Monitoring Plans that document how air quality monitoring has been conducted and compliance assessed to effectively prevent unacceptable rates of air emissions in accordance with the following guidelines: <ul style="list-style-type: none"> The construction related air contaminants of primary concern are in the form of particulate matter, with the principal construction related fractions of PM_{2.5} and PM₁₀ - particulate matter of less than 2.5 and 10 micron in diameter, respectively. Other contaminants of concern include crystalline silica and oxides of nitrogen. The list of contaminants will be expanded

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					<ul style="list-style-type: none"> – Estimate and document the predictable worst-case air quality impacts of the Project on sensitive receptors within the air quality impact zone, develop appropriate mitigation measures, demonstrate their effectiveness, and commit to their timely implementation. – Monitor continuously any contaminant, in addition to PM_{2.5} and PM₁₀, which is predicted to exceed its relevant air quality exposure criterion during any phase of the Project and at any receptor. – Include explicit commitment to the implementation of all applicable best practices identified in the Environment Canada document, <i>Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities</i> (2005). • Develop a Communications Protocol and a Complaints Protocol to respond to issues that develop during construction • Refer to the Construction Phase Air Quality Impact Assessment Report (Appendix A5) for further detailed mitigation measures. 	<p>with any and all air pollutants that may be produced as a result of the work.</p> <ul style="list-style-type: none"> – The criteria for PM_{2.5}, PM₁₀ and crystalline silica are provided in Metrolinx's <i>Environmental Guide for Air Quality and Greenhouse Gas Emissions Assessment</i> (2019). The applicable criteria for all other air contaminants of concern are to be found in the various schedules of <i>Ontario Regulation 419/05</i>. • Siting of the monitors should generally follow the guidelines provided in the Ministry of the Environment, Conservation and Parks (MECP) <i>Operations Manual for Air Quality Monitoring in Ontario</i> (2018). • Refer to the Construction Phase Air Quality Impact Assessment Report (Appendix A5) for detailed monitoring activities
Air Quality	Exhaust emissions of diesel powered trains contribute to local and regional air pollution.	-	•	Linear Facilities	<p><u>Mitigation Measures:</u></p> <ul style="list-style-type: none"> • A detailed Operations Air Quality Management Plan will be developed and implemented to limit the generation and dispersion of airborne particulate matter, NOx and other air contaminants associated with the project operations. • New traction engines or propulsion systems and new auxiliary engines and power units will meet higher emission standards (i.e., Tier 4 diesels rather than lower tier diesels). • Engines and their emission control equipment will be maintained to manufacturers' specifications. • Rebuilt diesel engines will meet Tier 4 emission standards at the time of major engine rebuilds. • Unnecessary train/engine/propulsion system idling will be minimized through technical and operational measures. • Unnecessary non-revenue equipment runs will be minimized through design and planning. <p><u>Mitigation Criteria:</u></p>	<ul style="list-style-type: none"> • On-site inspections will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. • Annually, test train propulsion and auxiliary power units, which produces exhaust emissions and ensure that they remain in compliance with applicable Transport Canada heavy-duty diesel engine exhaust emission standards for CO, PM, NOx and HC. Engine testing will include: <ul style="list-style-type: none"> – Testing at no load – Testing at 50% load – Testing at 100% load • Test rebuilt traction and auxiliary power diesel engines, before being placed into service, to the exhaust emission standards they are rebuilt to meet. • Develop an Air Sampling and Monitoring Plan and submit an annual report summarizing all

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					<ul style="list-style-type: none">Diesel engines used for traction and auxiliary power in locomotives and DMUs are subject to corresponding US EPA and Transport Canada heavy-duty diesel engine exhaust emission standards for CO, PM, NOx and HC.	sampling and monitoring results accumulated over the preceding year.
Noise and Vibration						
Construction and Maintenance-related Noise	<p>Environmental noise may cause annoyance, disturb sleep and other activities, and affect human health.</p> <p>The severity of the noise effects resulting from construction projects varies, depending on:</p> <ul style="list-style-type: none">Scale, location and complexity of the projectConstruction methods, processes and equipment deployedTotal duration of construction near sensitive noise receptorsConstruction activity periods (days, hours, time period) <p>Number and proximity of noise-sensitive sites to construction area(s)</p>	<ul style="list-style-type: none">	-	All Project Components	<ul style="list-style-type: none">Prior to commencement of construction, develop and submit a detailed Construction Noise Management Plan.The Construction Noise Management Plan shall:<ul style="list-style-type: none">Document and commit to all measures to be taken for meeting the noise exposure limits documented in the Metrolinx <i>Guide for Noise and Vibration Assessment</i> (2020) at every directly exposed sensitive receptor and throughout the entire project.Determine the Zone of Influence for construction related noise based on the noise exposure limits outlined in the Metrolinx <i>Guide for Noise and Vibration Assessment</i> (2020) and taking into consideration the construction site, staging and laydown sites and hauling routes, each stage of the construction (including demolition), the overall construction schedule along with the schedule of each major component and associated major construction processes and equipment usage.Identify all sensitive receptors that fall within the Zone of Influence for construction related noise. Mitigation measures will be proposed for these sensitive receptors, and the effects of the proposed mitigation measures will then be evaluated using noise modelling. If results of the modelling indicate that any sensitive receptors still remain within the Zone of Influence for construction related noise, then the following shall apply:<ul style="list-style-type: none">✓ Additional mitigation is proposed and subsequently modelled until the sensitive receptor does not fall within the Zone of Influence; or✓ If mitigation strategies are not viable, receptor based mitigation will be proposed.The Construction Noise Management Plan will include the temporary/permanent noise barriers	<ul style="list-style-type: none">The Construction Noise Management Plan will incorporate the following requirements related to monitoring of noise and noise related complaints:<ul style="list-style-type: none">Monitor noise where the Construction Noise Management Plan indicates that noise exposure limits may be exceeded. At these locations, monitor noise continuously at each geographically distinct, active construction site with one monitor located strategically to capture the highest exposure level based on planned construction activities and the number, geographic distribution and proximity of noise sensitive receptors. Develop weekly reports describing the monitoring conducted and summarizing the data collected for the reporting period. The reports will include but not be limited to the number and duration of any incident during which any of the noise exposure limits documented in the Metrolinx <i>Guide for Noise and Vibration Assessment</i> (2020) were exceeded, the probable cause of each exceedance, the incident-specific measure(s) implemented, the resulting mitigated noise levels and the complaints investigation procedure.Establish a Communications Protocol and a Complaints Protocol to respond to issues that develop during construction.

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					indicated in the applicable noise and vibration construction impact assessment report (2020). Where additional work sites are identified which were not assessed as part of the applicable noise and vibration construction impact assessment report (2020), or where construction activities at any given site differ from those considered in this report, conduct modelling to evaluate the need for additional noise barriers as part of the Construction Noise Management Plan.	
Operational Noise (<i>Trains</i>)	<p>Environmental noise may cause annoyance, disturb sleep and other activities, and affect human health.</p> <p>If operations are projected to cause a 5-dB increase or greater in the average energy equivalent noise (referred to as “Leq”) relative to the existing noise level or the MECP objective of 55 dBA for daytime and 50 dBA for night-time, whichever is higher, then mitigation is required.</p>	-	•	Linear Facilities and Midland Layover	<p><u>Mitigation per TPAP Study Report (Noise Barriers):</u></p> <ul style="list-style-type: none"> Deploy the noise barriers defined in the <i>Noise and Vibration Study Reports GO Rail Network Electrification Project, 2020</i> (RWDI). Maintain noise barriers so as to ensure their continued effectiveness in noise reduction. If deviating from the assessments made in the <i>Noise and Vibration Study Reports GO Rail Network Electrification Project, 2020</i> (RWDI), comply with the noise impact and assessment criteria in the <i>Metrolinx Guide for Noise and Vibration Assessment</i> (2020). <p><u>Mitigation at the Source:</u></p> <ul style="list-style-type: none"> Deploy vehicle and track technology and related maintenance measures to maintain compliance with the noise and vibration exposure criteria defined below. <p><u>Mitigation Criteria:</u></p> <ul style="list-style-type: none"> Meet the following long-term day-time/ night-time maximum noise exposure objectives at all noise sensitive receptors across the system, where background noise levels allow their realization: <ul style="list-style-type: none"> 10-year objective: 70/60 dBA 20-year objective: 60/50 dBA 25-year objective: 55/50 dBA Meet the airborne noise exposure criteria in the 1995 MOEE/GO Transit Draft Noise and Vibration Protocol. Meet the ground-borne (vibration induced) noise exposure criteria in the 1995 MOEE/GO Transit Draft Noise and Vibration Protocol. Meet any additional future criteria or guidance developed by regulatory agencies, as applicable. 	<ul style="list-style-type: none"> Measure and document the Leq (16-hour) and Leq (8-hour) noise levels, under predictable worst-case conditions, at locations where new noise mitigation barriers have been provided per the 2020 noise and vibration studies and per the Metrolinx Enhanced Mitigation Program. Outdoor measurements will be carried out in accordance with MECP requirements and US FTA Report No. 0123, Transit Noise and Vibration Impact Assessment Manual (2018). The primary purpose of these measurements is to ascertain the effectiveness of the implemented mitigation measure(s). Assess the condition and performance of locomotives, coaches, DMUs and EMUs with respect to noise emissions as part of maintenance to ensure continued compliance with manufacturer specifications Assess the condition and performance of the rail tracks and switches with respect to noise as part of maintenance to ensure continued compliance with manufacturer specifications.

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Construction and Maintenance-related Vibration	Exposure to vibration may result in public annoyance and complaints. Vibration may also cause damage to buildings and other structures.	•	-	All Project Components	<ul style="list-style-type: none"> Adhere to the following vibration exposure limits: <ul style="list-style-type: none"> Vibration, as a human irritant, is assessed in terms of its average level. Vibration velocity should not exceed 0.14 mm/s or current conditions (whichever is higher) by more than 25%. As a threat to buildings, vibration is assessed in terms of its peak value. The Zone of Influence for vibration shall be the area where structures are expected to experience vibration peak particle velocities that exceed 5 mm/s. Vibration velocity should be limited to 8-22 mm/s, depending on vibration frequency. These limits are prescribed by the City of Toronto by-law <i>Vibration: Chapter 363 dated November 27, 2019</i> for typical structures (not building with special needs). Adhere to the ground-born (vibration induced) noise exposure criteria in the US FTA Report No. 0123, <i>Transit Noise and Vibration Impact Assessment Manual</i> (2018). Develop and implement a detailed Construction Vibration Management Plan for Metrolinx review and approval with minimum requirements outlined below. <ul style="list-style-type: none"> Complete a detailed construction related vibration assessment prior to the commencement of construction that includes assessment of the vibration Zone of Influence. The Zone of Influence for vibration shall be established by using the methodology and input data provided in Section 7.2 of the US FTA Report No. 0123 (2018), <i>Transit Noise and Vibration Impact Assessment Manual</i> (2018). Complete pre-construction condition surveys for properties within the vibration Zone of Influence of the planned work to establish their condition and establish a baseline prior to any work beginning. Identify any heritage structures and other sensitive structures, buildings or infrastructure vulnerable to vibration damage, assess requirements and, if necessary, develop mitigation measures. Identify buildings, where vibration sensitive activities such a sound recording or medical 	<p>The Construction Vibration Management Plan will incorporate the following requirements related to monitoring of vibration and vibration related complaints:</p> <ul style="list-style-type: none"> The Construction Vibration Management Plan will incorporate the following requirements related to monitoring of vibration and vibration related complaints: <ul style="list-style-type: none"> Monitor vibration continuously at structures where the Construction Vibration Management Plan indicates that structures are deemed to be within the Zone Of Influence for construction related vibration or at additional structures as requested by Metrolinx. The type of Vibration Monitoring Program that is established is based on the vibration Zone Of Influence, the project location, duration, presence of night-time activity, and receptor proximity. The monitoring types include: <ul style="list-style-type: none"> ✓ Type 1: Monitoring continuously throughout the project (for receptors within the Zone Of Influence). ✓ Type 2: Monitoring during most impactful phases of the project only (for receptors outside of the Zone Of Influence but within 50 m of the boundary of the construction site). ✓ Type 3: Monitoring in response to complaints only (for receptors outside of the Zone Of Influence and beyond 50 m of the boundary of the construction site). Establish a Communications Protocol and a Complaints Protocol to respond to issues that develop during construction.

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					<p>image processing take place, assess requirements and, if necessary, develop mitigation measures.</p> <ul style="list-style-type: none">- Establish a 15-metre setback distance between the construction vibration source and nearby buildings, where possible, to minimize impacts. If this is not possible, then monitor the vibration levels associated with the activity.- Select construction/maintenance methods and equipment with the least vibration impacts.• In the presence of persistent complaints and subject to the results of a field investigation, identify alternative vibration control measures, where reasonably available.	
Operational Vibration (Trains)	<p>Vibration can cause annoyance, interfere with human activity and affect human health. It may also cause building damage.</p> <p>A change in vibration levels may occur where there are changes in track alignment, addition of new track, and changes to or addition of special track work.</p> <p>Vibration levels may also change with changes in rail vehicle specifications and operating conditions.</p>	-	•	Linear Facilities and Midland Layover	<p><u>Mitigation per TPAP Study Report:</u></p> <ul style="list-style-type: none">• Deploy mitigation recommended in the <i>OnCorr Noise and Vibration Study Report</i> (RWDI). Review and update the vibration assessment during the design of new infrastructure at representative receptor locations to ensure compliance with the vibration exposure criteria in the <i>MOEE/GO Transit Draft Protocol for Noise and Vibration Assessment</i> (1994). <p><u>Mitigation at the Source:</u></p> <ul style="list-style-type: none">• Deploy vehicle and track technology and related maintenance measures to maintain compliance with the noise and vibration exposure criteria defined below. <p><u>Mitigation Criteria:</u></p> <p>Meet the ground-borne vibration criteria in the 1995 MOEE/GO Transit Noise and Vibration Protocol.</p>	<ul style="list-style-type: none">• Measure and document the vibration impacts, under predictable worst-case conditions, of each distinct type of GO Transit train consistently operating in the corridor of interest at locations where the 2020 noise and vibration studies recommends mitigation of vibration impacts. Measurements will be carried out at or near representative vibration sensitive receptors in accordance with MECP requirements and US FTA Report No. 0123, Transit Noise and Vibration Impact Assessment Manual (2018). The primary purpose of these measurements is to ascertain the effectiveness of the implemented mitigation measure(s).• Assess the condition and performance of locomotives, coaches, DMUs and EMUs with respect to vibration levels as part of maintenance to ensure continued compliance with manufacturer specifications.• Assess the condition and performance of the rail tracks and switches with respect to vibration levels as part of maintenance to ensure continued compliance with manufacturer specifications.
Traffic and Transportation						
Road Network	Construction may result in the need for temporary road or lane	-	-	Scarborough GO Station Building	<ul style="list-style-type: none">• Traffic Control and Management Plan(s) will be developed prior to construction to maintain	<ul style="list-style-type: none">• Pedestrian, cyclist, and vehicular traffic impacts are to be monitored in accordance with

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	closures changing access to nearby land uses.	•	-	St. Clair Avenue East Bridge	reasonable access through work zones, to the extent possible.	a Traffic and Transit Management Plan and adjusted as necessary during the construction period. Cycling network impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and adjusted as necessary during the construction period.
		-	-	Midland Layover	• Access to nearby land uses will be maintained for vehicular, pedestrian and cyclist traffic. Potentially affected residents, tenants and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur.	
		•	-	Danforth Road/Midland Avenue Intersection	• Temporary vehicular and pedestrian facilities will comply with accessibility and applicable City standards.	
		-	-	Linear Facilities	• Potential effects to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate wayfinding, regulatory, and warning signs.	
		-	-	Corvette Multi-use Crossing	• Traffic signal timing optimization may be assessed/implemented to increase capacity of affected intersections and to aid in the movement of traffic. Traffic signal timing adjustments would require coordination between Metrolinx and City of Toronto, and will be undertaken if required, to determine appropriate changes to traffic signal timings.	
		•	-	Utilities	• During construction at the Danforth Road/Midland Avenue intersection, three lanes of traffic are proposed to remain open through a staged detour, to maintain traffic flow along Danforth Road.	
		-	-	Laydown Areas	• During construction of the St. Clair Avenue East bridge: <ul style="list-style-type: none">– Use of the delineated shoulder lanes to shift traffic during construction works, which will retain the same amount of lane capacity underneath the structure. This will be coordinated with the City of Toronto.– To minimize the impacts to nearby traffic signals, it is recommended that any lane reductions only be implemented during off-peak hours where possible (i.e., between 9:00 am and 4:00 pm). • Existing sidewalks and crossings will be maintained to the extent possible.	
					• Construction schedules will be shared with the public in advance of any construction works to reduce traffic during peak hours.	

