Environmental Project Report

Conversion of Scarborough Rapid Transit Right-of-Way to Busway – Transit and Rail Project Assessment Process

Toronto Transit Commission

60729927

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Executive Summary

E1. Introduction

The Toronto Transit Commission is undertaking a Transit and Rail Project Assessment Process for the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project (the Project), which aims to convert the north-south portion of the decommissioned Line 3 Scarborough corridor into a dedicated busway. As part of the Scarborough Rapid Transit decommissioning plan, two phases were developed. Phase 1 would see the Toronto Transit Commission operate an interim bus service on-street, which was planned to go into service by November 2023, however, due to the Scarborough Rapid Transit derailment in July 2023, interim bus service started in August 2023. The Toronto Transit Commission is currently advancing the detailed design of Phase 2, which involves converting the at-grade north-south portion of the Scarborough Rapid Transit right-of-way into a busway, allowing buses to operate in the converted busway between Ellesmere and Kennedy stations and continuing on existing transit priority lanes on Ellesmere Road between Ellesmere and Scarborough Centre stations, as implemented in Phase 1.

AECOM Canada Ltd. has been retained by the Toronto Transit Commission to assist in the completion of the Transit and Rail Project Assessment Process for Phase 2 of the Scarborough Rapid Transit decommission plan.

E2. Study Process

The Project was assessed in accordance with the Transit and Rail Project Assessment Process, *Ontario Regulation 231/08: Transit and Rail Project Assessment Process* under the *Environmental Assessment Act*. The Transit and Rail Project Assessment Process is a proponent driven process that sets out timelines, notification, consultation and documentation requirements for transit projects. The Transit and Rail Project Assessment Process involves an extensive pre-planning phase which includes consultation, assessment of impacts, development of measures to mitigate negative impacts, and documentation, and is followed by a regulated (up to 120 days) consultation and documentation period. Refer to **Figure 2-1** for the Transit and Rail Project Assessment Process. Consultation and engagement with the public, stakeholders and Indigenous Nations is ongoing throughout the process. Following the regulated (up to 120 days) consultation and documentation period, there is a 30-day public, Indigenous Nations and agency review period, following the posting of the Notice of Completion of the Environmental Report, interested persons have an opportunity to review the Environmental Project Report and submit objections to the Minister of the

Environment, Conservation and Parks (The Minister). The Minister then has a 35-day review period to consider any objections submitted during the 30-day public, Indigenous Nations and agency review period. Once the Minister's review is complete, the Minister may give notice allowing the proponent to proceed with its transit project but can only take action if there is potential for a negative impact on a matter of Provincial importance that relates to the natural environment or has cultural heritage value or interest, or on a constitutionally protected Aboriginal or Treaty Right. If the Minister issues a notice to proceed with the transit project as planned, or if they do not act within the 35-day period, the Toronto Transit Commission will issue a Statement of Completion and proceed to implementation.

E3. Project Description

The Project's southern limit is at Eglinton Avenue East. The corridor continues northwards up the existing right-of-way where it will provide connections to three stops at Tara Avenue, Lawrence East and continue north until it reaches Ellesmere Road – where it terminates. From there, buses will travel on-street in existing bus-only lanes which continue eastward along Ellesmere Road until it reaches Brimley Road. The on-street bus corridor continues northward along Brimley Road until it reaches Triton Road. Finally, buses will continue eastward along Triton Road before terminating at the existing Scarborough Centre Station.

The existing Ellesmere Station and Lawrence East Station are closed, and new amenities will be constructed to support the busway, including concrete sidewalks, platforms, bus shelters, and benches. A new stop at Tara Avenue will be constructed to service the busway. The stop will include concrete sidewalks, platforms, bus shelters, benches, and a connection to Meadoway Trail. A new traffic signal connecting the busway to Eglinton Avenue Service Road and the Kennedy Station Bus Terminals will be constructed as part of the Project.

The proposed busway will be a two-lane road, one lane in each direction, with concrete curb and gutter provided along the length of the road. The proposed typical cross-section width will generally be 7.3 metres and will pass through the existing Scarborough Rapid Transit corridor platform at Lawrence East Station. Localized widenings of the right-of-way will occur at proposed bus stop locations, and to accommodate proposed pedestrian facilities.

No pedestrian or cycling facilities are proposed along the length of the busway, however, existing stations will be closed and three new stops will be constructed as part of the Project to accommodate passengers onto the new busway service. 3.0 metre pedestrian platforms are proposed at the Lawrence East stop and the Ellesmere stop. There will also be facilities at the proposed Tara Avenue stop. 3.0 metre wide platforms will be provided

in both directions, with a signalized intersection across the busway to facilitate passenger crossing. There will also be a 4.0 metre sidewalk proposed from the southbound platform running north to Mooregate Avenue. The existing overhead pedestrian crossing structure at this location will also be maintained for pedestrian access.

Due to additional bus stops and access at the existing Ellesmere and Kennedy Stations, only a minimal amount of impervious area will be added. The increase in impervious area is considered insignificant compared to the existing impervious area. No new impervious area will be added along the busway itself. As there will be no increase in runoff, no stormwater mitigation measures will be required.

During the removals phase of the Project, existing light pole foundations will be removed as required for the new construction. New light poles will be constructed in accordance with the Best Practices for Effective Light (City of Toronto, 2017).

ES4. Existing Conditions

Both desktop research, agency consultation and field work was undertaken to inform the existing conditions of the Project. The following is a summary of the Project's existing conditions, a detailed description of which can be found in **Section 4**.

Natural Environment

Existing aquatic and terrestrial conditions were identified through a background review of secondary sources and field investigations. A Species at Risk and Significant Wildlife Habitat screening were completed based on the existing conditions data and species records identified. Given the urban setting of the proposed works, few Natural Heritage Features were present within the Study Area. Natural heritage features were limited to:

- Unevaluated wetlands.
- Toronto Ravine and Natural Features Protection Area.
- The Dorset Park Branch of Southwest Highland Creek.
- Candidate Significant Wildlife Habitat:
- Seasonal Concentration Areas: Bat Maternity Colonies.
- Specialized Habitat for Wildlife: Turtle Nesting Area and Amphibian Breeding Habitat.
- Habitat for eight Species of Conservation Concern including Barn Swallow (*Hirundo rustica*), Common Nighthawk (*Chordeiles minor*), Peregrine Falcon (*Falco peregrinus*), Wood Thrush (*Hylocichla mustelina*), Eastern Wood-pewee (*Contopus virens*), Monarch (*Danaus plexippus*), Snapping Turtle (*Chelydra serpentina*) and Meske's Underwing (*Catocala meskei*).

- Candidate habitat for eight Species at Risk including Chimney Swift (*Chaetura pelagica*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Butternut (*Juglans cinerea*), Black Ash (*Fraxinus nigra*), Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-coloured Bat (*Perimyotis subflavus*).

Air Quality

For Existing Conditions, current representative levels of air quality contaminants were identified. The concentration levels of most contaminants are well below applicable air quality limits, with the exception of nitrogen dioxide (NO_2), benzene, and benzo(a)pyrene. Nitrogen dioxide shows existing concentration levels which exceed the 1-hour Canadian Ambient Air Quality Standards (2025) limit with 116%. Benzene annual averaged existing concentrations exceed Ambient Air Quality Criteria limit with 109%, while benzo(a)pyrene is exceeding both 24-hour and annual Ambient Air Quality Criteria limits, with 234% and 989%, respectively. These ambient air quality levels were based on publicly available historical data from ambient air quality monitoring stations within Ontario closest to the Study Area.

Socio-Economic and Land Use

The Study Area features many different land use and density types, including residential uses. Between Ellesmere Road and Lawrence Avenue East, a majority of the land use and buildings are dedicated for either commercial or industrial uses. South of Lawrence Avenue is largely represented by low-rise, mid-rise and some high-rise residential uses. This portion of the Study Area also contains utility corridors and greenspace. The low-rise residential areas along the existing Line 3 corridor and south of Lawrence Avenue East is divided by a noise attenuation wall. At the southern end of the Study Area, the majority of the land use is transit/transportation with Line 2 and the future Line 5 Kennedy Station, Kennedy GO Station and commuter parking lots, as well as low-rise residential areas adjacent to the station.

The following community amenities were inventoried within the Study Area:

- Ambulance Stations.
- Arenas.
- Childcare Facilities.
- Community Centre.
- Elementary School.
- Places of Worship.
- Parks.

Noise and Vibration

The baseline noise measurements were conducted in areas near the identified noise sensitive receptors to be representative of the ambient conditions. Noise sensitive receivers are approved residential developments as well as nursing homes, group homes, hospitals, and other institutional land uses where people reside. Ambient conditions includes the noise from the existing road traffic and industry, and excludes transient noise from aircraft and railways, except for pre-existing rail operations.

As the Project is the conversion of an at grade rapid rail corridor to an at grade rapid busway, the vibration impacts due to the operation of the Project is expected to decrease (improve) from the base case of a rapid rail corridor. As such, vibration impact due to the operation of the Project is considered negligible and baseline vibration is not required.

Built Heritage Resources and Cultural Heritage Landscapes

No Built Heritage Resources and Cultural Heritage Landscapes were identified within the Study Area.

Archaeology

A Stage 1 Archaeological Assessment was completed by AECOM as part of the 2017 Scarborough Subway Extension Environmental Project Report. The archaeological assessment report has identified areas with the likelihood for recovery of archaeological resources. The Stage 1 Areas evaluated has high potential for the recovery of Indigenous and Euro-Canadian archaeological resources. A Stage 2 Archaeological Assessment is recommended for all areas identified as retaining archaeological potential.

Traffic and Transportation

Currently, Line 3 Bus Replacement Service departing Kennedy Station travels westbound on Eglinton Avenue East, northbound along Kennedy Road, eastbound on Ellesmere Road, northbound on Brimley Road, and eastbound on Triton Road to reach Scarborough Centre Station. Replacement buses heading southbound first exit Scarborough Centre Station, travelling westbound along Triton Road, southbound on Brimley Road, westbound on Ellesmere Road, southbound on Midland Avenue, and westbound on Eglinton Avenue East before arriving at Kennedy Station.

Drainage and Stormwater

The Study Area is located within the Toronto and Region Conservation Authority jurisdiction, within the Dorset branch of West Highland Creek which crosses the Study

Area north of Lawrence Avenue East. Runoff from the entire Study Area drains to different storm sewer systems through catchbasins and ditch inlets, which are mainly located along the lowered periphery of the cross-section. Any groundwater is captured and conveyed by subdrains.

During large storm events where storm sewers may not have capacity, overland flow will be conveyed along the depressed area of the cross-section towards inlets, and what does not get captured would either continue overland along the same path or would flow to an adjacent ditch, ditch inlet or off-site at local low points. It is assumed that the existing storm sewer networks downstream of the Study Area have the capacity for existing minor runoff.

ES5. Potential Impacts, Mitigation Measures and Monitoring Activities

Natural Environment

Potential impacts from the proposed works include damage and disturbance to adjacent natural features, disturbance to potential terrestrial wildlife, including candidate Species at Risk and Species of Conservation Concern habitat, increased sedimentation and erosion potential, and disturbance to fish and their habitat. Avoidance measures, such as the work limit restrictions designed (i.e., work will be mostly limited to the existing right-of-way) for the Project and compliance with restriction of construction activities to outside of sensitive periods for local or significant wildlife species, in addition the incorporation of mitigation measures such as installation of fencing, wildlife exclusion measures, erosion and sediment control measures, machinery and equipment practices, and invasive species control strategies are anticipated to address these potential impacts.

Air Quality

Potential indirect and direct impacts to air quality as a result of construction and operations of the proposed Project have been identified and include an increase of Nitrogen Dioxide, Carbon Monoxide and Sulfur Dioxide, particulate matter and Volatile Organic Compounds at nearby receptors during operations and construction related air pollution from diesel combustion, odour, and dust.

Mitigation measures are proposed to minimize the effects of these impacts. These include the implementation of vegetation to decrease ground level dispersion of particulates, creation of an Emission Control Plan prior to the commencement of construction, and the development of a Dust Control Plan for Non-Asbestos material prior to construction.

Socio-Economic and Land Use

A number of potential indirect and direct impacts to adjacent land uses were documented. These include temporary property takes to support the construction and operation of the project; light, noise, vibration and dust spillage; and temporary or permanent alterations or restrictions to movement through the corridor during construction and operation for pedestrians, cyclists, public transit and drivers which could impact both through-travel and access to properties along the corridor.

Mitigations are proposed to minimize the effects of these impacts. These include consultation with affected property owners, the placement of barriers, fences or other mitigation measures to reduce light, dust, and noise impacts. Maintaining access to properties and throughfare for all users to the extent possible is paramount during construction. Consultation with affected agencies (emergency services, transit, etc.) will be important to support continuity of service in the corridor.

Noise and Vibration

The noise and vibration assessment was conducted for two main parts of the Project, the construction phase and the long term operations. As the Project replaces an existing rail corridor with a busway, vibration levels are expected to decrease as pneumatic tire vehicles operating on smooth surfaces generate negligible vibration levels in comparison with steel wheel rail vehicles. As such, the assessment of the operational phase concentrates on the noise impact.

With the noise and vibration mitigation/controls implemented, the temporary noise and vibration during the construction phrase would be minimized, and noise generated during the operations phase would be able to meet the applicable guideline limits.

Built Heritage Resources and Cultural Heritage Landscapes

No known previously identified Built Heritage Resources and/or Cultural Heritage Landscapes are within the Study Area, therefore no effects are anticipated and no mitigation measures are required.

Archaeology

Impacts to archaeological resources include disturbance of previously unidentified resources during construction. Mitigation measures include the completion of a Stage 2 Archaeological Assessment prior to construction, further archaeological assessment to be completed if required. Should previously undocumented archaeological resources be discovered, there may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resource shall cease alteration of the site immediately and engage a

licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48 (1) of the *Ontario Heritage Act*. If human remains are encountered during construction, work must cease immediately. Should additional lands outside of the Study Area boundaries be included as part of the Project, requirements for Archaeological Assessments will be conducted prior to land disturbances.

Traffic and Transportation

To thoroughly examine and assess the impacts of the Project, a Transportation Impact Assessment was completed for both Existing and Future conditions with the new busway in operation. The Transportation Impact Assessment analyzed impacts from an integrated multimodal perspective, where the new busway served three inline stops at Ellesmere Road, Lawrence Avenue East, and Tara Avenue. The assessment concluded improving connections to the busway stops could encourage the use of alternative active transportation modes and enable passengers to travel more efficiently.

Drainage and Stormwater

Impacts to the Study Area's Drainage and Stormwater include if the existing drainage systems that intersect the site have capacity for the existing flows, then under proposed conditions the storm systems will continue to have capacity. The existing catch basins are to remain on-site; however, with the additional pavement and curb proposed for the busway cross-section, catch basins, manholes, and ditch inlets may have to be adjusted to match the new top of grade.

Mitigations are proposed to minimize the effects of these impacts. These include obtaining the required permits and communication with the City of Toronto if infrastructure will be changed, and completing a condition assessment for some of the existing infrastructure.

ES6. Consultation Process

The consultation activities for this Project, in accordance with Section 8 of *Ontario Regulation 231/08*, are being carried out with members of the public, property owners, review agencies, Indigenous Nations and other stakeholders during the Transit and Rail Project Assessment Process, including a summary of feedback and comments received.

Consultation Methods

This Project has utilized a variety of communication and engagement methods including:

- A dedicated Project website with updates.
- A Community Liaison Officer.

- Emails, notices, letters, and social media posts (Facebook, X, Instagram).
- Toronto Transit Commission media channels, newsletters, public and stakeholder meetings.
- Online and print surveys.

Record of Consultation

Initiated in 2021, the consultation involved evaluating alternatives for improving on-street transit in Scarborough. A record of all public and stakeholder consultations, including correspondence, meeting summaries, and survey results, has been maintained.

The Project website, www.ttc.ca/line3, provides key information, updates, public consultation opportunities, and contact information for the Community Liaison Officer.

Identification of Interested Parties

A Project Distribution List ensures all stakeholders receive notifications. This includes federal, provincial, municipal agency contacts, elected officials, and Indigenous Nations identified in collaboration with relevant ministries.

Consultation Approach

The Toronto Transit Commission has promoted public consultations through various channels, including its website, social media, emails, station announcements, and community posters, ensuring widespread awareness and participation. The consultation focused on four milestones:

- Milestone 1: Assessment of Line 3 replacement options.
- Milestone 2: Evaluation of constructing a busway.
- Milestone 3: 60% detailed design review.
- Milestone 4: Transit and Rail Project Assessment Process consultation, documenting potential Project impacts, mitigation measures and monitoring.

Three consultation rounds focused on bus route options, replacement study recommendations, and detailed design review. Activities included meetings, public surveys, virtual meetings, and pop-ups. Multiple rounds of engagement included:

- Stakeholder meetings.
- Public surveys.
- Hybrid public meetings.
- Pop-up events at stations.

Summary of Feedback:

Participants raised questions about construction timelines, funding, amenities, service hours, and the future of the busway, following construction and revenue service of the Scarborough Subway Extension. All stakeholder and public consultation are summarized in **Section 6** and all records of consultation are provided in **Appendix B**.

ES7. Permits and Approvals

Table E-1-1 provides a summary of anticipated permits and approvals that may be required to construct and operate the Project.

Table E-1-1: Anticipated Permits and Approvals

Permit Name	Regulatory Authority	Legislation	General Description
Request for Review	Fisheries and Oceans Canada	*Fisheries Act, 1985*	As no in-water works are proposed, the death of fish or the harmful alteration, disruption, or disturbance of fish habitat is not anticipated should all mitigation measures be followed to protect fish and fish habitat. As such, a Request for Review is not required. However, should any of the proposed works occur below the high water mark it is highly recommended that the impacts to fish habitat be reassessed and a Request for Review from Fisheries and Oceans Canada may be deemed necessary.
Not Applicable	Government of Canada	*Migratory Birds Convention Act, 1994*	Contravention of the *Migratory Birds Convention Act* is not anticipated provided vegetation removal occurs outside of the breeding bird season (April 1 to August 31).
Not Applicable	Government of Ontario	*Provincial Policy Statement, 2020*	There are no permits to be obtained under the Provincial Policy Statement; however, mitigation measures and best management practices should prevent negative impacts to Significant Wildlife Habitat.
***Endangered Species Act* Permit**	Ministry of the Environment Conservation and Parks	*Endangered Species Act, 2007*	No impacts to Species at Risk are anticipated and therefore no authorization under the *Endangered Species Act* are expected.
Environmental Compliance Approval	Ministry of Environment, Conservation and Parks	*Environmental Protection Act,* 1990, and *Ontario Water Resources Act*, 1990, as amended	Mainly required for the implementation of new or extension/replacement of existing sewage works and/or stormwater management infrastructure, and watermains over 1,500 millimetres in diameter.
Environmental Activity and Sector Registration	Ministry of Environment, Conservation and Parks	*Environmental Protection Act*, 1990 and *Ontario Regulation 245/11*	Required for construction activities with impacts below Environmental Compliance Approval or Permit to Take Water Thresholds of more than 50,000 Litres per day and less than or equal to 400,000 Litres per day.
Permit To Take Water	Ministry of Environment, Conservation and Parks	*Ontario Water Resources Act*, 1990, as amended	Required for any dewatering of groundwater during construction over 400,000 Litres per day.
Not Applicable	Ministry of Citizenship and Multiculturalism	*Ontario Heritage Act*, 1990	Archaeological assessments must be undertaken by an archaeologist licensed under the *Ontario Heritage Act*, who will then submit the report for the Ministry of Citizenship and Multiculturalism's review. Archaeological concerns have not been addressed until reports have been entered into the Ontario Public Register of Archaeological Reports where those reports recommend that: – The archaeological assessment of the project area is complete. – All archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(3) of the *Ontario Heritage Act*) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy.
Wildlife Scientific Collectors Authorization	Ministry of Natural Resources and Forestry	*Fish and Wildlife Conservation Act, 1997*	No permits or approvals required as mitigation measures and best management practices should prevent negative impacts to wildlife.
Tree Removal and Injury Permits	City of Toronto	*City of Toronto Official Plan Policies*	Tree removal and injury permits may be required if the following tree removals are required for the proposed work: – Trees of any size within municipal streets and/or City of Toronto Ravine and Natural Feature Protection Area. – Trees with a diameter of 30 centimetres or more on private property.
Street Occupation Permit	City of Toronto	*City of Toronto Official Plan Polices*	Required if a proponent is planning to temporarily occupy any portion of a public right-of-way during construction.
Building Permit	City of Toronto	*City of Toronto Official Plan Policies*	A Building Permit is required for the construction or demolition of a new building, addition or alteration of any building or structure.
Noise Exemption Permit	City of Toronto	*City of Toronto Official Plan Policies*	Operation of construction equipment Is permitted between 7:00 am and 7:00 pm on Monday to Friday and Saturdays between 9:00 am to 7:00 pm. No construction noise is permitted on Sundays and statutory holidays. A permit can be requested for construction noise outside the allowable hours.
Construction Permit	City of Toronto	*City of Toronto Official Plan Policies*	Required for any work that will occur within the public right-of-way.
Drink Water Works Permit	City of Toronto	*City of Toronto Official Plan Policies*	Required for any work that may alter drinking water system watermains within the City of Toronto.
Sewer Discharge Permits	City of Toronto	*City of Toronto Official Plan Policies*	Sewer Discharge Permits and Agreements are required when private water is discharged into the City's sewer system during construction.
Section 28.1 Permit	Toronto and Region Conservation Authority	*Conservation Authorities Act*	A Section 28.1 permit is required as it relates to natural hazards in the Toronto and Region Conservation Authority's regulated area.

ES8. Commitments and Future Work

Natural Environment

- Due to the records of provincially and federally listed Species at Risk within the Study Area it is recommended that screening for Species at Risk continues to be conducted during future study stages of this Project since species can be added to or removed from the scheduled list of protected species under the *Endangered Species Act* or *Species at Risk Act* on a periodic basis.
- Regulatory agencies should also be consulted at the time of the Species at Risk screening to confirm the presence of Species at Risk and the requirement for permits under the provincial *Endangered Species Act* and/or the federal *Species at Risk Act*.
- An Erosion and Sediment Control Plan should be developed during future study stages and implemented to contain/isolate exposed soils, stockpiled materials and unstable areas in the work zone and to prevent the release of sediment to all waterbodies.
- The Ministry of Natural Resources and Forestry provided an in-water work timing window of July 1 to March 31 for all tributaries to Highland Creek identified in LGL's Natural Heritage Report (2017). As the Dorset Park Branch of Southwest Highland Creek is within the Highland Creek watershed and shares a similar fish community as the tributaries discussed in LGL's Natural Heritage Report (2017), the same in-water work timing window is expected to apply. However, should in-water works be required, correspondence with the Ministry of Natural Resources and Forestry should be refreshed to provide confirmation.
- Aquatic Habitat Assessments during future study stages should be conducted, as applicable to Project sites, to characterize and confirm existing aquatic conditions.
- As no in-water works are proposed at this time, the death of fish or the harmful alteration, disruption, or disturbance of fish habitat is not anticipated should all mitigation measures be followed to protect fish and fish habitat. As such, a Request for Review is not required. However, if the proposed works change to involve any work below the high water mark the potential impacts to fish and fish habitat will need to be reassessed and a Request for Review may need to be submitted to Fisheries and Oceans Canada.
- Vegetation removal activities should be limited to outside of the breeding bird nesting period (April 1 to August 31) in all types of vegetation communities and bat active season (April 1 to September 30) in treed or forested communities of any given year. Other wildlife sensitive periods may need to be considered as well based on the results of field investigations to be completed during future study stages as applicable.

- The proposed work may require tree removals and/or may result in the harm or mortality of trees adjacent to the Construction Disturbance Area. As such, an arborist report will likely be required to document tree removals and identify tree protection measures.
- A Spill Prevention and Contingency Plan should be developed during future study stages and implemented to contain and clean up spills in accordance with provincial regulatory requirements.

Air Quality

- Continued promotion of increased electric vehicle purchase and infrastructure within Ontario.
- Implementation of vegetation along the busway during construction (such as a green dust control fence around the corridor), where feasible, within the Study Area primarily for the highest impact receptors mentioned above, to decrease ground level dispersion of particulates.
- Prior to commencement of construction, a comprehensive Environmental Controls and Methods Plan should be prepared for fugitive dust control, effluent water control, Polychlorinated biphenyls removal and cleanup.
- Prior to commencement of construction, an Emission Control Plan should be prepared for work involving asphalt application, roofing, waterproofing, diesel exhaust, odourous products.
- Prior to commencement of construction, a Dust Control Plan for Non-Asbestos containing material should be prepared.

Socio-Economic and Land Use

- Construction activities should be monitored by a qualified inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas.
- Traffic effects to be monitored in accordance with the Traffic and Transit Management Plan and adjusted as necessary during the construction period.
- Transit effects to be monitored and mitigation adjusted as necessary during the construction period.
- The Toronto Transit Commission to ensure Project operations is minimized in duration and footprint to the extent possible.
- City of Toronto to monitor collision data to ensure driver guidance is achieving desired outcomes.
- Temporary access paths, walkways, cycling routes and fencing should be monitored.

- Cycling network impacts to be monitored and mitigation adjusted as necessary during the construction period.

Noise and Vibration

- Specific requirements of noise control are to be determined during detailed design based upon exact locations of operations.
- As newer and lower noise emitting buses come into the Toronto Transit Commission's fleet, a recommendation would be to investigate the feasibility of using the lower noise emitting buses exclusively on the bus routes serving the busway, or during the late evening and early morning hours.

Built Heritage Resources and Cultural Heritage Landscapes

- No future commitments are required for Built Heritage Resources and Cultural Heritage Landscapes within the Study Area.

Archaeology

- No future commitments are required for Built Heritage Resources and Cultural Heritage Landscapes within the Study Area. A Stage 2 Archaeological Assessment has been undertaken and submitted to the Ministry of Citizenship and Multiculturalism for approval.
- Archaeological assessments must be undertaken by an archaeologist licensed under the *Ontario Heritage Act*, who will then submit the report for the Ministry of Citizenship and Multiculturalism's review. Archaeological concerns have not been addressed until reports have been entered into the Ontario Public Register of Archaeological Reports where those reports recommend that:
  - The archaeological assessment of the project is complete.
  - All archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(4) of the *Ontario Heritage Act*) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy.

Traffic and Transportation

- Emergency response and incident management plans should be prepared and implemented, with pre-construction planning meetings held with emergency services and relevant authorities. The Toronto Transit Commission shall prepare traffic and Transit Management Plans and Traffic Control Plans before construction.

- A safety program should implement best practices for pedestrian and cyclist movement through the construction zone, and temporary access routes and fencing should be monitored.
- Implement safety-enhancing treatments such as continuous sidewalks or high-visibility crosswalks to improve pedestrian safety (subject to further study).
- Develop a winter maintenance plan for the Kennedy Road trail access to the stop.
- The Toronto Transit Commission will consult with Metrolinx throughout the detailed design phase of the Project.

Drainage and Stormwater

- The Toronto and Region Conservation Authority and City of Toronto criteria have been addressed in this report, and ongoing communication with both parties is advised.
- Communication with the City of Toronto and other utilities providers should be maintained.
- The proposed design will not impact watercourses, however, if any construction activities will impact watercourses, the Toronto and Region and Conservation Authority should be consulted.