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					<ul style="list-style-type: none"> No consecutive pedestrian crossings will be closed, unless otherwise authorized by the Road. Authority.. 	
Road Network	Changes to traffic flow at Danforth Road/Midland Avenue during operations.	-	•	Only applies to Danforth Road/Midland Avenue Intersection	<ul style="list-style-type: none"> As appropriate, the signal timing at the Danforth Road/Midland Avenue intersection may need to be adjusted to account for removal of the right-turn channels. 	<ul style="list-style-type: none"> Traffic impacts to be monitored in accordance with the Traffic Control and Management Plan.
Transit Network	Construction may result in access restrictions to local bus routes, temporary changes in bus stop shelters/locations and temporary disruptions to the existing rail corridor.	-	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Ensure that the public is notified in advance of any potential service disruptions. Consult with local transit agencies to establish a suitable mitigation strategy to be implemented. 	<ul style="list-style-type: none"> Traffic impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and adjusted as necessary during the construction period.
		--		St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		•	-	Linear Facilities		
		-	-	Corvette Multi-use Crossing		
		-	-	Utilities		
		-	-	Laydown Areas		
Cycling, Pedestrian and Trail Network	Temporary effects on cyclists/ pedestrians such as temporary partial or full sidewalk closures.	•	-	Scarborough GO Station Building	<ul style="list-style-type: none"> Potential effects to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate way finding, regulatory, and warning signs. Special directional signage will be considered to help pedestrians and cyclists avoid any potential construction activities. Existing sidewalks and crossings will be maintained to the extent possible. No consecutive pedestrian crossings will be closed, unless otherwise authorized by the Road Authority. Design elements were incorporated into the exit of the ramp structure on the west side of the rail corridor at the Corvette multi-use crossing (bridge option) to prevent cyclists from having direct access to Magnolia Avenue. 	<ul style="list-style-type: none"> Cycling network effects to be monitored in accordance with the Traffic Control and Management Plan and adjust as necessary during the construction period.
		•	-	St. Clair Avenue East Bridge		
		-	-	Midland Layover		
		•	-	Danforth Road/Midland Avenue Intersection		
		-	-	Linear Facilities		
		•	-	Corvette Multi-use Crossing		
		•	-	Utilities		
		-	-	Laydown Areas		
Cycling, Pedestrian and Trail Network	Increased distance to travel and greater exposure to weather elements	-	•	Only applies to the Corvette Multi-use Crossing	<ul style="list-style-type: none"> During detailed design, further examination can be undertaken to reduce ramps lengths (if possible) and the addition of stairs to the bridge could also be considered. 	<ul style="list-style-type: none"> None anticipated at this time.

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Environmental Component	Potential Effects	Project Phase - Construction	Project Phase - Operation	Project Components	Mitigation Measure(s)	Monitoring Activities
Cycling, Pedestrian and Trail Network	Cyclist safety at the ramp exit of the Corvette multi-use crossing	-	<ul style="list-style-type: none">	Only applies to the Corvette Multi-use Crossing	<ul style="list-style-type: none">Design elements were incorporated into the exit of the ramp structure on the west side of the rail corridor at the Corvette multi-use crossing (bridge option) to prevent cyclists from having direct access to Magnolia Avenue.	<ul style="list-style-type: none">None anticipated at this time.

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5.0 Climate Change Considerations

This section outlines how climate change considerations were taken into account in the environmental assessment and design of the proposed infrastructure associated with the Project. Specifically, this section describes how the TPAP incorporates the MECP guidance for considering climate change in environmental assessments, with a focus on climate change mitigation and adaptation.

The Intergovernmental Panel on Climate Change (IPPC) defines climate change as:

“...a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use.” (Intergovernmental Panel on Climate Change 2014)

The term “climate change” can apply to any major variation in temperature, wind patterns or precipitation that occurs over time. Changes in the composition of the atmosphere are resulting in processes that alter global temperature, precipitation, and are affecting local weather patterns. These processes are leading to increased occurrence of extreme weather events such as floods, droughts, ice storms and heat waves across the GGH (Metrolinx 2017c).

To mitigate climate change and its effects on the natural and built environments, government agencies at all levels have developed strategies and guidelines to reduce greenhouse gas (GHG) emissions into the atmosphere. Government agencies are also implementing measures that promote resiliency to a changing climate. Consistent with these strategies and guidelines, the planning and design of this Project will consider both climate change *mitigation* (i.e., minimizing effects of a project on climate change) and *adaptation* (i.e., resilience of a project to future climatic conditions).

Section 5.1 outlines the policy context which guides how climate change has been considered in the planning of this Project. Sections 5.2 (mitigation) and 5.3 (adaptation) describe how these considerations are being implemented in Project planning and design. Given the relatively small effects of the transit project on climate change, and Metrolinx’s extensive existing guidance on how to build and operate the infrastructure considering future extreme weather events, reference to existing climate change

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strategies and policies was judged to be sufficient in considering climate change in the TPAP.

5.1 Policy Context

5.1.1 Government of Ontario

The Government of Ontario has committed to reducing GHG emissions to 30% below the 2005 levels by 2030 (i.e., 143 megatonnes of carbon dioxide equivalent (CO₂e) by 2030) (Government of Ontario 2018).

The *Infrastructure for Jobs and Prosperity Act, 2015* (Province of Ontario 2015) indicates that infrastructure should be planned to mitigate effects on climate change and be designed to consider climate change adaptation. Specifically, Section 3.11 of this Act states that:

“Infrastructure planning and investment should minimize the impact of infrastructure on the environment and respect and help maintain ecological and biological diversity, and infrastructure should be designed to be resilient to the effects of climate change.”

The 2020 Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing 2020) issued under the *Planning Act* advises on the need to consider reducing GHG emissions and reducing the potential risk of climate change-related events like droughts or intense precipitation. It encourages green infrastructure and strengthened stormwater management requirements; energy conservation and efficiency; reduced GHG emissions; climate change adaptation (e.g., tree cover for shade and for carbon sequestration); and consideration of the increased risk associated with natural hazards (e.g., flooding due to severe weather).

Applicability to the Transit Project

Improving the public transit network can reduce traffic congestion and reduce the need for new road infrastructure, as well as reduce carbon emissions and air quality concerns associated with automobile use, contributing to reductions in GHG emission and helping to achieve provincial targets. Metrolinx is working in alignment with the intent of the *Infrastructure for Jobs and Prosperity Act, 2015* in the planning and design of the Project.

Since infrastructure proposed by the Project have life spans that have the potential to face significant climatic changes based on conservative climate projections, there is a need to consider both the operational impacts to climate change, as well as how the Project will be affected by future climate change-related events such as droughts or

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intense precipitation. This includes consideration of most of the aspects highlighted in the PPS, including green infrastructure; stormwater management; energy conservation and efficiency; GHG emissions; vegetation/carbon sequestration; and resiliency to natural hazards such as flooding. Specific measures related to these aspects are further discussed in Sections 5.2 and 5.3.

5.1.2 Ministry of the Environment, Conservation and Parks

The MECP has prepared a guide titled *Considering Climate Change in the Environmental Assessment Process* (MECP 2017), to describe how environmental assessment processes shall incorporate consideration of climate change impacts, including:

- The effects of a project on climate change;
- The effects of climate change on a project; and
- Various means of identifying and minimizing negative effects during project design.

Considering climate change in accordance with the guide is meant to result in a project that is more resilient to future changes in climate and helps maintain the ecological integrity of the local environment in the face of a changing climate.

The guide states that proponents should take into account climate change mitigation and adaptation during both the assessment of alternatives to the undertaking and alternative methods of implementing the undertaking. Specific to transit projects assessed under the TPAP, the guide advises that the consideration of climate change should be scaled to the significance of the project's potential environmental effects, and that evaluation can be qualitative and/or quantitative.

Applicability to the Transit Project

The TPAP starts with a selected transit project. *O. Reg. 231/08* does not require proponents to look at the rationale and planning alternatives or alternative solutions to public transit or the rationale and planning alternatives or alternative solutions to the particular transit project (MOECC 2014). The climate change assessment contained in this EPR focuses on the various design and mitigation measures that will support climate change mitigation and adaptation during operations of the Project.

Since the Project will be operational for the foreseeable future, it will likely be affected by future climate change-related events such as droughts or intense precipitation. As a result, designs, construction and operations should consider the potential for these future events. The Project will continue to take climate change considerations into

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account as the design progresses beyond the TPAP, advancing from its current conceptual level of design in future Project phases.

Table 5.1 outlines how climate change was considered in this Project. Each of the areas considered is described in greater detail in Sections 5.2 and 5.3.

Table 5.1: Consideration of Climate Change in the Pre-TPAP and TPAP Phases

Consideration	Project Phase	Areas considered	Type of Evaluation
Effects of the Project on climate change (mitigation)	Pre-TPAP, detailed design, construction, operations	• Planning for transit	• Qualitative
		• GHG emissions	• Quantitative
		• Vegetation removal and compensation	• Qualitative
		• Energy consumption and emissions	• Qualitative
		• Environmental Management System	• Qualitative
Effects of climate change on the Project (adaptation)	Detailed design, construction, operations	• Air temperature (building materials, solar infiltration, shade, urban heat island effect)	• Qualitative
		• Precipitation (stormwater management, low impact development, erosion and sediment control)	• Qualitative
		• Drought (water reuse/reduction, vegetation)	• Qualitative

Further, Table 5.2 outlines how the primary expectations for proponents when considering climate change according to the MECP's guide (as indicated by "should" statements in the guide) have been addressed in the EPR.

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Table 5.2: Consideration of Climate Change in the EPR

Recommendation	Section(s)
<p>The ministry expects proponents to take into account:</p> <ul style="list-style-type: none"> • The project's expected production of greenhouse gas emissions and effects on carbon sinks (climate change mitigation) • Resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation) 	<ul style="list-style-type: none"> • Section 5.2.2 (greenhouse gas emissions) • Section 5.2.3 (effects on carbon sinks) • Section 5.3 (climate change adaptation)
The proponent should also include a discrete statement in their study report detailing how climate change was considered in the environmental assessment	<ul style="list-style-type: none"> • Section 5.1.2, Table 5.1
Proponents of natural resource related projects should consult Appendix B for treatment of carbon stocks as sinks versus sources	The transit project is not natural resource related, so this is not applicable
Proponents should include evaluation criteria, such as greenhouse gas emissions and effects on carbon sinks, in the assessment of alternatives and alternative methods	The TPAP does not include an assessment of alternatives or alternative methods, so this is not applicable
In concluding an environmental assessment study, the proponent should also include a statement in their study report about how climate change was considered in the environmental assessment and how the preferred alternative (project) is expected to perform with climate change considered	Section 5.0
Proponents should include evaluation criteria such as extreme weather events in their screening of alternatives, and alternative methods	The TPAP does not include an assessment of alternatives or alternative methods, so this is not applicable
Proponents should also include in their study report, a statement about how climate change was considered in the environmental assessment, specifically in relation to the preferred alternative (project)	The TPAP does not include an assessment of alternatives or alternative methods, so this is not applicable
All climate parameters with potential to interact with a project should be defined and considered at a screening level to fully understand which interactions pose higher risk	Section 5.3, Table 5.3
Proponents should also document any uncertainty related to either downscaling climate change projections to specific sites, or expected effects to the environment or project, within the environmental assessment	Metrolinx is moving towards using downscaling projections as described in its <i>Planning for Resiliency</i> report (Metrolinx, 2017) to inform decisions regarding planning, construction and operations of infrastructure. This considers adaptation to climate change across all infrastructure assets,

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Recommendation	Section(s)
	including existing and future stations
Considering climate change in the terms of reference for an environmental assessment should commit the proponent to considering climate change effects in related project studies prepared in support of the environmental assessment report	The TPAP does not include a terms of reference, so this is not applicable
Considering climate change in an environmental assessment should result in the proponent refining and documenting measures for dealing with climate change effects as the undertaking moves toward implementation stage. Examples could include adapted design or maintenance schedules, additional studies, and revised operating procedures	Section 5.3
Considering climate change in streamlined environmental assessment processes and studies could result in the inclusion of a commitment on how the proponent will implement climate change adaptation and mitigation measures during the detailed design phase of any given project	Section 5.2.3 and Section 5.3.2
Proponents should consider whether making reference to existing climate change strategies or policies alone is sufficient as a consideration of climate change, or whether a more detailed consideration of climate change should be carried out when conducting project-specific environmental assessment studies. Documentation of the results of this consideration should be included as part of project reporting	Section 5.0

5.1.3 Metrolinx

Metrolinx's Regional Transportation Plan (RTP) 2041 (Metrolinx 2018b) outlines the long-term projects, plans, and activities Metrolinx will deliver to support reduction of Ontario's overall GHG emissions by promoting a shift from single occupant vehicles to more energy-efficient options such as public transit, walking, cycling, carpooling, and teleworking.

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Metrolinx is committed to ensuring that the existing transit network and proposed infrastructure will have a low-carbon footprint⁵ and contribute to a clean and healthy environment for future generations (Metrolinx 2016). Metrolinx has outlined key climate change goals in its Sustainability Strategy (2015 – 2020) (Metrolinx 2016). The Sustainability Strategy addresses climate change through five goals, which are:

- Goal 1: Become Climate Resilient – Accelerate and intensify our efforts to implement a climate adaptation and resilience program to manage and mitigate climate change risks.
- Goal 2: Reduce Energy Use and Emissions – Adopt processes, programs and technologies that allow us to effectively track, monitor and reduce our energy consumption, and carbon and air emissions.
- Goal 3: Integrate Sustainability in our Supply Chain – Minimize the impact associated with the use, extraction, processing, transport, maintenance, and disposal of materials and integrate sustainability criteria into our vendor management decisions. This goal extends to consideration of embodied carbon (i.e., the carbon dioxide emitted during the manufacture, transport and construction of materials, together with end of life emissions).
- Goal 4: Minimize Impacts on Ecosystems – Consider the impact of infrastructure and services on ecosystems and ecosystem services and make best efforts to manage, preserve and protect. This includes the consideration of infrastructure projects within the broader context of ecosystems and ecological values, including watershed/stormwater management considerations.
- Goal 5: Enhance Community Responsibility – Leverage our significant investment in the region to create a lasting legacy for our communities and work closely with communities to create economic and social value.

For GO stations, terminals, and facilities, including this Project, Metrolinx generally requires that contractors adhere to the GO Design Requirements Manual (DRM) (Metrolinx 2020) and other applicable Metrolinx design standards, including the Metrolinx Sustainable Design Standard. The DRM outlines the Guiding Principles and technical details for designing and building GO station infrastructure (Off Corridor

⁵ A carbon footprint is the total greenhouse gas emissions attributed to a body (e.g., person, facility, or event) expressed as carbon dioxide equivalent (CO₂e). CO₂e is a standard unit for measuring carbon footprints, as a way to express the impact of each different greenhouse gas in terms of the amount of CO₂ that would create the same amount of warming.

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[OffCorr] infrastructure). The DRM covers a number of areas directly and indirectly related to climate change adaptation and mitigation, including stormwater management, energy consumption and emissions, and vegetation. Effort will be made to apply DRM requirements to the infrastructure components to the maximum extent possible. The Metrolinx Sustainable Design Standard outlines specific design requirements and reporting direction for designing and building projects with capital costs over \$100 million or otherwise required by Metrolinx. The Sustainable Design Standard covers a number of areas related to climate vulnerability and risk assessments and stormwater management. Effort will be made to apply Sustainable Design Standard requirements to infrastructure components to the maximum extent possible.

Applicability to the Transit Project

Of the goals identified above, Goals 1, 2 and 4 align most directly with climate change adaptation and mitigation as described in the MECP's guide. Goal 1 is focused on adaptation and has been considered in various aspects of new facilities design. Goal 2 relates to minimizing emissions during operations (mitigation), while Goal 4 focuses on minimizing impacts to ecosystems both during construction and operations (adaptation and mitigation). The following sections outline how project planning and design have been undertaken with regard to climate change mitigation and adaptation.