Table E-1-2 summarize the environmental effects and mitigation measures and monitoring activities.

Table E-1-2: Summary of Environmental Effects, Mitigation Measures and Monitoring Activities

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	**Natural Heritage Features**	■ Unevaluated wetlands.	■ Unevaluated wetlands are outside of the Construction Disturbance Area and are not anticipated to be impacted by construction activities.	■ None required.
Natural Environment	**Policy Area**	■ Vegetation removal within the City's Natural Heritage System.	■ Refer below to mitigation measures described for Vegetation Communities and Wildlife and Wildlife Habitat.	■ Refer below to monitoring described for Vegetation Communities and Wildlife and Wildlife Habitat.
Natural Environment	**Policy Area**	■ Vegetation removal within the City of Toronto Ravine and Natural Feature Protection.	■ Refer below to mitigation measures described for Vegetation Communities and Wildlife and Wildlife Habitat.	■ Refer below to monitoring described for Vegetation Communities.
Natural Environment	**Policy Area**	■ Vegetation removal within the Toronto and Region Conservation Authority regulated area.	■ Refer below to mitigation measures described for Vegetation Communities and Wildlife and Wildlife Habitat.	■ Refer below to monitoring described for Vegetation Communities and Wildlife and Wildlife Habitat.
Natural Environment	**Vegetation Communities**	■ Removal of vegetation communities. ■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion.	■ Vegetation removal should be kept to a minimum and limited to within the Construction Disturbance Area. ■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ■ Temporarily disturbed areas should be re-vegetated using non-invasive, native plantings and/or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as needed. ■ Vegetation removals should also consider and mitigate potential impacts to sensitive species (e.g., migratory birds and Species at Risk) and features (e.g., Significant Wildlife Habitat). Refer to the Wildlife, Significant Wildlife Habitat and Species at Risk mitigation measures described below. ■ Develop and implement mitigation measures and recommendations in the Environmental Mitigation Management Plan.	■ Onsite inspection should 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 approach to compensation monitoring, if required, will be determined by property ownership, applicable governing by-laws/regulations and location with respect to ecological functioning.
Natural Environment	**Vegetation Communities**	■ City and private tree removal and injury.	■ An arborist report by an International Society of Arboriculture, Certified Arborist may be prepared with regard to the Ontario *Forestry Act R.S.O 1990*, and other regulations and best management practices as applicable. ■ The arborist report may include, but not be limited to the individual identification of all trees within the Study Area including those that require removal or preservation, or trees that may be injured as result of the Project. Trees to be identified within the Study Area may include those on Toronto Transit Commission property, trees on public and private lands, and boundary trees. The City of Toronto by-laws dictate the minimum area buffers to inventoried and diameter at breast height which requires inventory.	■ If a separate arborist report is warranted for tree removals, monitoring activities for tree protection measures should be outlined and adhered to.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment (continued)	**Vegetation Communities**	■ City and private tree removal and injury.	■ Trees protected under the City of Toronto's tree protection by-laws are subject to tree protection zones and requirements laid out within the City of Toronto's *Tree Protection Policy and Specifications for Construction Near Trees* (2016). Prior to the undertaking of any tree removals, a Tree Removal Strategy/Tree Preservation Plan may be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto's Tree Protection Policy and Specifications for Construction Near Trees *Guidelines* (2016) and adherence with best practices, standards, and regulations on safety, environmental and wildlife protections. ■ If a tree requires removal, compensation and permitting/approvals (as required) shall be undertaken in accordance with the City of Toronto by-law requirements. ■ Pruning of branches should be conducted through the implementation of proper arboricultural techniques. ■ Tree protection zone fencing should be established to protect and prevent tree injuries. Tree protection zones will be clearly staked prior to construction using barriers in accordance with local by-law requirements.	■ -
Natural Environment	**Vegetation Communities**	■ Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use. ■ Introduction or spread of invasive species.	■ A Spill Prevention and Contingency Plan should be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. ■ Emergency spill-kits and drop trays should be kept on site and deployed as necessary for equipment working near water. ■ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the *Clean Equipment Protocol for Industry* (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations. ■ Emerald Ash Borer (*Agrilus planipennis*) is an invasive pest that has decimated Ash species (*Fraxinus sp.)* in North America (Canadian Food Inspection Agency, 2024). Trees should be removed from site in a manner that will prevent the emergence and spread of Emerald Ash Borer from the infested tree material and such that no trees or wood chips shall be moved outside of the Emerald Ash Borer quarantine zone as defined by the Canadian Food Inspection Agency (2024). An arborist report should be produced during future study stages to outline mitigation measures to avoid/prevent the spread of Emerald Ash Borer.	■ On-site inspection should 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 implementing the *Clean Equipment Protocol for Industry* (Halloran et al., 2013) on equipment and machinery prior to moving sites.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	**Vegetation Communities & Southwest Highland Creek**	■ Increased erosion and sedimentation.	■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ■ An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guideline for Urban Construction (Toronto and Region Conservation Authority, 2019), should be prepared prior to and implemented during construction to minimize the risk of sedimentation to the vegetation communities. The Sediment and Erosion Control Plan should include measures such as silt fencing and hay-bale check dams prior to construction activities. To mitigate dust deposition, a dust suppressant can be applied to areas of exposed soils and areas of concrete drilling/cutting to reduce or eliminate dust generation. ■ Ensure the work site is stabilized prior to removal of Erosion and Sediment Control Plan measures following construction. ■ Stockpiled materials or equipment should be stored within the construction footprint but shall be kept at least 30 metres away from any watercourse or wetland. Signs should be put up on site to indicate the 30 metre setback from any watercourse or wetland.	■ On-site inspection should 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. ■ All fencing (silt, tree and wildlife exclusion) should be monitored during construction on a weekly basis and 24 hours after significant rain or wind events to ensure that all fencing is intact and functioning properly.
Natural Environment	**Southwest Highland Creek**	■ Death of fish and harmful alteration, disruption, or disturbance to fish habitat through: ■ Sedimentation and erosion. ■ Leaks and spills. ■ Riparian vegetation removal.	■ No in-water works are proposed and therefore no machinery/ equipment should enter or cross Southwest Highland Creek. ■ The Ministry of Natural Resources and Forestry provided an in-water work timing window of July 1 to March 31 for all tributaries to Highland Creek identified in LGL's Natural Heritage Report (2017). Should in-water works be required, the same timing window is expected to apply; however, correspondence with the Ministry of Natural Resources and Forestry should be refreshed to provide confirmation. ■ A Spill Prevention and Contingency Plan should be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ Emergency spill-kits and drop trays should be kept on site and deployed as necessary for equipment working near water. ■ Refuelling of equipment should occur at least 30 metres away from any watercourse or wetland. Signs will be put up on site to indicate the 30 metres setback from any watercourse or wetland. ■ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds or plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site. ■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to riparian vegetation within 30 metres of the watercourse or wetland.	■ On-site inspection should 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. ■ All fencing (silt, tree and wildlife exclusion) should be monitored during construction on a weekly basis and 24 hours after significant rain or wind events to ensure that all fencing is intact and functioning properly.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	**Southwest Highland Creek (continued)**	■ -	■ An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guideline for Urban Construction (Toronto and Region Conservation Authority, 2019), should be prepared prior to and implemented during construction to minimize the risk of sedimentation to the vegetation communities. The Sediment and Erosion Control Plan should include measures such as silt fencing and hay-bale check dams prior to construction activities. To mitigate dust deposition, a dust suppressant can be applied to areas of exposed soils and areas of concrete drilling/cutting to reduce or eliminate dust generation.	■ -
Natural Environment	**Wildlife and Wildlife Habitat – General**	■ Disturbance, displacement or mortality of wildlife.	■ 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 off-site and away from the construction area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife.	■ Regular monitoring (field observations, on-site inspections) should be undertaken to ensure that there are no wildlife trapped in the construction work area.
Natural Environment	**Wildlife and Wildlife Habitat – Species of Conservation Concern birds and Migratory Breeding Birds and Nests**	■ Disturbance or destruction of migratory bird nests. ■ Although no nests belonging to Species of Conservation Concern and *Migratory Bird Convention Act* – protected birds were identified under the Mile 8.60 Bridge, there is potential for nesting under the bridge in subsequent years.	■ All works must comply with the *Migratory Bird Convention Act*, including removing trees and vegetation outside of the bird 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 may be undertaken prior to required activities in simple habitat as identified by a qualified Biologist. Nest searches in simple habitats 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.	■ Regular monitoring (field observations, on-site inspections) should be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
Natural Environment	**Wildlife and Wildlife Habitat – Significant Wildlife Habitat**	■ Potential injury/mortality to wildlife, including Species of Conservation Concern.	■ Installation of exclusion fencing around upland work area and suitable stockpiled material prior to April 1 should prevent turtles from entering the work area following the Ministry of Natural Resource and Forestry's Reptile and Amphibian Fencing Best Management Practices (2020). ■ Stockpiles of gravel and sand required for construction should not be placed in areas that are accessible to nesting turtles. If this is not possible, then exclusion fencing around stockpiled gravel and sand should be installed prior to May 1 and maintained until July 30.	■ On-site inspection should 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.
Natural Environment	**Species at Risk- General**	■ Disturbance and/or mortality to Species at Risk.	■ No Species at Risk are anticipated to be found within the Construction Disturbance Area. However, on-site personnel will be provided with information (e.g., factsheets) that addresses the potential Species at Risk within the surrounding area and the procedure(s) to follow if an individual is encountered or injured.	■ On-site inspection should 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.
Natural Environment	**Species at Risk – Bat Species at Risk**	■ Disturbance and/or mortality to Species at Risk.	■ If tree removal is required within the Dry - Fresh Exotic Deciduous Forest Type (FODM4-12), tree removal should occur outside of the bat active season (April 1 to September 30) to avoid incidental take of roosting bats. ■ The form and function of treed communities in the Study Area should be maintained for potential bat Species at Risk/maternity roosting.	■ Regular inspection in areas of vegetation removal should be undertaken as required during construction to ensure that fencing is intact, only specified trees (if any) are removed and no damage is caused to the remaining trees and adjacent vegetation communities.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Air Quality	**Operations**	■ Increased NO_2, CO, SO_2, particulate matter, and Volatile Organic Compounds impact levels at nearby receptors.	■ Continued promotion of increased electric vehicle purchase and infrastructure within Ontario.	■ Operating Conditions: Increased Traffic Vehicular Emissions
Air Quality	**Construction**	■ Construction related air pollution include diesel combustion and particulate emissions. Odour and visible dust may cause public annoyance at existing sensitive receptors within the Study Area during construction phase.	■ Implementation of vegetation (such as a green dust control fence around the corridor) within the Study Area to decrease ground level dispersion of particulates. ■ Prior to commencement of construction, a comprehensive Environmental Controls and Methods Plan should be prepared for fugitive dust control, effluent water control, Polychlorinated biphenyls removal and cleanup, and will: • Ensure work does not adversely affect adjacent watercourses, groundwater, and wildlife, or contribute to excess air and noise pollution. • Ensure proper disposal procedures are maintained for waste or volatile materials including, but not limited to, mineral spirits, oil, petroleum based lubricants or toxic cleaning solutions. • Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction. • Prevent extraneous materials from contaminating air beyond construction area by providing temporary enclosures during demolition. ■ Prior to commencement of construction, an Emission Control Plan should be prepared for work involving asphalt application, roofing, waterproofing, diesel exhaust, odourous products. The Emission Control Plan will: • During construction, provide sufficient measures to control odours and other irritating chemical emissions including, but not limited to, the following: ▪ Exhaust from powered equipment, such as vehicles, compressors, generators. ▪ Asphalt odours. ▪ Smoke from heating kettles, paints and sealers. • Prevent odours from entering the ventilation systems through placement options, sealing or shutting down air intakes, and use of positive pressure where possible. • Where possible, schedule activities known to generate noxious or irritating odours during off-hours to minimize impact on Toronto Transit Commission employees, passengers, and neighbouring properties. • Ensure chemical Products used have been previously reviewed and approved by Toronto Transit Commission for use regarding overall flammability, chemical and environmental Hazards and irritant properties.	■ During construction, air monitoring of contaminants should be provided, as applicable, to verify the effectiveness of dust control measures to support the Dust Control Plan. ■ In addition, relevant construction monitoring activities from the following recommended guidelines can be implemented during construction: ■ Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005); and, ■ Operations Manual for Air Quality Monitoring in Ontario (Ministry of the Environment, Conservation and Parks, 2018).

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Air Quality	**Construction (continued)**	■ Construction related air pollution include diesel combustion and particulate emissions. Odour and visible dust may cause public annoyance at existing sensitive receptors within the Study Area during construction phase.	■ Prior to commencement of construction, a Dust Control Plan for Non-Asbestos containing material should be prepared and will: • Confirm that airborne contaminants are maintained below their respective occupational exposure limits in accordance with *Occupational Health and Safety Act R.R.O 1990, Regulation 833*: Control of Exposure to Biological or Chemical Agents. • Provide appropriate enclosure for the Work area to prevent dust from migrating to other areas. • Provide sufficient local exhaust and ventilation. • Periodically water unpaved construction areas, stockpiles, and during concrete chipping. • Limit speed of vehicular traffic. • Use water sprays for dust generating loading and unloading of materials. • Sweep and water flush entrances to the Site. • Wash down streets within the area of Work on a weekly basis and as required in accordance with the Dust Control Plan (Non Asbestos containing materials).	■ -
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Property: Temporary property effects, such as property takings for laydown areas, are anticipated and the Toronto Transit Commission is in the process of acquiring these properties as easements for construction of stops and small portion of the busway.	■ Temporary property takings for construction of the Project are anticipated for stops at Ellesmere Road, Lawrence Avenue East and Tara Avenue, and will be confirmed as design progresses. To ensure the required property for the stop locations, and identify and required site-specific mitigation, consultation and negotiation have commenced. Where access to property is required, ongoing consultation with affected landowners will help identify appropriate site-specific mitigation measures. ■ Temporary property takings near residential and institutional uses should be avoided if possible. ■ Select staging/laydown areas in accordance with the City of Toronto procedures. Staging/laydown areas should be located in areas that minimize adverse effects to sensitive receptors.	■ Follow City of Toronto guidance with respect to monitoring requirements at construction staging/laydown areas.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Nuisance effects from construction activities	■ Mitigation measures related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration commitment tables. ■ An Erosion and Sediment Control Plan should be developed by the Toronto Transit Commission/Contractor prior to construction that addresses sediment release to adjacent properties and roadways. ■ Develop a Communications Protocol should be developed by the Toronto Transit Commission/Contractor prior to construction, 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. ■ Prior to construction the Toronto Transit Commission/Contractor should Develop a Complaints Protocol.	■ When applicable, monitoring related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration commitment tables. ■ Erosion and sediment control monitoring to be conducted ■ Number and resolution of complaints received

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Construction work may necessitate the temporary closure of driveways or building entrances	■ Closures of driveways and building entrances are not anticipated and shall be avoided whenever possible during construction and shall be kept to a minimum when required. ■ 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. ■ Access to businesses during working hours will be maintained, where feasible. Where regular access cannot be maintained, alternative access and signage will be provided.	■ Temporary access paths, walkways, cycling routes and fencing should be monitored. ■ Number and resolution of complaints received.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Light trespass, glare, and light pollution effects is anticipated to be similar to the Scarborough Rapid Transit conditions.	■ Comply with all local applicable municipal by-laws and Ministry of Transportation 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 American National Standards Institute/ Illuminating Engineering Society RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting ■ Light trespass, glare and pollution effects should be minimized through the implementation of best practices (i.e., full cutoff fixtures) to mitigate or avoid unnecessary and obtrusive light. ■ Perform the work 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.	■ Construction activities should be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans. ■ Number and resolution of complaints received.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Increased noise, dust and vibration emanating from construction work	■ Monitoring and mitigation of noise and vibration effects shall be undertaken as described in the Noise and Vibration Report, available under separate cover.	■ Monitoring activities should be conducted in accordance with the Noise and Vibration Report.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Excess light spillage onto neighbouring properties	■ Lighting should be designed to minimize trespass, glare, and pollution effects through the implementation of best practices to mitigate or avoid unnecessary and obtrusive light.	■ Not applicable
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Increased noise, dust and vibration emanating from Project operations	■ Operations activities such as corridor maintenance should be minimized in duration and footprint to the extent possible.	■ Operator to monitor operations.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Negative aesthetic quality if not designed appropriately	■ To mitigate impact to the visual environment, screened enclosures should be considered as required, particularly for storage areas. ■ The visual effects of project structures (e.g., retaining walls, etc.) should be mitigated by considering their location, building materials, architectural design, and surrounding landscape treatments. Municipal departments and the public should be engaged as Project planning and design progresses.	■ Not applicable

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Transit and Transportation Network**	■ Temporary narrowing of lanes (possibly only along the Service Roads, Ellesmere Road, Lawrence Avenue East and Eglinton East). ■ Traffic may be temporarily halted to allow construction vehicles to enter/exit construction sites, and may be slowed by slow-moving equipment transitioning between locations.	■ Prepare and implement emergency response and incident management plans during construction to assist emergency service provides (i.e., Fire, Police and Ambulance) in responding to incidents and emergencies within the construction area (i.e., an incident causing closure of a crossing adjacent to the construction site where the Contractor is able to permit emergency service vehicles to cross the crossing location under construction); ■ Prepare Traffic and Transit Management Plans and Traffic Control Plans for each construction stage by the Toronto Transit Commission/Contractor prior to construction; and, ■ Conduct pre-construction planning meetings with representatives of the City of Toronto Fire, Police and Ambulance provides, other relevant City of Toronto divisions, and affected local transit authorities. ■ The following should be implemented once a Contractor has been selected and a construction schedule developed: ■ Co-ordinate the work with other planned road projects that may impact construction, so construction may be staged to minimize traffic impacts. ■ Conduct a haul route analysis to confirm haul routes via public roads. ■ Maintain existing residential and commercial access through the work zone to the extent practical. ■ Strive to accommodate local events and festivals by co-ordinating and consulting with local communities and event organizers to find mutually feasible options.	■ Construction activities should be monitored by a qualified Inspector/Contract Administrator with extensive knowledge of Ontario Traffic Manual Book 7 (Temporary Conditions) to confirm that all activities are conducted in accordance with mitigation plans. ■ Traffic impacts to be monitored in accordance with the Traffic and Transit Management Plans and adjust the Traffic Control Plans as necessary during the construction period. ■ Transit impacts to be monitored and mitigation measures to be adjusted as necessary during the construction period.
Socio-Economic and Land Use	**Transit and Transportation Network**	■ Existing on-street parking may be reduced or eliminated as needed.	■ The Project is anticipated to result in an improved experience for transit users, providing faster and more frequent connections to major destinations along the corridor. ■ In general, it is good practice to reduce overall parking availability around higher-order transit corridors, however, significant loss of on-street parking may be compensated for by designating some new off-corridor parking spaces as appropriate and desired.	■ City of Toronto to monitor collision data to ensure driver guidance is achieving desired outcomes.
Socio-Economic and Land Use	**Public Transit**	■ Construction may result in access restrictions to local bus routes and temporary disruptions.	■ 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.	■ Traffic impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and adjusted as necessary during the construction period.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Bike lanes, multi-use paths and sidewalks may be temporarily restricted or eliminated. ■ Temporary sidewalks/paths may have a rough or bumpy surface that creates discomfort for those with assisted mobility devices, strollers, etc.	■ Maintain pedestrian/cyclist access through the work zone whenever possible. ■ Where a sidewalk or path needs to be removed, safe and accessible temporary path in accordance with the applicable municipal and/or provincial guidelines and standards. ■ Provide clear signage at decision points to pedestrians and cyclists informing of closures. For instance, a sidewalk closure should be indicated at an intersection and not mid-block. ■ Ensure detours can be observed through line of sight and provide adequate signage where not possible.	■ Temporary access paths, walkways, cycling routes and fencing should be monitored. ■ Cycling network impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and mitigation adjusted as necessary during the construction period.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Operation of construction equipment and large construction trucks in corridor may pose safety and comfort challenges for pedestrians and cyclists.	■ If required, develop a safety program that implements safety best practices in a construction zone and addresses pedestrian/cyclist movement through the corridor.	■ Construction activities should be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Through travel at minor intersections may be restricted, requiring a detour to a nearby crosswalk.	■ The project is expected to result in an improved experience for pedestrians and cyclists with new active transportation infrastructure. The Project should be designed to improve access to key destinations.	■ Not required.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Noise, vibration, and dust generated by construction activity.	■ Construction noise is subject to the City of Toronto Noise Control By-law. Where work is required outside of permitted times, an exemption shall be applied for in advance of this work.	■ Construction activities should be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Temporary access restrictions, such as driveway, trail, or entrance closures due to nearby construction.	■ Closures of driveways, trails and entrances are not anticipated and shall be avoided whenever possible during construction and shall be kept to a minimum when required. Alternate means of access (ex. temporary driveway) shall be provided where a driveway is temporarily removed.	■ Temporary access paths, walkways, cycling routes and fencing should be monitored.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Potential property impacts to community amenities.	■ No effects to community amenities are anticipated as a result of the operation of the Project, except where property may be required. Property acquisition will be confirmed as design progresses. Where effects are anticipated, the property owner should be consulted with as soon as property impacts are understood. Property impacts to community amenities that serve vulnerable populations should be avoided.	■ Not required.
Socio-Economic and Land Use	**Utilities Planning and Construction**	■ Utility serviceability effects due to design requirements and construction.	■ 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.	■ Maintain regular communication and co-ordination 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. ■ Construction activities should be monitored by a qualified Inspector to confirm that all activities are conducted in accordance with mitigation plans.
Socio-Economic and Land Use	**Utilities Post-Construction Phase**	■ Future Utility Maintainability.	■ 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 by qualified inspectors 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 S250-11 – Mapping of Underground Utility Infrastructure (2011), as amended from time to time.	■ Develop and implement tracking system for as-built deliverables.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Utilities During Operations**	■ No effects to public or private utilities are anticipated during Project operations.	■ No effects are anticipated; therefore, no mitigation is proposed.	■ Not required.
Noise and Vibration	**Construction Impacts - Noise**	■ Human annoyance due to construction noise is expected without the implementation of noise control measures.	■ Avoid nighttime construction where possible near residences. ■ Avoid the use of impact or sonic piling machines unless noise control (i.e., some sort of enclosure or acoustic shroud) is used. Specific requirements of noise control are to be determined during detail designed based upon exact locations of operations. • Consider alternative methods such as installation using augured methods, or if possible, shoring using trench boxes. ■ Although exempt from City of Toronto By-law 878-2019, attempt to abide by local noise by-laws and policies. ■ Use equipment compliant with Ministry of the Environment (now Ministry of the Environment, Conservation and Parks) publication Noise Pollution Control guidelines-115 and Noise Pollution Control guidelines-118. ■ Use of upgraded construction hoarding between construction equipment and noise sensitive receivers. ■ Provide occupants of buildings in the vicinity of planned construction activity with the contact details of a person who can assist them with resolving issues related to construction noise, and setup a construction complaint process. ■ Limit construction noise levels outside of construction areas (public areas) to a maximum of 85 A-weighted decibels to be compliant with Occupational Health and Safety requirements. ■ Ensure all internal combustion engines are fitted with appropriate muffler systems. ■ Take advantage of shielding from existing structures, objects, or stockpiles to shield residential locations from construction equipment. ■ Minimize simultaneous operation of equipment where possible. ■ Implement a noise idling policy on site (unless necessary for safety or equipment operations). ■ Maximize distance between construction equipment operations and noise sensitive receptors where possible. ■ Keep equipment in good maintenance. ■ Limit equipment idling time to the minimum time necessary to complete specified tasks. ■ Advise nearby residents of significant noise generating activities to minimize disruption. ■ Consult with likely affected persons prior to commencement of works. ■ Consider setting construction noise level limits appropriate to Project acceptable community response. • Guidance is available in International Organization for Standardization R1996 and the United States Federal Transit Administration's Transit Noise and Vibration Impact Assessment guide. Construction noise levels less than 5 decibels above the pre-construction background are typically acceptable. ■ Consider noise monitoring to verify if construction noise limits are met.	■ Respond to occupancy issues as they arrive. ■ Review construction compliant process. ■ Review concerns of likely affected persons.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Noise and Vibrations	**Construction Impacts - Vibration**	■ Bridge pillars at Eglinton Avenue East and Ellesmere Road, and the pedestrian bridge at Tara Avenue are expected to be impacted by construction vibration. ■ Commercial locations at 51 and 85 Nantucket Boulevard fall within the Zone of Influence and vibrations levels may exceed criteria for building damage for Type II structures.	■ Abide by all local vibration by-laws. • City of Toronto By-law 514-2008 requires a vibration study and a vibration control form to be submitted as part of the building permitting application. • Follow provisions in By-law 514-2008 regardless of application requirements. ▪ Conduct vibration monitoring for locations within the Zone of Influence. ▪ Conduct preconstruction building inspections for structures within the Zone of Influence. ▪ Update Zone of Influence as design develops. ■ Set vibration limits appropriate for the structure type, guidance can be found in the United States Federal Transit Administration's Transit Noise and Vibration Impact Assessment Guide for Transit Noise and Vibration Impact Assessment, and City of Toronto specification GN117SS. ■ Avoid impact or vibratory methods for shoring, consider augured method, or other lower impact forms of shoring such as trench boxes) where feasible. ■ Use lower vibration equipment where feasible (e.g., smaller sized equipment). ■ Use lower vibration processes where feasible (e.g., caisson drilling instead of impact piling). ■ Operate construction equipment during periods where nearby structures are unoccupied when feasible. ■ Avoid use of vibration generating equipment during the nighttime in residential areas, when feasible. ■ Limit speed of vehicles entering and driving within the site. ■ Provide smooth surfaces for vehicle movements when feasible. ■ Maximize distance between equipment and sensitive receptors while receptors are occupied where possible. ■ Inform occupants of buildings in the vicinity of planned construction activity a reasonable amount of time before construction begins. ■ Provide occupants of buildings in the vicinity of planned construction activity with the contact details of a person who can assist them with resolving issues related to vibration generated by construction. ■ Operate construction vehicles under lower vibration settings. ■ Setup a construction vibration complaint process.	■ Review the construction vibration compliant process. ■ Respond to occupancy issues as they arrive.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Noise and Vibration	**Operations Impacts - Noise**	■ Noise levels are expected to exceed the noise mitigation threshold at the residences on the west side of the corridor, south of Lawrence Avenue East, during the nighttime period.	■ Consider implementing lower noise emitting buses when they become part of the Toronto Transit Commission's fleet. ■ Consider the use of larger buses shelters as a noise screen. ■ Consider encouraging bus operators to accelerate slower while near the residents southwest of the existing Lawrence East Station and utilize the entire bus stop platform to come to a slower stop.	■ Investigations should be conducted to determine the feasibility of the implementing lower noise emitting buses as they become available. ■ Investigations should be conducted to determine the possibility to include new bus operator best practices.
Noise and Vibration	**Operations Impacts - Vibration**	■ Vibration impacts from the operation of the Project is considered negligible; thus the assessment of the Project operation will concentrate on the noise impact.	■ None required.	■ None required.
Cultural Heritage	**Built Heritage Resources and Cultural Heritage Landscapes**	■ No known previously identified Built Heritage Resources and/or Cultural Heritage Landscapes within the Study Area.	■ None required.	■ None required.
Cultural Heritage	**Archaeological Resources**	■ Impacts to previously unidentified archaeological resources.	■ A Stage 2 Archaeological Assessment has been undertaken and submitted to the Ministry of Citizenship and Multiculturalism for approval. ■ Further archaeological assessments will be completed as necessary, and corresponding documentation will be registered with the Ministry of Citizenship and Multiculturalism. All construction areas which were identified as having archaeological potential in the Stage 1 assessment will be cleared of archaeological finds prior to the commencement of construction. ■ Should previously undocumented archaeological resources be discovered, there may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resource shall cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48 (1) of the *Ontario Heritage Act*. ■ If human remains are encountered during construction, work must cease immediately, the police or Regional Coroner should be contacted, as well as the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer Services, the Bereavement Authority of Ontario, and the Ministry of Citizenship and Multiculturalism. If the remains are not determined to be of forensic interest, a Burials Site Investigation under the Funeral, *Burial and Cremation Services Act*, 2002 may be ordered. ■ Should additional lands outside of the Study Area boundaries be included as part of the Project, the standard requirements for Archaeological Assessments will be conducted prior to land disturbances.	■ None required.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Traffic and Transportation	**Traffic Flow**	■ Impact on general traffic will be minimal or localized since most work will occur off the main roads. ■ Traffic disruptions will occur mainly on access routes leading to the work zones for material movement and delivery. There will be increased activity from construction vehicles making specific turning movements at nearby intersections. ■ Generally minimal impacts to emergency response times with potential for them to be slightly longer due to the work off the main roads and dependent on location of emergency.	■ To manage construction effects, advance advisory signage will be installed, including roadway closing information at least two weeks prior and notices distributed to affected residents and businesses. ■ Emergency response and incident management plans should be prepared and implemented, with pre-construction planning meetings held with emergency services and relevant authorities. The Toronto Transit Commission shall prepare traffic and Transit Management Plans and Traffic Control Plans before construction. ■ A suitable traffic management plan should need be established to ensure access for local businesses and residents can be maintained during construction. Co-ordination between all parties (i.e., businesses, residents, the Toronto Transit Commission, contractors, etc.) will be essential to mitigate impacts.	■ Construction activities should be monitored by a qualified inspector to ensure compliance with mitigation plans, and traffic and transit effects will be continually assessed and adjusted as needed.
Traffic and Transportation	**Pedestrian and Cycling Facilities**	■ Bike lanes, multi-use paths, and sidewalks may be temporarily restricted, closed, or removed, with temporary paths potentially being less direct or uncomfortable for those with mobility aids. ■ The presence of construction equipment and trucks used to access the work zone for the movement and delivery of construction of materials may also pose safety challenges for pedestrians and cyclists. ■ Planned cycling improvements in the vicinity of may be impacted and should be co-ordinated.	■ To manage construction impacts, efforts should include maintaining pedestrian and cyclist access through work zones whenever possible and providing temporary paths promptly when sidewalks or paths are removed. ■ Clear signage should be placed at decision points to inform of closures, and detours will be made visible or adequately signed. ■ A safety program should implement best practices for pedestrian and cyclist movement through the construction zone. ■ Additionally, impacts on the cycling network should be continuously monitored, and mitigations will be adjusted as needed.	■ Temporary pedestrian and cycling access routes and safety fencing should be monitored.
Traffic and Transportation	**Ellesmere Road Stop – Active Transportation**	■ Bikes permitted in dedicated transit lanes along Ellesmere Road but lack extension to the stop. ■ Sidewalk interface with buses at two locations, posing potential pedestrian safety risks.	■ Add cycling facilities along service roads from Ellesmere Road to the stop and provide bike parking at the stop. ■ Implement safety-enhancing treatments such as continuous sidewalks or high-visibility crosswalks to improve pedestrian safety (subject to further study).	■ Collect and analyze data on pedestrian incidents or near-misses.
Traffic and Transportation	**Ellesmere Road Stop – Driving and Goods Movement**	■ Buses entering and exiting the busway (and stop area) introduces a new turning movement conflict point with general purpose vehicles on the north and south sides of Ellesmere Road including Jolly Way. ■ Minimal impacts are anticipated to goods movement vehicles.	■ “Do Not Enter” signs and “Toronto Transit Commission Vehicle Only” signs are provided per the design to deter general purpose traffic from inadvertently accessing the busway and bus stop area.	■ Regularly review and update traffic signage and control measures to ensure clarity and effectiveness.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Traffic and Transportation	**Ellesmere Road Stop – Wayfinding, Customer Experience, and Accessibility**	■ Lack of visible wayfinding signage for stop access from Ellesmere Road and access roads. ■ The Ellesmere Road Stop is not clearly visible from the street due to its location and the substation building, which obstructs it. ■ Limited accessible options and connectivity between the east and west sides of the corridor.	■ Consider sightlines and implement additional wayfinding signage from both east and west sides of the stop to improve visibility. ■ Review and improve accessibility options during the detailed design stage to ensure compliance with accessibility requirements.	■ Regularly inspect and maintain wayfinding signage to ensure visibility and effectiveness.
Traffic and Transportation	**Lawrence Avenue East Stop – Active Transportation**	■ Planned cycling facilities on Lawrence Avenue East and anticipated cycling upgrades in the Meadoway/ Gatineau Corridor Trail may require integration with the stop.	■ Consider creating connections through Arsandco Park. ■ Provide sufficient bike parking and supporting amenities, including bike fix-it stands, at the stop.	■ None required.
Traffic and Transportation	**Lawrence Avenue East Stop – Driving and Goods Movement**	■ Potential interaction between freight vehicles (trucks) from three nearby industrial buildings and personal vehicles accessing the stop's parking lot, leading to mixed-traffic operations and potential congestion or safety issues. Impacts to goods movement vehicles would be minimal as no major routes would be disrupted. ■ Residential, industrial, and the City of Toronto emergency services interact on the west side of the corridor.	■ Introduce adequate signage and traffic control measures to manage the flow of mixed traffic and minimize conflicts.	■ Regularly review and update traffic signage and control measures to ensure they are effective and clear.
Traffic and Transportation	**Lawrence Avenue East Stop – Wayfinding, Customer Experience and Accessibility**	■ There is no pedestrian access from the south of Lawrence East Stop in current conditions.	■ Implement signage south of the stop to guide access and create a positive pedestrian experience.	■ Regularly inspect and maintain wayfinding signage to ensure visibility and effectiveness.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Traffic and Transportation	**Tara Avenue Stop – Active Transportation**	■ Potential safety concerns associated with pedestrian crossing between northbound and southbound stop platforms. ■ Safety concerns associated with pedestrian-bus conflict at the crossing location include visibility, distracted walking, and bus speed. ■ Inefficient pedestrian connection from the west side of the corridor at Mooregate Avenue, affecting passenger convenience and experience. ■ The stop is accessible for cyclists via the existing Gatineau Hydro Corridor Trail and Tara Avenue and Fitzgibbon Avenue which have shared lane markings. ■ Anticipate increased pedestrian and cyclist volumes on both sides of the corridor due to the addition of Tara Avenue Stop.	■ Select crossing location to ensure clear sightlines and minimize walking distances. ■ Install signalization, high-visibility markings, improved lighting, reduced speed limits and clear signage. ■ Consider strong wayfinding and amenities such as benches to improve the connection and make it more enjoyable for passengers. ■ Implement bike parking facilities at the stop to encourage a shift to sustainable modes for last-mile connections. ■ Implement wayfinding at major connecting roadways (Kennedy Road and Midland Avenue).	■ Conduct safety audits and gather data on pedestrian incidents or near-misses at the crossing.
Traffic and Transportation	**Tara Avenue Stop – Driving and Goods Movement**	■ Vehicular traffic/activities - limited pick-up & drop-offs on Tara Avenue and Mooregate Avenue. ■ An elementary school (Lord Roberts Junior Public School) is located east of the stop. ■ Impacts to goods movement vehicles are not anticipated.	■ Implement measures to reduce interface conflicts between the different modes of accessing the area, such as cyclists, pedestrians, and auto drivers.	■ Conduct traffic studies to monitor the flow and interaction of personal vehicles and cyclists.
Traffic and Transportation	**Tara Avenue Stop – Wayfinding, Customer Experience, and Accessibility**	■ Slight increased traffic, both in auto and active transportation modes, is anticipated in the neighbourhood around Tara Avenue and Mooregate Avenue. ■ An east-west trail connection through Jack Goodlad Park is available from Kennedy Road to the stop. ■ Street lighting is currently not provided along the trail.	■ Implement wayfinding signage for the future Tara Avenue Stop at Kennedy Road. ■ Develop a winter maintenance plan for the Kennedy Road trail access to the stop. ■ To avoid encroachment onto the trail, keep trees and other vegetation along the south side of the trail pruned and trimmed. ■ Implement street lighting to improve safety along the trail.	■ Inspect and maintain wayfinding signage, vegetation, and trail for safety and security both prior to and post-implantation of street lighting along the trail.
Traffic and Transportation	**Emergency Access**	■ Large emergency vehicles may be unable to access the busway corridor.	■ A comprehensive emergency plan should be developed and implemented.	■ Regular monitoring activities and assessments should be conducted to test and refine the accessibility plans, ensuring their robust effectiveness under various emergency scenarios.
Drainage and Stormwater	**Hydraulics**	■ Additional pavement and curb may require catch basins, manholes and ditch inlets to be adjusted.	■ Changes to City of Toronto infrastructure should be communicated and required permits should be obtained. ■ Complete a condition assessment for some of the infrastructure, including the half round corrugated steel pipe culverts. If the infrastructure is rust, damaged or filled with sediment, cleaning out or replacing any sections as needed are recommended.	■ None required.

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Appendix A. Technical Reports

Appendix B. Consultation Materials

1. Introduction

1.1 Project Overview

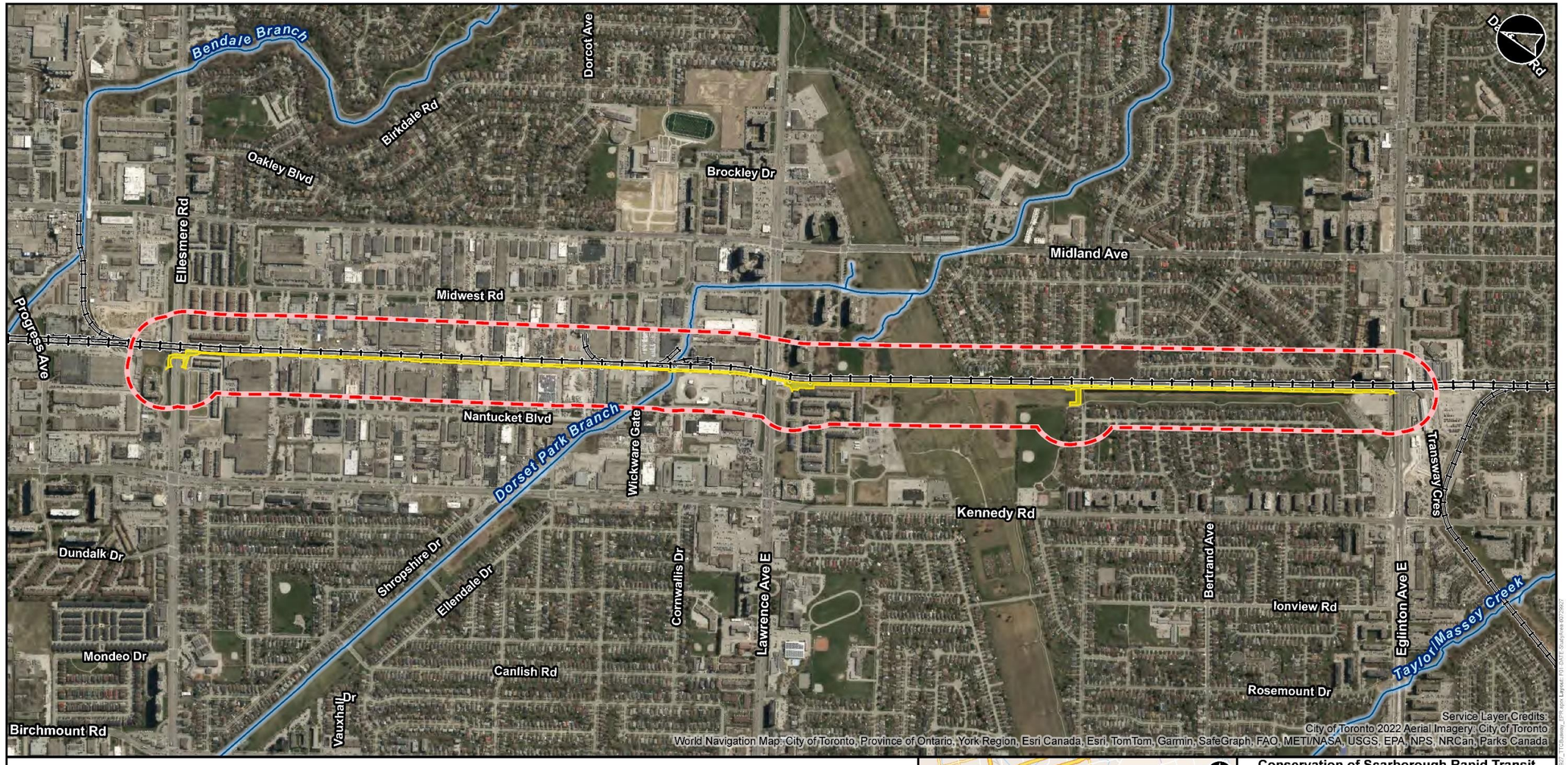
The Toronto Transit Commission is undertaking a Transit and Rail Project Assessment Process for the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project, which aims to convert the north-south portion of the decommissioned Line 3 Scarborough corridor between the former Ellesmere Station and Kennedy Station into a dedicated busway. As part of the Scarborough Rapid Transit decommissioning plan, two phases were developed. Phase 1 would see the Toronto Transit Commission operate an interim bus service on-street, which was planned to go into service by November 2023; however, due to the Scarborough Rapid Transit derailment in July 2023, interim bus service started in August 2023. The Toronto Transit Commission is currently advancing the detailed design of Phase 2, which involves converting the at-grade north-south portion of the Scarborough Rapid Transit right-of-way into a busway, allowing buses to operate in the converted busway between Ellesmere and Kennedy stations and continuing on existing transit priority lanes on Ellesmere Road between Ellesmere and Scarborough Centre stations, as implemented in Phase 1.

AECOM Canada Ltd. has been retained by the Toronto Transit Commission to assist in the completion of the Transit and Rail Project Assessment Process for Phase 2 of the Scarborough Rapid Transit decommission plan (the Project). This Environmental Project Report documents the need for the Project, the potential effects and proposed mitigation and monitoring.

1.2 Study Area

The Study Area, totaling 105 hectares, encompasses the section of the Scarborough Rapid Transit right-of-way extending from Ellesmere Road in the north to Eglinton Avenue East to the south, and extending east from Midwest Road to Nantucket Boulevard to the west, as depicted in **Figure 1-1**. The total length of the Study Area is the 4.09 kilometres. The Study Area is a geographic area within which the required technical studies were completed to support this Environmental Project Report. For each technical study, specific Study Areas have been defined based on the anticipated area to be affected and by technical recommendations and guidelines. The description of each individual technical Study Area are identified in **Section 4**.

Figure 1-1: Study Area



LEGEND

60% Design Project Components

- Study Area
- Construction Disturbance Area

General Features

- Main Railway
- Spur Railway
- Watercourse

Conservation of Scarborough Rapid Transit Right-of-Way to Busway Environmental Project Report

Study Area

0 100 200 400 600 800 M

WGS 1984 UTM Zone 17N

Data Sources:
Contains information licensed under the Open Government License Ontario and Toronto. Contains information made available under the Toronto and Region Conservation Authority (TRCA)'s Open Data Licence v 1.0

AECOM

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1.3 Relevant Policies to the Project

The Province of Ontario, the City of Toronto, and the Toronto Transit Commission have plans and policies which are relevant for the development of the Project. These plans and policies serve as important elements of the planning framework and provide insight into key provincial and municipal objectives while encouraging strategic transportation development. The following sections describe these planning considerations, including provincial polices and plans, municipal plans and initiatives, and other policy considerations.

1.3.1 Provincial

Over the past two decades, the Province of Ontario has approved a series of initiatives, statutes and plans that have changed the way planning and development is to occur. A significant number of these address transportation and public transit, as described in the following sections. Accordingly, the delivery of transit and public transit related developments should be consistent with these policies.

1.3.1.1 Provincial Policy Statement

The Provincial Policy Statement, 2020, was issued under Section 3 of the *Planning Act* and provides policy direction on matters of Provincial interest related to land use planning and development, with the aim of securing the long-term prosperity, environmental health, and social wellbeing of the Province. The Provincial Policy Statement is premised on the efficient use of land and infrastructure, the protection of environmental resources and ensuring sufficient land is available for the development of future employment and residential uses.

Of relevance to the Project and Study Area are policies that relate to transportation systems and infrastructure, long-term economic prosperity, the protection of natural environment, and cultural and built heritage. In particular, the Provincial Policy Statement promotes:

- Healthy and active communities by facilitating active transportation and community connectivity (Provincial Policy Statement, 2020, Section 1.5.1).
- The planning for and protection of transportation infrastructure and transit to meet current and projected needs (Provincial Policy Statement, 2020, Section 1.6.8.1).

- The preservation and reuse of abandoned corridors for purposes that maintain the corridor's integrity and continuous linear characteristics should be encouraged, wherever feasible (Provincial Policy Statement, Section 1.6.8.4).
- Providing safe, energy efficient, integrated, and reliable multimodal transportation systems which facilitate the movement of people and appropriately address projected needs (Provincial Policy Statement, 2020, Section 1.6.7).
- Planning for land uses in the vicinity of airports, rail facilities and marine facilities shall be undertaken so that their long-term operation and economic role is protected (Provincial Policy Statement, Section 1.6.9.1).
- Promote the use of active transportation and transit in and between residential, employment (including commercial and industrial) and institutional uses and other areas (Provincial Policy Statement, Section 1.8.1 (b)).

1.3.1.1.1 Applicability of the Provincial Policy Statement to the Project

The Project is consistent with the objectives of the Provincial Policy Statement, 2020, as it supports the expansion and optimization of a multi-modal transportation system that provides connectivity to existing local and regional transit and supports long-term economic prosperity. The Project will also support areas that were either built around rapid transit that no longer exists, or are planned for residential and employment growth and the potential to support multiple modes of travel, foster improved connectivity, and allow for the development of compact, mixed-use communities.

1.3.1.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Office Consolidation 2020 (Growth Plan), is a long-term plan for Ontario to promote economic growth, increase housing supply, create jobs, and build communities that make life easier, healthier, and more affordable for people of all ages. As one of the most dynamic and fast-growing regions in North America, the Greater Golden Horseshoe is a destination for many people and businesses from other parts of Canada and around the world.

The current Growth Plan came into effect on May 16, 2019, and was consolidated in August 2020. Changes to the Growth Plan since the original 2006 version and its 2017 update have provided greater detail on policies for achieving vibrant and complete communities. A primary objective of the Growth Plan is the achievement of complete communities that provide access and integration to transit networks that have an increased amount and variety of housing options.

The Growth Plan identifies Scarborough Centre as an urban growth centre. The City of Toronto Official Plan further outlines this area as an urban growth centre (further detail on the City of Toronto Official Plan below in **Section 1.3.2.1**). The Growth Plan notes that "urban growth centres" will be planned:

- As focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural and entertainment uses.
- To accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit.
- To serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses.
- To accommodate significant population and employment growth.

Each urban growth centre is given a minimum density target to achieve by 2031. The minimum density target for Scarborough Centre is 400 residents and jobs combined per hectare. The Growth Plan directs growth within settlement areas to strategic growth areas which includes urban growth centres and major transit station areas (Policy 2.2.1.2). Of relevance to the Project and Study Area are policies that relate to the creation of complete communities and enhanced transit planning within strategic growth areas. In particular, the Growth Plan:

- Supports the achievement of complete communities that expand convenient access to a range of transportation options (Policy 2.2.1.4(d)).
- Requires planning for lands adjacent to or near frequent transit to be transit-supportive, which relates to development that makes transit viable and improves the quality of the experience of using transit, often referring to compact, mixed-use development that has a high level of employment and residential densities (Policy 2.2.4.10).
- Requires municipalities to identify and protect lands that may be needed for future enhancement or expansion of transit infrastructure for lands adjacent or near higher order transit corridors, as determined through consultation with Metrolinx (Policy 2.2.4.11).
- Promotes economic development and competitiveness by planning to better connect areas with high employment densities to transit (Policy 2.2.5.1(c)).
- Requires the transportation system to be planned and managed to provide connectivity among transportation modes for moving people and goods, offering multimodal access to jobs, housing, schools, cultural and recreational opportunities, and goods and services (Policies 3.2.2(a) and (d)).

- Supports public transit as the first priority for transportation infrastructure planning and major transportation investments (Policy 3.2.3.1).
- Provides criteria for transit planning and investment decisions, including prioritizing areas with existing or planned higher residential or employment densities, increasing the capacity of the existing transit system to support strategic growth areas; and expanding transit services to areas that have or will be planned to achieve transit-supportive densities and provide a mix of uses (Policy 3.2.3.2).
- Supports existing and planned transit to reduce dependence on the automobile in an effort to address climate change adaptation and reduce greenhouse gas emissions (Policy 4.2.10.1(b)).

1.3.1.2.1 Applicability of the Growth Plan to the Project

The Growth Plan requires municipalities to recognize designations such as urban growth centres in their official plans to implement the policies of the Growth Plan. More discussion on the City of Toronto Official Plan is provided below in **Section 1.3.2.1**. The Growth Plan policies for strategic growth areas generally apply to the Study Area.

Overall, the Project conforms with the relevant policies of the Growth Plan. By delivering transit to areas of existing high-density housing, employment, cultural and institutional uses with the potential for new growth and development, the Project can help to deliver more complete communities, with a greater mix of uses. The Project will contribute to greater intra-regional transportation options to reduce reliance on automobile use. Scarborough Centre is a designated urban growth centre and with the shutdown of Line 3 Scarborough, it is no longer served by or well-connected to the higher order transit network. The implementation of the Project will provide Scarborough Centre with a rapid transit connection and improve its connectivity to the higher order transit network.

1.3.1.3 Greenbelt Plan

The Greenbelt Plan, 2017, identifies where urbanization is not to occur to provide permanent protection to the agricultural land base and the ecological and hydrological features, areas and function occurring within the Greater Golden Horseshoe landscape (Ministry of Municipal Affairs and Housing, 2017). The Greenbelt Plan was introduced under the *Greenbelt Act*, 2005, and includes lands within, and builds upon the ecological protections provided by, the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan. The Greenbelt Plan, together with the Growth Plan, builds on the Provincial Policy Statement to establish a land use planning framework for the Greater Golden Horseshoe that supports a thriving economy, a clean healthy environment, and social equity (Ministry of Municipal Affairs and Housing, 2017).

The Greenbelt Plan, 2017 describes the “Greenbelt” as a broad band of permanently protected land which:

- Protects against the loss and fragmentation of the agricultural land base and supports agriculture as the predominant land use.
- Gives permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that from the framework around which major urbanization in southcentral Ontario will be organized.
- Provides for a diverse range of economic and social activities associated with rural communities, agriculture, tourism, recreation, and resource uses.
- Builds resilience to and mitigates climate change (Ministry of Municipal Affairs and Housing, 2017).

1.3.1.3.1 Applicability of the Greenbelt Plan to the Project

The Project is not located within an area designated under the Greenbelt Plan, 2017. Therefore, the Greenbelt Plan is not applicable to the Project. However, the Project will support the goals of the Greenbelt Plan of mitigating climate change by offering a rapid and reliable public transit alternative to individual automobile use.

1.3.1.4 2041 Regional Transportation Plan

The 2041 Regional Transportation Plan was developed by Metrolinx and is a guidance document to facilitate the continued transformation of the transportation systems within the Greater Toronto and Hamilton Area. This document provides a framework for an integrated and multimodal regional transportation system that is to increase quality of service and connectivity to transportation services in a manner that helps foster sustainable and healthy communities.

The 2041 Regional Transportation Plan builds on its previous Regional Transportation Plan, The Big Move was released in 2008, and has secured $30 billion of investment in rapid transit and has led to the completion of several transit projects within the Greater Toronto and Hamilton Area. Furthering initiatives from The Big Move, the 2041 Regional Transportation Plan intends to continue with improvements to regional transportation by emphasizing traveller needs in its planning and operations. The 2041 Regional Transportation Plan summarizes its objectives as the following:

- Providing travellers with fast, frequent and reliable transit.
- Integrating fares and services to allow people to move seamlessly across the region.

- Designing communities, transit stations and Mobility Hubs to support transit use and active transportation.
- Anticipating and preparing for integrated mobility systems that use emerging transportation technologies and business models.
- Using parking demand strategies to encourage carsharing and other modes besides the car.
- Addressing the beginning and end of a traveller's journey - the first-and last-mile.
- Optimizing the use of roads and highways to support transit and goods movement.
- Embedding design excellence, sustainability and universal access in transit planning.

1.3.1.4.1 Applicability of the 2041 Regional Transportation Plan to the Project

Metrolinx's 2041 Regional Transportation Plan identifies a subway extension linking Scarborough Centre to Oshawa and Toronto. The Project will serve as a key link in an integrated, multi-modal, and regional transit system. It will meet the goals of the Regional Transportation Plan by creating strong connections to key destinations within Scarborough Centre and nearby neighbourhoods, and include other intra-regional forms of transportation. The Project will also create a sustainable and healthy community by encouraging residents to use transit over automobiles.

1.3.2 Municipal

The following sections outline the municipal planning and policy considerations for the Study Area.

1.3.2.1 City of Toronto Official Plan

The City of Toronto Official Plan was approved by the Ontario Municipal Board on July 6, 2006. Since that time, several Official Plan Amendments have been approved. The Official Plan sets out the vision for where and how Toronto will grow to the year 2031. An Official Plan Consolidation from December 2023 is currently available. The Plan 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. Official Plan policies relevant to the Study Area are outlined in the following sections.

1.3.2.1.1 Urban Structure

Map 2 – Urban Structure of the City of Toronto Official Plan illustrates the City's Urban Structure designations. The following Urban Structure elements are applicable to the Study Area:

- **Employment Areas** are on the east and west sides of the Study Area; south of Ellesmere Road, and north of Lawrence Avenue. These areas support business and employment growth by maintaining land exclusively for business and economic activities. Employment Areas are intended to be able to accommodate substantial job growth and meet the needs of the City's key economic clusters. Transit use is to be encouraged in Employment Areas through investing in improved levels of service and encouraging transit-supportive development, densities and forms.
- **Avenues** are found on the north and south sides of Lawrence Avenue. These structure elements are important corridors where re-urbanization and a range of residential, commercial, institutional, open space and entertainment uses are anticipated. The Official Plan envisions growth and redevelopment of the Avenues to be supported by high quality transit services and urban design which promotes a street that is safe, comfortable, and attractive for both pedestrians and cyclists.
- **Centres** are places with high order transit accessibility where jobs, housing and services will be concentrated in dynamic mixed use settings with different levels of activity and intensity. These Centres are focal points for surface transit routes drawing people from across the City and from outlying suburbs to either jobs within the Centres or to a rapid transit connection.