Goals 3 and 5 more broadly speak to how the construction and operations of the Project can minimize environmental impacts as well as maximize social value. These goals are discussed throughout this section.

5.2 Considering the Effects of the Transit Project on Climate Change (Climate Change Mitigation)

As indicated in Table 5.1, the effects of the Project on climate change (mitigation) have been evaluated both quantitatively (for GHG emissions) and qualitatively (for transit planning, vegetation compensation/revegetation, energy consumption/emissions and environmental management systems).

5.2.1 Planning for Transit

Public transportation is a beneficial service that can reduce traffic congestion, the need for new road infrastructure, and carbon emissions and air quality concerns associated with automobile use.

Improvements to transit will decrease average transit trip times in the GGH, even with an increasing population, leading to more people using public transportation and fewer vehicle-kilometres travelled in congested conditions. This reduction in congestion, when

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combined with expected improvements in automobile fuel efficiency, will result in a decrease in per capita GHG emissions from automobile trips (Metrolinx 2018).

The Project has been identified for implementation through a comprehensive, iterative planning process for new infrastructure in the GGH. Business case analysis for the GO Expansion Program has indicated that benefits (travel time savings for new customers, auto usage decrease, increased service) outweigh impacts (delays to upstream passengers, auto usage increase). Further information about the business cases is provided in Section 1.3.1.1. It is anticipated that the introduction of these new tracks and facilities will assist in implementing the planned service increases and thus increasing the use of public transportation, thereby decreasing congestion and improving per capita GHG emissions.

5.2.2 Greenhouse Gas Emissions

The successful Project consortium will be required to establish a baseline of GHG emissions for the Project once operational and monitor energy use of all forms for future opportunities for reduction (this should be done using a three-year baseline in order to establish a normalization of energy data). An accurate picture of energy savings can be developed in accordance with the new Metrolinx GHG Corporate Reporting process and standards.

Greenhouse gas emissions were not included in the construction air quality investigation as a detailed Construction AQMP will be prepared by the Contractor, that will include specific air quality objectives as outlined in the Metrolinx Environmental Guide of Air Quality and Greenhouse Gas Emissions Assessment (Metrolinx 2019a).

5.2.3 Vegetation Compensation and Revegetation

As noted in Sections 4.2 and 4.3 , the construction of the new infrastructure will require the removal of trees and vegetation, which will result in a temporary loss of an existing carbon sink within the local environment.

Metrolinx is establishing a Vegetation Removal and Compensation Protocol for GO Expansion projects. The Metrolinx Vegetation Guidelines (Metrolinx 2020) will be applied to the Project. Vegetation or trees that are removed will be compensated for in accordance with the provisions of this protocol, as follows:

- **For Municipal/Private Trees:** Metrolinx will work with each municipality to develop a municipality-wide streamlined tree permitting/compensation approach for municipal and private trees. The goal is to reduce administrative permitting burden for trees along long stretches of rail corridor.

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- **For Trees Within Metrolinx Property:** Metrolinx is developing a methodology to compensate for trees located within Metrolinx's property. This will involve categorizing trees community types/ecological value and establishing the appropriate level of compensation. Metrolinx will be looking to partner with Conservation Authorities and municipalities to develop the final compensation plan.
- **Conservation Authorities:** For vegetation removals within Conservation Authority regulated areas where required, applicable removal and restoration requirements will be followed.
- **Federal lands:** For vegetation removals within Federally owned lands where required, applicable removal and restoration requirements will be followed.
- **Tree End Use:** Options for the end use of trees removed from Metrolinx property (e.g., reuse/recycling options) will be developed.

Compensation of disturbed areas will take place as soon as possible. Post-planting monitoring of restoration areas will occur for one year after installation. One site visit will be conducted during the subsequent growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken one year thereafter with one additional monitoring visit in the following growing season.

Additionally, the Metrolinx DRM requires that plant materials suitable to the growing environment at project sites be selected for vegetation/revegetation, and that species (native or non-native) must be hardy, drought and salt-tolerant, and resistant to the stresses of compacted soils and weather exposure.

5.2.4 Energy Consumption and Emissions

To lower the energy consumption and carbon footprint of the proposed infrastructure, the successful Project consortium will be required to explore (sequentially) the following groups of methods for applicability and feasibility: energy efficiency, energy conservation and recovery, and energy harvesting. Examples include:

- **Energy efficiency** – use premium efficiency motors or other equipment; applying passive means of reducing energy where it does not conflict with other operational design requirements, including the use of building materials with high-insulation/energy efficiency value where possible.
- **Energy conservation and recovery** – employ regenerative braking systems to capture energy from braking vehicles (already proposed for the GO Rail Network Electrification (2017)); and

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- **Energy harvesting** – consider incorporating solar thermal systems, passive solar systems and/or ground source heat pump systems to replace or augment fuel-based systems.

These and other considerations will be developed into an Energy and Emissions Management Plan that will include targets and programs to promote continuous reduction of energy and emissions (both GHG and criteria air contaminant).

5.2.5 Environmental Management System

Metrolinx has developed an Environmental Management System (Env.MS), which outlines an organization-wide framework for pursuing environmental compliance and continuous environmental improvements. The Env.MS, which follows the ISO 14001 standard⁶, is currently expanding from its operational focus to encompass additional environmental responsibility and stewardship considerations.

The overall objectives of the Metrolinx Sustainability Strategy are reflected in the Env.MS with respect to climate change mitigation, energy use reduction, and air emissions (i.e., GHG) management. Both the construction and operation of the Project will be subject to Metrolinx's Env.MS.

The Env.MS includes:

- Environmental standards for managing chemicals, solid waste, regulated waste, bulk storage and fuel handling, water use and disposal, energy use, air emissions, ozone-depleting substances, designated substances and hazardous materials, snow and ice, and wildlife and vegetation;
- Compliance audits and corrective action planning;
- Environmental reporting metrics;
- Monitoring of environmental impacts; and
- Monitoring of energy use and air emissions.

⁶ ISO 14001 is an international standard that outlines specific requirements for an effective environmental management system. The standard provides a framework suitable for use by an organization, and covers topics such as: Context of the organization, Leadership, Planning, Support, Operation, Performance evaluation, and Improvement.

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Through the use of standards, audits, and reporting, the Env.MS will promote ongoing compliance with regulatory and corporate environmental requirements throughout construction and operations of the Project. Additionally, monitoring of impacts will support ecosystem resilience, consistent with overall Metrolinx sustainability objectives.

Additionally, a Sustainability Plan for the Project will be developed by the successful Project consortium and will be aligned with the Env.MS. Once developed, this Sustainability Plan will be incorporated into the Env.MS to help ensure that the Project maintains environmental compliance and continuous environmental improvement.

5.3 Considering Potential Effects of Climate Change on the Transit Project (Climate Change Adaptation)

It is recognized that climate change is already underway and can be anticipated to affect the construction and operations of the Project. There is general agreement that the Great Lakes Basin will see increases in temperature, precipitation, drought, wind gust events, and freezing rain by the end of this century; however, the level of confidence and quality of supporting evidence for these projections vary considerably (Metrolinx 2017c). Table 5.3 shows changing climate parameters and predictions for climate change.

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Table 5.3: Metrolinx Climate Parameters List: Probability And Scores

Climate Parameter	Threshold	Annual Probability		Prob. Of Occurrence for Period (2015-2050)	PIEVC Scoring		
		Historical	2050s		Annual: Historical	Annual: 2050s	Study Period (35 year)
Extreme Temperatures	40°C	~0.01 per year	1-7 days per year	~100%	1	7	7
	32°C	6.5 days per year	27.5 days per year	1	7	7	7
	-30°C	0.05 days per year	<0.01 days per year	<70%	2	0-1	5-6
	-23°C	1.1 days per year	0.1 days per year	1	7	3	7
Temperature Ranges	60°C in one year	0.1 days per year	<0.01 events per year	<90%	3	0-1	6
Reduced Visibility (e.g., fog, blowing snow)	400 m	49 hours per year, 15.1 days per year	strong trend ↓, stable recent period	1	7	6-7	7
	200 m	33 hours per year, 11.9 days per year	strong trend ↓, stable recent period	1	7	6-7	7
Frost Penetration	1.2 m or below	0.17 per year	Trend↓ but some conflicting factors	>90%	4	3	6-7
High Winds (Gusts)	90 km/h	2 per year	>2.5 per year	1	7	7	7
	120 km/h	0.05 days per year	Likely ↑	85% or higher	2	2	6-7
Tornadoes	EF1+	1-in-6,000	Unknown	~0.6%	0	0	0-1

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Climate Parameter	Threshold	Annual Probability		Prob. Of Occurrence for Period (2015-2050)	PIEVC Scoring		
		Historical	2050s		Annual: Historical	Annual: 2050s	Study Period (35 year)
Overland Flood/ Heavy Rainfall	≥25 mm in 2 hour	~ 0.8 events per year	Very likely ↑	1	6	6	7
	≥60 mm in 2 hours	≤ 0.03 events or less per year	Very likely ↑	~70%	1-2	2	6
Freezing Rain	≥ 10 mm	~ 0.2 days per year	~ 0.3 days per year	~100%	4	4-5	7
	≥ 25 mm	0.06 days per year	>0.09 days per year	>95%	2	3	7
Snow	Blowing snow	7.8 days per year	Trends not significant to scoring	1	7	7	7
	≥ 20 cm in one day	0.1 days per year	Conflicting trends, likely remaining similar	>95%	3	3	6-7
Hail	"Gold ball" / 45 mm or larger	0.07 per year	Unknown	>90%	2-3	unknown	6
Horizontal Rain	Gusting 50 km/h + >25 mm rain	1.8 days per year	Slight trend ↑	1	7	7	7
Lightning	Direct strikes	~ 0.3% per year	Likely ↑	>99%	1	unknown	3

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To focus the consideration of effects of climate change on the Project, only those themes where there is high or medium agreement on data are addressed in the sections below, for both the construction and operations phases of the Project.

5.3.1 Air Temperature

Recognizing increasing summer temperatures, the DRM considers reducing effects of extreme heat on all Metrolinx assets. It should be noted that DRM requirements may not be applicable for all of the different infrastructure components. The DRM indicates that new GO infrastructure designs will:

- Consider building material selection to limit absorption of solar radiation.
- Automate building systems to reduce solar infiltration (i.e., automatic window blinds) or provide manual alternatives.
- Maximize shade along pedestrian routes and in parking areas.
- Mitigate the urban heat island effect through plantings, selection of building materials and proactive shade management.

5.3.2 Precipitation

Precipitation, whether it is rainfall, snowfall, or other forms of frozen/liquid water, is the key climate and weather-related variable of concern in stormwater management. As a result of climate change, storm events are predicted to become more intense in the GGH, which can result in larger volumes of precipitation at one time.

The stormwater management design for the Project will consider the drainage and stormwater management objectives of the MECP Stormwater Management Planning and Design Manual (2003), MTO Drainage Management Manual (2008), TRCA Stormwater Management Criteria (2012), the City of Toronto's Design Criteria for Sewers and Watermains (2019d), the City of Toronto's Wet Weather Flow Management Guidelines (2006) Low Impact Development Guidelines for Storm Water Management Design (2010), and the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering (2017). This will be supplemented by current guidance such as the runoff volume control targets for Ontario recommended to MECP (Aquafor Beech Ltd. and Earthfx Inc., 2016) from local municipalities and Conservation Authorities.

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Stormceptors⁷ and stormwater management features must be sized appropriately to manage predicted future scenario flows and sediment loading (i.e., winter and spring).

A detailed Stormwater Management Plan will be developed to demonstrate that the proposed Project complies with drainage and SWM requirements with respect to stormwater conveyance, quantity, quality, and water balance prior to the construction phase of the Project. Analysis of the effect of the proposed works on existing and new stormwater infrastructure and drainage patterns will be quantified using the approved City of Toronto hydrology/hydraulics model. This model was developed to quantify basement flooding risk and provide recommended mitigation strategies for mitigating basement flooding risk for future storm events. The analysis of the proposed works will demonstrate that the proposed works do not violate the flood risk criteria developed as part of the *Basement Flooding Remediation and Water Quality Improvement Master Plan Class EA – Study Area 34* (City of Toronto 2018).

5.3.3 Intensity-Duration-Frequency Curves

A detailed Stormwater Management Plan will be developed prior to the construction phase of the Project so that runoff from rainfall is controlled based on predicted future scenarios, to promote climate resilience. These scenarios will be identified by using the most up-to-date precipitation intensity-duration-frequency (IDF) curves available.

IDF curves are graphical representations of the amount of water that falls within a given period of time in catchment areas and are used by decision makers to plan and design infrastructure to withstand severe weather impacts (Office of the Auditor General of Canada 2016). Current stormwater management practices include the use of IDF data and design storm distributions (e.g., Chicago Storm, Hurricane Hazel), as well as 2-year through to 100-year⁸ storm events.

Designing the stormwater management systems for the Project based on up-to-date IDF curves will lead to:

- Reduced ongoing operation and maintenance requirements; and,

⁷ A stormceptor is an oil grit separator/hydrodynamic separator, designed to protect waterways from hazardous material spills and stormwater pollution.

⁸ Storm even frequency is used to simplify the definition of a rainfall event that statistically has a chance of occurring once within the given time period (e.g., a 100-year storm has a 1 in 100 (1%) probability of occurring in any given year).

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- Minimized impacts on surrounding ecosystems, since stormwater management systems will be designed to ensure that runoff from rainfall is controlled mostly on-site.

5.3.4 Low-Impact Development

The stormwater management designs for the Project will consider implementation of Low Impact Development (LID) measures. LID is a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible (i.e., in the vicinity of the proposed infrastructure). Compared to conventional design, LID measures allow for increased infiltration of stormwater through built infrastructure, which would be beneficial for managing stormwater should storms increase in intensity. LID design strategies include measures that can effectively remove nutrients, pathogens and metals from runoff, and reduce the volume and intensity of stormwater flows (Sustainable Technologies Evaluation Program (STEP) 2020).

The design of the LID measures will consider the guidance provided in the Low Impact Development Stormwater Management Planning And Design Guide (STEP 2020). Over the long-term operation of the Project, stormwater management facilities including LID measures will be monitored to ensure that these features are maintained appropriately and repaired where and when required.

5.3.4.1 Erosion and Sediment Control Measures

An increase in storm intensity, which is projected as a result of climate change (see Table 5.3), can make erosion and sedimentation more likely, especially during construction. Erosion and Sediment Control (ESC) measures a, including the development of an ESC Plan, will be implemented during the construction phase of the Project to ensure stormwater runoff is controlled and sediment is prevented from entering sewers and watercourses. The ESC Plan will include consideration of the Greater Golden Horseshoe Area Conservation Authorities' Erosion and Sediment Control Guideline for Urban Construction (Greater Golden Horseshoe Area Conservation Authorities, 2019) and OPSS 805 (Erosion and Sediment Control Measures). Installation and monitoring of appropriate ESC measures will help mitigate potential effects of climate change on the Project.

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5.3.5 Drought

As summarized in Table 5.3, the Great Lakes Basin is projected to see increases in frequency and extent of drought. Facilities design will include consideration of water conservation measures to reduce effects of drought on the Project, such as:

- Metering indoor and outdoor water use to better track and manage the impacts of extended droughts on operations and landscape plantings.
- Using collected rainwater for plant irrigation.
- Using water conserving systems to reduce consumption.
- Planting drought resistant vegetation.

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6.0 Consultation Process

6.1 Consultation Overview

In accordance with Section 8 of *O. Reg. 231/08*, this section summarizes the consultation activities carried out with Project stakeholders (public [including property and business owners], agencies, municipalities, elected officials, and interested groups) and Indigenous Nations during the course of the Project, including a summary of feedback and comments received and how they were considered.

6.1.1 Approach to Consultation

The objectives for the consultation program were openness, transparency, access to information, early and ongoing opportunities for input, responsiveness, accountability, and accessible and accurate documentation. These objectives support the purpose of the TPAP, which is to support the design and delivery of a transit solution in a manner that addresses the objectives of provincial and regional transit policy, while limiting negative environmental effects.