1.3.2.1.2 Land Use Designations

The Land Use Plan of the City of Toronto Official Plan illustrates the City of Toronto's Land Use designations. The designations relevant to the Study Area are as follows:

- **Natural Areas and Parks** are found along West Highland Creek and in smaller pockets throughout the Study Area. This designation includes a range of recreational, cultural, and educational uses and facilities that minimize adverse impacts on natural features.
- **Employment Areas** are found on the east and west side of the Study Area between Ellesmere Road and Lawrence Avenue. Employment Areas are intended to be places of business and economic activity. Uses that support this function consist of offices, manufacturing, warehousing, distribution, research and development facilities, utilities, media facilities, parks, hotels,

retail outlets ancillary to the preceding uses, and restaurants and small-scale stores and services that serve the area's businesses and workers.

- **Apartment Neighbourhoods** are found to the east of the Scarborough Rapid Transit right-of-way, south of Lawrence Avenue. Apartment Neighbourhoods are made up of apartment buildings and parks, local institutions, cultural and recreational facilities, and small-scale retail, service and office uses that serve the needs of area residents.
- **Mixed Use Areas** are found south of Ellesmere Road and north of Lawrence Avenue. Additional mixed use areas are found south of Lawrence Avenue to the west of the Scarborough Rapid Transit right-of-way and at Eglinton Avenue on both sides of the Scarborough Rapid Transit right-of-way. Mixed Use Areas are made up of a broad range of commercial, residential, and institutional uses, in single use or mixed use buildings, as well as parks and open spaces and utilities.
- **Neighbourhoods** are found along the length of the Scarborough Rapid Transit right-of-way south of Lawrence Avenue and north of Eglinton Avenue. Neighbourhoods contain a full range of residential uses within lower-scale buildings, as well as parks, schools, local institutions and small-scale stores and shops serving the needs of area residents.
- **Utilities** are found travelling west to east between Lawrence Avenue and Eglinton Avenue. Utility Corridors are hydroelectric and rail corridors primarily used for the movement and transmission of energy, information, people, and goods.

1.3.2.1.3 Scarborough Centre Secondary Plan

The City of Toronto Official Plan identifies Scarborough Centre as a Secondary Plan area and an Urban Growth Centre. Secondary Plans are a more detailed local development policy to guide growth and change in defined areas of the City of Toronto. Urban Growth Centres are components of the regional urban system that include major locations for intensification which will be developed in a compact form and provide a range of mixed housing, employment, recreation, entertainment, civic, cultural and other activities for residents, workers and area visitors. Urban Growth Centres are also focal areas for investment in region-wide public services and infrastructure, including major transit infrastructure. Transportation and connectivity are critical to the vitality and growth of the Scarborough Centre Secondary Plan, and the following efforts have been identified to enhance connections to the City:

- Active pursuit of the Sheppard Subway extension to the Centre.
- Enhancement of the Scarborough Rapid Transit system or replacement technology.

- Expansion and improvement to surface transit routes.
- New road construction to break up larger development blocks.
- Improved connections to, from and across Highway 401.
- Improved signage and wayfinding in the Centre.
- The provision of accessible and safe pedestrian walkways, trails and bike paths.

1.3.2.1.4 Special Policy Areas

The Toronto Official Plan identifies Special Policy Areas in locations where development is restricted due to hazards associated with flooding and/or unstable slopes. The Special Policy Areas are a tool for regulating development on hazardous lands within the existing community where complete development prohibition would cause social or economic downfalls.

The 401-Midland: Highland Creek – Bendale Branch Special Policy Area is within the Study Area along the east and west sides of the corridor, north of Lawrence Avenue. Policy 3.4.5 of the Toronto Official Plan requires any new buildings or structures developed within these areas to be protected from flooding to at least the 350-year flood level.

1.3.2.1.5 Applicability of the City of Toronto Official Plan to the Project

The Project will provide a key transit connection from Line 2 terminus at Kennedy Station to Scarborough Centre. The City of Toronto Official Plan envisions a range of transit-supportive uses connecting Scarborough Centre to the higher order transit network, which is an objective, and direct outcome of this Project.

1.3.2.2 City of Toronto Parkland Strategy

The City of Toronto Parkland Strategy (2019a) was developed to formulate a long-term vision and framework to enhance the parks system in the City of Toronto. It proposes to create new parks and expand and improve access to existing parks through a vision defined by the following four goals:

- Expand the parks system by creating new parks.
- Improve the function of existing parks.
- Connect parks and other open spaces physically and visually and leverage opportunities to use other open spaces.
- Include everyone by removing barriers.

The Strategy sets out a plan to achieve these goals out to a horizon year of 2033.

1.3.2.2.1 Applicability of the City of Toronto Parkland Strategy to the Project

The Strategy identifies one general area of parkland needed to the west of the corridor, between Lawrence Avenue and Eglinton Avenue. The Project will support the goals of the Strategy by improving connections to existing parks and trails.

1.3.2.3 City of Toronto Multi-Year Accessibility Plan 2020-2024

The 2020-2024 Multi-Year Accessibility Plan (2019b) reaffirms the City of Toronto's commitment to creating an accessible city and building a more equitable and inclusive society by outlining goals and initiatives that support this commitment. The Plan focuses on maintaining and monitoring compliance by the City of Toronto to requirements set out for municipalities under the *Accessibility of Ontario with Disabilities Act* (2005). The Plan sets out the following Guiding Principles:

- Leadership and Accountability
- Dignity and Independence
- Integration and Equity
- Accessibility by Design
- Innovation and Adaptability
- Collaboration and Engagement

These guiding principles serve to guide the City in actions, decision-making and service approaches regarding facilities and the delivery of goods and services within the City of Toronto.

1.3.2.3.1 Applicability of the City of Toronto Multi-Year Accessibility Plan to the Project

While the Project itself will be designed and operated in accordance with the City of Toronto Accessibility requirements, there are likely to be ancillary works carried out as part of the Project on behalf of the City of Toronto. These may include intersection reconstructions, sidewalk and multi-use path implementation, restoration of on- and off-right-of-way structures, and other such works. In these cases, it is recommended that these works are undertaken according to the City of Toronto accessibility guidelines.

1.3.2.4 City of Toronto Cycling Network Plan

The Toronto Cycling Network Plan (2024) has a three-year implementation program, as this allows for more of an adaptable approach because of future infrastructure planning. The City of Toronto's goal is to intertwine bicycle infrastructure with existing infrastructure. The Plan highlights the significant corridors within Toronto where high order cycling infrastructure has been installed or is underway or planned. Within the

Study Area there is an existing bike trail that is adjacent to and crosses the corridor east of Kennedy Road and north of Eglinton Avenue East. According to the Cycling Plan, cycling upgrades are anticipated to fill the gap between the Meadoway/Gatineau Corridor Trail between Kennedy Road and Marcos Boulevard.

1.3.2.4.1 Applicability of the City of Toronto Cycling Network Plan to the Project

The City of Toronto Cycling Network Plan identifies that cycling helps people travel to and from transit. The Project, specifically the proposed Tara Avenue stop will aid in the transit system to allow people to access different areas of the cycling network easier, as well as access transit in a more convenient way via the cycling network.

1.3.2.5 City of Toronto RapidTO: Surface Transit Network Plan

The RapidTO: Surface Transit Network Plan's goal is to prioritize public transit in the City's road network. The Surface Transit Network Plan aims to create a network of surface transit priority corridors along arterial roads through the use of reserved bus lanes, intersection and signal improvements, and transit stop improvements for customer comfort. Currently the plan is in Phase 3, subject to City Council approval. Road-way specific studies will be completed before seeking approval to implement the proposed changes.

1.3.2.5.1 Applicability of the City of Toronto Surface Transit Network Plan to the Project

The Toronto Transit Commission is prioritizing bus-only lanes and other surface level transit service-enhancing measures to improve the reliability and speed of transit. The Surface Transit Network Plan identifies the need to create surface transit priority corridors through the use of dedicated busways and improving customer comfort.

1.3.2.6 Toronto Transit Commission 5-year Corporate Plan

Under the *City of Toronto Act*, the Toronto Transit Commission is responsible for establishing, operating and maintaining the local public transit system in the City of Toronto. As an agency of the City, the Toronto Transit Commission has established an integrated planning and performance framework, with the Corporate Plan serving as the guiding document to support the achievement of the Toronto Transit Commission's mandate for 2024-2028. The Corporate Plan aids in establishing strategic directions and key priorities while building on the foundation of pervious plans. It also integrates legislative requirements, City of Toronto directives and recommendations.

1.3.2.6.1 Applicability of the Toronto Transit Commission 5-year Corporate Plan to the Project

The Toronto Transit Commission will focus on completing the full implementation of the Conversion of the Scarborough Rapid Transit Right-of-Way to Busway project by constructing the dedicated busway between Ellesmere and Kennedy stations. The expected benefits of constructing the busway for customers include a more reliable journey and providing customers with overall journey times that are comparable to previous Line 3 service.

1.4 Overview of the Environmental Project Report

Table 1-1 below summarizes the information that is required to be included in the Environmental Project Report as applicable to this Project and as specified in the Guide to Ontario's Transit and Rail Project Assessment Process and the associated section of the Environmental Project Report where it has been addressed.

Table 1-1: Environmental Project Report Reference

Environmental Project Report Requirements	Section
A statement of the purpose of the transit or rail project and a summary of any background information relating to the transit or rail project.	1.1
A final description of the transit or rail project including a description of the preferred design method.	3
A description of any other design methods that were considered once the project commenced the transit and rail project assessment process.	3
A map showing the site of the transit or rail project.	1
A description of the local environmental conditions at the site of the transit or rail project.	4
A description of all studies carried out, including a summary of all data collected or reviewed and a summary of all results and conclusions.	4
The assessments, evaluation and criteria for any impacts of the preferred design method and any other design method that were considered once the project's transit and rail project assessment process commenced.	5
A description of any proposed measures for mitigating any negative impacts the transit or rail project may have on the environment.	5
If mitigation measures are proposed, a description of the proposal for monitoring or verifying the effectiveness of the mitigation measures.	5
A description of any municipal, provincial, federal, or other approvals or permits that may be required.	7
A consultation record.	6

2. Study Process

In 2017, an Environmental Project Report was completed by AECOM for the Scarborough Subway Extension project whose study area included the contemplated area for the Project. Due to the changes to the project description and technology for the Project from the 2017 Environmental Project Report, the Toronto Transit Commission was advised by the Ministry of the Environment, Conservation and Parks to complete a separate Transit and Rail Project Assessment Process for the Project, due to the purpose, use and location of the proposed Project, therefore an addendum could not be applied to the 2017 Environmental Project Report. The Project requires a separate Environmental Project Report to be prepared.

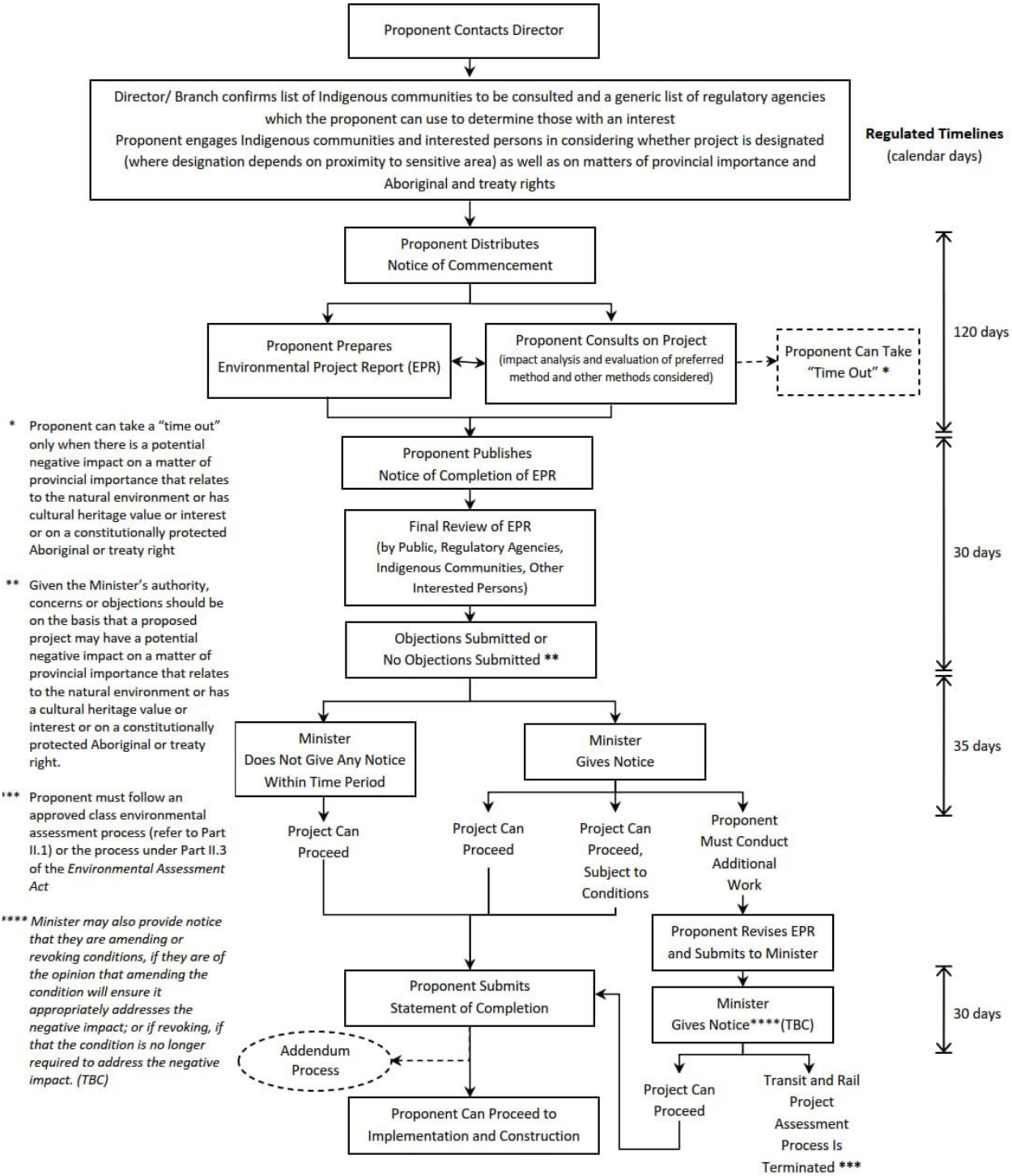
This Environmental Project Report was prepared in accordance with Ontario Regulation 231/08: *Transit and Rail Project Assessment Process* (Transit and Rail Process Regulation). Transit and Rail Process Regulation projects are designated under Part III of the *Ontario Regulation 50/24 (Part II.3 - Designations and Exemptions Regulation)* under the *Environmental Assessment Act*.

The Transit and Rail Project Assessment Process is a proponent driven, self-assessment process that provides a stream-lined approach to completing an assessment of a project. It involves a pre-planning phase which includes consultation, assessment of impacts, development of measures to mitigate negative impacts, and documentation, and is followed by a regulated (up to 120 days) consultation and documentation period. Consultation and engagement with the public, stakeholders and Indigenous Nations is ongoing throughout the process. Following the regulated (up to 120 days) consultation and documentation period, there is a 30-day public, Indigenous Nations and agency review period, following the posting of the Notice of Completion of the Environmental Report, interested persons have an opportunity to review the Environmental Project Report and submit objections to the Minister of the Environment, Conservation and Parks (The Minister). The Minister then has a 35-day review period to consider any objections submitted during the 30-day public, Indigenous Nations and agency review period.

The Transit and Rail Project Assessment Process makes sure that the natural, social, cultural, and economic environments are assessed and potential adverse effects from the proposed project are avoided, mitigated, or minimized where feasible. The Transit and Rail Project Assessment Process projects are regulated under Ontario's *Environmental Assessment Act*, and are submitted for the Minister of the Environment, Conservation and Parks' review prior to proceeding with the transit project. Proponents are urged to undertake introductory activities and consultation through Pre-Planning Activities prior to the commencement of the Transit and Rail Project Assessment Process. Following completion of the Pre-Planning Activities, the proponent initiates the Transit and Rail Project Assessment Process by issuing the Notice of Commencement and the regulated up to 120-day consultation and documentation period commences.

The prescribed steps of the Transit and Rail Project Assessment Process are outlined below in **Figure 2-1**.

Figure 2-1: Transit and Rail Project Assessment Process



2.1 Pre-Planning Activities

The existing environmental conditions within the Study Area were established as part of the Pre-Planning Activities and based on the results of the 2017 Environmental Project Report, review of the current secondary information sources and field investigations conducted in 2024. Each of the primary environmental factors was assessed by practitioners using industry standard techniques. Studies were undertaken to document the existing environmental conditions in the following areas:

- Natural Environment Report.
- Air Quality Impact Assessment.
- Socio-Economic and Land Use Report.
- Noise and Vibration Impact Assessment Report.
- Cultural Heritage Memorandum.
- Traffic and Transportation Assessment Memorandum.
- Stormwater Management Report.

2.2 Public and Stakeholder Engagement

Communication and engagement for this Project occurred in two main stages – prior to the Notice of Commencement for the Transit and Rail Project Assessment Process (including the release of the draft Environmental Project Report for technical agency review); and following the Notice of Commencement of the Transit and Rail Project Assessment Process. To build strong relationships and get a complete understanding of local issues in the surrounding communities, and to ensure communities stay engaged and informed, the Toronto Transit Commission engages with the public and a range of stakeholders prior to officially commencing the Transit and Rail Project Assessment Process. The communication and engagement program is outlined in further detail in **Section 6**.

2.3 Key Steps of the Transit and Rail Project Assessment Process

The Transit and Rail Project Assessment Process defines a series of activities that allows the process to be completed within approximately six months. These activities involve the following steps:

- Issue Notice of Commencement of the Transit and Rail Project Assessment Process.

- Consult with regulatory agencies, Indigenous Nations, municipalities, and other stakeholders over a 120-day period.
- Consider any “time out” with respect to potential negative impacts on a matter of Provincial importance or on a constitutionally projected Aboriginal or treaty rights.
- Issue Notice of Completion of the Environmental Project Report.
- Provide 30 days for the public, regulatory agencies, Indigenous Nations, municipalities, and other stakeholders to review the final Environmental Project Report. Objections may be submitted to the Minister during the review period.
- Provide 35 days for the Ministry of the Environment, Conservation and Parks to consider any objections received during the 30 day public review period.
- Submit Statement of Completion.

It is important to note that Ontario Regulation 231/08 provides a process by which the proponent may take a ‘time out’ during the up to 120-day Transit and Rail Project Assessment Process consultation and documentation period. This may be used only when issues arise during the up to 120-day Transit and Rail Project Assessment Process consultation and documentation period concerning a potential negative impact on a matter of Provincial importance or a constitutionally protected Aboriginal or Treaty Right. If a ‘time out’ is taken, then notice of this must be provided to the Director of the Environmental Assessment Branch of the Ministry of the Environment, Conservation and Parks and posted on the project website. Once the issue has been addressed, the proponent may resume the Transit and Rail Project Assessment Process by notifying the Director of the Environmental Assessment Branch of the Ministry of the Environment, Conservation and Parks.

2.4 Environmental Project Report

An Environmental Project Report documents the Transit and Rail Project Assessment Process, including the conclusions reached on the impacts, the associated mitigation measures, and the future commitments for the Project. An Environmental Project Report is expected to be drafted and shared with Indigenous Nations and regulatory agencies prior to distributing the Notice of Commencement. The final Environmental Project Report must be submitted to the Ministry of the Environment, Conservation and Parks within 120 days of distributing the Notice of Commencement.

In accordance with Ontario’s Transit and Rail Project Assessment Process Guide, this Environmental Project Report will be adjusted throughout the 120-day period to reflect input from Indigenous Nations, adjacent property owners, regulatory agencies, and other interested persons.

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

The submission of this Environmental Project Report and the issuance of the Notice of Completion triggers the 30-day public and agency review period. During this time, if a person, entity, regulatory agency or Indigenous Nation has concerns about a potential negative impact of a transit or rail project on a matter of Provincial importance, objections can be submitted to the Ministry of the Environment, Conservation and Parks or the Minister to consider. Matters of provincial importance are defined as a matter that relates to the natural environment, has cultural heritage value or interest, or impacts constitutionally protected Aboriginal or treaty rights. 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 phone number, and e-mail address.
- Name and address of the proponent (individual or organization as appropriate), proponent contact name and phone number, proponent's agent/representative and phone number (where applicable).
- Brief description of the proponent's proposed project, including the location.
- Basis for why further study is required, including any identification of negative impacts that relate to a matter of Provincial importance or on a constitutionally protected Aboriginal or Treaty Right that was not identified or considered in the proponent's Environmental Project Report.
- Summary of how the person(s) objecting to the transit or rail project has participated and been involved in the proponent's consultation process (e.g., meetings, phone calls, notification).

Persons or entities (regulatory agencies, members of the public, and Indigenous Nations) have a 30-day period from the time the proponent publishes its Notice of Completion of the Environmental Project Report for a final review of what the proponent has done to submit objections to the Minister. To ensure that there is adequate time to consider objections, the objection should also be provided to the Director of the Ministry of the Environment, Conservation and Parks, and the proponent.

If an objection is submitted to the Ministry during the 30-day review period, the proponent will be given an opportunity to comment on the concerns raised in an

objection before the Minister acts. The proponent should consider providing any comments about the objection(s) to the ministry as soon as possible or in the time frame specific by the ministry.

A person can withdraw their objection by providing the Minister written notice.

After the 30-day review period, the Minister has 35 days within which they may exercise their discretion to act concerning the proposed transit or rail project. During the 35-day period, the Minister will consider whether the transit or rail project may have a negative impact on a matter of Provincial importance or a constitutionally protected Aboriginal or Treaty Right.

The Minister is required to consider any objections submitted during the 30-day review period before they act. Whether there is an objection or not, if the Minister acts within the 35-day period, one of three notices may be issued to the proponent:

- A notice to proceed with the transit or rail project as planned in the Environmental Project Report.
- A notice that requires that proponent to take further steps, which may include further study or consultation.
- A notice allowing the proponent to proceed with the transit or rail project subject to conditions.

If the Minister does not act within the 35-day period, the transit or rail project may proceed as planned in the proponent's Environmental Project Report. The Minister cannot act after the 35-day period has expired.

If the Minister is of the opinion that additional studies are required to consider the project further, in relation to a potential negative impact on a matter of Provincial importance or on a constitutionally protected Aboriginal or Treaty Right, the Minister has the authority to give the proponent a notice required further steps be taken within a specific period, including requiring that the proponent prepared a Revised Environmental Project Report.

Following the 35-day period and direction provided by the Minister, the proponent will issue a Statement of Completion and proceed to implementation. The Statement of Completion will indicate the proponent intend with the transit project in accordance with either:

- The Environmental Project Report.
- The Environmental Project Report subject to conditions set out by the Minister.
- The Revised Environmental Project Report.

The construction or implementation of the transit project subject to the Transit and Rail Project Assessment Process cannot begin until the requirements of the process have been satisfied.

2.6 Addendum Process

The Project presented in this Environmental Project Report is not a static plan and may be subject to change as a result of approval and construction processes. Any changes that occur during future phases to the project layout identified in this Environmental Project Report do not require additional approval under Ontario Regulation 231/08 unless these changes results in an environmental impact that cannot be accommodated within the committed mitigation measures. Should this or other substantial changes to the Environmental Project Report be required, the addendum process will be initiated.

The Transit and Rail Project Assessment Process includes an addendum process for proponents seeking to make changes to projects after the Statement of Completion for the project is submitted. If the proponent wishes to make a change to its transit project in a way that is inconsistent with its Environmental Project Report, the proponent must prepare an addendum to the report. The addendum must contain the following information:

- A description of the change.
- The reasons for the change.
- The proponent's assessment and evaluation of any impacts that the change might have on the environment.
- A description of any proposed measures for mitigating any negative impacts that the change might have on the environment.
- A statement of whether the proponent is of the opinion that the change is significant, and the reasons for the opinion.

If the proponent is of the opinion that the proposed change to the transit project is significant, the proponent must distribute and publish a Notice of Environmental Project Report Addendum on the project website. The notice must also be provided to the Director of the Ministry of the Environment, Conservation and Parks, every property owner within 30 metres of the site of the change, Indigenous Nations that were given a Notice of Commencement, and any other person who the proponent thinks may be interested in the change to the transit or rail project.

The requirement for an addendum does not apply to a change that is required to comply with another Act, a regulation made under another Act, or an order, permit, approval or other instrument issued under another Act.

3. Project Description

This section provides a detailed description of the conceptual engineering design prepared in support of the Transit and Rail Project Assessment Process, including busway conversion, as well as an overview of typical construction methods and activities.

3.1 Description of Other Design Methods Considered

The Toronto Transit Commission developed an evaluation framework to access the corridor options. The resulting assessment of the different corridor options with the evaluation criteria produced 29 permutations of possible routing options based on different service concepts and fleet technology. A sensitivity analysis was also conducted to assess the robustness of the evaluation criteria.

Of the 29 options in the evaluation matrix, the top four highest-ranked options were under the route extension service concept with mixed-fleet buses. They are: the partial Line 3 corridor (which is only the at-grade portion between Kennedy and Ellesmere stations); Kennedy, Midland, and Brimley.

Given the results from the evaluation matrix and the sensitivity analysis, routing options were developed for the bus replacement service. The routing options include: Option 1 – Hybrid Line 3 Right-of-Way; Option 2 – Midland and Brimley Couplet; Option 3 – Midland and Brimley Couplet with Kennedy; and, Option 4 – Kennedy and Midland Couplet.

Based on feedback from public consultations, and from further technical review, it is recommended that Option 1 – Hybrid Line 3 Right-of-Way should be implemented for the bus replacement service.

3.2 Standards, Codes and Design Guidelines

The infrastructure proposed as part of the Project has been designed in accordance with industry best practices while adhering to applicable codes and standards. These applicable codes, standards and guidelines included, but are not limited to the following:

- *Accessibility for Ontarians with Disabilities Act*.
- Accessibility Design Guidelines.
- Canadian Highway Bridge Design Code.

- Canadian Standards Association.
- City of Toronto Construction Specifications and Drawings for Traffic Signal Device.
- City of Toronto Green Standard.
- Illuminating Engineering Society.
- Ministry of the Environment, Conservation and Parks Standards.
- Ontario Ministry of Transportation Structural Rehabilitation Manual.
- National Electrical Manufacturers Association.
- Ontario Building Code.
- Ontario Electrical Safety Code.
- Ontario Provincial Standards.
- Ontario Traffic Manual.
- Standard for Fixed Guideway Transit and Passenger Rail Systems.
- Toronto Transit Commission Design Manual.
- Transportation Association of Canada Geometric Design Guide for Canadian Roads.

3.3 Description of Design and Key Project Components

The following is a description of the design of the Project and its key components. As previously mentioned in **Section 1**, the Project aims to convert the decommissioned Line 3 Scarborough Rapid Transit corridor into a dedicated busway. The Study Area encompasses the area from the Toronto Transit Commission's Line 2 Kennedy Station, along the Line 3 right-of-way to Ellesmere Station.

3.3.1 Project Alignment

The total length of the Project is approximately 4 kilometres. The Project's southern limit is at Eglinton Avenue East. The corridor continues northwards up the existing Line 3 right-of-way where it will provide connections to three stops at Tara Avenue, Lawrence East, and continue north until it reaches Ellesmere Road – where it terminates. From there, buses will travel on-street in existing bus-only lanes which continue eastward along Ellesmere Road until it reaches Brimley Road. The on-street bus corridor shall continue northward along Brimley Road until it reaches Triton Road. Finally, buses will continue eastward along Triton Road before terminating at the existing Scarborough Centre Station.

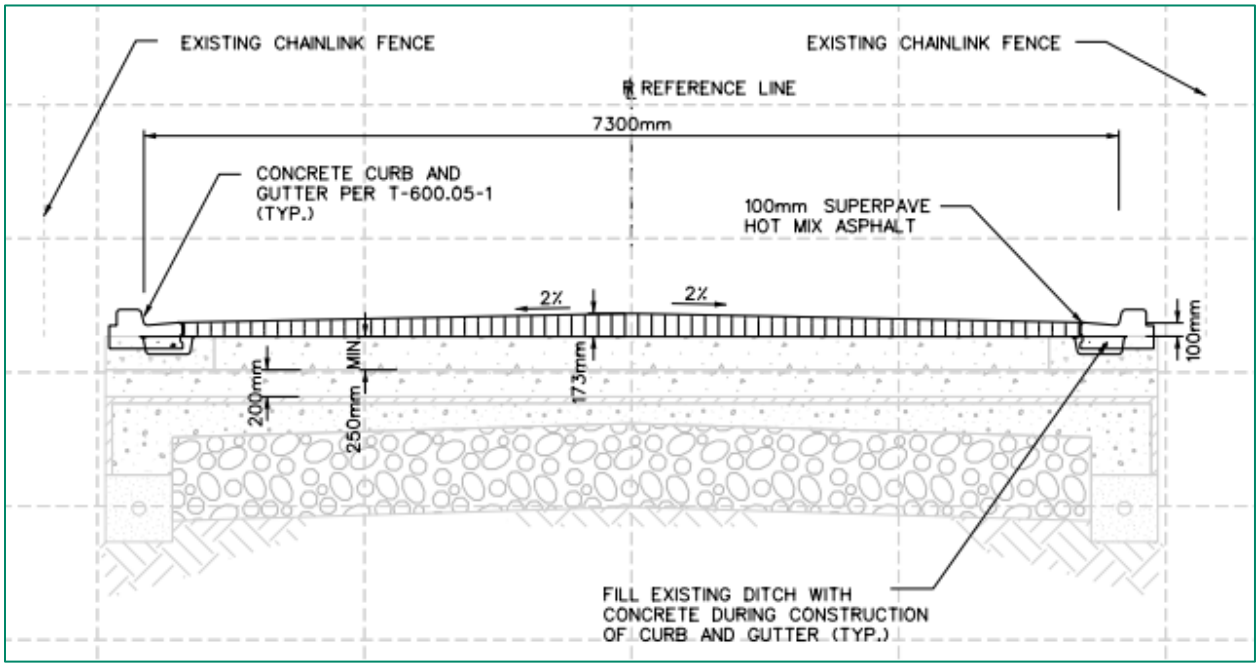
3.3.2 Operational Adjustments of the Busway

The existing Ellesmere Station and Lawrence East Station are closed, and new amenities will be constructed to support the busway, including concrete sidewalks, platforms, bus shelters, and benches. A new stop at Tara Avenue will be constructed to service the busway. The stop will include concrete sidewalks, platforms, bus shelters, benches, and a connection to Meadoway Trail. A new traffic signal facilitating busway access to and egress from Eglinton Avenue Service Road and the Kennedy Station will be constructed as part of the Project.

3.3.3 Typical Sections

The proposed busway will be a two-lane road, one lane in each direction, with concrete curb and gutter provided along the length of the road. The proposed typical cross-section width will generally be 7.3 metres and will pass through the existing Scarborough Rapid Transit corridor platform at Lawrence East Station. Localized widenings of the right-of-way will occur at proposed bus stop locations, and to accommodate proposed pedestrian facilities. An example of the proposed typical section can be seen in **Figure 3-1**.

Figure 3-1: Typical Busway Cross-Section



3.4 Pedestrian and Cycling Facilities

No pedestrian or cycling facilities are proposed along the length of the busway, however, existing stations will be closed and three new stops will be constructed as part of the Project to accommodate passengers onto the new busway service. 3.0 metre wide pedestrian platforms are proposed at the Lawrence East stop and the Ellesmere stop. There will also be facilities at the proposed Tara Avenue stop. 3.0 metre wide platforms will be provided in both directions, with a signalized intersection across the busway to facilitate passenger crossing. There will also be a 4.0 metre sidewalk proposed from the southbound platform running north to Mooregate Avenue. The existing overhead pedestrian crossing structure at this location will also be maintained for pedestrian access from Tara Avenue.

3.5 Pavement Structure

The proposed busway will generally utilize the existing subbase from the Scarborough Rapid Transit corridor, with an additional surface course of 100 millimetre of Superpave Hot Mix Asphalt. Where localized widenings are required to accommodate the proposed platforms. The following structures shall be used.

- **Lawrence East Bus Platform:**
  - 100 millimetre Superpave Hot Mix Asphalt over.
  - 150 millimetre Granular ‘A’ base course, over.
  - 300 millimetre Granular ‘B’ Sub-base course.
- **Lawrence East Emergency Access Pavement Structure**
  - 50 millimetre HL3 Surface Course over.
  - 100 millimetre HL8 Binder Course over.
  - 150 millimetre Granular ‘A’ base course over.
  - 300 millimetre Granular ‘B’ Sub-base course.

3.6 Stormwater

Due to additional bus stops and access at the existing Ellesmere and Kennedy Stations, only a minimal amount of impervious area will be added. The increase in impervious area is considered insignificant compared to the existing impervious area. No new impervious area will be added along the busway itself. As there will be no increase in runoff, no stormwater mitigation measures will be required.

3.7 Illumination

During the demolition phase of the Project, existing light pole foundations will be removed as required for the new construction. New light poles will be constructed in accordance with the Best Practices for Effective Light (City of Toronto, 2017).

3.8 Construction Activities

The following section provides an overview of the types of typical construction methods and activities that may be employed to build the proposed busway. The busway construction is expected to begin in 2025 and conclude in 2027.

3.8.1 Construction Planning Activities

3.8.1.1 Construction Management Plans

Construction Management Plans will be developed by the Toronto Transit Commission and will take into consideration applicable legislation as appropriate.

3.8.1.2 Traffic Management Plan

The Toronto Transit Commission and the City of Toronto will co-ordinate with emergency services and local residents/businesses to develop traffic, parking, transit, cycling, and pedestrian management strategies prior to commencement of construction to avoid or minimize interferences to the travelling public to the extent possible.

At a minimum, the Traffic Management Plan shall include the following:

- Sequencing of construction activities and the associated Traffic Staging Plans for each stage of the work in accordance with the Ontario Traffic Manual.
- Analysis and identification of the impacts to traffic, transit and pedestrian operations and movements associated with the construction activities, and the potential mitigation measures.
- Modifications to existing traffic signalling system and use of temporary systems.
- Emergency services considerations and accommodations.

3.8.1.3 Construction Staging Areas

The locations of construction staging areas will be identified during detailed design. Consultation with affected third-party stakeholders will be undertaken as appropriate with respect to the locations of any proposed construction staging and laydown areas.

3.8.2 Construction Activities

3.8.2.1 Site Preparation

Construction activities associated with site preparation are anticipated to include the following:

- Implementation of the Traffic Management Plan.
- Construction of laydown/staging areas.
- Construction of temporary lighting and traffic signal infrastructure.
- Site clearing.

3.8.2.2 Stop Platforms

Construction activities associated with stop platforms are anticipated to include the following:

- Implementation of the Traffic Management Plan.
- Localized sub-excavation of the platform area.
- Construction of platform shelter structure including pedestrian light and electrical service of amenities.
- Installation of stop amenities.

3.9 Operations and Maintenance

Operations and maintenance requirements will be confirmed subsequent to the construction phase of the Project and will be documented in a detailed Operations and Maintenance Manual to be prepared at the completion of construction.

4. Existing Conditions

This section of the Environmental Project Report describes the Study Area in the context of the Project, the existing natural, socio-economic and cultural environments, and provides the baselines conditions against which the effects of the Project have been measured.

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

- Natural Environment.
- Air Quality.
- Socio-Economic and Land Use.
- Noise and Vibration.
- Built Heritage Resources and Cultural Heritage Landscapes.
- Archaeology.
- Traffic and Transportation.
- Drainage and Stormwater.

4.1 Natural Environment

This section provides a summary of the methodology and existing conditions identified in the Natural Environment Report which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project to assess the existing fish and fish habitat, terrestrial habitat and significant wildlife habitat and Species at Risk screening.

4.1.1 Description of Existing Conditions

Natural features and areas identified for protection in the Provincial Policy Statement and other legislation are collectively referred to as “Natural Heritage Features”. Natural Heritage Features include Valleylands, Environmentally Significant Areas, Provincially Significant Wetlands, Areas of Natural and Scientific Interest, Significant Woodlands and Significant Wildlife Habitat. According to Section 1.6.8.5 of the Provincial Policy Statement, consideration is to be given to Natural Heritage Features when planning for corridors and Right-of-Ways for significant transportation and infrastructure facilities. Brief descriptions of the different types of Natural Heritage Features are as follows:

- Valleylands refer to a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the

year (Ministry of Natural Resources and Forestry, 2010). Significance is determined based on a variety of criteria including, but not limited to, hydrological, geomorphological and ecological function (Ministry of Natural Resources and Forestry, 2010).

- Provincially Significant Wetlands and Locally Significant Wetlands are wetlands that are seasonally or permanently flooded by shallow water, or areas where the water table is close to the surface, enabling the development of hydric soil, which supports primarily hydrophytic or water-tolerant plants (Ministry of Natural Resources and Forestry, 2014). The Ministry of Natural Resources and Forestry evaluates the significance of wetlands through the Ontario Wetland Evaluation System. Based on the resulting score of an evaluation, an evaluated wetland can fall into one of two classes: Provincially Significant Wetlands or Locally Significant Wetlands (Ministry of Natural Resources and Forestry, 2014). Until such a time, that an Ontario Wetland Evaluation System evaluation is completed and evaluated by Ministry of Natural Resources and Forestry, unevaluated wetlands should be considered as significant for the purpose of assessing impacts.
- Areas of Natural and Scientific Interest include land and/or water containing natural landscapes or features that have been scientifically identified by the Ministry of Natural Resources and Forestry as having life science or earth science values related to protection, scientific study or education (Ministry of Natural Resources and Forestry, 2010). Areas of Natural and Scientific Interest are designated as earth science (geological) or life science (biological) depending on the features present (Ministry of Natural Resources and Forestry, 2010). “Candidate Areas of Natural and Scientific Interest” are those provincial-level Areas of Natural and Scientific Interest that the Ministry of Natural Resources and Forestry has identified and recommended for protection but that have not been formally confirmed through a confirmation procedure (Ministry of Natural Resources and Forestry, 2010). For the purpose of the Provincial Policy Statement, an Areas of Natural and Scientific Interest is not considered provincially significant until it has been confirmed.
- Significant Woodlands are woodlots that are identified as significant in a municipal official plan or woodlots that have been investigated and meet the criteria of significance as identified in the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010) or municipal official plan.
- Significant Wildlife Habitat are areas that have important ecological features and functions which support sustainable populations of plants, wildlife and other organisms.

Natural Heritage Features were limited as the Study Area was situated in an urban landscape, mostly consisting of streetscapes, residential/commercial/industrial properties and manicured lawns. Minimal naturalized areas were identified in the Study Area. Naturalized areas were generally limited to narrow strips of riparian vegetation and pockets of fragmented vegetation communities within parkland. A review of the sources listed in **Section 4.1.3.1** identified the following Natural Heritage Features within the Study Area:

- Unevaluated Wetlands.
- Dorset Park Branch Watercourse.

4.1.2 Planning Policy Areas

Planning Policy Areas include land use planning designations from provincial plans, upper and lower-tier municipal official plans, and conservation authorities. According to Land Use Plan Map 13 of the City of Toronto Official Plan (2023), the Study Area was comprised of the following land use designations: Neighbourhoods, Mixed Use Area, Apartment Neighbourhoods, General Employment Area, Core Employment Area, Utility Corridor, Parks and Natural Areas. Parks and Natural Areas were generally limited to the Dorset Park Branch of Southwest Highland Creek watercourse and riparian area, Arsandco Park, and Lord Roberts Woods. A summary of Planning Policy Areas related to the protection of the natural environment that are applicable to the Project is provided below:

- City of Toronto's Natural Heritage System.
- City of Toronto's Ravine and Natural Features Protection Area.
- Toronto and Region Conservation Authority Regulated Area.

4.1.3 Methodology

The Natural Environment Report Study Area includes the existing corridor and a 120 metre area around the Construction Disturbance Area. The Study Area allows for the identification of Natural Heritage Features on adjacent Lands as defined by the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010). The 120 buffer is originated from the Natural Heritage policies of the Provincial Policy Statement (Ministry of Municipal Affairs and Housing, 2024).

4.1.3.1 Background Data Collection

A background information review was completed prior to field investigations to obtain information on known Natural Heritage Features and species records, including rare

species (i.e., Species at Risk and Species of Conservation Concern) within the Study Area. Background information was obtained from the following sources:

- Ministry of Natural Resources and Forestry's Natural Heritage Information Centre: Make-a-map feature (2024a) and Ministry of Natural Resources and Forestry's Land Information Ontario GeoHub base (2024b).
- Wildlife Atlases and other online databases.
- Planning Documents and Guidelines.
- Reports.
- Aerial Photographic Imagery (City of Toronto, 2022).

4.1.3.2 Field Investigations

Field investigations were conducted to supplement available background information as described in **Section 4.1.3.1** above. Representative terrestrial and aquatic photographic logs are provided in **Appendix A**. The following sections document the detailed methods of these investigations.

4.1.3.3 Fish and Fish Habitat Investigations

A fish habitat investigation was completed on May 9, 2024. An AECOM ecologist undertook this investigation to confirm the location and boundaries of aquatic features, capture potential fish habitat, and to capture any additional potential aquatic features not identified initially through the background information review or aerial imagery.

A detailed assessment of aquatic habitat in the Dorset Park Branch of Southwest Highland Creek was completed within the Study Area. At multiple points in the Study Area where, for example, a change in habitat condition was observed, a break in stream reach, etc., details were collected at transects in representative areas to characterize the habitat conditions of that reach.

Additionally, any specialized aquatic habitat and other notable features and functions were documented and mapped using ArcGIS Desktop. This included features such as: suitable spawning habitat for game fish species (i.e., typically targeted by recreational anglers) known to occur in the watershed, evidence of erosion, sources of pollution, fish passage impediment, and incidental fish observations.

Fish community sampling was not required as the fish community data obtained through the background review and previous assessments for the Study Area was found to be sufficient (**Section 4.1.3.1**).

4.1.3.4 Terrestrial Field Investigations

4.1.3.4.1 Ecological Land Classification

Vegetation community data and mapping was initially downloaded from the Toronto and Region Conservation Authority's Open Data Portal (Toronto and Region Conservation Authority's, 2018) within the Study Area. The Toronto and Region Conservation Authority's has delineated and classified vegetation communities across the City of Toronto in accordance with the Ministry of Natural Resources and Forestry's Ecological Land Classification System for Southern Ontario (Ecological Land Classification Guide; Lee et al., 1998) but has altered some descriptions of vegetation community types to better represent site-specific conditions that are typical of the Toronto area but not included in the Ministry of Natural Resources and Forestry's Ecological Land Classification Guide (Toronto and Region Conservation Authority's, 2018).

AECOM conducted Ecological Land Classification assessments and a botanical inventory within the Study Area on May 9, 2024, to confirm and refine vegetation communities delineated by the Toronto and Region Conservation Authority. Ecological Land Classification assessments also used Ministry of Natural Resources and Forestry's Ecological Land Classification Guide to delineate any vegetation communities that the Toronto and Region Conservation Authority did not previously assess. Where vegetation community data was missing and accessibility was limited during field investigations, aerial imagery was used to classify vegetation to the Community Series level in accordance with Ministry of Natural Resources Forestry's Ecological Land Classification Guide (Lee et al., 1998). Ecological Land Classification data was mapped using ArcGIS Desktop. The botanical inventory involved recording all observed plant species within each respective Ecological Land Classification community.

4.1.4 Significant Wildlife Habitat Screening

The Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources Forestry, 2015) contains information and criteria for identifying Significant Wildlife Habitat. Significant Wildlife Habitat are defined as areas that have important ecological features and functions and that support sustainable populations of plants, wildlife and other organisms within this Ecoregion. The Ministry of Natural Resources and Forestry generally categorizes Significant Wildlife Habitat into the following five categories:

- Seasonal Concentration Areas.
- Rare Vegetation Communities.
- Specialized Habitats for Wildlife.
- Habitats of Species of Conservation Concern.
- Animal Movement Corridors.

The presence of a Significant Wildlife Habitat was determined by comparing general habitat conditions and characteristics to the habitat criteria identified in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015).

For the purpose of this report and as defined in the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010), Species of Conservation Concern are those species that are listed as Special Concern under the *Endangered Species Act*, assessed as Threatened or Endangered by the Committee on the Status of Endangered Wildlife in Canada that are not considered Species at Risk under the *Endangered Species Act*, or have a sub-national (S-Rank) of S1 to S3. Although Species of Conservation Concern do not receive legal protection under the *Endangered Species Act*, they may be afforded protection under the Provincial Policy Statement, the *Migratory Birds Convention Act*, *Fish and Wildlife Conservation Act*, and other planning documents. A screening for Species of Conservation Concern was completed as outlined in **Section 4.1.5** below.

4.1.5 Species at Risk Habitat Screening

Special consideration was given to identifying any Species of Conservation Concern or Species at Risk within the Study Area. Species at Risk includes species listed as Extirpated, Endangered or Threatened on the Species at Risk in Ontario list and receives individual and habitat protection under the *Endangered Species Act*. Desktop Species of Conservation Concern and Species at Risk habitat screenings for the Study Area were conducted using the sources listed in **Section 4.1.3.1**. Species at Risk and Species of Conversation Concern with recent occurrence records or with ranges overlapping within the Study Area were identified and then screened by comparing their habitat requirements to the habitat conditions present on-site as determined through the background information review and field investigations. The potential for the species to occur within the Study Area was determined through a probability of occurrence whereby the following rankings were applied:

- **Low Probability:** no suitable habitat for the species and no occurrence of the species incidentally observed through field reconnaissance within the Study Area but there is a known species record in the general area.
- **Medium Probability:** potentially suitable Species at Risk habitat identified within the Study Area, but no occurrence of the species incidentally observed through field reconnaissance although there is a known species record in the general area.

- **High Probability:** good quality Species at Risk habitat identified within the Study Area and known species record in the Study Area (either through current field assessment or background information).

4.1.6 Fish and Fish Habitat

4.1.6.1 Background Information Summary

Southwest Highland Creek is a tributary to the Highland Creek watershed which drains into Lake Ontario in Scarborough, Ontario. Southwest Highland Creek begins near Ellesmere Road and Birchmount Road in Scarborough as a channelized drainage system. It flows southeast parallel to Shropshire Drive and crossing the Toronto Transit Commission Line 3 Scarborough Rapid Transit. Southwest Highland Creek continues southeast to it confluence with West Highland Creek in Hague Park. West Highland Creek then flows northeast to Morningside Park and confluences with Highland Creek before its eventual outlet east into Lake Ontario.

The Toronto and Region Conservation Authority evaluates the conditions of the watersheds within its regulation limits using watershed report cards. The current watershed report card published in 2018 (Toronto and Region Conservation Authority, 2018b) found that the Highland Creek Watershed condition was poor, and unchanged since the 2013 report card. The Highland Creek Watershed land cover is 89% urban and has only 11% natural cover. Most of the natural cover is limited to the immediate riparian area of Highland Creek and its tributaries and parks in the lower reaches. A review of aerial imagery suggests that Southwest Highland Creek probably has much less natural cover as there are fewer parks in the branch, and the riparian area is narrower. Similarly, Highland Creek was assessed as “Poor” for total forest cover; only 6% of the entire watershed has any forest cover, and 37% of the watershed has streamside cover. The watershed was also assessed as “Poor” in terms of surface water quality evaluated through benthic invertebrate assessments, phosphorus concentrations, and *Escherichia coli* (*E. coli*) concentrations. It was also noted that chloride concentrations were above the 120 milligrams per Litre guideline at nearly all the sampling stations.

A review of Fisheries and Oceans Canada aquatic Species at Risk mapping did not identify any aquatic Species at Risk or Species of Conservation Concern within Southwest Highland Creek, or within the entirety of the Highland Creek Watershed (Fisheries and Oceans Canada, 2024). The Ministry of Natural Resources and Forestry’s Land Information Ontario mapping (Ministry of Natural Resources Forestry, 2024b) was reviewed and provides fish community data for Southwest Highland Creek, which has been presented in **Table 4-1**. The fish community is dominated by coolwater

species that have an intermediate tolerance to environmental perturbations or anthropogenic stresses. The Ministry of Natural Resources and Forestry's Land Information Ontario mapping (Ministry of Natural Resources and Forestry, 2024b) also identifies Southwest Highland Creek as a coldwater thermal regime.

Table 4-1: Southwest Highland Creek Fish Community Data

Common Name	Scientific Name	Thermal Regime[1]	Tolerance[1]
Bluntnose Minnow	*Pimephales notatus*	Warm	Intermediate
Common Shiner	*Luxilus cornutus*	Cool	Intermediate
Creek Chub	*Semotilus atromaculatus*	Cool	Intermediate
Fathead Minnow	*Pimephales promelas*	Warm	Tolerant
Johnny Darter	*Etheostoma nigrum*	Cool	Tolerant
Longnose Dace	*Rhinichthys cataractae*	Cool	Intermediate
Rainbow Darter	*Etheostoma caeruleum*	Cool	Intolerant
Rock Bass	*Ambloplites rupestris*	Cool	Intermediate
Western Blacknose Dace	*Rhinichthys obtusus*	Cool	Intermediate
White Sucker	*Catostomus commersonii*	Cool	Tolerant

Notes: Occurrences from Land Information Ontario (Ministry of Natural Resources and Forestry, 2024b)
1. Species preferred thermal regime and tolerance from Ontario Freshwater Fishes Life History Database (Eakins, 2024).

The Natural Heritage Report Scarborough Subway Extension from Kennedy Station to Scarborough Centre (LGL, 2017) was completed as part of the 2017 Environmental Project Report. In 2014, LGL consulted with the Ministry of Natural Resources and Forestry in regarding in-water work timing windows. The Ministry of Natural Resources and Forestry provided LGL with an in-water work timing window of July 1 to March 31 for all tributaries to Highland Creek identified in LGL's Natural Heritage Report (2017). As the Dorset Park Branch of Southwest Highland Creek is within the Highland Creek watershed and shares a similar fish community as the tributaries discussed in the LGL Natural Heritage Report (LGL, 2017), the same in-water work timing window is expected to apply.

4.1.6.2 Fish Habitat Assessment

A fish habitat assessment was conducted within the reach of Southwest Highland Creek in the Study Area under the Toronto Transit Commission tracks. The fish habitat assessment was conducted on May 9, 2024, under overcast cloud cover. As noted in **Section 4.1.6.1**, the surrounding land use was dominated by urban development. There were several mechanics and auto wreckers along the upstream reach of Southwest Highland Creek. The presence of mechanics and auto wreckers contributed to the "Poor" assessment surface water quality of the Highland Creek watershed.

A stormwater management pond was also investigated at Arsandco Park on the east side of the Toronto Transmission Commission tracks. This pond was found not to share any direct connection to surrounding watercourses and is not considered regulated fish habitat under the *Fisheries Act*.

4.1.6.2.1 Southwest Highland Creek Downstream

The downstream reach of Southwest Highland Creek was accessed from Midwest Road upstream to the Toronto Transit Commission crossing. A concrete box culvert discharged water under Midwest Road over a shallow concrete spillway into Southwest Highland Creek. Immediately downstream of the spillway, a large debris jam blocked southwest Highland Creek, which was made up of woody debris and household waste, including large pieces of spray foam. This debris jam likely impedes fish passage upstream.

The entire reach was channelized and surrounded on both sides by steep banks leading up to commercial businesses and parking lots. The banks were less than 10 metres wide and well vegetated by deciduous trees and shrubs such as Siberian Elm (*Ulmus pumila*), Manitoba Maple (*Acer negundo*), and Ash (*Fraxinus* sp.), as well as Reed Canary Grass (*Phalaris arundinacea*). This canopy cover provided a high degree of cover over the watercourse (80%). However, instream cover was low (25%) and limited to occasional overhanging woody debris and vegetation, some undercut banks, and substantial amounts of garbage. Throughout the assessed reach, household and commercial garbage was observed, including toilets, furniture, car parts, household waste, a yard shed, and spray foam insulation. This garbage was likely from individuals dumping waste from the top of the bank, and spillage from two garbage dumpsters at the top of the left bank. A sheen, likely caused by hydrocarbons such as oil was also observed on the surface of the water which may be attributable to discharge from nearby businesses.

The substrate of the downstream reach was dominated by sand and gravel overlaying a clay bottom. All of the substrate was overlain by a thin layer of silt. Although no vegetation was observed within the watercourse, green algae covered approximately 75% of the available substrate, which may indicate nutrient pollution within the watercourse. Approximately 75% of the reach was a run averaging 0.23 metres deep and 3.5 metres wide, with a mean bankfull depth of 0.85 metres and mean bankfull depth width of 4.0 metres. Throughout this reach, organic debris and garbage was observed tangled in branches overhanging the watercourse up to 1 metre above the watercourse bed. This suggests that the reach is “flashy”, experiencing rapid increases in flow and during rainfall events leading to temporary high-water levels. The run was punctuated by gravel bars, which narrowed the reach to create riffles averaging 0.03 metres deep and 1.5 metres wide.

The final 25 metres of the reach banks leading to the Toronto Transit Commission crossing was protected by concrete walls that continued into the wetted channel and lined

the bottom. Twin corrugated steel pipe culverts measuring 1.9 metres tall and 2.2 metres wide discharged into the concrete-lined channel. The culverts were elevated 0.15 metres from the watercourse, creating a barrier to upstream fish passage. Under high-flow conditions that may submerge the culvert perch, most or all fish species in **Table 4-1** may not tolerate the culvert velocity to travel upstream. The downstream section of the concrete banks was deteriorating, and the banks were eroding and undercut, continuing downstream along both sides of the watercourse for the entire assessed reach.