In consideration of the number of initiatives Metrolinx is currently pursuing through the GO Expansion Program (refer to Section 1.3.1.1.1), a corridor-wide approach to consultation was undertaken, whereby Metrolinx consulted on currently proposed GO Expansion projects through a single consultation process to provide a comprehensive overview of these Metrolinx projects across the network. In addition to this Project, Metrolinx has consulted on the following TPAPs as part of the coordinated consultation efforts:

- Electrification TPAP Addendum
- Stouffville Rail Corridor Grade Separations
- New Track and Facilities
- Network Wide Structures Project

Focused consultation activities have been tailored to meet the individual needs of the different groups being consulted. Different consultation activities provided the types of information requested by the different groups. For example, direct meetings with government review agencies allowed for a detailed review of specific design components that would require government permits prior to construction; while public meetings allowed for a broad overview of the Project and an opportunity for other

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stakeholders and Indigenous Nations to ask specific questions of the Project team based on their particular interests.

Feedback was sought throughout the Pre-Planning and TPAP stages of the study. Consultation activities including meeting with review agencies and elected officials on an as-needed basis in advance of, and throughout the duration of the TPAP study, as well as early consultation prior to the formal initiation of the TPAP, and final consultation as part of the regulated process following the Notice of Commencement.

A contact list (Appendix B) was developed and updated throughout the Pre-Planning and TPAP stages of the study to identify interested parties. The following parties were included in the contact list:

- Government agencies and municipal departments
- Elected officials
- Members of the public, special interest groups, property owners, utilities and the business community
- Indigenous Nations, as identified by the MECP and MTO refer to Section 6.1.3.4

The Pre-Planning stage of the study commenced with the identification by Metrolinx of the need for the Project. Consultation activities undertaken as part of Pre-Planning activities included the following key steps:

- Project introduction letters were sent to the parties on the contact list to describe the Project
- Meetings with municipal departments, government agencies and elected officials were conducted to introduce and describe the Project, and advance planning/conceptual design discussions
- Technical Advisory Committee meetings with the City of Toronto to discuss details of the Project in depth
- Letters were emailed to Indigenous Nations to introduce the Project and determine community interest and potential effects on Aboriginal or treaty rights
- A first round of public meetings was held between February 18 and 29, 2020 to show existing conditions, introduce the Project and describe potential effects and mitigation measures

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- A second round of public meetings was held between August 18 and September 1, 2020 to provide additional details regarding the Project, including results of the environment studies undertaken in support of the Project
- Public meeting information was provided on the Project website
- A dedicated Project website and email address were created, www.metrolinxengage.com and GOExpansionTPAP@metrolinx.com or the appropriate Metrolinx Regional Representative email (TorontoEast@metrolinx.com) to encourage feedback, for receipt of comments and questions, and to post available Project documentation

The TPAP stage of the study commenced with the issuance of a Notice of Commencement. Consultation activities undertaken thereafter, as part of the TPAP, included the following key steps:

- Notice of Commencement distributed to the contact list and published to local media and on the Project website
- Notice of Public Meetings distributed to the contact list and published to local media and on the Project website
- Online engagement for stakeholders and Indigenous Nations was undertaken, including encouraging digital feedback, by providing a dedicated email address for receipt of comments and questions, and providing a link on www.metrolinxengage.com through which comments and questions could be submitted
- Follow up consultation with interested parties who provided comments on the environmental technical studies and other Project components, as needed
- Final EPR made available in electronic format for public review
- Notice of Completion distributed to the contact list and published to local media and on the Project website
- Final 30-day review of this EPR by interested parties

Metrolinx has the ultimate responsibility for the safe and effective implementation of the Project and will manage consultation approaches consistent with applicable regulations and standards, making reasonable effort to resolve issues, and track outstanding issues and commitments through subsequent Project phases.

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6.1.2 Record of Consultation

Comments and questions arising from consultation activities were tracked and managed on an ongoing basis and incorporated into the development of the EPR as appropriate. All documents produced for consultation activities, including a comment tracking table and registry, were maintained as part of a Record of Consultation (RoC) (Appendix B). The Record of Consultation includes the following:

- Consultation Log that documents consultation activities and includes information on relevant correspondence, notices, presentation materials and communication items for the Project
- Comment Tracking Table used to track comments received and responses provided
- Copies of correspondence letters between Metrolinx and interested parties (contact details redacted as required for privacy)
- Copies of notices and presentation materials, website content
- Commitments registry that tracks commitments made during the TPAP, including those that have been addressed in the EPR, and those that will require additional activity after the issuance of the Notice of Completion (refer to Table 7.2)

6.1.3 Identification of Interested Parties

Potentially interested parties were initially identified through review of MECP's GRT list, by reaching out to a local and regional municipal bodies and agencies with jurisdiction in the Study Area, obtaining a list of Indigenous Nation contacts from the MECP and MTO, developing a distribution map for Canada Post mailings within 100 m of the Project Footprint, and identifying any elected officials who may have an interest in the Project. The contact list for the Project has evolved throughout the EA process, based on the level of interest expressed by individuals or additional guidance received by regulatory bodies throughout the study. A mailing distribution map was prepared and is included in Appendix B.

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6.1.3.1 Agencies and Public Bodies

Representatives from the following public bodies were included in the contact list.

Federal Government

- Transport Canada
- Canadian Transportation Agency
- Environment and Climate Change Canada
- Crown-Indigenous Relations and Northern Affairs Canada
- Health Canada

Provincial Government

- Ministry of the Environment, Conservation and Parks
- Ministry of Indigenous Affairs
- Ministry of Energy, Northern Development and Mines
- Ministry of Municipal Affairs and Housing
- Ministry of Natural Resources and Forestry
- Ministry of Heritage, Sport, Tourism, and Culture Industries
- Ministry of Transportation
- Ministry of Community Safety and Correctional Services
- Ministry of Economic Development, Job Creation and Trade
- Ontario Heritage Trust
- Infrastructure Ontario
- Ontario Growth Secretariat

Municipal Government, Conservation Authorities and Related Municipal Bodies

- City of Toronto

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- Toronto and Region Conservation Authority
- Toronto Transit Commission
- Toronto Catholic District School Board
- Toronto District School Board
- Conseil Scolaire Viamonde
- Conseil Scolaire de District Catholique Centre-Sud
- Toronto Public Health Unit
- Municipal police, fire and emergency services

6.1.3.2 Elected Officials

The following elected officials were contacted as part of the Project and included in the contact list:

Members of Parliament

- Scarborough Centre – Hon. Salma Zahid
- Scarborough Southwest – Hon. Bill Blair

Members of Provincial Parliament

- Scarborough Centre – Christina Maria Mitas
- Scarborough Southwest – Doly Begum

Regional and Municipal Officials

- City of Toronto – John Tory (Mayor), Gary Crawford (Councillor), Michael Thompson (Deputy Mayor)

6.1.3.3 Other Stakeholders

Stakeholders who may have an interest in the Project and were not identified through GRT review and consultation with agencies were contacted through email, where email addresses were available, and direct mail where address information was available. The stakeholders contacted include:

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Interest Groups and Community-Based Organizations

- Centennial Community and Recreation Association
- Coronation Community Association of West Hill
- Crossroads of the Danforth Business Improvement Area (BIA)
- Danforth Mosaic BIA
- Danforth Village Residents Association
- Danforth Village BIA
- East Toronto Neighbourhood Association
- Guildwood Village Community Association
- Midland Park Community Association
- Move the GTHA
- Scarborough Historical Society
- Scarborough Business Association
- Transport Action Ontario
- Transit Alliance
- Scarborough Cycles
- Scarborough Bluffs Community Association

Individuals and Landowners

- Property and business owners, as well as ratepayer groups, community organizations, and local interest groups within 100 m of the Project
- Additional residents and businesses in the surrounding communities of Toronto

Businesses

- Local Businesses

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Utilities

- Hydro One Networks Inc.
- Bell Canada
- Rogers Communication
- Ontario Power Generation
- CN Rail
- CP Rail
- VIA Rail
- Enbridge Gas Inc.
- MTS - Allstream

6.1.3.4 Identification of Indigenous Nations

As required under *O. Reg. 231/08*, Metrolinx sent a letter to the Director, Environmental Assessment Branch at the MECP (September 31, 2019), requesting a list of bodies that may assist in identifying Indigenous Nations which may have an interest in this TPAP study. The MTO was also consulted for a list potentially-interested Indigenous Nations (December 14, 2018), as is typical for Metrolinx projects.

Indigenous Nations are considered to be separate stakeholders and are provided the same public consultation as the general public, in addition to community-specific engagement opportunities. The consultation process for Indigenous Nations included confirming Indigenous interest in the Project and determining how each interested Indigenous Nation would like to be engaged.

Metrolinx contacted the following Indigenous Nations:

- Williams Treaties First Nations
 - Alderville First Nation
 - Beausoleil First Nation
 - Chippewas of Georgina Island First Nation
 - Chippewas of Rama First Nation
 - Curve Lake First Nation

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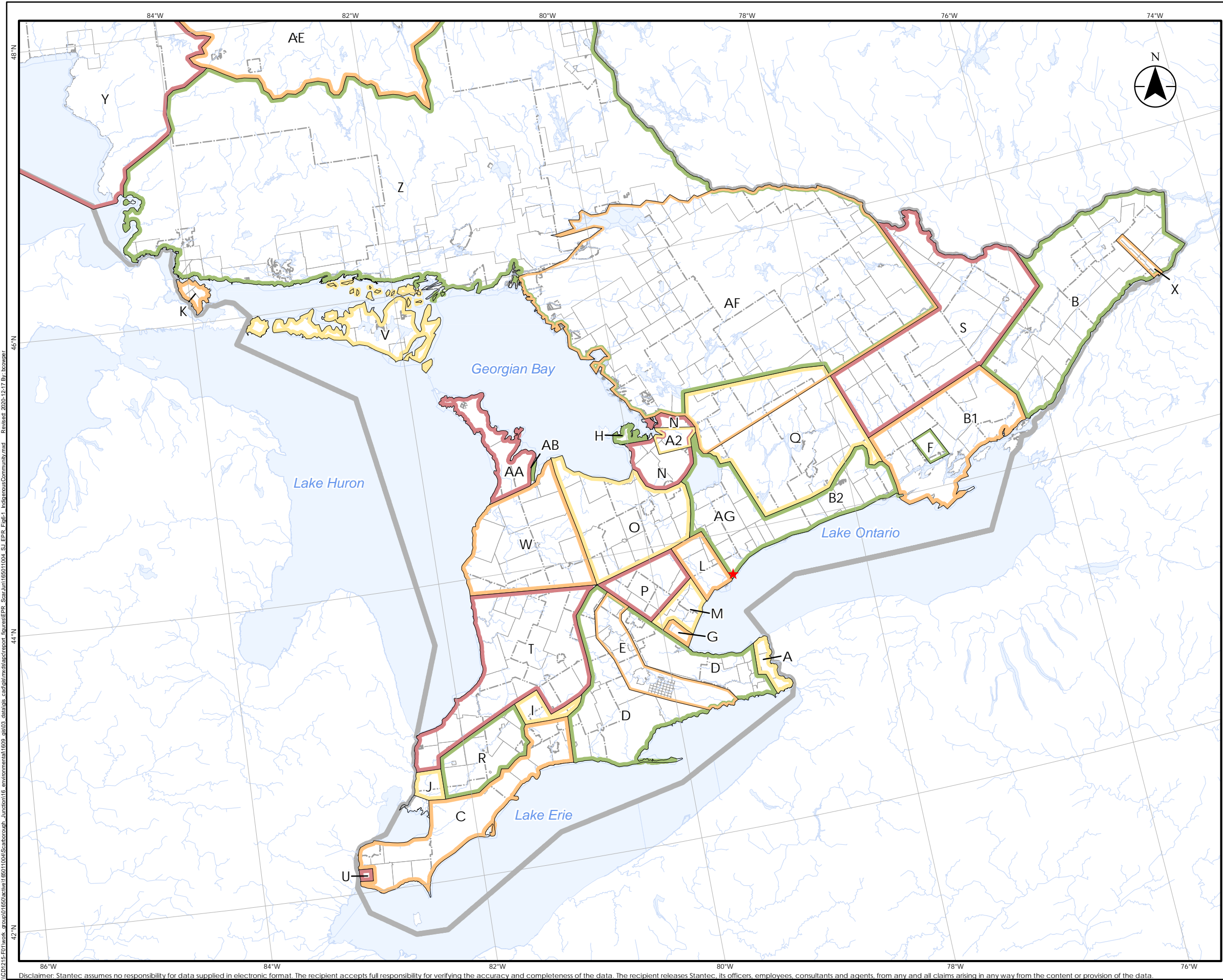
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- Hiawatha First Nation
 - Mississaugas of Scugog Island First Nation
- Mississaugas of the Credit First Nation
- Huron-Wendat Nation
- Kawartha Nishnawbe First Nation
- Métis Nation of Ontario
- Six Nations of the Grand River
- Haudenosaunee Confederacy Chiefs Council

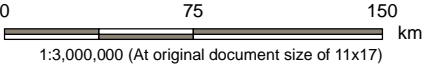
The locations of the Project and above-listed communities are shown in Figure 6.1.

In 2018, Metrolinx made a commitment to building positive and meaningful relationships with Indigenous Peoples, communities and customers, in alignment with its strategic objectives. The Indigenous Relations Office (IRO), established in 2019, has a mandate to build and grow relationships with Indigenous Nations, organizations, businesses and customer-residents. In 2020, the IRO became the sole point of contact for Indigenous Nations and supports the Environmental Programs & Assessment department to coordinate engagement and communication related to all Metrolinx projects.

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- Legend**
- ★ Project Location
 - ▭ Municipal Boundary - Upper Tier
 - ▭ Municipal Boundary - Lower or Single Tier
 - Watercourse
 - Waterbody
- A** Treaty No. 381, May 9th, 1781 (Mississauga and Chippewa)
B Crawford's Purchase, October 9th, 1783 (Algonquin and Iroquois)
B1 Crawford's Purchase, October 9th, 1783 (Mississauga)
B2 Crawford's Purchases, 1784, 1787 And 1788 (Mississauga)
A2 John Collins' Purchase, 1785 (Chippewa)
C Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D Treaty No. 3, December 2nd, 1792 (Mississauga)
E Haldimand Tract:from the Crown to the Mohawk, 1793
F Tyendinga:from the Crown to the Mohawk, 1793
G Treaty No. 3 3/4:from the Crown to Joseph Brant, October 24th, 1795
H Treaty No. 5, May 22nd, 1798 (Chippewa)
I Treaty No. 6, September 7th, 1796 (Chippewa)
J Treaty No. 7, September 7th, 1796 (Chippewa)
L Treaty No. 13, August 1st, 1805 (Mississauga)
M Treaty No. 13A, August 2nd, 1805 (Mississauga)
N Treaty No.16, November 18th, 1815 (Chippewa)
O Treaty No. 18, October 17th, 1818 (Chippewa)
P Treaty No. 19, October 28th 1818 (Chippewa)
Q Treaty No. 20, November 5th, 1818 (Chippewa)
R Treaty No. 21, March 9th, 1819 (Chippewa)
S Treaty No. 27, May 31st, 1819 (Mississauga)
T Treaty No. 27½, April 25th, 1825 (Ojibwa and Chippewa)
U Treaty No. 35, August 13th, 1833 (Wyandot or Huron)
V Treaty No. 45, August 9th, 1836 (Chippewa and Odawa, "For All Indians To Reside Thereon")
W Treaty No. 45½, August 9th, 1836 (Saugeen)
X Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Z Treaty No. 61, September 9th, 1850 (Robinson Treaty:Ojibwa)
AA Treaty No. 72, October 30th, 1854 (Chippewa)
AB Treaty No. 82, February 9th, 1857 (Chippewa)
AF Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG Williams Treaty, October 31st, 1923 (Chippewa)



- Notes**
1. Coordinate System: NAD 1983 Statistics Canada Lambert
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2016.
 3. Treaty boundaries adapted from Morris 1943 (1964 reprint).

Project Location 165011004 REVA
Province of Prepared by BCC on 2020-12-17
Ontario

Client/Project
METROLINX
SCARBOROUGH JUNCTION GRADE SEPARATION
ENVIRONMENTAL PROJECT REPORT

Figure No.
6.1

Title
Project Area in Relation to Surrounding Indigenous Nations

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6.1.4 Influence of Consultation on the TPAP/EPR

Consultation activities undertaken throughout the study were documented and incorporated into the EPR. Key comments received include input on:

- The design approach to Project components, which influenced conceptual design changes and consideration of refinements to the Project, such as adjustments to the Danforth Road/Midland Avenue intersection and options for the Corvette multi-use crossing, and sanitary and storm sewer alignments.
- Potential effects to the environmental components, which resulted in:
 - Incorporation of additional details of proposed mitigation to address known potential effects, providing improved clarity and understanding for stakeholders
 - Review of the effects assessment and associated updates to proposed mitigation measures, as required
- Project components subject to the need for ongoing discussions as part of design efforts, which resulted in commitments to undertake additional engagement activities with the City of Toronto following the TPAP.

Comments and questions received by the Project team were considered and addressed in the report or through direct follow-up by the Project Team.

An overview of the comments received and resulting changes to the Project is presented in Section 6.2.6.

6.2 Pre-Planning Consultation

In advance of issuing the Notice of Commencement for the TPAP, Metrolinx consulted with members of the parties identified in the contact list (see Section 6.1.3). The objective of consultation activities during the Pre-Planning phase of the Project was to introduce potentially interested parties to the Project, inform the conceptual design strategy for assessment purposes, receive early information on potential concerns, and determine the level of interest in future consultation activities moving forward.

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6.2.1 Public Consultation

6.2.1.1 Project Website

A Project website (www.metrolinxengage.com) was developed to provide an overview of the TPAP and Project information and to keep the public informed of consultation opportunities, provide a summary of the public meetings, and offer an opportunity to the public to provide comments. The website was updated with the following Project information and notices throughout the Pre-Planning phase of the study:

- Summary of the Project
- Project Contact Information
- Notice of Public Meetings
- Project documentation including maps and program updates, discussion guide and information sheets, studies, proposed infrastructure, roll plans
- Public Meeting Story Boards
- Opportunities to provide comments/feedback or ask questions about the Project through the website

6.2.1.2 Public Meetings

6.2.1.2.1 Public Meeting #1

A Notice of Public Meeting was prepared to invite parties on the contact list to attend the meeting, to learn about the Project and provide their questions and/or comments to members of the Project Team. The Notice of Public Meeting was published in the following newspapers:

- Toronto Star
 - Publication dates: February 1 and 8, 2020
- Le Métropolitain
 - Publication dates: January 30 and February 6, 2020

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- L'Express
 - Publication dates: January 31 and February 7, 2020

The Notice was also delivered via Canada Post bulk mailout distribution to residents throughout Toronto and posted to the Project website. Radio announcements were run on 680 News and 97.3 FM, from January 27 through to February 8, 2020.

The purpose of the public meeting was to introduce the Project and Project Team, with the intention of providing information early in the process. Table 6.1 summarizes the key details of the public meeting. Project-specific material were made available upon request at each Public Meeting, but the Scarborough Civic Centre site was the primary focus for this Project.

At the meetings, attendees were encouraged to register at the door to be placed on the contact list, and to fill out comment forms (electronically through email to TorontoEast@metrolinx.com or on paper) following the session. It was requested that comments be returned by March 13, 2020.

Poster board displays were used at the public meeting to provide a visual tool for stakeholders to learn about the Project. The display boards presented as part of the public meeting included: background information related to the rail corridor and GO Expansion Program commitments; the existing conditions at the Project locations; the TPAP; and, next steps in the Project. The display boards were also posted on the Project website on February 14, 2020, to allow those unable to attend the public meeting to review the materials online.

The public meeting allowed Metrolinx to gather feedback on the Project and the other GO Expansion initiatives and respond to questions and concerns. All comments and questions raised during the public meeting were addressed by the Project Team. A copy of the poster board displays, and comment forms collected at the public meeting can be found in the RoC, in Appendix B.

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Table 6.1: Summary of Key Public Meeting #1 Details

Item	Details
Date and Time	Monday, February 24, 2020 6:30 p.m. – 8:30 p.m.
Location	Scarborough Civic Centre 150 Borough Drive Toronto, ON M1P 4N7
Number of Attendees	80
Feedback Forms Received	32
Project Information Presented and Made Available	Overview Environmental assessment studies information boards Proposed local infrastructure Participant Journey Map GO Expansion Update – Discussion Guide Info sheets
Topics Discussed	Planned service increases P3 procurement model Anticipated project and construction timelines Integration with TTC services Potential property expropriations and property impacts

6.2.1.2.2 Public Meeting #2

Due to the COVID-19 pandemic and related concerns regarding social distancing and indoor gathering restrictions, the second public meeting was held virtually. Notification of the public meeting was emailed to individuals and groups on the Project contact list between August 18, 2020 and August 24, 2020. Metrolinx also posted information regarding the event on their social media platforms.

The purpose of the public meeting was to provide additional details regarding the Project, including results of the environment studies undertaken in support of the Project. Table 6.2 summarizes the key details of the public meeting.

Public meeting materials were made available on Metrolinx Engage on August 18, 2020.

Visitors to the public meeting materials on the Metrolinx Engage website were encouraged to complete comment forms (electronically through email to

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TorontoEast@metrolinx.com). It was requested that comments be returned by September 1, 2020.

Poster board displays were used to provide a visual tool for stakeholders to learn about the Project. The display boards presented as part of the public meeting included: an overview of the environmental studies and a summary of results from the natural environment, archaeology, cultural heritage, socio-economic and land use, transportation and traffic, construction air quality and construction noise and vibration. In addition to the display boards, the draft environmental technical studies were provided.

The public meeting allowed Metrolinx to gather feedback on the Project and the other GO Expansion initiatives and respond to questions and concerns. All comments and questions submitted, were addressed by the Project Team, including three questions received after the public comment period of August 18 to September 1, 2020. A copy of the poster board displays, and comment forms collected at the public meeting can be found in the RoC, in Appendix B.

Table 6.2: Summary of Key Public Meeting #2 Details

Item	Details
Date	Tuesday, August 18 to Tuesday, September 1, 2020
Location	www.metrolinxengage.com
Number of Page Views	Over 1,000
Feedback Forms Received	7 (three of which were received after September 1, 2020)
Project Information Presented and Made Available	<p>Environmental Studies Overview webpage</p> <p>Display Boards:</p> <ul style="list-style-type: none">• Natural Environment – Study Results• Archaeology – Study Results• Cultural Environment - Study Results• Socio-Economic and Land Use - Study Results• Transportation/Traffic – Study Results• Construction Air Quality – Study Results• Construction Noise and Vibration – Study Results <p>Technical Studies:</p> <ul style="list-style-type: none">• Natural Environment Technical Report• Construction Phase Air Quality Impact Assessment Report• Construction Noise and Vibration Assessment Report• Traffic Impact Assessment

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6.2.2 Agency and Municipal Consultation

Agency consultation in the Pre-Planning phase of the Project focused on two key items: introducing the Project to government reviewers and municipal contacts; and seeking input from municipal departments on the Project and the TPAP.

Initial consultation with Agencies included introducing the Project through an introduction letter and a request for information regarding any required regulatory processes that the Project would be required to follow. Metrolinx also sent the MECP and MTO a letter requesting direction on Indigenous consultation for the Project. Metrolinx offered Agency representatives a chance to meet to discuss the Project, with a focus on identification of concerns or requirements that needed to be met.

Agency consultation included information requests, telephone conversations, email correspondence, and meetings with agency representatives. The MHSTCI and the Ontario Heritage Trust were also contacted to collect information that was used to develop the Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment. Metrolinx will continue to consult with representatives from these agencies and others as the Project progresses through the TPAP. A summary of agency consultation activities is provided below.

- City of Toronto: ongoing engagement through the Technical Advisory Committee (TAC) and working group meetings, conceptual design and other Project material review, and iterative comment responses related to Project design to address design standards and coordinate infrastructure requirements. Additional information on how the City of Toronto was engaged as a key design partner is presented in Section 6.2.2.1.
- TRCA: general overview of the Project
- MECP: introduction to the Project and request for confirmation of potentially interested Indigenous Nations
- MNRF: request for review of background information related to the Project
- MHSTCI: request for review of background information related to the Project
- MTO: requested feedback on potentially interested Indigenous Nations
- OHT: request for review of background information related to the Project
- TDSB Planning/Toronto Lands Corporation: iterative comment responses related to Project design

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- GRT: submission of draft EPR and environmental technical studies for review and comment

Table 6.3 provides a high-level summary of meetings with Agencies held during the Pre-Planning phase of the Project. This table demonstrates the context of the meetings.

Table 6.3: Summary of Meetings with Agencies Held During the Pre-Planning Phase

Date	Agency	Attendees	Meeting Summary
July 15, 2019	Toronto District School Board (TDSB)	Jane Tsui Andrew Gowdy Anita Cook	Metrolinx provided an overview and description of the proposed pedestrian crossing alignment at Corvette Avenue.

6.2.2.1 Municipal Engagement

During the pre-planning phase of the Project, Metrolinx engaged with the City of Toronto at both the staff and leadership levels to help inform the conceptual design assessed in this EPR. Metrolinx acknowledges the integral relationship required with the City of Toronto to support the development of the conceptual design and in the identification of applicable policies, standards and future City initiatives relevant to key structural Project components.

The pre-planning engagement with the City focused on Project design elements and implementation and has included discussions on design standards, discussion related to impacts on City infrastructure, mitigation requirements related to City standards, policies, plans, and discussion regarding new City assets requiring ongoing management and maintenance.

The Project Description outlined in Section 2.0 represents a conceptual design that considers input from the City of Toronto. The City has also provided comments on draft environmental technical studies, which were incorporated as applicable into the EPR and environmental technical studies. This EPR specifically summarizes City input related to the assessment of the Project as described in this report. A record of all comments and questions raised and their corresponding responses, are provided in Appendix B.

Table 6.4 provides a high-level summary of meetings with the City of Toronto held during the Pre-Planning phase of the Project. This table demonstrates the context of the meetings.

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Table 6.4: Summary of Meetings with the City of Toronto Held During the Pre-Planning Phase

Date	Meeting Summary
December 11, 2018	During the first TAC meeting Metrolinx provided an overview of the Project and the City of Toronto provided initial input into preliminary design concepts.
January 25, 2019	The first utilities meeting was held to discuss potential utility conflicts with the current Project design. Key areas where utility conflicts were discussed include St. Clair Avenue bridge, Midland Avenue bridge, Danforth Road crossing and the corridor north of Danforth Road.
February 25, 2019	The second TAC meeting was held to provide updates on the design of the Project and receive City of Toronto feedback on key infrastructure.
March 27, 2019	The second utilities meeting was held to focus on key utility impacts and for City of Toronto to identify any issues or details to be considered as the analysis progresses.
April 4, 2019	The first Construction Staging meeting was held to discuss construction staging and traffic impacts on the intersection of Danforth Road and Midland Avenue.
August 6, 2019	Metrolinx provided an overview of the design process for public facing infrastructure.
August 22, 2019	The fourth TAC meeting was held to provide scope updates on Midland Bridge, Sceglinton (Midland) Layover, Corvette multi-use crossing, the Scarborough GO Station and utilities. The City of Toronto's transportation standards were discussed and an update on the public realm meeting was provided.
September 27, 2019	The fifth TAC meeting was held to provide scope updates on stormwater, sanitary, the Corvette multi-use crossing the and Scarborough GO Station. City of Toronto Transportation standards related to the Danforth Road/Midland Avenue intersection were discussed and further information on third party scope requests was provided.
October 31, 2019	The Corvette Crossing meeting was held to discuss the tunnel option versus the bridge option and receive City of Toronto input on both proposed options.
November 6, 2019	The sixth TAC meeting was held to identify Third Party Scope Requests that require further discussion, provide City of Toronto with an update on the Corvette multi-use crossing, discuss the Base Case Table, request City of Toronto input on the anticipated permits and approvals, and provide an updated schedule.
December 12, 2019	The Corvette Pedestrian Crossing meeting was held to provide City of Toronto with Metrolinx's preferred alternative and to have a discussion on the Options Analysis Memo.
December 17, 2019	The seventh TAC meeting was held to discuss updates to the Base Case table for each location, provide a consultation update, an overview of the first wave of environmental technical studies for City of Toronto review and to provide updates on the working sessions, schedule and issues tracking.

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Date	Meeting Summary
January 13, 2019	The third utilities meeting was held to allow City of Toronto to provide input on the utility design.
February 6, 2020	The eighth TAC meeting was held to provide updates on the RCD, consultation and to review City of Toronto's comments on the first wave of environmental technical studies. Metrolinx also provided an update on Midland Layover, Corvette Multi-Use Crossing and the schedule, issues tracking, and a 3-month look ahead.
February 18, 2020	The Private Water meeting was held to allow City of Toronto to provide an overview of the private water discharge permitting process and to discuss the impacts on the Project.
March 26, 2020	This working group meeting was held to discuss points based off of City of Toronto feedback on the Project, an overview of the proposed storm sewer alignment, the proposed sanitary sewer alignment, and City of Toronto's comments on the traffic impact assessment.
April 3, 2020	The sewer alignment meeting was held to discuss sanitary sewer relocation updates.
April 27, 2020	The ninth meeting was held so City of Toronto could provide feedback on the RCD addendum, discuss the updated base case specifications table, and check in on current actions and next steps.
May 27, 2020	This meeting was held to review the stormwater management and sanitary alignment RCD development.

6.2.3 Elected Officials Consultation

Elected officials at the federal and provincial level in whose jurisdiction the Project falls within were included on the Project contact list. Municipal and Regional Councillors for the Wards in which the Project falls and the wards adjacent to it were also included on the contact list. The full contact list is available in Appendix B.

Table 6.5 provides a high-level summary of meetings with elected officials held during the Pre-Planning phase of the Project.

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Table 6.5: Summary of Meetings with Elected Officials Held During the Pre-Planning Phase

Date	Attendees	Meeting Summary
February 12, 2020	Councillor Jim Karygiannis Nikolaos Mantas Joanne Fusillo Ademaj	Metrolinx provided background information about the Project and provides Councillor Karygiannis with opportunity to ask questions and provide suggestions about the Project.

6.2.4 Indigenous Nations Consultation

During the Pre-Planning phase of the Project, Metrolinx engaged with potentially affected Indigenous Nations to understand their level of interest in the Project and determine the community's consultation needs and/or requirements.

O. Reg. 231/08 stipulates that at a minimum, Proponents must make reasonable and good faith efforts to engage with Indigenous Nations by:

- Giving each Indigenous Nation on the contact list a copy of the Notice of Commencement
- Ensuring Indigenous Nations are provided with an opportunity to participate in the consultation process
- Following up with telephone calls to ensure that Indigenous Nations are aware of the Project
- Provide Indigenous Nations with notification of consultation events such as Public Meetings
- Provide relevant Project documentation and other material when requested
- Discussing potential negative effects on the Project on any constitutionally protected Aboriginal and/or treaty rights that may be identified and measures to mitigate these negative effects
- Ensuring consultation is flexible enough to meet the specific and unique needs of the Indigenous Nations

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Thirteen Indigenous Nations were contacted separately regarding the Project and provided with a Project Introduction letter on February 6, 2020. The letter provided a notice of Public Meeting #1 and the opportunity to tailor the engagement approach to meet their requests. During Pre-Planning activities, the focus of Metrolinx engagement was on establishing communication with these communities, introducing the Project, identifying and confirming their potential interest in the Project, ascertaining an understanding of their potentially affected Aboriginal and treaty rights and obtaining information about community-specific consultation preferences.

The Stage 1 AA was circulated to the Indigenous Nations for review and comment. One community provided comments on the Stage 1 AA.

On August 14, 2020 Metrolinx advised Indigenous Nations of the virtual public meeting via email, providing the link to the online materials to be available on August 18, 2020.

Correspondence with Indigenous Nations can be found in Appendix B.

6.2.5 Other Stakeholder Consultation

A Notice of Public Meeting was sent to Project stakeholders on January 31, 2020 in multiple formats (i.e., email notices, bulk mailout, newspaper notices, etc.) to invite community clubs, associations and environmental groups with a potential interest in the Project and other interested persons to attend the February 2020 Public Meetings (See Section 6.2.1.2, above for more information) to learn about the Project and provide their questions and/or comments to members of the Project Team. Comments were solicited via the Project website or paper comment sheets provided at the meeting to allow for ongoing opportunities to review the Project information and provide feedback to the Project Team.