No indications of groundwater inputs or significant habitat features for fish were observed within the assessed reach.

4.1.6.2.2 Southwest Highland Creek Upstream

The upstream reach of Southwest Highland Creek was accessed from Nantucket Boulevard downstream to the Toronto Transit Commission crossing. The Nantucket Boulevard corrugated steel pipe culvert was under construction at the time of assessment, and due to the ongoing construction, soil was exposed along the banks.

The entire upstream reach was a concrete-bottom channel surrounded by steeply sloped banks. The substrate within this reach consisted of smooth concrete, though some depositions of gravel were scattered uncommonly throughout the reach. Where the water shallowed, an artificial riffle formed, flowing over the concrete channel, but otherwise, the entire reach consisted of run and flat morphology. As the entire reach was concrete lined, opportunities for fish cover were limited to rare overhanging woody debris and garbage within the channel.

From the Toronto Transit Commission crossing to 40 metres upstream, the watercourse flowed slowly as a flat, averaging 0.17 metres deep and 5 metres wide. The left bank was lined with concrete, with limited vegetation growth and opportunity for stream shading. The right bank was vegetated with cultural meadow species, and a portion extended into the watercourse which supported the growth of Reed Canary Grass, Cattails (*Typha* sp.), and Great Stinging Nettle (*Urtica dioica*).

At the upstream end of this section, there was a break in the concrete channel, stepping up 0.2 metres to a narrower channel. This step creates an impediment to upstream fish passage. Under high-flow conditions that may submerge the channel step, most or all fish species presented in **Table 4-1** may not tolerate the channel velocity to travel upstream. This narrow channel consisted of a run averaging 0.15 metres deep and 2.7 metres wide, with a mean bankfull depth of 0.63 metres and bankfull width of 5 metres. This section had greater canopy cover (75%), provided by deciduous trees and shrubs such as an American Elm (*Ulmus americana*), Manitoba Maple, Ash, and European Buckthorn (*Rhamnus cathartica*) as well as herbaceous species such as Dog-strangling

Vine (*Vincetoxicum rossicum*) and Garlic Mustard (*Alliaria petiolata*). The banks were concrete lined and transitioned gradually into vegetated earth.

No indications of groundwater inputs or significant habitat features for fish were observed within the assessed reach.

4.1.7 Ecological Land Classification and Plant Inventory

4.1.7.1 Background Information Summary

AECOM conducted Ecological Land Classification in support of the 2020 Addendum along Danforth Road and McCowan Road between Eglinton Avenue East and Sheppard Avenue East. The majority of field investigations for the 2020 Addendum did not overlap with the Study Area for this Project. Overlap with the 2020 Ecological Land Classification Study Area solely included the area surrounding Kennedy Station, in which no vegetation communities were identified during previous field investigations.

Toronto and Region Conservation Authority Ecological Land Classification data was available for non-manicured portions of the hydro corridor and portions of Arsandco Park, Jack Goodland Park and Lord Roberts Woods (Toronto and Region Conservation Authority, 2018a). The Toronto and Region Conservation Authority did not classify communities located in more heavily urbanized areas within the Study Area.

4.1.7.2 Field Investigation Results

All vegetation communities within the Study Area had evidence of disturbance due to surrounding anthropogenic activities. Communities observed included urban woodlots, meadows adjacent to City parkland, narrow strips along roadsides, and urban ravines. Surveys confirmed no provincially significant vegetation communities within the Study Area.

Within the Study Area, the Toronto Region Conservation Authority had delineated 16 communities (Toronto and Region Conservation Authority, 2018a). These vegetation communities were assessed during field investigations conducted by AECOM in 2024 and had their boundaries and designations adjusted where appropriate. A total of eight communities initially delineated by the Toronto and Region Conservation Authority were adjusted by AECOM staff to reflect changed conditions between the initial delineation and recent investigations in 2024. These updates include the following:

- Fresh-Moist Sugar Maple – Hardwood Deciduous Forest (FOD6-5) updated to Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1) within Lord Roberts Woods:
  - No significant difference in community composition was observed between the larger FOD5-1 forest and the adjacent FOD6-5 forest as

both were dominated by Sugar Maple with a minor population of other associated tree species. These communities were only separated by a pedestrian foot path approximately 5 metres in width.

- Silver Maple Mineral Deciduous Swamp (SWD3-2) updated to be an inclusion to the Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1) at Lord Roberts Woods:
  - This community was very small (approximately 0.07 hectares) and completely enclosed by the FOD5-1 community.
- Exotic Successional Savannah (CUS1-b) along the edge of forest communities at Lord Roberts Woods was removed as a community:
  - This group of vegetation was small (approximately 0.08 hectares) and was observed as a disturbed forest edge rather than a separate vegetation community.
- Mixed Conifer Coniferous Plantation (CUP3-H) and Norway Maple – Conifer Mixed Plantation (CUP2-c) within the hydro corridor was updated to Treed Hedgerow (CUH1-A):
  - These communities were observed to be a single row of trees specifically planted to provide a boundary or windbreak between properties.
- Native Forb Meadow (CUM1-A) located on the southwest side of the hydro corridor and railway was updated to Dry-Moist Old Field Meadow (CUM1-1c):
  - A dominant presence of native forbs was not observed within this community when compared to the presence of non-native and native graminoid species.
- Exotic Forb Meadow (CUM1-c) located between the railway and Jack Goodlad Park was updated to Dry-Moist Old Field Meadow (CUM1-1d):
  - Exotic species were dominant within this community but there was not a majority of forb species present compared to graminoid species.
- Willow Mineral Thicket Swamp (SWT2-2) located on the southwest side of the hydro corridor and railway was updated to Red-Osier Mineral Thicket Swamp (SWT2-5):
  - Red-osier Dogwood (*Cornus sericea*) was observed in a higher proportion within this vegetation community than Willow (*Salix spp.*) species.

A total of 19 vegetation communities were newly delineated within the Study Area as they were not present within the Toronto and Region Conservation Authority's available documentation. An additional four communities were delineated solely via aerial

imagery, as permission to enter was not obtained due to time constraints, and communities on each property could not be viewed from publicly accessible areas.

AECOM's vegetation surveys determined that 17 of the delineated 19 Ecological Land Classification communities within the Study Area had low vegetation quality, as their Floristic Quality Index values were below 19. The remaining vegetation community, a Dry- Fresh Sugar Maple Deciduous Forest (FOD5-1) officially known as Lord Roberts Woods, had a Floristic Quality Index of 24.86, indicating high vegetative quality. Despite the higher quality of vegetation within this community, it, as well as the other delineated communities contained several non-native invasive species, including but not limited to: Norway Maple (Acer platanoides), Manitoba Maple, European Buckthorn, Garlic Mustard, and Dog-Strangling Vine. The abundance of non-native species is likely the result of previous and ongoing disturbances from urbanization within and around the Study Area (residential/commercial developments, litter, trail systems, etc.). Descriptions of vegetation communities, community sensitivity and floristic assessments are summarized in **Table 4-2** and mapped in **Figure 4-1**.

A total of 155 plant species were recorded within the Study Area, of which 71 (46%) were native and 73 (47%) were introduced. The remaining 11 (7%) species were not identified to the species level. Additionally, 31 (19%) of the total 161 plant species were also identified as invasive. No plant Species at Risk were identified in the Study Area. However, seven plant species of regional conservation concern (L1-L3) according to the *Annual local occurrence and local rank update for 2017: terrestrial species and vegetation communities* (Toronto and Region Conservation Authority, 2017) were identified. Species designated as L1-L3 are flagged as being at risk within the Toronto and Region Conservation Authority jurisdiction as they are highly sensitive to habitat loss and urban disturbances (Toronto and Region Conservation Authority, 2017). L1-L3 species observed in the Study Area included: Handsome Sedge (*Carex formosa*), Carolina Spring Beauty (*Claytonia caroliniana*), Running Strawberry-bush (*Euonymus obovatus*), Creeping Juniper (*Juniperus horizontalis*), Eastern Ninebark (*Physocarpus opulifolius*), White Spruce (*Picea glauca*), and Maple-leaved Viburnum (*Vibernum acerifolium*). Of these, Creeping Juniper, Eastern Ninebark, White Spruce, and Maple-leaved Viburnum were most likely planted as they were found in hedgerows, adjacent to residential gardens, and other disturbed or anthropogenically influenced areas. Locations of naturally occurring regional species of conservation concern are included in the vegetation community description in **Table 4-2**. A list of vascular plant species identified is provided in **Appendix A**.

Table 4-2: Vegetation Communities within Study Area

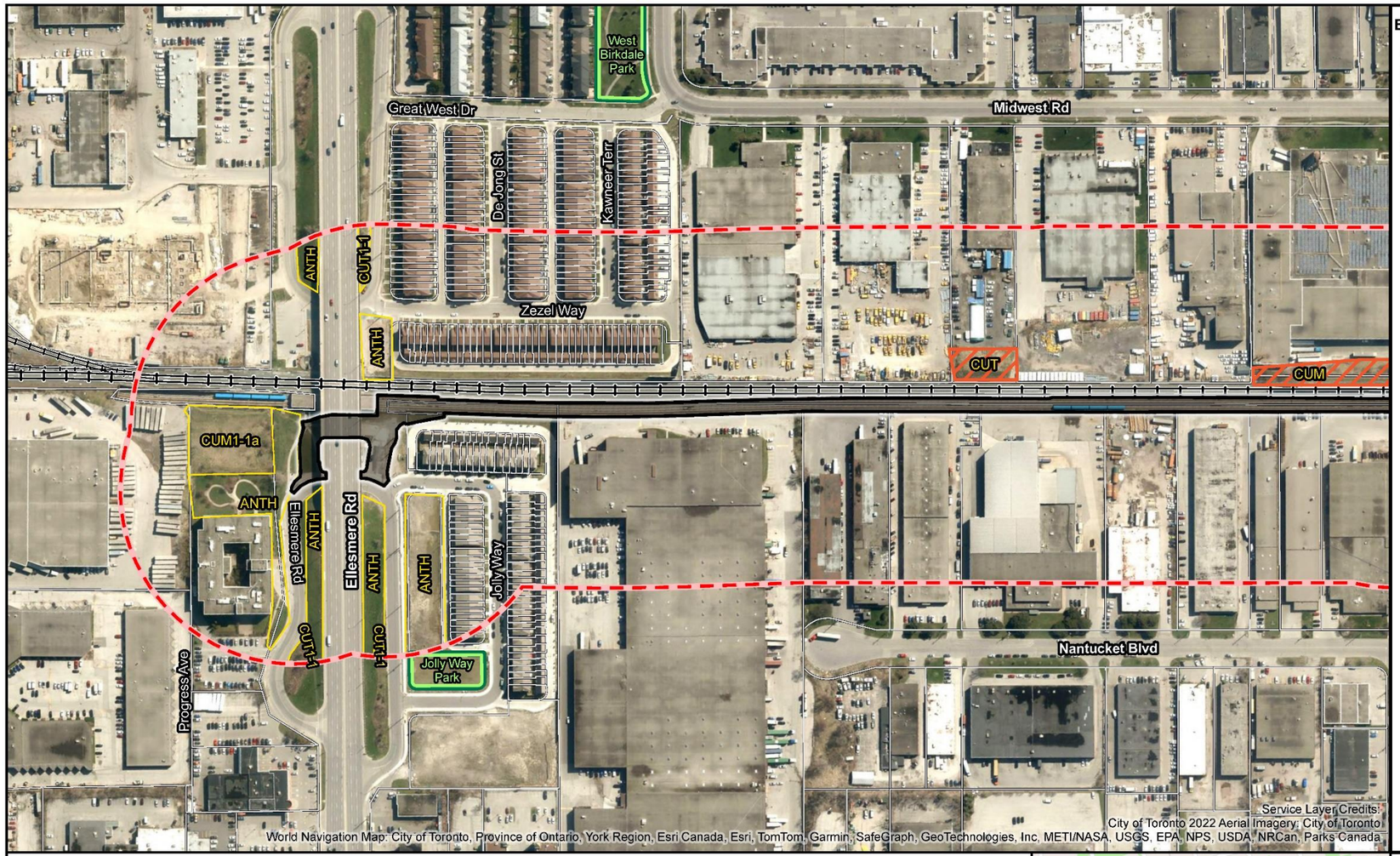
Community	Ecological Land Classification Code and Location	Vegetation or Ecosite Name	Inclusion	Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
Forest Communities	FOD5-1 ■ Located on either side of a pedestrian path adjacent to Lord Roberts Junior Public School.	■ Dry – Fresh Sugar Maple Deciduous Forest.	■ None.	■ The tree canopy was dominated by Sugar Maple (*Acer saccharum*), followed by Red Maple (*Acer rubrum*) and American Beech (*Fagus grandifolia*).	■ The shrub layer primarily consisted of young Sugar Maple saplings, European Buckthorn (*Rhamnus cathartica*), and Chokecherry (*Prunus virginiana*).	■ The ground layer included Trout Lily species (*Erythronium sp.*), Virginia Waterleaf (*Hydrophyllum virginiana*), and Sugar Maple seedlings.	■ Average Coefficient of Conservatism: 4.54. ■ Average Coefficient of Wetness: 2.63. ■ Non-native species (%): 40.74. ■ Floristic Quality Index: 24.86. ■ No Species at Risk or Species of Conservation Concern plants observed. ■ Carolina Spring Beauty (*Claytonia caroliniana*) and Running Strawberry-bush (*Euonymus obovatus*) were present. These species are regionally ranked as L3 and considered species of regional conservation concern.
Forest Communities	FODM4-5 ■ Located within a channel southwest of Midwest Road.	■ Dry - Fresh Manitoba Maple Deciduous Forest.	■ None.	■ The canopy was dominated by Manitoba Maple (*Acer negundo*), Common Apple (*Malus pumila*), and Siberian Elm (*Ulmus pumila*).	■ The shrub layer primarily consisted of younger Manitoba Maples and Siberian Elms, as well as Chokecherry and European Buckthorn.	■ The ground layer consisted of Mugwort (*Artemisia vulgaris*), Dog-strangling Vine (*Vincetoxicum rossicum*), and Smooth Brome (*Bromus inermis*).	■ Average Coefficient of Conservatism: 1.5. ■ Average Coefficient of Wetness: 2.17. ■ Non-native species (%): 68.97. ■ Floristic Quality Index: 3.67. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Forest Communities	FODM4-12 Located within a channel east of Nantucket Boulevard.	■ Dry - Fresh Exotic Deciduous Forest.	■ None.	■ The canopy layer consisted of Weeping Willow (*Salix babylonica*), Manitoba Maple, Siberian Elm, and Common Apple.	■ The shrub layer consisted of Honeysuckle species (*Lonicera sp.*) and European Buckthorn.	■ The ground layer consisted of Dog-Strangling Vine, Avens species (*Geum sp.*), Reed-Canary Grass (*Phalaris arundinacea*).	■ Average Coefficient of Conservatism: 1.63. ■ Average Coefficient of Wetness: 1.67. ■ Non-native species (%): 52.17. ■ Floristic Quality Index: 4.88. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Cultural Communities	CUH1-A ■ Located within Jack Goodlad Park and the Scarborough Hydro Green Space.	■ Treed Hedgerow.	■ None.	■ The hedgerow primarily consisted of planted Austrian Pine (*Pinus nigra*), Blue Spruce (*Picea pungens*), and Norway Maple (*Acer platanoides*).	■ A sparse shrub layer in between the planted trees consisted of European Buckthorn, White Mulberry (*Morus alba*), and White Ash (*Fraxinus americana*).	■ The ground layer consisted of Garlic Mustard (*Alliaria petiolata*), Motherwort (*Leonurus cardiaca*), and Dog-strangling Vine.	■ Average Coefficient of Conservatism: 2.67. ■ Average Coefficient of Wetness: 2.67. ■ Non-native species (%): 68.42. ■ Floristic Quality Index: 6.53. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Cultural Communities	CUM1-1a ■ Located adjacent to the Fieldstone Commons Care Community.	■ Dry – Moist Old Field Meadow.	■ None.	■ The tree canopy was sparse but consisted primarily of Trembling Aspen (*Populus tremuloides*), Manitoba Maple, and Hawthorn species (*Crataegus sp.*).	■ The shrub layer was sparse but primarily contained Manitoba Maple and White Ash.	■ The ground layer was dominated by Kentucky Bluegrass (*Poa pratensis*), Dog-strangling Vine, and Goldenrod species (*Solidago sp.*).	■ Average Coefficient of Conservatism: 1.33. ■ Average Coefficient of Wetness: 2.95. ■ Non-native species (%): 61.54. ■ Floristic Quality Index: 3.53. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.

Community	Ecological Land Classification Code and Location	Vegetation or Ecosite Name	Inclusion	Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
Cultural Communities	CUM1-1b ■ Located within Arsandco Park.	■ Dry – Moist Old Field Meadow.	■ Mineral Cultural Thicket (CUT1).	■ The tree canopy was sparse but included White Pine (*Pinus strobus*) and Red Oak (*Quercus rubra*).	■ The shrub layer was considered an inclusion that circled Arsandco Pond and included Red-osier (*Cornus sericea*) and Heart-leaved Willow (*Salix eriocephala*).	■ The ground layer was dominated by Kentucky Bluegrass, Dog-strangling Vine, and Teasel (*Dipsacus fullonum*).	■ Average Coefficient of Conservatism: 3. ■ Average Coefficient of Wetness: 1.82. ■ Non-native species (%): 42.86. ■ Floristic Quality Index: 8.49. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Cultural Communities	CUM1-1c ■ Located within Jack Goodlad Park.	■ Dry – Moist Old Field Meadow.	■ None.	■ The canopy layer was sparse, containing only White Pine.	■ The shrub layer consisted of Common Apple, Eastern Redcedar (*Juniperus virginiana*), Sandbar Willow (*Salix exigua*), Red-osier, and European Buckthorn.	■ The ground layer was dominated by Kentucky Bluegrass, Golden-fruited Sedge (*Carex aurea*), and Howell's Pussytoes (*Antennaria howellii*).	■ Average Coefficient of Conservatism: 3. ■ Average Coefficient of Wetness: 2.14. ■ Non-native species (%): 40. ■ Floristic Quality Index: 11.62. ■ No Species at Risk or Species of Conservation Concern plants observed. ■ Creeping Juniper (*Juniperus hoizontalis*) was present. This species is regionally ranked as L3 and considered a species of regional conservation concern.
Cultural Communities	CUM1-1d ■ Located within Jack Goodlad Park.	■ Dry – Moist Old Field Meadow.	■ None.	■ The tree canopy was sparse and short, consisting of Common Apple and White Ash.	■ The shrub layer primarily consisted of European Buckthorn.	■ The ground layer primarily consisted of Reed-canary Grass, Dog-strangling Vine, and Kentucky Bluegrass.	■ Average Coefficient of Conservatism: 1. ■ Average Coefficient of Wetness: 1.67. ■ Non-native species (%): 57.14. ■ Floristic Quality Index: 2.24. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Cultural Communities	CUM1-1e ■ Comprises the majority of the Scarborough Hydro Green Space.	■ Dry – Moist Old Field Meadow.	■ None.	■ The tree canopy layer consisted of Austrian Pine, Siberian Elm, and Manitoba Maple.	■ The shrub layer consisted of European Buckthorn and Black Elderberry (*Sambucus canadensis*).	■ The ground layer primarily consisted of Kentucky Bluegrass, Smooth Brome, and Common Dandelion (*Taraxacum officinale*).	■ Average Coefficient of Conservatism: 2.58. ■ Average Coefficient of Wetness: 2.66. ■ Non-native species (%): 60.29. ■ Floristic Quality Index: 13.17. ■ No Species at Risk or Species of Conservation Concern plants observed. ■ Handsome Sedge (*Carex formosa*) was present. This species is regionally ranked as L2 and considered a species of regional conservation concern.
Cultural Communities	CUT1-1 ■ Located in various pockets along Lawrence Avenue E.	■ Sumac Cultural Thicket.	■ None.	■ The tree canopy was sparse, containing only Trembling Aspen.	■ The shrub layer primarily consisted of Staghorn Sumac (*Rhus typhina*) as well as Trembling Aspen.	■ The ground layer consisted of Kentucky Bluegrass and Common Dandelion.	■ Average Coefficient of Conservatism: 2.5. ■ Average Coefficient of Wetness: 2.66. ■ Non-native species (%): 40. ■ Floristic Quality Index: 6.12. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.

Community	Ecological Land Classification Code and Location	Vegetation or Ecosite Name	Inclusion	Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
Cultural Communities	CUT1-A ■ Located east of Nantucket Boulevard.	■ Native Deciduous Sapling Regeneration Thicket.	■ None.	■ The tree canopy primarily consisted of Manitoba Maple and Siberian Elm, as well as Silver Maple (*Acer saccharinum*) to a lesser extent.	■ The community showed signs of being the result of a restoration planting project, containing several native young trees and shrubs such as White Pine, Silver Maple, Red-osier, and Common Ninebark (*Physocarpus opulifolius*) among others.	■ The ground layer consisted primarily of Dog-strangling Vine, Goldenrod species, and Reed-canary Grass.	■ Average Coefficient of Conservatism: 2.6. ■ Average Coefficient of Wetness: 2.07. ■ Non-native species (%): 57.58. ■ Floristic Quality Index: 9.37. ■ No Species at Risk or Species of Conservation Concern plants observed. ■ Handsome Sedge was present. This species is regionally ranked as L2 and considered a species of regional conservation concern.
Cultural Communities	CUW1a ■ Located within a fenced off area adjacent to Arsandco Park.	■ Mineral Cultural Woodland.	■ None.	■ This community was assessed from a fence-line dense with vegetation. What was visible of the tree canopy layer consisted of Manitoba Maple and Siberian Elm.	■ This community was assessed from a fence-line dense with vegetation. What was visible of the shrub layer consisted of Honeysuckle species.	■ This community was assessed from a fence-line dense with vegetation. What was visible of the ground layer consisted of Garlic Mustard, Dog-strangling Vine, and Avens species.	■ Average Coefficient of Conservatism: 2.33. ■ Average Coefficient of Wetness: 1.5. ■ Non-native species (%): 54.55. ■ Floristic Quality Index: 4.04. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Cultural Communities	CUW1b ■ Located within a fenced off area north of Jack Goodlad Park adjacent to the Hydro One Scarborough Transmission Station.	■ Mineral Cultural Woodland.	■ Cattail Mineral Shallow Marsh (MAS2-1) consisting of European Reed (*Phragmites australis*) and Narrow-leaved Cattail (*Typha angustifolia*).	■ The tree canopy primarily consisted of Blue Spruce, Willow species (*Salix spp.*), and Norway Maple.	■ The shrub layer consisted of Red-osier and Willow species.	■ The ground layer consisted of Kentucky Bluegrass, Dog-strangling Vine, and Goldenrod species.	■ Average Coefficient of Conservatism: 0.67. ■ Average Coefficient of Wetness: 1.5. ■ Non-native species (%): 66.67. ■ Floristic Quality Index: 1.15. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Marsh Communities	MAS2-1 ■ Located within Arsandco Park.	■ Cattail Mineral Shallow Marsh.	■ None.	■ No tree canopy layer was present.	■ No shrub canopy layer was present.	■ The ground layer consisted of Narrow-leaved Cattail, European Reed, and Curly-leaf Pondweed (*Potamogeton crispus*).	■ Average Coefficient of Conservatism: 0. ■ Average Coefficient of Wetness: -4. ■ Non-native species (%): 100. ■ Floristic Quality Index: 0. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Marsh Communities	MAS2-1b ■ Located within a ditch in the green space adjacent to the Hydro One Scarborough Transmission Station.	■ Narrow-Leaved Cattail Mineral Shallow Marsh.	■ None.	■ No tree canopy layer was present.	■ No shrub canopy layer was present.	■ The ground layer consisted solely of Narrow-leaved Cattail and European Reed.	■ Average Coefficient of Conservatism: 0. ■ Average Coefficient of Wetness: -4.33. ■ Non-native species (%): 100. ■ Floristic Quality Index: 0. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.

Community	Ecological Land Classification Code and Location	Vegetation or Ecosite Name	Inclusion	Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
Swamp Communities	SWT2-2 ■ Located within the green space adjacent to the Hydro One Scarborough Transmission Station.	■ Willow Mineral Thicket Swamp.	■ None.	■ The tree canopy consisted of Balsam Poplar (*Populus balsamifera*), Trembling Aspen, and Pussy Willow (*Salix discolor*).	■ The shrub layer primarily consisted of Sandbar Willow and Red-osier.	■ The ground layer consisted of Kentucky Bluegrass and Common Dandelion.	■ Average Coefficient of Conservatism: 2.18. ■ Average Coefficient of Wetness: 1.39. ■ Non-native species (%): 33.33. ■ Floristic Quality Index: 7.87. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Swamp Communities	SWT2-5 ■ Located within the green space adjacent to Jack Goodlad Park.	■ Red-osier Mineral Thicket Swamp.	■ None.	■ The tree canopy was sparse and solely contained a large Crack Willow (*Salix euxina*).	■ The shrub layer primarily consisted of Red-osier and Sandbar Willow.	■ The ground layer was sparse and contained Field Horsetail (*Equisetum arvense*), Avens species, and Narrow-leaved Cattail.	■ Average Coefficient of Conservatism: 2.71. ■ Average Coefficient of Wetness: 0.63. ■ Non-native species (%): 47.37. ■ Floristic Quality Index: 7.18. ■ No Species at Risk, Species of Conservation Concern or locally rare plants observed.
Aquatic Communities	OAO1-T ■ Located within Arsandco Park.	■ Turbid Open Aquatic (disturbed unvegetated).	■ None.	■ No tree canopy layer was present.	■ No shrub layer was present.	■ No ground layer was present.	■ Not applicable.
Communities Delineated via Aerial Imagery	CUM ■ Located east of the railway and west of Midwest Road behind an industrial building.	■ Cultural Meadow.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.
Communities Delineated via Aerial Imagery	CUT ■ Located east of the railway, south of Zezel Way, and west of Midwest Road behind an industrial building.	■ Cultural Thicket.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.
Communities Delineated via Aerial Imagery	MAS ■ Located within a fenced off area adjacent to Arsandco Park.	■ Shallow Marsh.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.
Communities Delineated via Aerial Imagery	SWD ■ Located within a fenced off area adjacent to Arsandco Park.	■ Deciduous Swamp.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.	■ Not applicable.

Figure 4-1: Terrestrial Field Investigations



ELC Code Description

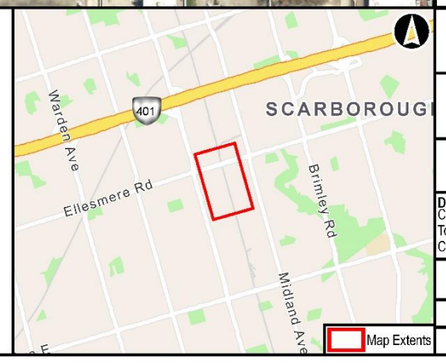
ANTH: Anthropogenic (Manicured)
CUM: Cultural Meadow
CUM1-1a: Dry - Moist Old Field Meadow
CUT: Cultural Thicket
CUT1-1: Sumac Cultural Thicket

LEGEND

60% Design Project Components
- Terrestrial 120m Study Area
- Construction Disturbance Area

Field Investigations
- Ecological Land Classification - Aerial Imagery Delineation
- Ecological Land Classification - Field Verified by AECOM

General Features
- Main Railway
- Spur Railway
- Property Boundary
- Toronto Park Limit



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Natural Environment Report

Terrestrial Field Investigations

0 20 40 80 120 160 200 M
WGS 1984 UTM Zone 17N

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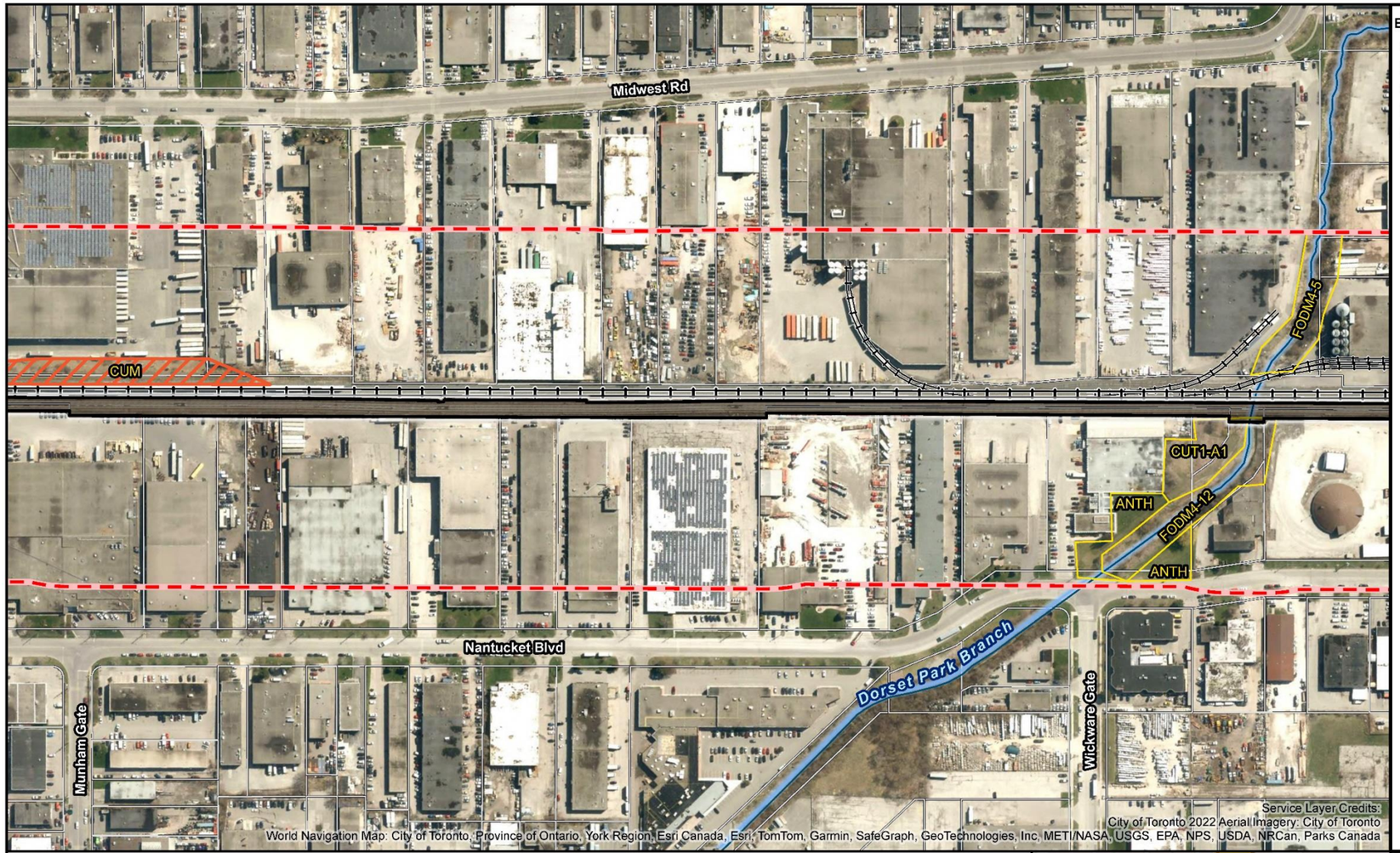
Figure 4-1: Terrestrial Field Investigations (continued)



ELC Code Description

ANTH: Anthropogenic (Manicured)
CUM: Cultural Meadow
CUT1-A1: Native Deciduous Sapling Regeneration
FODM4-12: Dry - Fresh Exotic Deciduous Forest Type
FODM4-5: Dry - Fresh Manitoba Maple Deciduous Forest

LEGEND

60% Design Project Components

Terrestrial 120m Study Area

Construction Disturbance Area

Field Investigations

Ecological Land Classification - Aerial Imagery Delineation

Ecological Land Classification - Field Verified by AECOM

General Features

Main Railway
Spur Railway
Watercourse

Property Boundary

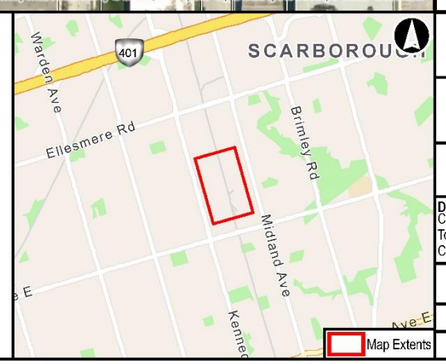


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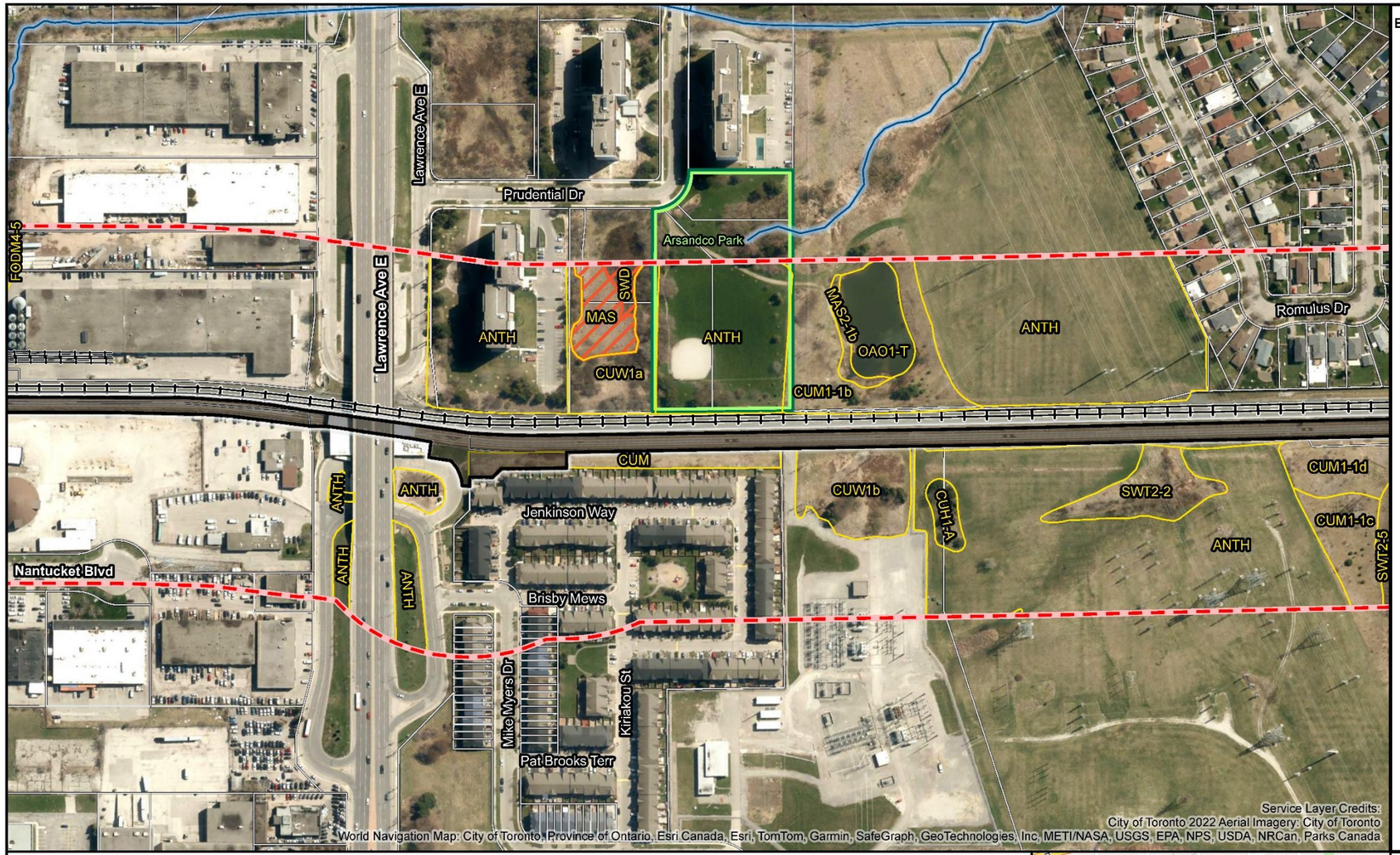
Figure 4-1: Terrestrial Field Investigations (continued)



ELC Code Description

- ANTH: Anthropogenic (Manicured)
- CUH1-A: Treed Hedgerow
- CUM: Cultural Meadow
- CUM1-1b: Dry - Moist Old Field Meadow
- CUM1-1c: Dry - Moist Old Field Meadow
- CUM1-1d: Dry - Moist Old Field Meadow
- CUW1a: Mineral Cultural Woodland
- CUW1b: Mineral Cultural Woodland
- FODM4-5: Dry - Fresh Manitoba Maple Deciduous Forest
- MAS: Shallow Marsh
- MAS2-1b: Narrow-Leaved Cattail Mineral Shallow Marsh
- OAO1-T: Turbid Open Aquatic (disturbed unvegetated)
- SWD: Deciduous Swamp
- SWT2-2: Willow Mineral Thicket Swamp
- SWT2-5: Red-osier Mineral Thicket Swamp

LEGEND

60% Design Project Components

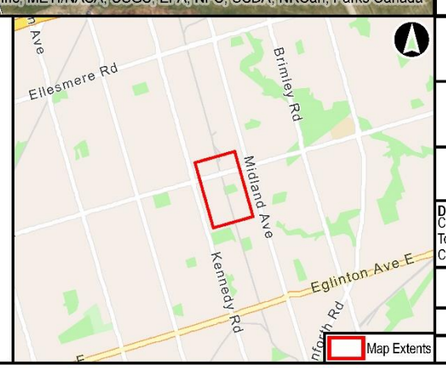
- Terrestrial 120m Study Area
- Construction Disturbance Area

Field Investigations

- Ecological Land Classification - Aerial Imagery Delineation
- Ecological Land Classification - Field Verified by AECOM

General Features

- Main Railway
- Spur Railway
- Watercourse
- Property Boundary
- Toronto Park Limit



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Terrestrial Field Investigations

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Figure: 4-1

Figure 4-1: Terrestrial Field Investigations (continued)

ELC Code Description

ANTH: Anthropogenic (Manicured)
CUH1-A: Treed Hedgerow
CUM1-1c: Dry - Moist Old Field Meadow
CUM1-1d: Dry - Moist Old Field Meadow
CUM1-1e: Dry - Moist Old Field Meadow
FOD5-1: Dry - Fresh Sugar Maple Deciduous Forest
SWT2-2: Willow Mineral Thicket Swamp
SWT2-5: Red-osier Mineral Thicket Swamp

LEGEND

60% Design Project Components

Terrestrial 120m Study Area

Construction Disturbance Area

Field Investigations

Candidate Bat Roost Tree

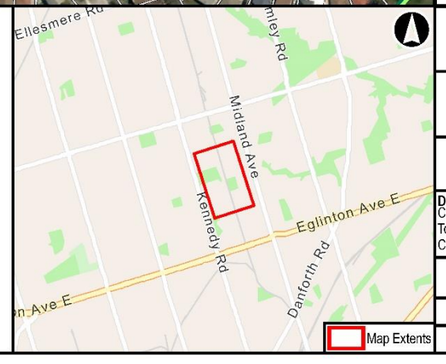
Ecological Land Classification - Field Verified by AECOM

General Features

Main Railway

Property Boundary

Toronto Park Limit



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Terrestrial Field Investigations

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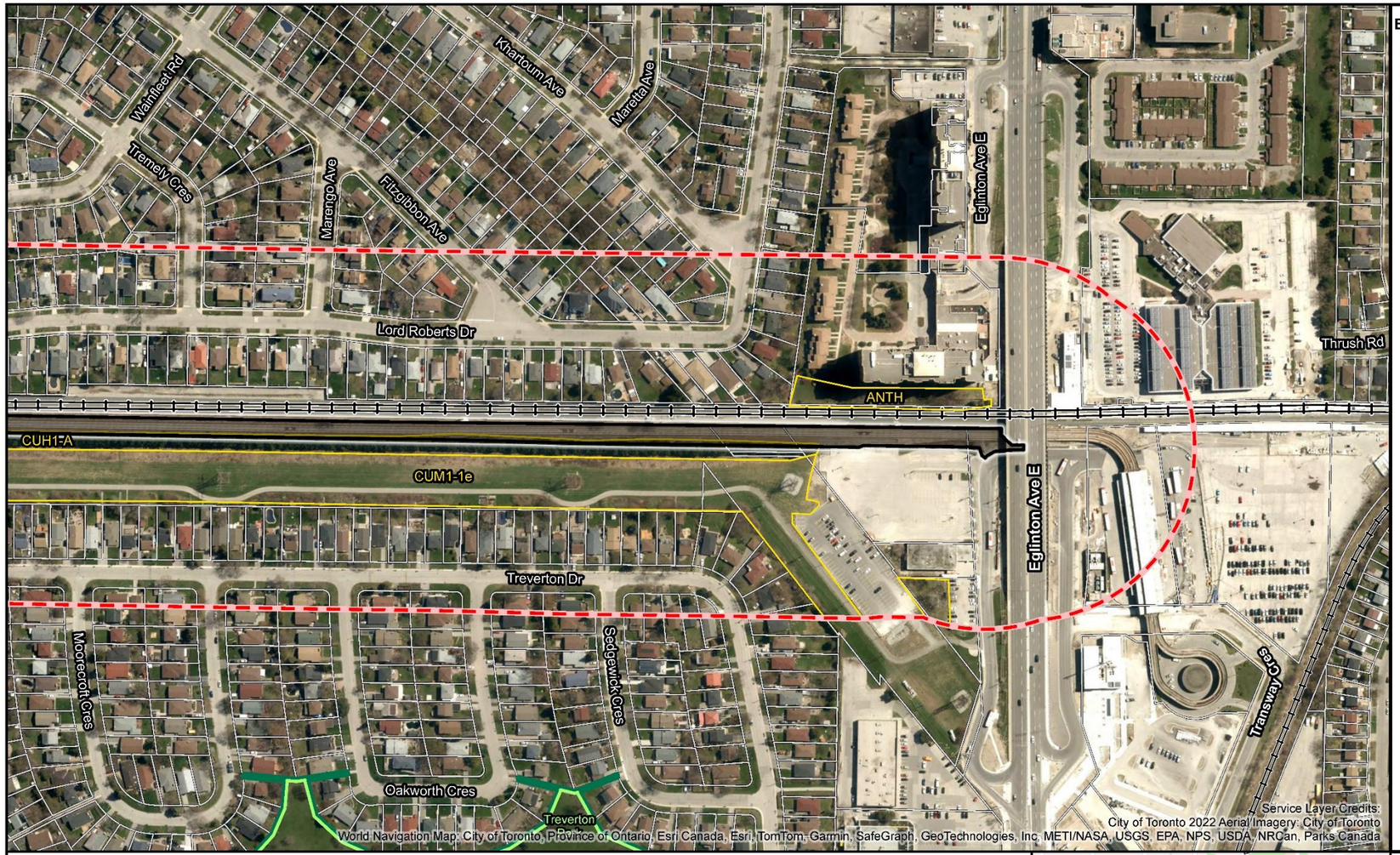
Figure 4-1: Terrestrial Field Investigations (continued)



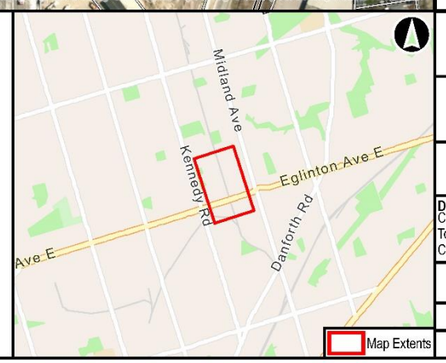
ELC Code Description
ANTH: Anthropogenic (Manicured)
CUH1-A: Treed Hedgerow
CUM1-1e: Dry - Moist Old Field Meadow

LEGEND

60% Design Project Components
Terrestrial 120m Study Area
Construction Disturbance Area

Field Investigations
Ecological Land Classification - Field Verified by AECOM

General Features
Main Railway
Spur Railway
Property Boundary
Toronto Park Limit



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4.1.8 Wildlife and Wildlife Habitat

During terrestrial and aquatic investigations, 32 observations of incidental wildlife were recorded. In total 24 bird species, six insect species, and two mammal species were observed. Most of these species are tolerant of urban disturbance and are common throughout the surrounding landscape. None of these incidentally observed species were considered Species at Risk or Species of Conservation Concern. According to the Toronto and Region Conservation Authority's Annual local occurrence and local rank update for 2017: terrestrial species and vegetation communities (2017) none of these species were considered regionally rare (L1-L3).

A total of 17 bird species protected under the *Migratory Birds Convention Act* were observed as indicated in **Table 4-3**. Although the Study Area has been anthropogenically disturbed and fragmented, existing vegetation still provided potential nesting opportunities for migratory birds. Isolated trees, shrubs, vegetation communities and anthropogenic structures (e.g., buildings and culverts) can provide nesting habitat for migratory birds protected under the *Migratory Birds Convention Act*. No evidence of Schedule 1 *Migratory Birds Convention Act* protected birds, such as Pileated Woodpecker (*Dryocopus pileatus*), were observed in the Study Area. Additionally, treed habitats in the Study Area were unlikely to provide suitable habitat for Pileated Woodpecker as communities were small, fragmented and did not have an abundance of dead or decaying trees for foraging. Given the lack of suitable habitat, absence during field investigations and lack of species evidence (i.e., foraging cavities) it is unlikely that Pileated Woodpeckers were nesting in the Study Area.

All incidental wildlife species observed during field investigations are presented in **Table 4-3**.

Table 4-3: Incidental Wildlife Observations

Taxon	Common Name	Scientific Name	S-Rank[1]	Committee on the Status of Endangered Wildlife in Canada Status[2]	*Species at Risk Act* Status[2]	*Endangered Species Act* Status[3]	Protected under *Migratory Bird Convention Act* (Yes or No)
Bird	American Robin	*Turdus migratorius*	S5B	-	-	-	Yes
Bird	Baltimore Oriole	*Icterus galbula*	S4B	-	-	-	Yes
Bird	Belted Kingfisher	*Megaceryle alcyon*	S5B,S4N	-	-	-	No
Bird	Black-throated Green Warbler	*Setophaga virens*	S5B	-	-	-	Yes
Bird	Blue Jay	*Cyanocitta cristata*	S5	-	-	-	No
Bird	Canada Goose	*Branta canadensis*	S5	-	-	-	Yes
Bird	Common Grackle	*Quiscalus quiscula*	S5	-	-	-	No
Bird	Cooper's Hawk	*Accipiter cooperii*	S4	Not at Risk	-	Not at Risk	No
Bird	Downy Woodpe+cker	*Dryobates pubescens*	S5	-	-	-	Yes
Bird	Hairy Woodpecker	*Dryobates villosus*	S5	-	-	-	Yes
Bird	House Sparrow	*Passer domesticus*	SNA	-	-	-	No
Bird	Killdeer	*Charadrius vociferus*	S5B,S5N	-	-	-	Yes
Bird	Mallard	*Anas platyrhynchos*	S5	-	-	-	Yes
Bird	Mourning Dove	*Zenaida macroura*	S5	-	-	-	Yes
Bird	Northern Cardinal	*Cardinalis cardinalis*	S5	-	-	-	Yes
Bird	Northern Parula	*Setophaga americana*	S5B	-	-	-	Yes
Bird	Red-breasted Nuthatch	*Sitta canadensis*	S5	-	-	-	Yes
Bird	Red-tailed Hawk	*Buteo jamaicensis*	S5	Not at Risk	-	Not at Risk	No
Bird	Red-winged Blackbird	*Agelaius phoeniceus*	S4	-	-	-	No
Bird	Ring-billed Gull	*Larus delawarensis*	S5	-	-	-	Yes
Bird	Song Sparrow	*Melospiza melodia*	S5B	-	-	-	Yes
Bird	Tennessee Warbler	*Leiothlypis peregrina*	S5B	-	-	-	Yes
Bird	White-throated Sparrow	*Zonotrichia albicollis*	S5	-	-	-	Yes
Bird	Yellow Warbler	*Setophaga petechia*	S5B	-	-	-	Yes
Insect	American Lady	*Vanessa virginiensis*	S5	-	-	-	Not Applicable
Insect	Black Swallowtail	*Papilio polyxenes*	S5	-	-	-	Not Applicable
Insect	Cabbage White	*Pieris rapae*	SNA	-	-	-	Not Applicable
Insect	Mourning Cloak	*Nymphalis antiopa*	S5	-	-	-	Not Applicable
Insect	Red Admiral	*Vanessa atlanta*	S5B	-	-	-	Not Applicable
Insect	Two-spotted Bumblebee	*Bombus bimaculatus*	S5	-	-	-	Not Applicable
Mammal	Coyote	*Canis latrans*	S5	-	-	-	Not Applicable
Mammal	Eastern Gray Squirrel	*Sciurus carolinensis*	S5	-	-	-	Not Applicable

Table Legend

1. Srank: The natural heritage provincial ranking system (provincial S-rank) is used by the Ministry of Natural Resources and Forestry Natural Heritage Information Centre to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2023) National and Subnational Conservation Status Definitions availablehttps://explorer.natureserve.org/AboutTheData/DataTypes/ConservationStatusCategories:

S4 – Apparently Secure — Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 – Secure — Common, widespread, and abundant in the nation or state/province.

SNA – Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# – Range Rank — A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

2. *Species at Risk Act* Status: The *Species at Risk Act* protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of *Species at Risk Act* is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under *Species at Risk Act*. Species that were designated at risk by Committee on the Status if Endangered Wildlife in Canada before *Species at Risk Act* need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under *Species at Risk Act*. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the *Species at Risk Act* status rankings assigned to each species in the table above:

Not at Risk – These species have either been assessed by Committee on the Status if Endangered Wildlife in Canada as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under *Species at Risk Act*.

3. *Endangered Species Act* Status: The *Endangered Species Act* 1998 protects species listed as Threatened and Endangered on the Species at Risk List on provincial and private land. The following are the categories of at risk:

Not at Risk – A species that has been evaluated and found to be not at risk.

4.1.9 Significant Wildlife Habitat

Significant Wildlife Habitat within the Study Area was limited due to the presence of anthropogenic influences (i.e., commercial and properties, recreational areas). As mentioned in **Section 4.1.7**, the Study Area consisted of urban woodlots, cultural meadows adjacent to City parkland, narrow strips of vegetation along infrastructure and riparian vegetation along an urban ravine. The following candidate Significant Wildlife Habitat were identified within the Study Area:

- **Seasonal Concentration Areas**
  - Bat Maternity Colonies within Dry - Fresh Sugar Maple Deciduous Forest (FOD5-1), Dry - Fresh Manitoba Maple Deciduous Forest (FODM4-5), Dry - Fresh Exotic Deciduous Forest (FODM4-12) and Deciduous Swamp communities.
- **Specialized Wildlife Habitat**
  - Turtle nesting area provided by the CUM1-1b and adjacent gravel paths next to the Arsandco Park SWM pond. Portions of the CUM1-1b community just north of the SWM pond had exposed mineral soil that may be suitable.
  - Amphibian breeding habitat (wetlands) provided by the Arsandco Park Stormwater Management pond (OAO1-T).
  - Habitat for Species of Conservation Concern (refer to **Appendix A** for a detailed Species of Conservation Concern Habitat Screening) including:
  - Barn Swallow (*Hirundo rustica*) on buildings.
  - Common Nighthawk (*Chordeiles minor*) on flat-topped buildings.
  - Peregrine Falcon (*Falco peregrinus*) nest habitat on tall buildings.
  - Wood Thrush (*Hylocichla mustelina*) within the Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1).
  - Eastern Wood-pewee (*Contopus virens*) within treed communities.
  - Monarch (*Danaus plexippus*) within the Old-field Mineral Cultural Meadow (CUM1-1e).
  - Snapping Turtle (*Chelydra serpentina*) within the Turbid Open Aquatic (OAO1-T) and Cattail Mineral Shallow Marsh (MAS2-1b).
  - Meske’s Underwing (*Catocala meskei*) within the Willow Mineral Thicket Swamp (SWT2-2).

Of these, Bat Maternity Colonies, habitat for Eastern Wood-pewee and habitat for Monarch were the only candidate Significant Wildlife Habitat to overlap with the Construction Disturbance Area. No Significant Wildlife Habitat was confirmed during field investigations as targeted surveys were not performed and therefore remain candidate.

4.1.10 Species at Risk Habitat

The 2020 Addendum identified Kentucky Coffee-tree (*Gymnocladus dioicus*) and Butternut (*Juglans cinerea*) within the Gatineau Hydro Corridor Trail. However, these species were located outside of the Study Area for this Project. Furthermore, Kentucky Coffee-tree is no longer considered Species at Risk within Toronto area. In January 2023, Kentucky Coffee-tree was reclassified as Threatened only in its native Ontario range, which includes Elgin, Essex, Lambton, Middlesex, Norfolk and Oxford Counties and in the Municipality of Chatham-Kent. In all other jurisdictions this species is not classified as Species at Risk or afforded protection under the *Endangered Species Act*. As such, Kentucky Coffee-tree was not included in the Species at Risk habitat screening for this Project.

The Species at Risk habitat assessment is presented in **Appendix A**. Multiple candidate habitats for Species at Risk were identified within the Study Area. Of the 14 Species at Risk records identified through the background review, no Species at Risk were determined to have a high potential to occur in the Study Area. A total of eight Species at Risk were determined to have a medium potential to occur within the Study Area. The remaining Species at Risk outlined in **Appendix A** were determined to have a low potential to occur within the Study Area due to a lack of suitable habitat.

The following Species at Risk were determined to have a medium potential (i.e., candidate habitat) to occur within the Study Area:

- **Chimney Swift (*Chaetura pelagica*)**
  Chimney Swift is designated as Threatened under the *Endangered Species Act*. Buildings within the Study Area may contain suitable chimneys for nesting.
- **Red-headed Woodpecker (*Melanerpes erythrocephalus*)**
  While no individuals were identified during field investigations, species-specific surveys were not conducted and the entirety of the Study Area was not searched due to access limitations. Individuals of this species may be present in treed communities within the Study Area. Potential nesting trees within the CDA were not observed during field investigations.