Project stakeholders were notified of the virtual public meeting (i.e., public meeting #2) via email August 18, 2020.

On January 31, 2020, in advance of the first public meeting, a letter was sent to potentially impacted property owners notifying the recipients that their property may be affected by the Project. A similar letter was sent on August 12, 2020 in advance of the second public meeting.

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6.2.6 Summary of Comments and Responses

Table 6.6 provides a high-level summary of comments received related to development of the EPR during the Pre-Planning phase of the Project. This table demonstrates the types of comments raised during consultation of the Project and how Metrolinx has addressed them. A complete record of all comments and questions raised and their corresponding responses can be found in the RoC in Appendix B.

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Table 6.6: Summary of Comments Received and Responses Provided during Pre-Planning Activities

Stakeholder/ Commenter	Topic	Comment/Concern	Response/Influence on the Project and/or Draft EPR
Public/City of Toronto	Terrestrial Environment – Tree Removal	Concerns raised regarding tree removal on both private and public property	Preparation of a Tree Inventory to document trees within the Project Footprint. Metrolinx to adhere to all applicable bylaws and regulations for tree removal outside of Metrolinx properties. Compensation, if required, will be in accordance with the Metrolinx Vegetation Guideline (2020).
Public/City of Toronto	Impacts to park land	Requested the impacts to Corvette Park and its amenities be limited to the extent feasible Requested a commitment from Metrolinx to maintain the same amenities within the Park as existing conditions The City of Toronto requested Metrolinx provide financial contribution to replace the splash pad to allow the City to undertake the work as part of their playground revitalization	Metrolinx has committed to continuing to work with the City of Toronto to ensure the functionality and assets of Corvette Park are maintained.
Public/City of Toronto	Property Acquisition	Concerns over temporary and permanent property acquisitions	Review of conceptual design to limit the impacts to public and private property. Specific property requirements will be confirmed during detail design. Where access to property is required, ongoing consultation with affected landowners will help identify appropriate site-specific mitigation measures.
Public	Property Value	Concerns regarding the impact to property value as a result of the Project	Review of conceptual design to limit the impacts to public and private property.

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Stakeholder/ Commenter	Topic	Comment/Concern	Response/Influence on the Project and/or Draft EPR
Public/City of Toronto	Visual Impacts	Concerns raised regarding the visual impacts of the proposed Project infrastructure, including crossings and bridges	Review of conceptual design to define that exterior wall facings that are visible to the public will receive a permanent concrete facing and a plain finish. Metrolinx, in consultation with the City of Toronto, will determine the appropriate finish(es) for the retaining walls based on municipal planning and urban design policies and objectives, surrounding land uses, adjacent built form, and pedestrian, cycle and automobile traffic levels.
Public	Safety concerns, electrification	Safety concerns associated with electrification infrastructure, proposed tunnels and bridges	EPBs will be installed where required and are designed for safety. Additional design details such as appropriate barriers to protect the rail corridor, lighting, guardrails and screening to prevent objects from being thrown over the ramps will be confirmed during the detail design phase.
TDSB/Toronto Lands Corporation	Safety concerns, unauthorised access to school property	Safety concerns related to the multi-use crossing – preference for a bridge versus a tunnel	Review of conceptual design to create a walkway to Wolfe Ave on the east side of the crossing to avoid pedestrians/cyclists existing onto TDSB property. The walkway will be fenced. The structure design will rely on natural light to the extent possible, but artificial lighting will be provided for nighttime and to illuminate any areas where direct natural lighting is limited.
City of Toronto	Utilities	Concerns regarding the conceptual design proposed for the realignment of the sanitary and stormwater systems	Review of conceptual design to address concerns to align with City of Toronto design standards.

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Stakeholder/ Commenter	Topic	Comment/Concern	Response/Influence on the Project and/or Draft EPR
Public	Noise and Vibration	Concerns over potential off-site impacts due to noise and vibration	Metrolinx is undertaking both construction and operations noise and vibration assessments to determine the potential effects on adjacent receptors. Detail design will include mitigation measures as required.
Public/City of Toronto	Road network impacts, Land use access disruptions	Concerns regarding impacts to traffic, pedestrian and cycling activities	Access to land uses and road networks will be maintained to the greatest extent possible. Potential effects to pedestrian and cyclist activities during construction will be mitigated through installation of appropriate wayfinding, regulatory and warning signs.
City of Toronto	Traffic Speed Limits	Noted changes to speed limits due to City of Toronto's <i>Vision Zero Updated Report</i>	Traffic Impact Assessment and EPR were updated to reflect the changes.
Curve Lake First Nation	Archaeological Assessment	Requested the changes to the Stage 1 AA Report, including the incorporation of the Williams Treaties Territory oral history, and updates to text	Comments will be addressed in the Stage 2 AA as the Stage 1 AA had been filed with the MHSTCI when comments were received.
Huron-Wendat Nation	Archaeological Assessment	Suggested wording be revised to include infectious disease and provided more specifics for settlement history	Comments were addressed in the Stage 1 AA.

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6.3 TPAP Consultation

6.3.1 Notice of Commencement

Metrolinx issued the Notice of Commencement on September 8, 2020 to inform parties on the contact list of the initiation of the TPAP. The notice was issued in different media, as summarized in Table 6.7, including bulk mailout, newspaper publication, and electronic media. The notice included information about the Project and TPAP.

A copy of the Notice of Commencement is provided in Appendix B.

Table 6.7: Publication Details for Notice of Commencement

Media	Date of Publication	Audience
Newspapers: Toronto Star Burlington Post Oshawa/Whitby This Week Oshawa Express Markham Economist and Sun Le Metropolitain Toronto L'Express	September 8, 2020 September 12, 2020 September 10, 2020 September 17, 2020 September 10, 2020 September 17, 2020 September 9, 2020 September 16, 2020 September 10, 2020 September 17, 2020 September 10, 2020 September 17, 2020 September 11, 2020 September 18, 2020	General public
Email	September 8, 2020	Elected officials, government agencies, Indigenous Nations, project mailing list, those who signed in at the public meeting.
Bulk mailout	August 14, 2020	Property owners within 100 m of the rail corridor
www.metrolinxengage.com	September 8, 2020	General public, interested parties.

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6.3.2 Public Consultation

Project documents and details were made available on the Project website throughout the TPAP for public review and comment. Documents available include Project notices, public meeting story boards and comment forms, and draft environmental technical studies. The public and interested parties were able to submit comments through the dedicated Project email address, via Facebook posts and twitter tweets, and via telephone throughout the TPAP. Project specific comments are summarized in the table below.

Table 6.8: Summary of Public Consultation Comments Received and Responses During the TPAP

Topic	Comment/Concern	Response/Influence on the Project and/or EPR
Scarborough GO Station	Question about Scarborough GO Station including platform for Stouffville GO trains	Stouffville GO trains will continue to stop at Scarborough GO Station, and there will be platforms to enable this two-way service
Design features	Comments about geometry of infrastructure and track arrangement and vertical clearance	Horizontal and vertical geometry of the infrastructure has been designed to meet GO operational requirements. Final track arrangement, including locations and type of special track works (turnouts and crossovers) will be determined during the detailed design phase of the Project together with the successful proponent who will design, build, operate and maintain the new the new infrastructure.
Midland Layover	Question about how the Midland Layover is planned to be used and where layover trains will be coming from	The Midland Layover will provide multiple options for trains to be brought into service anywhere along the Lakeshore East and Stouffville Rail Corridors.
Properties at Aylesworth Avenue	Questions about how properties along Aylesworth Avenue may be affected by the Project.	The Project design is not yet finalized, but Metrolinx has completed a conceptual design that identifies the maximum anticipated impacts from construction. While permanent works (such as new tracks) are expected to remain within the existing rail corridor, temporary disturbance to a portion of some properties on Aylesworth Avenue may be required to facilitate construction (including removal of existing fences and potential disturbance to backyards). Individual property owners will be

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Topic	Comment/Concern	Response/Influence on the Project and/or EPR
		contacted by a representative from Metrolinx Property Acquisitions to discuss the specifics of potential impacts to the property.
VIA Rail Canada High Frequency Rail Initiative	Question about whether Metrolinx considered VIA Rail current and future requirements for track capacity	Metrolinx has shared its plans for the proposed Don Valley Layover and Midland Layover facilities and the New Track & Facilities TPAP Project and the Scarborough Junction Grade Separation TPAP Project with VIA Rail as part of the TPAP consultation efforts. The new rail-rail grade separation through a tunnel traveling under the Lakeshore East (LSE) Rail Corridor will allow trains to freely pass without the need for stoppages, increasing travel speed and capacity on our rail lines. Metrolinx will continue to work with VIA Rail as they advance their planning for the High Frequency Rail Project. Metrolinx and VIA Rail are working together on this matter and will seek to maximize the public benefit of infrastructure investments.
Grade separations design	Comment about streetscaping at grade separations and consideration of pedestrians and cyclists	The preliminary design does not necessarily reflect finishes and landscaping that may be applied to the infrastructure. Existing landscaping and streetscaping impacted by the Project will be reinstated. The Scarborough Junction Grade Separation Project takes into consideration pedestrians and cyclists in many ways, such as the incorporation of elevated sidewalks to reduce grades and are designed to City of Toronto and AODA standards, which will improve pedestrian and cyclist movement. Where identified by the City of Toronto, we have maintained or improved cycling facilities, and have worked with the City to align the road design with City of Toronto Cycling Network Plan.

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6.3.2.1 Public Meeting #3

Due to the ongoing COVID-19 pandemic and related concerns regarding social distancing and indoor gathering restrictions, the third public meeting was also held virtually. Notification of the public meeting was emailed to individuals and groups on the Project contact list on November 27, 2020 and provided via bulk mailout to properties within 100 metres on either side of rail corridors where GO Expansion infrastructure is proposed. Metrolinx also posted information regarding the event on their social media platforms.

The purpose of the public meeting was to provide additional details regarding key details of the EPR, including:

- Potential impacts and mitigation measures for Project specific components as outlined in display panels
- Potential impacts, mitigation and monitoring for the Project as reported in the environmental technical studies
- Draft environmental technical studies completed in support of the Project
- Specific updated information for the Corvette multi-use crossing, utilities and the Midland Layover, which were topics of concern during previous rounds of public meetings

The public meeting also offered an opportunity for the public, Indigenous Nations, government agencies and municipal departments, and other stakeholders to provide comments or concerns that could be incorporated and/or addressed into the Final EPR as appropriate.

Public meeting materials were made available on Metrolinx Engage on November 27, 2020. Table 6.9 summarizes the key details of the public meeting.

Visitors to the public meeting materials on the Metrolinx Engage website were encouraged to complete comment forms (electronically through email to TorontoEast@metrolinx.com). It was requested that comments be returned by December 11, 2020.

Poster board displays were used to provide a visual tool for stakeholders to learn about the Project. The display boards presented as part of the public meeting included: an update on the Corvette multi-use crossing, an overview of the Midland Layover, potential effects and proposed mitigation measures and a summary of utility realignments, potential effects and proposed mitigation measures.

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The public meeting allowed Metrolinx to gather feedback on the Project and the other GO Expansion initiatives and respond to questions and concerns. All comments and questions submitted were addressed by the Project Team. A copy of the poster board displays, and comment forms collected at the public meeting can be found in the RoC, in Appendix B.

Table 6.9: Summary of Key Public Meeting #3 Details

Item	Details
Date	Friday, November 27 to Friday, December 11, 2020
Location	www.metrolinxengage.com
Number of Page Views	Over 1,000
Feedback Forms Received	7
Project Information Presented and Made Available	Environmental Studies Overview webpage Display Boards: <ul style="list-style-type: none">• Corvette Park Multi-use Crossing• Midland Layover Impacts and Mitigations• Utilities Technical Studies: <ul style="list-style-type: none">• Natural Environment Technical Report• Construction Phase Air Quality Impact Assessment Report• Construction Noise and Vibration Assessment Report• Cultural Heritage Report• Traffic Impact Assessment• Stage 1 Archaeological Assessment• Socio-Economic and Land Use Technical Report

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6.3.3 Agency and Municipal Consultation

Government agencies were provided the Notice of Commencement and were invited to provide comments and questions during the TPAP comment period. Key review agencies which had identified an interest in the Project (this included MECP, City of Toronto, and MHSTCI) were provided an opportunity to review and comment on the Final Draft EPR and supporting environmental technical studies. A high-level summary of key comments and Metrolinx responses are below.

Table 6.10: Key Comments from Agencies

Stakeholder/ Commenter	Topic	Comment/Concern	Response/Influence on the Project and/or EPR
MHSTCI	Archaeology	Recommended revising text to include language based on PPS 2020	Introductory text in Section 3.5.2 was updated to align with the PPS 2020
MHSTCI	Cultural Heritage Effects Assessment, Mitigation and Monitoring	Recommended including a table summarizing impacted built heritage resources/cultural heritage landscapes	Table 4.3 was included that summarizes impacted built heritage resources/cultural heritage landscapes
MHSTCI	Cultural Heritage	Requested clarification about proposed mitigation measure. Recommended identifying the properties that may require CHERs. Recommended revising monitoring activities to provide property-specific recommendations.	Table 4.10 was revised to include property-specific mitigation/monitoring
MHSTCI	Commitments	Recommended including a commitment that identifies which properties will require a CHER during detailed design.	No properties require a CHER

6.3.3.1 Municipal Engagement

Engagement with the City of Toronto continued into the TPAP consultation phase. Engagement with the City focused on confirming specific details regarding the Project, including confirming the base case table specifications, commercial agreements, and resolving remaining comments.

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Table 6.11 provides a high-level summary of meetings with the City of Toronto held during the TPAP phase of the Project. This table demonstrates the context of the meetings.

Table 6.11: Summary of Meetings with the City of Toronto Held During the TPAP Phase

Date	Meeting Summary
September 11, 2020	The purpose of this meeting was to address the City's comments on the Toronto Water Commercial & Technical Agreement.
October 26, 2020	This meeting was held to address the City's comments on the Base-Case and provide updates on environmental technical studies.
November 3, 2020	This meeting was held to address the City's comments on the Base-Case.
November 27, 2020	Metrolinx presented property impact information to Toronto Water and City of Toronto Realty

6.3.4 Elected Officials Consultation

Elected officials were provided with the Notice of Commencement and invited to provide comments and questions throughout the TPAP. During that time no responses were received.

6.3.5 Indigenous Nations Consultation

The Indigenous Nations identified as having a potential interest in the Project were sent letters during the TPAP Notice of Commencement and on September 8, 2020 by direct mail. Follow-up phone calls were made to all communities to confirm receipt of the Notices. During that time no responses were received. Indigenous Nations contacted during the TPAP are listed in Appendix B.

6.3.6 Other Stakeholder Consultation

Only one comment was received from other stakeholders during the TPAP stage of the study. Housing Now requested to be kept informed of Public Meetings related to the Scarborough Junction Grade Separation Project and, as such, were added to the contact list.

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6.3.7 Notice of Completion

The Notice of Completion of the EPR was issued on December 21, 2020, addressing the *O. Reg. 231/08* requirement of issue the Notice within 120 days following the Notice of Commencement. The Notice of Completion of the EPR was published in the same media outlets and electronic media sources as the Notice of Commencement. The Notice was also mailed to interested parties on the contact list, including anyone who requested to be added to the list throughout the Project study, and anyone who signed in with address information at the Public Meeting. Publication details for the Notice of Completion are outlined in Table 6.12. A draft Notice of Completion is included in Appendix B.

Table 6.12: Publication Details for Notice of Completion

Media	Date of Publication	Audience
Newspapers:		General Public
Toronto Star	December 21, 2020 December 26, 2020	
Le Metropolitain	January 14, 2021	
Toronto L'Express	January 8, 2021 January 15, 2021	
Email	December 21, 2020	Elected officials, government agencies, Indigenous Nations, project mailing list, those who signed in at the public meeting.
Bulk Mailout	December 11, 2020	Property owners within 100 m of the Project Footprint
www.metrolinxengage.com	December 21, 2020	General public, interested parties.

If an interested party has concerns about the Project, they may submit objections to the MECP Environmental Assessment and Permissions Division for the Minister to consider. Objections must be provided in writing and can only be submitted during the 30-day review period for the EPR, commencing at the issuance of the Notice of Completion. A copy should also be provided to the Director, Environmental Assessment Branch of the MECP and Metrolinx as the proponent. Information required for the objection must include:

- Contact information (name, mailing address, organization or affiliation, phone number and email address)

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- Proponent (Metrolinx) contact information (name, address, phone number and representative/agency phone number)
- Brief description of the proponent's (Metrolinx) proposed undertaking, including location
- Basis for why further study is required, including relevance to Aboriginal or treaty rights and matters of provincial importance that were not considered in the EPR
- Summary of how the objector has been involved in the consultation process (e.g., meetings, phone calls, emails, etc.)

The Ministry will forward a copy of the objections to the Metrolinx for consideration. It is noted that Metrolinx will have less than a week to comment on the objections. During this time, Metrolinx can identify where in the EPR the appropriate information can be found or provide the missing information.

Following the 30-day review period, the Minister has 35-days to provide comment and decide whether the Project has a negative effect on matters of provincial importance or Aboriginal or treaty rights. At this point the Minister can approve the Project as planned, allow it to proceed subject to conditions, require the proponent to take further steps including further study or consultation, or choose to terminate the TPAP if they feel the EPR does not address these effects.

6.3.8 Summary of Key Comments and Responses

Table 6.13 provides a high-level summary of key comments received during the TPAP phase of the Project. This table is intended to provide interested reviewers with a snapshot of the types of comments raised and guidance provided during the TPAP and how they were addressed by Metrolinx. A complete record of all comments and corresponding responses can be found in the RoC in Appendix B.

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Table 6.13: Summary of Comments Received and Response Provided During TPAP

Stakeholder/ Commenter	Topic	Summary of Key Comment/Concern	Response and Influence on the Project
City of Toronto	Bus stop and platform mitigation measures	Request for any bus stops and platforms to be reinstated according to current City and TTC standards	Section 7.5 was updated with specific commitments related to changes associated with TTC bus stops and platforms.
City of Toronto	Construction sequencing	Inquired about how the construction will impact lane closures on Midland or the east leg of the Danforth.	Final construction sequencing will be determined as part of the detailed design however no further closures are expected on top of the current construction staging plans. Metrolinx has committed to no consecutive pedestrian crossings closures, unless otherwise authorized by the Road Authority. (refer to Table 4.10).
City of Toronto	CPTED mitigation measures	Request for CPTED mitigation measures to be included in the EPR.	A summary of potential CPTED impacts were detailed in Section 4.7.7.2.2. Section 4.11 notes that the design of the Corvette multi-use crossing will be further refined during detailed design, taking into consideration the potential effects identified in the EPR. In addition, CPTED design principles will be incorporated into the Project Agreement and utilized during detailed design.
City of Toronto	Midland Layover	City requested additional information on the impacts and mitigation measures associated with the Midland Layover.	Information regarding the potential impacts from the Midland Layover and associated mitigation measures is provided throughout Section 4.0. A panel detailing the Midland Layover's anticipated impacts and associated mitigation measures was included in PIC 3.

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Stakeholder/ Commenter	Topic	Summary of Key Comment/Concern	Response and Influence on the Project
City of Toronto	System-wide noise and vibration study	Sought clarification as to how the recommendations of the corridor-wide noise and vibration study will be included in the Project.	A summary of the system-wide noise and vibration study results is included in Section 4.9 along with associated mitigation measures (Table 4.10), where applicable.
City of Toronto	Relocation of Toronto Water sanitary and storm sewers	City is concerned about the design and location of the relocated sanitary and storm sewers.	MetroLinx will continue to work with the City of Toronto to address concerns regarding the relocation of infrastructure and that consultation will be ongoing through detailed design (Table 7.2).
City of Toronto	Crossing agreements for City of Toronto infrastructure	City wants to ensure they can have emergency and operations and maintenance access to their sanitary and storm sewer infrastructure located within the rail corridor Right of Way.	A crossing agreement will be customized for the City of Toronto to allow for both emergency and operations and maintenance access in a way that prioritizes safety on an active rail line.
City of Toronto	Laydown area in Corvette Park	City wants to limit the use of Corvette Park as a construction staging and laydown area.	The EPR contains the following commitment: To the extent feasible, the laydown area will be situated within the splash pad area and in an area approved by the City of Toronto Parks, Forestry & Recreation Department. This laydown area will be used as a laydown area for the multi-use crossing only.
City of Toronto	Tree injury and removal	City wants to ensure that all Municipal By-laws and City requirements related to tree injuries and removals are met when removing trees.	The EPR contains the following commitment: Adhere to all applicable bylaws and regulations for tree removals outside of MetroLinx properties.
City of Toronto	Temporary access to property	City requested that temporary access to property includes vehicles, cyclists, and pedestrians.	The EPR includes the following commitment: Access to nearby land uses will be maintained for vehicular, pedestrian and cyclist traffic.

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Stakeholder/ Commenter	Topic	Summary of Key Comment/Concern	Response and Influence on the Project
Public	Additional detailed studies	Inquired about more detailed studies and mitigation plans being available to the public and about how Metrolinx would minimize construction schedule delays	Metrolinx has completed a general conceptual design for the TPAP to demonstrate that the project can be built and operated in a way that can effectively avoid or limit environmental effects. Upon completion of the TPAP in Spring 2021, Metrolinx will proceed with the detailed project design, which will also include mitigation plans based on the commitments made in the Environmental Project Report. Metrolinx will work closely with its contractors and management team to coordinate project development. This will include ongoing communications between active project teams to stay informed of lessons learned and opportunities for continuous improvement on the implementation of these complex projects.
Public	Future Expansion	Inquired about the possibility of adding a fourth track along the Lakeshore East Rail Corridor	Currently planned service increases will not require the addition of a fourth track east of Scarborough Go Station. If future planning considers this addition, further assessment will be required to assess the potential for impacts, including to the rail corridor, existing bridges and surrounding properties.
Public	Service during construction	Concerns about whether all day service would be maintained during construction	All-day service will be maintained for the duration of construction.
Public	Broken link to roll plan	Pointed out that link to Scarborough Junction Overview was broken	Web team updated the link.

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Stakeholder/ Commenter	Topic	Summary of Key Comment/Concern	Response and Influence on the Project
Public	Layover facilities	Concerns about proposed layover facility and implications to rail network congestion, as well as the purpose of the rail-rail grade separation at Scarborough Junction	<p>Layover facilities are required to accommodate service expansion and are strategically located throughout the rail network to, among other things, reduce rail congestion, accommodate train storage during off-peak hours, and provide flexibility for trains to operate more seamlessly across the network.</p> <p>The Scarborough Junction rail-rail grade separation has been proposed to remove the potential for train conflicts and meet future service targets. As such, the new second Stouffville track will drop below grade and cross under the Lakeshore East tracks before meeting with the existing Stouffville track.</p>
Public	Bridge over St. Clair Avenue	Concerns about traffic under the bridge being impeded during construction	Construction staging plans are currently under development and will be finalized once a constructor is selected; however, it is anticipated that two lanes of travel in each direction will be maintained as much as possible during construction.

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6.4 Future Consultation Requirements

Metrolinx has committed to ensuring that consultation with Project stakeholders (government agencies, municipalities, elected officials, members of the public) and Indigenous Nations will continue beyond the TPAP for the Project.

Following the completion of the TPAP study, further studies or consultation may be required, resulting in a refinement of the results presented in this EPR. If refinements lead to changes to the Project that are inconsistent with EPR, these will be documented in an addendum to the EPR. Significant changes to the EPR will be accompanied by a notification of the change to the Project stakeholders (government agencies, municipalities, elected officials, members of the public) and Indigenous Nations, as required in the regulation.

6.4.1 Public Consultation

Metrolinx is committed to continuing to consult and communicate with stakeholders and other interested parties beyond the TPAP. Specifically, Metrolinx will:

- Design and implement a response strategy to address/resolve potential construction-related concerns
- Maintain the Project website throughout the detailed design and construction phases where the public can access updated information on the Project
- Continue discussions/consultation as required

6.4.2 Agency and Municipal Consultation

In addition to carrying out the TPAP, there are a number of additional federal, provincial, municipal and other permit and approval processes that Metrolinx will follow as applicable (further details are outlined in Section 7.0 of this EPR). As a part of obtaining permits and approvals, Metrolinx will consult with relevant agencies, and follow associated public notification or consultation practices as applicable.

6.4.3 Consultation with Elected Officials

As a part of Metrolinx ongoing efforts to keep the community informed throughout the design and construction of the proposed works, Metrolinx welcomes inquiries and comments from elected officials wishing to keep their electorate informed. As the Project advances, updates will be posted to the Project website.

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6.4.4 Indigenous Nations Consultation Commitments

As a part of Metrolinx ongoing efforts to keep the community informed throughout the design and construction of the proposed works, Metrolinx welcomes inquiries and comments from Indigenous Nations wishing to keep their community members informed. As the Project advances, updates will be posted to the Project website.

6.4.5 Other Stakeholders

As a part of Metrolinx ongoing efforts to keep the community informed throughout the design and construction of the proposed works, Metrolinx welcomes inquiries and comments from stakeholders wishing to keep their community members informed. As the Project advances, updates will be posted to the Project website.

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7.0 Permits and Approvals, and Commitments and Future Work

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. An outline of key legislation and regulations that are anticipated to apply to the proposed Project are outlined below. These will be confirmed prior to commencing construction. A detailed list of potentially applicable permits and approvals requirements that will be confirmed during detailed design is provided in Section 7.3.

7.1 Impact Assessment Act (IAA)

The Physical Activities Regulations under the *Impact Assessment Act* (IAA) identify the physical activities (i.e., types of projects) that constitute “designated projects” that may require a Federal Impact Assessment. 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 the IAA.

The IAA 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 of Canada, in relation to a physical work and that is not a designated project (Section 82 of IAA). All of the proposed work for the Project will be carried out on lands currently owned or that will be purchased by Metrolinx. As such, the requirements under the IAA do not apply.

7.2 Permits, Approvals and Other Requirements

In accordance with *O. Reg. 231/08*, a Notice to Proceed will be issued by the MECP 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 permits/approvals required for the Project prior to implementation. Accordingly, the following section summarizes the anticipated permits and approvals based on the preferred design and input received from the public, stakeholders, and Indigenous Nations to date.

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All required permits and approvals shall be obtained and the Project completed in accordance with applicable law. The required permits and approvals shall be obtained prior to the associated work commencing.

In addition to the commitments to future work outlined in Section 7.3, permits and approvals obtained for the proposed works, as outlined in the following sections, may identify the need for additional mitigation. Any additional mitigation measures required in connection with a permit or approval shall be implemented.

7.2.1 Federal

At the time of publication no federal permits and approvals have been confirmed as required for the Project. As the Project proceeds the federal permit and approval requirements shall continue to be assessed and addressed.

7.2.2 Provincial

At the time of publication the following provincial permits and approvals have been identified as required for the Project:

- MECP, Permit to Take Water
- MECP, Environmental Compliance Approval (Industrial Sewage)
- MECP, *Endangered Species Act* (ESA) 2007
- MECP, Drinking Water Works Permit
- MECP, Management of Excess Soil
- MHSTCI

Table 7.1 provides a broader list of other potentially applicable approvals. As the Project proceeds the provincial permit and approval requirements shall continue to be assessed and addressed.

7.2.3 Municipal

A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. All required permits and approvals shall be obtained. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal

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requirements as a best practice, where practical, and may obtain associated permits and approvals.

Water, sanitary, and storm servicing will be reviewed during detailed design. The City of Toronto will be consulted during detailed design to address impacts to municipal water, sanitary, and storm sewer systems.

Communication and engagement with the City of Toronto shall continue as design and construction planning progress to address municipal interests.

7.2.4 Conservation Authorities

Metrolinx as a Crown Agency of the Province of Ontario is not subject to the *Conservation Authorities Act*. However, Metrolinx will engage with the Conservation Authority to incorporate their requirements as a best practice, where practical, and may obtain associated permits and approvals or engage in a Voluntary Project Review where applicable.

Communication and engagement with the TRCA will continue as design and construction planning progress to address matters related to their mandate.

7.2.5 Utilities

Coordination with both the City of Toronto and the relevant private utilities will be undertaken as design and construction planning progress. Potential utility conflicts shall be reviewed in consultation with each utility company as part of detailed design. Implementation and construction obligations shall be undertaken pursuant to the crossing agreements with each of the utility companies as required. Any associated permits and approvals will be obtained prior to construction.

7.3 Summary of Permits, Approvals and Other Requirements

A preliminary list of the potentially applicable permitting and approval requirements for the Project are identified in Table 7.1. Additional requirements may be identified or confirmed during detailed design, or as ongoing consultation progresses. Metrolinx will commence construction once all applicable permits/approvals have been obtained from the appropriate authorities.

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Table 7.1: Potential Permitting, Approvals, and Other Permissions

Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Linear Facilities	Midland Layover	Laydown Areas	St. Clair Avenue East Bridge	Danforth/Midland Intersection	Corvette Multi-use Crossing	Scarborough GO Station Building	Utilities	Description of Project Activities that may Require Permits or Approvals
Provincial											
Notice to Proceed	MECP	<i>Environmental Assessment Act</i> O. Reg 231/08 (Transit Projects & Metrolinx Undertakings)	•	•	•	•	•	•	•	•	Must be obtained before the Project can proceed to implementation. The Project meets the definition of a transit project under <i>O. Reg 231/08</i> and is subject to the Transit Project Approval Process.
Environmental Activity Sector Registry (EASR)	MECP	<i>O. Reg 63/16: Registrations Under Part II.2 of the Act – Water Taking</i>	•	-	-	•	•	•	•	•	Required if temporary water takings are estimated to be greater than 50,000 L/day, but less than 400,000 L/day.
Permit to Take Water (PTTW)	MECP	<i>Ontario Water Resources Act</i> (O. Reg 128/03) Section 34	TBD	TBD	-	TBD	TBD	TBD	TBD	TBD	Required if temporary water takings are estimated to be greater than 400,000 L/day; the need for dewatering during construction activities will be confirmed during detailed design.
Environmental Compliance Approval (ECA) – Industrial Sewage	MECP	<i>Environmental Protection Act</i> <i>Ontario Water Resources Act</i> Section 53	-	-	-	-	-	-	-	•	A new ECA (or an amendment to an existing ECA) would be required for affected sewer pipes and pumping stations. The ECA application would be completed by Metrolinx and provided to the City of Toronto for their approval prior to it being submitted to the MECP.
Drinking Water Works Permit	MECP	<i>Safe Drinking Water Act, 2002</i> , O. Reg. 170/03	-	-	-	-	-	-	-	•	Required to alter a drinking water system.
Requirements for addressing contaminants	MECP	<i>Environmental Protection Act</i> O. Reg. 347	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	Contaminated soils or groundwater encountered during construction must be appropriately characterized and disposed of.
Excess waste removal	MECP	<i>Environmental Protection Act</i> O. Reg. 347	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	Required to transport and process hazardous and non-hazardous materials.
On-Site and Excess Soil Management	MECP	<i>Environmental Protection Act</i> O. Reg. 406/19	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	Required for the handling, management and disposal of excavated material.

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Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Linear Facilities	Midland Layover	Laydown Areas	St. Clair Avenue East Bridge	Danforth/Midland Intersection	Corvette Multi-use Crossing	Scarborough GO Station Building	Utilities	Description of Project Activities that may Require Permits or Approvals
ESA Permit	MNRF	<i>Endangered Species Act</i> <i>Section 17</i> O. Reg 242/08	TBD	-	-	-	-	TBD	TBD	-	<p>If required, the ESA Permit protects habitat and individuals of wildlife species designated as Threatened, Endangered, or extirpated in Ontario. Prohibits damage or destruction to the habitat of the listed species. If the project affects a listed species or its habitat. Applicability is determined based on finding provincially listed species at risk or their habitat within/adjacent to the project.</p> <p>Consultation with the MECP is recommended to address suitable habitat for SAR protected by the ESA 2007 including potential for bat and barn swallow in older structures to be demolished. Additional surveys may be required. This will be confirmed prior to construction.</p> <p>Based on the assessment of potential bat maternity habitat trees undertaken for the Project, no bat maternity roosts were observed in the Assessment Area. If older structures in poor condition are proposed for demolition, additional bat surveys should be conducted as these have potential to provide bat habitat.</p>
Archaeological Assessment MHSTCI Review Letters	MHSTCI	<i>Ontario Heritage Act</i>	•	•	•	•	•	•	•	•	<p>Stage 2 AA (and Stage 3 and 4, if recommend by the Stage 2AA) will be undertaken by a licensed archaeologist early in and prior to the completion of detailed design and submitted to MHSCTI for review. Upon confirmation that the report has met fieldwork and licensing requirements MHSTCI will issue a letter confirming their entry into the Ontario Public Register of Archaeological Reports. Metrolinx and/or Project Co will confirm that any AA reports submitted to MHSTCI for review have been entered into the Ontario Public Register of Archaeological Reports prior to commencing any ground disturbing activities.</p>
Cultural Heritage Report MHSTCI Letter	MHSTCI	<i>Ontario Heritage Act</i>	•	•	•	•	•	•	•	•	<p>MHSTCI will issue a letter confirming that the report fulfills the cultural heritage requirements under TPAP and standards and guidelines.</p>
Notice of Project	Ministry of Labour	<i>Occupational Health and Safety Act</i> <i>Regulation for Construction Projects -</i> <i>O. Reg. 213/91</i> <i>Section 6(1)</i>	•	•	•	•	•	•	•	•	<p>Provide a Notice of Project to the Ministry of Labour prior to starting projects that meet the standards set out in the Regulation.</p>

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Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Linear Facilities	Midland Layover	Laydown Areas	St. Clair Avenue East Bridge	Danforth/Midland Intersection	Corvette Multi-use Crossing	Scarborough GO Station Building	Utilities	Description of Project Activities that may Require Permits or Approvals
Notification	-	<i>Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33</i>	•	•	•	•	•	•	•	•	Requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services. Should human remains be encountered during construction activities, all work on site must cease and notification will be required.
Municipal											<p>A range of municipal permits and approvals may be required for the project, particularly as pertaining to municipally owned lands and infrastructure. All required permits and approvals shall be obtained. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals.</p> <p>Water, sanitary, and storm servicing will be reviewed during detailed design. The municipality will be consulted during detailed design to address impacts to municipal water, sanitary, and storm sewer systems.</p> <p>Communication and engagement with the municipality shall continue as design and construction planning progress to address municipal interests.</p>
Permit to Injure or Remove Private Property Trees	City of Toronto	<i>Municipal Code Chapter 813, Article III</i>	•	-	-	•	•	•	•	•	Removal of trees on private property. Permits are not required for trees on Metrolinx-owned lands.
Permit to Injure or Remove City-Owned Trees	City of Toronto	<i>Municipal Code Chapter 813, Article II Municipal Code Chapter 608, Article VII</i>	•	-	•	•	•	•	•	•	A permit is required for the injury or removal of trees regulated by the City of Toronto's Tree Protection By-law and Parks By-law.
Demolition Permit – Non-Residential	City of Toronto		-	-	-	-	-	-	•	-	May be required for the modification or relocation of the Scarborough GO Station building
Designated Structures Permit	City of Toronto		•	-	-	•	•	•	-	-	May be required for temporary and permanent retaining walls, pedestrian bridge and tunnels
Site Services Permit	City of Toronto		-	-	-	-	-	-	•	-	May be required for new drains, catch basins and other site servicing work proposed for new buildings or new services to existing buildings located on private property
Shoring and Excavation Permit	City of Toronto		•	•	-	•	•	•	-	•	May be required for shoring and excavation work.

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Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Linear Facilities	Midland Layover	Laydown Areas	St. Clair Avenue East Bridge	Danforth/Midland Intersection	Corvette Multi-use Crossing	Scarborough GO Station Building	Utilities	Description of Project Activities that may Require Permits or Approvals
Building Permit	City of Toronto	-	-	-	-	-	-	-	•	-	May be required for the modification or relocation of the Scarborough GO Station building.
Street Occupancy Permit	City of Toronto	-	•	-	-	•	•	•	•	TBD	Closure of one or more lanes of traffic for construction (required prior to commencement of construction).
Construction Permit	City of Toronto	-	•	-	-	•	•	-	-	•	Construction work within the municipal right-of-way.
Cut Permit	City of Toronto	-	•	-	-	•	•	•	•	•	Installation of services within the City of Toronto streets
Licence Agreement(s)	City of Toronto	-	•	•	•	•	•	•	•	•	Access to City of Toronto owned lands for temporary use.
Discharge Permits & Agreements for Private Water	City of Toronto	Toronto Municipal Code Chapter 681, Sewers	•	-	-	•	•	•	•	•	Required when private water is discharged into the City of Toronto's sewer system, including groundwater, surface water, construction dewatering, rainwater (mixed with construction material), and stormwater (mixed with construction material).
Parks Access Agreement	City of Toronto	Toronto Municipal Code, Chapter 608	-	-	•	-	-	•	-	-	Access to City of Toronto parks or adjacent property for non-recreational uses.
Changes to TTC Routes and Stops	City of Toronto/TTC	-	-	-	-	-	•	-	-	-	All detailed staging plans involving changes to the roads on which TTC buses operate must be approved by TTC prior to implementation. All proposed changes to bus stops, temporary or permanent, must also be approved by TTC in advance of implementation. TTC requires 4 months advance notice for changes to routes.
Third Party Utilities											
Utility Crossing Agreements	Various Existing Utility Owners	-	-	-	-	-	-	-	-	•	Project construction activities associated with relocating or realigning existing third-party utilities
Schedule Implications											
Terrestrial	Environment and Climate Change Canada	Migratory Birds Convention Act	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	If vegetation removal or other development activity must occur during the migratory nesting period of April 1 – August 31, a certified avian biologist must complete a nesting survey within 24 hours of commencement of work to document the presence or absence of active nesting habitats. (see Section 4.11 – mitigation measures, for more details)

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Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Linear Facilities	Midland Layover	Laydown Areas	St. Clair Avenue East Bridge	Danforth/Midland Intersection	Corvette Multi-use Crossing	Scarborough GO Station Building	Utilities	Description of Project Activities that may Require Permits or Approvals
Provincial Guidelines and Plans											
Standards and Guidelines for Conservation of Provincial Heritage Properties	MHSTCI	-	•	•	•	•	•	•	•	•	Guidelines set out in this document apply to all Metrolinx properties.

Notes:
“ – “ = Not Applicable
“ • “ = Applicable

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7.4 Timing Windows and Preventive Measures

It is recognized that there are overlapping timing windows related to restrictions on certain construction activities, and Metrolinx will consult further with the applicable regulatory agencies to determine a suitable approach for construction scheduling. In accordance with the *Migratory Birds Convention Act*, if vegetation removal or other development activity must occur during the migratory nesting period of April 1 to August 31, a certified avian biologist must complete a nesting survey within 24 hours of commencement of work to document the presence or absence of active nesting habitats.

Based on the assessment of potential bat maternity habitat trees undertaken for the Project, no bat maternity roosts were observed in the Natural Environment Assessment Area. If older structures in poor condition are proposed for demolition, additional bat surveys should be conducted as these have potential to provide bat habitat.

7.5 Commitments and Future Work

The EPR commitments are developed to satisfy the requirements of *O. Reg. 231/08*. The purpose of the commitments is to facilitate the implementation of the proposed improvements to the Scarborough Junction Grade Separation Project in accordance with the mitigation measures and monitoring activities described in the EPR and in a manner that does not result in negative effects on matters of provincial interest related to the natural environment or has cultural heritage value or interest, or constitutionally protected Aboriginal or treaty rights.

Metrolinx is committed to implementing the mitigation and monitoring activities outlined in Table 4.10. Commitments for future work to be undertaken during subsequent phases of the Project are outlined in Table 7.2.

Table 7.2: Summary of Commitments

Discipline	Commitments
Detailed Design	
General	<ul style="list-style-type: none">• Implement mitigation measures and monitoring activities as outlined in Table 4.10.• Develop/undertake design and management plans in accordance with the specific mitigation measures identified through the effects assessment and listed in Table 4.10.• The Study Area is within the City of Toronto and Metrolinx will continue to communicate and engage with the City of Toronto throughout detailed design and prior to construction to confirm that municipal input is

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Discipline	Commitments
	<p>addressed prior to commencement of construction activities. This will include continued discussion to refine and confirm the design requirements for the Project to align with City standards, ongoing engagement related to implementation schedules and mitigation of impacts to City resources, and negotiation related to cost sharing agreements for the construction, operation and maintenance of new infrastructure.</p> <ul style="list-style-type: none"> • A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. All required permits and approvals shall be obtained. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals. • Water, sanitary, and storm servicing will be reviewed during detailed design. The municipality will be consulted during detailed design to address impacts to municipal water, sanitary, and storm sewer systems. • Communication and engagement with the municipality shall continue as design and construction planning progress to address municipal interests. • Final detailed monitoring plans will be developed as part of detailed design activities.
Geology and Groundwater	<ul style="list-style-type: none"> • Appropriate dewatering strategies will be determined and confirmed in coordination with the City of Toronto. • Permits and approvals related to dewatering, if required, will be determined during detailed design.
Cultural Environment	<ul style="list-style-type: none"> • Additional Stage 2 AA work will be undertaken for the proposed laydown area in Corvette Park and the undeveloped portion of the laydown area in the northwest quadrant of the Danforth Road/Midland Avenue intersection; and Stage 3 and 4, where recommended by previous stages will be undertaken by a licensed archaeologist early in and prior to the completion of detail design and submitted to MHSTCI for review. Metrolinx and/or the Contractor will confirm that any AA reports submitted to MHSTCI for review have been entered into the Ontario Public Register of Archaeological Reports prior to commencing any ground disturbing activities. • No demolition, construction, grading or other soil disturbances will occur within the Project Footprint prior to the MHSTCI (Archaeological Program Unit) confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

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Discipline	Commitments
Traffic and Transportation	<ul style="list-style-type: none"> Toronto Paramedic Services will be given an opportunity to review emergency response plans and access/egress points to construction sites. Detailed staging plans involving changes to the roads on which TTC buses operate will be submitted for approval by TTC prior to implementation. Changes to bus stops, temporary or permanent will be submitted for approval by TTC in advance of implementation. In accordance with TTC requirements, four months advance notice for changes to routes will be provided. If required, a separate TIA for the Scarborough GO Station building will be undertaken.
Construction	
General	<ul style="list-style-type: none"> Implement mitigation measures and monitoring activities related to construction as outlined in Table 4.10. Develop/undertake design and management plans in accordance with the specific mitigation measures identified through the effects assessment and listed in Table 4.10. An Environmental Mitigation and Monitoring Plan (EMMP) will be developed prior to construction to outline the responsibilities for carrying out monitoring activities (see Section 7.5.2).
Natural Environment	<ul style="list-style-type: none"> An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (2019), as amended from time to time, will be prepared prior to and implemented during construction to minimize the risk of sedimentation to the waterbody. A Spill Prevention and Response Plan will be developed before work commences. Pending confirmation of the preferred multi-use crossing option and depending on the final design, further bat tree roost assessment for trees greater than 10 cm in diameter that are proposed for removal and bat exit surveys for any building removals should be conducted to confirm the absence of bat habitat prior to the start of construction.
Geology and Groundwater	<ul style="list-style-type: none"> If required, permit/approval requirements related to dewatering will be followed.
Socio-Economic and Land Use	<ul style="list-style-type: none"> Surrounding property owners and tenants will be informed of anticipated upcoming construction works.
Air Quality	<ul style="list-style-type: none"> Adherence to the site-specific mitigation and monitoring recommendations identified in the Construction Phase Air Quality Impact Assessment Report (Appendix A5). If the types and quantities of construction equipment evaluated in the Construction Phase Air Quality Impact Assessment Report (Appendix A5) differ substantially from the types and quantities anticipated to be used by

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Discipline	Commitments
	the Contractor, the Contractor will be responsible for ensuring equipment meets the emission limits referenced in the report.
Noise and Vibration	<ul style="list-style-type: none"> If the types and quantities of construction equipment evaluated in the Construction Noise and Vibration Assessment Report (Appendix A6) differ substantially from the types and quantities anticipated to be used by the Contractor, the Contractor will be responsible for ensuring equipment meets the sound level limits referenced in the report.
Traffic and Transportation	<ul style="list-style-type: none"> Toronto Paramedic Services will be notified of in advance of change of access/egress to existing residences, commercial properties, infrastructure, parks, etc. Construction lane and turning widths will accommodate emergency vehicles. Prior to construction, Metrolinx will discuss the validity of traffic data used to complete the TIA with the City of Toronto, in comparison with actual traffic volumes at the time of construction.
Operations	
General	<ul style="list-style-type: none"> Implement mitigation measures and monitoring activities related to operations as outlined in Table 4.10. Develop/undertake design and management plans in accordance with the specific mitigation measures identified through the effects assessment and listed in Table 4.10.
Noise and Vibration	<ul style="list-style-type: none"> Stationary noise sources will meet the MECP allowable levels for stationary sources (NPC-300 criteria). If necessary, appropriate noise mitigation will be applied (design of adequate acoustical housing, noise isolation mounts, etc.).

7.5.1 Summary of Mitigation and Monitoring Requirements

Upon completion of the TPAP, Metrolinx will finalize detailed design of the proposed improvements to the Project, while seeking necessary permits and approvals. Consultation will continue through detailed design and construction where required for obtaining permits, informing interested parties of construction updates, and coordinating with municipalities and Indigenous Nations (if required).

The key objectives of monitoring activities are as follows:

1. Confirm accuracy of predictions in EPR
2. Facilitate compliance with regulatory standards, approval requirements, etc.
3. Track the status and resolution of EA commitments and requirements

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4. Augment EA information if needed
5. Evaluate the effectiveness of mitigation measures
6. Identify where effects/conditions do not meet regulatory requirements so that contingency measures can be taken

In advance of commencing construction activities, mitigation measures will be implemented as outlined in Section 4.0, and monitoring activities will continue throughout construction activities, and upon completion of construction, where required. Monitoring commitments are summarized in Table 4.10. Final, detailed monitoring plans will be developed as part of detailed design activities.

7.5.2 Environmental Mitigation and Monitoring Plan

The EMMP will outline environmental protection measures for natural environment and socio-economic features located on or adjacent to the Project site. The EMMP will include both general and site-specific environmental protection measures based on Project-specific requirements, past project experience, current industry best management practices, and consistency with federal and provincial construction mitigation practices. The EMMP will:

- Outline environmental protection measures related to Project activities
- Provide instructions for carrying out construction activities to minimize environmental effects
- Serve as reference information for the environmental inspection staff to support decision making and provide links to more detailed information

The EMMP will be based on the fieldwork conducted in support of the EPR to provide Project-related environmental mitigation measures and follow-up commitments to be addressed during the detailed engineering design, construction and post-construction reclamation phases.

The EMMP will be developed with the goal of ensuring that construction is completed in compliance with environmental approvals, commitments and obligations. A core component of the EMMP will be engaging an Environmental Monitor, which will provide the following services in implementing the EMMP:

- Conduct a routine monitoring program to confirm that environmental protection measures are conducted as planned

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- Identify and provide direction to remediate any unexpected environmental occurrences (i.e., failure of environmental protection measures, damage to protection measures resulting from unexpected storms)
- Provide expert guidance to Project staff during construction to ensure that the environment is protected according to environmental approvals, commitments and obligations
- Confirm that any commitments or requirements developed in accordance with regulatory authorities are carried out as planned, and recommend additional protection measures, if required
- Document environmental protection measures, deficiencies and methods to address environmental deficiencies carried out by Project staff
- Where required, act as a liaison between Metrolinx and regulatory agencies when issues arise during construction
- Conduct additional field programs as required (i.e., fish rescue programs)
- Identify appropriate timing windows (e.g., in-water works, breeding bird season) and clear sites for construction where required

The EMMP will outline how environmental monitoring staff will address deficiencies with the Contract Administrator and construction contractor so that these issues can be resolved in a timely manner to avoid negative effects to the environment.

The EMMP will also outline procedures for construction monitoring staff to provide direction to the construction contractor for location of environmental protection measures that require site specific considerations, or “field fit”. They will also identify areas that may require additional environmental protection measures not identified on the construction drawings. Any additional environmental mitigation measures will be discussed with Metrolinx staff prior to directing the contractor to install them.

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