- **Bat Species at Risk: Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-coloured Bat (*Perimyotis subflavus*)**
  Bat Species at Risk are designated as Endangered under the *Endangered Species Act*. Candidate habitat for bat Species at Risk was identified within the Dry - Fresh Sugar Maple Deciduous Forest (FOD5-1), Dry - Fresh Manitoba Maple Deciduous Forest (FODM4-5), Dry - Fresh Exotic Deciduous Forest (FODM4-12), Deciduous Swamp, and the Mineral Cultural Woodland (CUW1) communities. During field investigations, AECOM ecologists incidentally observed one tree that met the criteria for best candidate roost trees according to Ministry of the Environment, Conservation and Park's *Maternity Roost Surveys guidelines* (2022). This potential roost tree with a suitable cavity was identified within the FOD5-1. The potential roost tree is shown in the photolog provided in **Appendix A** as well as mapped on **Figure 4-1**.
- **Butternut (*Juglans cinerea)***
  While no individuals were identified during field investigations, the entirety of the Study Area could not be searched due to access limitations. This species was not identified within the Construction Disturbance Area, though individuals of this species may be present in treed communities within the Study Area.
- **Black Ash (*Fraxinus nigra*)**
  While no individuals were identified during field investigations, the entirety of the Study Area could not be searched due to access limitations. This species was not identified within the Construction Disturbance Area, though individuals of these species may be present within the Deciduous Swamp within the Study Area.

Of the candidate Species at Risk habitat identified, only a small portion of candidate bat Species at Risk habitat overlaps with Construction Disturbance Area. The remaining candidate habitat for Species at Risk were located outside of the Construction Disturbance Area.

4.2 Air Quality

This section provides a summary of the methodology and existing conditions identified in the Air Quality Impact Assessment Report which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project to assess the impacts of the project on regional air quality and greenhouse gases within the Study Area. The fulsome Air Quality Impact Assessment Report is included in **Appendix A**.

4.2.1 Methodology

The Air Quality Impact Assessment Study Area includes a 500-metre buffer to be able to capture air quality impacts and effects from traffic within the busway corridor and the surrounding area. The 500-metre buffer is recommended through the Ministry of Transportation Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (2020) ("Air Quality Guideline"). Within this Study Area, a total of 96 sensitive receptors and 17 critical receptors were identified.

The overall objective of the Air Quality Impact Assessment was to determine the impacts of the project on regional air quality and Greenhouse Gases. This was done by incorporating traffic study data combined with a configuration of traffic-links in the AERMOD model. Through this analysis, regional air quality impacts were predicted at the identified sensitive and critical receptors present within the Study Area for the two conditions (Future No-Build, Future Build). The Existing Condition was not assessed since it only considered the operation of the Scarborough Rapid Transit electrified trains, which was not expected to emit air emissions.

Impacts from vehicle traffic along arterial roads was not assessed in the Existing, Future Build and Future No-Build scenarios, as focus was given to the air quality impact solely associated with the Scarborough Rapid Transit busway and Scarborough Rapid Transit bus replacement – operating on-street as indicated during Phase 1.

Nearby existing sensitive and critical receptors were identified within the Study Area. As per the Air Quality Guideline, sensitive receptors are defined as all permanent locations of residence (e.g., detached housing, apartments, and condominiums, etc.) and critical receptors included health care facilities, educational institutions, childcare facilities, or nursing/long-term care facilities. Within this Study Area, a total of 96 sensitive receptors and 17 critical receptors were identified.

The primary air emission sources within the Study Area are vehicular emissions from the Scarborough Rapid Transit operations, including both existing infrastructure and the proposed busway. Based on recommendations within the Air Quality Guideline, the air quality impact assessment included the following criteria air contaminants from vehicle emissions:

- Nitrogen dioxide (assessed over 1-hour, 24-hour, and annual averaging periods).
- Carbon monoxide (assessed over 1-hour and 8-hour averaging periods).
- Sulphur Dioxide (assessed over 10-minute, 1-hour, and annual averaging periods).
- Particulate matter 10 (<10 microns) (assessed over 24-hour period).

- Particulate matter 2.5 (<2.5 microns) (assessed over 24-hour and annual averaging periods).
- Acetaldehyde (assessed over ½ hour and 24-hour averaging periods).
- Acrolein (assessed over 1-hour and 24-hour averaging periods).
- Benzene (assessed over 24-hour and annual averaging periods).
- Benzo(a)pyrene (assessed over 24-hour and annual averaging periods).
- Formaldehyde (assessed over 24-hour averaging period).
- 1,3-Butadiene (assessed over 24-hour and annual averaging periods).

Emissions of the coarse fraction of particulates (Particulate Matter 10) are emitted mostly from tire wear, brake wear, and road dust fugitives, whereas the fine fraction (Particulate Matter 2.5) is mostly attributed to vehicle emission exhausts.

In addition to the above, impacts of pollutants contributing to the regional Greenhouse Gas levels including carbon dioxide, nitrous oxide, and methane should be assessed within the assessment. The impacts of these pollutants are compared to the Ministry of Environment, Climate and Parks projected transportation emissions for the Future Build year, in units of carbon equivalent, as shown in the Ontario's Climate Change Strategy (Ministry of Environment and Climate Change, 2022).

4.2.1.1 Emissions Inventory Assessment Methodology

Emission inventories estimate the quantities (in mass units) of Criteria Air Contaminants emitted over a given period and provide information about contributions from various sources. Emissions are estimated by multiplying emission factors by source activity levels. An emission factor represents the emissions from a single source for a unit of time or distance (e.g., grams of carbon monoxide per vehicle mile traveled). The source activity is the number of vehicle-miles-traveled on a roadway segment in a given time period, such as one day.

The emissions inventory for this air quality impact assessment was prepared in accordance with the Air Quality Guideline. Annual emissions inventories were prepared for each Criteria Air Contaminants for the Future No-Build (2028) and Future Build Conditions horizon year (2028).

The motor vehicle emission inventory was developed using available project design details, traffic data for identified sources within the Study Area, and emission factors produced from the United States of America Environmental Protection Agency emissions modelling software MOVES.4.0 for the Future Conditions horizon year (2028). This software provides emission rates for a wide variety of source types (i.e., passenger cars, motorcycles, long-haul trucks, etc.), speed bins, road types, and emission types (i.e.,

running emissions, idling emissions, tire wear, brake wear, etc.). Emission rates were developed for all contaminants of concern and greenhouse gas compounds from passenger vehicle, and heavy vehicle source types shown in **Table 4-4**.

Table 4-4: MOVES Source IDs

MOVES Source ID	Assessment Source Type Classification	Source Description
11	Motorcycle	Motorcycle
21	Passenger Car	Passenger Car
31	Light-Duty Truck	Passenger Truck
32	Light-Duty Truck	Light Commercial Truck
41	Heavy-Duty Vehicle	Other Buses
42	Heavy-Duty Vehicle	Transit Bus
43	Heavy-Duty Vehicle	School Bus
51	Heavy-Duty Vehicle	Refuse Truck
52	Heavy-Duty Vehicle	Single Unit Short-haul Truck
53	Heavy-Duty Vehicle	Single Unit Long-haul Truck
54	Heavy-Duty Vehicle	Motor Home
61	Heavy-Duty Vehicle	Combination Short-haul Truck
62	Heavy-Duty Vehicle	Combination Long-haul Truck

Source: United States of American Environmental Protection Agency emissions modelling software MOVES.4.0

The United States of America Environmental Protection Agency emissions modelling software MOVES calculates emissions from mobile sources using a variety of factors: time span, geographic bounds, vehicle type, road type, and emission or process type. The time span calculates emission using default fleet composition and fuel criteria specific to a pre-selected year, month, hour, and weekday/weekend profile. Fleet composition and fuel criteria are also specific to geographic location, with default database data provided for each county in the United States.

For Canada, the closest United States County to the Study Area is expected to provide fleet and fuel characteristics as close of a match as possible; therefore, Niagara County in New York State was selected. Since MOVES is developed in the United States, Canadian-specific county data are not available. It is typical for Canadian air quality transportation environmental assessment projects to assume a similar vehicle fleet and fuel characteristics to that of the closest United States based county. This approach has been accepted by the Ministry of Environment, Conservation and Parks.

There are thirteen vehicle types and five fuel types in MOVES. The various vehicle types encompass passenger vehicles (motorcycles, cars, and trucks); light, medium and heavy commercial trucks; buses (intercity, transit, and school); and other vehicle types such as refuse trucks and motor homes. The fuels include diesel (ID 2), gasoline (ID 1),

electricity (ID 9), compressed natural gas (for transit buses only) (ID 3), and ethanol fuel (ID 5). The percentage of ethanol fuel used by the project fleet was eliminated in emissions estimation for this project as flex-fuel cars and fuelling stations are not as readily available in Ontario as they are in the United States. MOVES does not directly categorize hybrid vehicles under a specific fuel type. Hybrid vehicles use a combination of fuel types (typically gasoline or diesel combined with electric power). Therefore, gasoline, electric, and diesel fuels were selected as fuel types for vehicles travelling along the Scarborough Rapid Transit Right-of-Way. A reduction of 50% was assumed in the emission rates for each contaminant (except for Particulate Matter 10 and Particulate Matter 2.5 since the impacts from these two contaminants may not decrease due to tire and brake wear) to account for hybrid vehicle operations.

Emissions in MOVES are divided into four major categories:

- Running emissions.
- Start emissions.
- Evaporative emissions.
- Particulate emissions from brake wear and tire wear.

Vehicular emissions from the project were estimated using the MOVES 4.0 County Scale methodology. An averaged 24-hour emission profile was generated for each pollutant, for each vehicle type (passenger car and heavy vehicle). The maximum emissions from January and July were compared and the higher of the two was selected for inclusion in air dispersion modelling, to capture the worst-case emissions from both the coldest (January) and warmest (July) ambient temperatures.

Evaporative emissions include the following sub-categories: evaporative permeation, fuel vapour venting, fuel leaks, refuelling displacement vapour loss, refuelling spillage loss, vapour loss during running emissions, and vapour loss during idling. All types of evaporative emissions were included within the calculated MOVES running and idling emission factors used in the assessment. The applicable emissions factors for all vehicle classes generated by MOVES in the Future Build Condition year (2028) with appropriate speed bins for the Study Area are provided in Appendix D of the Air Quality Impact Assessment Report (**Appendix A**).

A range of emission rates depending on posted vehicle speed are designated by seventeen ‘speed bins’ (Speed Bin ID 0 through 16). This assessment included:

- Speed Bin ID 0, representing idling emissions for all source types (within signalized interchange queues and parking lots).
- Speed Bin ID 8, representing vehicles travelling at 60 kilometres per hour.

4.2.1.2 Dispersion Modelling Assessment Methodology

The calculated emission inventory for all Criteria Air Contaminants were modelled using the United States of America Environmental Protection Agency gaussian dispersion model, AERMOD (version 22112). The model can predict impacts from a variety of source types, including stationary sources (e.g., stacks), line sources (e.g., traffic emissions along roads), stationary volume sources (e.g., pile unloading), and area sources (e.g., parking lots).

AERMOD predicts contaminant impacts using the Gaussian dispersion model in conjunction with hourly meteorological data. Regional meteorological and terrain data closest to the Study Area were pre-processed by the Ministry of the Environment, Conservation and Parks for direct use in AERMOD.

Emission sources identified within the model were based on road traffic and idling emissions from vehicle emission sources within the Study Area, including:

- Transit bus travel along the identified Toronto Transit Commission bus routes.
- Transit buses idling at signalized intersections within the identified Toronto Transit Commission bus routes.
- Passenger vehicles idling for a maximum of five (5) minutes per hour at the surface parking lots at Lawrence East Station and Ellesmere Station.

For each link and source, an hourly profile of emissions and traffic data was input into the model, along with other pertinent information such as road width per link. Release heights and plume widths were calculated in accordance with United States of America Environmental Protection Agency's recommended methodologies.

4.2.2 Background Data Collection

The background air quality concentrations within the Study Area were determined from existing Environment and Climate Change Canada air monitoring station data operating under the National Air Pollution Surveillance network. Five years of existing data sets were analyzed from stations within the region, and the complete data set from the closest station or most representative station for each contaminant of concern was selected to represent the background air quality for the Study Area. Monitoring stations closest to the Study Area were given preference as the one of the most representative locations for the contaminants of concern. As such, Roadside 401W Toronto, Toronto North Downsview, Toronto East, and Wallberg Toronto (all located approximately 0.3 kilometre to 22 kilometre from the Study Area) were used. The closest monitoring station is located in Toronto East, approximately 0.3 kilometre from the Study Area.

Regional meteorological data associated with Toronto suburban land use for AERMOD (Version 22112) was downloaded from Ministry of Environment, Conservation and Parks' Regional Meteorological and Terrain Data for Air Dispersion Modelling website.

The Existing Conditions were not assessed since the electrified Scarborough Rapid Transit rail operations along the Line 3 Train Service would not be expected to result in air emissions. Therefore, the following two conditions were assessed:

- **Future No-Build Conditions (2028)** – Assessment of predicted future air quality impacts from vehicular emissions of identified sources within 500 metres of the Study Area. This scenario is represented as the Interim On-Street Routing along Ellesmere Road, Midland Avenue (southbound only), Eglinton Avenue and Kennedy Road (northbound only) using buses, travelling between Kennedy Station and Ellesmere Station.
- **Future Build Conditions (2028)** – Assessment of predicted future air quality impacts from vehicular emissions of identified sources within 500 metres of the Study Area. This scenario will be represented as the busway operations, travelling between stops at Kennedy Road, Tara Avenue, Lawrence Avenue East, and Ellesmere Road along the Scarborough Rapid Transit Right-of-Way.

The Future Build and Future No-Build scenarios for the years 2038 (10 years from inauguration and 2048 (20 years from inauguration) were not included in this assessment, as traffic projections for the Scarborough Rapid Transit buses will decrease following the opening of the Line 2 Scarborough Subway Extension (anticipated in 2031). Even though the implementation of electric buses in the future year scenarios is a possibility, operation of hybrid buses was assumed instead in order to capture the worst-case emissions scenario. Therefore, the expected impact from emissions in 2048 should result in greater reductions, with the implementation of electric buses, than presented for the 2028 scenario.

4.2.3 Description of Existing Conditions

Table 4-5 lists the identified critical receptors and sensitive receptors. The location of the identified critical receptors (such as schools, day cares, and/or nursing homes) and sensitive receptors are shown in Figures A1-1, A1-2 and A1-3 in **Appendix A**. Existing sensitive and critical receptors were included as discrete receptors within the air dispersion modelling.

Table 4-5: Identified Sensitive and Critical Receptors within Study Area

Receptor ID	Type	Address	Description	UTM Co-ordinates Easting (m)	UTM Co-ordinates Northing (m)
SR1	Sensitive	68 Zezel Way, Toronto, Ontario M1P 2X1	Single-unit Dwelling	638784	4847380
SR2	Sensitive	115 Jolly Way, Scarborough, Ontario M1P 2W7	Single-unit Dwelling	638717	4847344
SR3	Sensitive	50 Zezel Way, Toronto, Ontario M1P 2X1	Single-unit Dwelling	638798	4847329
SR4	Sensitive	89 Jolly Way, Toronto, Ontario M1P 0E2	Single-unit Dwelling	638735	4847281
SR5	Sensitive	20 Zezel Way, Toronto, Ontario M1P 2X1	Single-unit Dwelling	638820	4847262
SR6	Sensitive	154 Jenkinson Way, Scarborough, Ontario M1P 5H4	Single-unit Dwelling	639250	4845535
SR7	Sensitive	301 Prudential Drive, Scarborough, Ontario M1P 4V3	Multi-unit Dwelling	639349	4845552
SR8	Sensitive	128 Jenkinson Way, Toronto, Ontario M1P 5H4	Single-unit Dwelling	639276	4845470
SR9	Sensitive	102 Jenkinson Way, Scarborough, Ontario M1P 5H4	Single-unit Dwelling	639298	4845400
SR10	Sensitive	84 Jenkinson Way, Toronto, Ontario M1P 5H4	Single-unit Dwelling	639319	4845334
SR11	Sensitive	52 Romulus Drive, Scarborough, Ontario M1K 4C2	Single-unit Dwelling	639492	4845045
SR12	Sensitive	42 Romulus Drive, Scarborough, Ontario M1K 4C2	Single-unit Dwelling	639509	4844968
SR13	Sensitive	22 Medina Crescent, Scarborough, Ontario M1K 4B7	Single-unit Dwelling	639535	4844849
SR14	Sensitive	14 Medina Crescent, Scarborough, Ontario M1K 4B7	Single-unit Dwelling	639551	4844793
SR15	Sensitive	8 Medina Crescent, Scarborough, Ontario M1K 4B7	Single-unit Dwelling	639567	4844748
SR16	Sensitive	149 Mooregate Avenue, Scarborough, Ontario M1K 3T1	Single-unit Dwelling	639503	4844639
SR17	Sensitive	161 Treverton Drive, Scarborough, Ontario M1K 3T1	Single-unit Dwelling	639523	4844584
SR18	Sensitive	153 Treverton Drive, Scarborough, Ontario M1K 3T1	Single-unit Dwelling	639539	4844534
SR19	Sensitive	137 Lord Roberts Drive, Scarborough, Ontario M1K 3W5	Single-unit Dwelling	639645	4844503
SR20	Sensitive	135 Treverton Drive, Scarborough, Ontario M1K 3T1	Single-unit Dwelling	639574	4844426
SR21	Sensitive	121 Lord Roberts Drive, Scarborough, Ontario M1K 3W5	Single-unit Dwelling	639685	4844398
SR22	Sensitive	117 Treverton Drive, Scarborough, Ontario M1K 3T1	Single-unit Dwelling	639610	4844315
SR23	Sensitive	103 Lord Roberts Drive, Scarborough, Ontario M1K 3W5	Single-unit Dwelling	639727	4844280
SR24	Sensitive	97 Treverton Drive, Scarborough, Ontario M1K 3S5	Single-unit Dwelling	639651	4844198
SR25	Sensitive	85 Lord Roberts Drive, Scarborough, Ontario M1K 3W5	Single-unit Dwelling	639759	4844157
SR26	Sensitive	77 Treverton Drive, Scarborough, Ontario M1K 3S5	Single-unit Dwelling	639689	4844077
SR27	Sensitive	69 Lord Roberts Drive, Scarborough, Ontario M1K 3W1	Single-unit Dwelling	639794	4844050
SR28	Sensitive	59 Treverton Drive, Scarborough, Ontario M1K 3S5	Single-unit Dwelling	639725	4843970
SR29	Sensitive	55 Lord Roberts Drive, Scarborough, Ontario M1K 3W1	Single-unit Dwelling	639831	4843937
SR30	Sensitive	47 Treverton Drive, Scarborough, Ontario M1K 3S5	Single-unit Dwelling	639728	4843871
SR31	Sensitive	2460 Eglinton Avenue East, Scarborough, Ontario M1K 5J7	Multi-unit Dwelling	639878	4843851
SR32	Sensitive	6 Thrush Road, Scarborough, Ontario M1K 3S2	Single-unit Dwelling	639987	4843526
SR33	Sensitive	74 Kenmark Boulevard, Scarborough, Ontario M1K 3N7	Single-unit Dwelling	639917	4843452
SR34	Sensitive	142 Benjamin Boulevard, Toronto, Ontario M1K 3P1	Single-unit Dwelling	640009	4843460
SR35	Sensitive	88 Kenmark Boulevard, Scarborough, Ontario M1K 3N7	Single-unit Dwelling	639969	4843394
SR36	Sensitive	122 Benjamin Boulevard, Scarborough, Ontario M1K 3P1	Single-unit Dwelling	640052	4843349
SR37	Sensitive	84 Cornwallis Drive, Scarborough, Ontario M1P 1H7	Single-unit Dwelling	638787	4845780

Receptor ID	Type	Address	Description	UTM Co-ordinates Easting (m)	UTM Co-ordinates Northing (m)
SR38	Sensitive	1048 Kennedy Road, Scarborough, Ontario M1P 2K7	Single-unit Dwelling	638878	4845398
SR39	Sensitive	1040 Kennedy Road, Scarborough, Ontario M1P 2K6	Single-unit Dwelling	638906	4845332
SR40	Sensitive	1032 Kennedy Road, Scarborough, Ontario M1P 2K6	Single-unit Dwelling	638916	4845284
SR41	Sensitive	1022 Kennedy Road, Scarborough, Ontario M1P 2K6	Single-unit Dwelling	638935	4845230
SR42	Sensitive	1016 Kennedy Road, Scarborough, Ontario M1P 2K6	Single-unit Dwelling	638950	4845190
SR43	Sensitive	1008 Kennedy Road, Scarborough, Ontario M1P 2K6	Single-unit Dwelling	638965	4845141
SR44	Sensitive	1000 Kennedy Road, Scarborough, Ontario M1P 2K4	Single-unit Dwelling	638987	4845077
SR45	Sensitive	992 Kennedy Road, Scarborough, Ontario M1P 2K4	Single-unit Dwelling	639002	4845028
SR46	Sensitive	984 Kennedy Road, Scarborough, Ontario M1P 2K4	Single-unit Dwelling	639014	4844983
SR47	Sensitive	976 Kennedy Road, Scarborough, Ontario M1P 2K4	Single-unit Dwelling	639031	4844938
SR48	Sensitive	938 Kennedy Road, Toronto, Ontario M1P 2K4	Single-unit Dwelling	639108	4844692
SR49	Sensitive	928 Kennedy Road, Scarborough, Ontario M1K 2E8	Single-unit Dwelling	639128	4844626
SR50	Sensitive	920 Kennedy Road, Scarborough, Ontario M1K 2E8	Single-unit Dwelling	639143	4844583
SR51	Sensitive	912 Kennedy Road, Scarborough, Ontario M1K 2E8	Single-unit Dwelling	639162	4844527
SR52	Sensitive	906 Kennedy Road, Scarborough, Ontario M1K 2E8	Single-unit Dwelling	639174	4844484
SR53	Sensitive	898 Kennedy Road, Scarborough, Ontario M1K 2E8	Single-unit Dwelling	639189	4844425
SR54	Sensitive	890 Kennedy Road, Toronto, Ontario M1K 2E8	Single-unit Dwelling	639215	4844366
SR55	Sensitive	872 Kennedy Road, Scarborough, Ontario M1K 2E8	Single-unit Dwelling	639233	4844289
SR56	Sensitive	886 Kennedy Road, Scarborough, Ontario M1K 2E8	Single-unit Dwelling	639261	4844203
SR57	Sensitive	856 Kennedy Road, Scarborough, Ontario M1K 2E7	Single-unit Dwelling	639293	4844111
SR58	Sensitive	848 Kennedy Road, Scarborough, Ontario M1K 2E7	Single-unit Dwelling	639307	4844060
SR59	Sensitive	840 Kennedy Road, Scarborough, Ontario M1K 2E7	Single-unit Dwelling	639323	4844013
SR60	Sensitive	832 Kennedy Road, Toronto, Ontario M1K 2E3	Single-unit Dwelling	639339	4843963
SR61	Sensitive	822 Kennedy Road, Toronto, Ontario M1K 2C8	Single-unit Dwelling	639367	4843874
SR62	Sensitive	814 Kennedy Road, Scarborough, Ontario M1K 2C8	Single-unit Dwelling	639391	4843800
SR63	Sensitive	78 Town Haven Place, Scarborough, Ontario M1K 3P5	Single-unit Dwelling	640092	4843742
SR64	Sensitive	2 Lord Roberts Drive, Scarborough, Ontario M1K 3W1	Single-unit Dwelling	640191	4844043
SR65	Sensitive	934 Midland Avenue, Scarborough, Ontario M1K 4G3	Single-unit Dwelling	640178	4844096
SR66	Sensitive	942 Midland Avenue, Scarborough, Ontario M1K 4G3	Single-unit Dwelling	640157	4844152
SR67	Sensitive	950 Midland Avenue, Scarborough, Ontario M1K 4G3	Single-unit Dwelling	640143	4844210
SR68	Sensitive	958 Midland Avenue, Toronto, Ontario M1K 4G3	Single-unit Dwelling	640127	4844257
SR69	Sensitive	958 Midland Avenue, Toronto, Ontario M1K 4G3	Single-unit Dwelling	640105	4844326
SR70	Sensitive	991 Midland Avenue, Scarborough, Ontario M1K 4G7	Single-unit Dwelling	640123	4844416
SR71	Sensitive	990 Midland Avenue, Scarborough, Ontario M1K 4G6	Single-unit Dwelling	640038	4844501
SR72	Sensitive	1014 Midland Avenue, Scarborough, Ontario M1K 4G6	Single-unit Dwelling	640016	4844593
SR73	Sensitive	1030 Midland Avenue, Scarborough, Ontario M1K 4G8	Single-unit Dwelling	639993	4844673
SR74	Sensitive	1040 Midland Avenue, Scarborough, Ontario M1K 4G8	Single-unit Dwelling	639969	4844736
SR75	Sensitive	1058 Midland Avenue, Scarborough, Ontario M1K 4G9	Single-unit Dwelling	639928	4844851
SR76	Sensitive	1064 Midland Avenue, Scarborough, Ontario M1K 4G9	Single-unit Dwelling	639913	4844915

Receptor ID	Type	Address	Description	UTM Co-ordinates Easting (m)	UTM Co-ordinates Northing (m)
SR77	Sensitive	1072 Midland Avenue, Scarborough, Ontario M1K 4G9	Single-unit Dwelling	639894	4844977
SR78	Sensitive	1080 Midland Avenue, Scarborough, Ontario M1K 4G9	Single-unit Dwelling	639875	4845037
SR79	Sensitive	1088 Midland Avenue, Scarborough, Ontario M1K 4G9	Single-unit Dwelling	639851	4845107
SR80	Sensitive	1286 Midland Avenue, Scarborough, Ontario M1K 4H1	Single-unit Dwelling	639785	4845293
SR81	Sensitive	1497 Midland Avenue, Toronto, Ontario M1P 0A1	Single-unit Dwelling	639644	4845938
SR82	Sensitive	6 Norbury Crescent, Scarborough, Ontario M1P 3J6	Single-unit Dwelling	639571	4846252
SR83	Sensitive	14 Norbury Crescent, Scarborough, Ontario M1P 3J6	Single-unit Dwelling	639546	4846315
SR84	Sensitive	22 Norbury Crescent, Scarborough, Ontario M1P 3J6	Single-unit Dwelling	639526	4846371
SR85	Sensitive	40 Norbury Crescent, Scarborough, Ontario M1P 3J6	Single-unit Dwelling	639506	4846442
SR86	Sensitive	8 Brookridge Drive, Scarborough, Ontario M1P 3M1	Single-unit Dwelling	639480	4846526
SR87	Sensitive	18 Brookridge Drive, Scarborough, Ontario M1P 3M1	Single-unit Dwelling	639458	4846597
SR88	Sensitive	28 Brookridge Drive, Scarborough, Ontario M1P 3M1	Single-unit Dwelling	639436	4846667
SR89	Sensitive	8 Rosswood Crescent, Scarborough, Ontario M1P 3N2	Single-unit Dwelling	639409	4846754
SR90	Sensitive	20 Rosswood Crescent, Scarborough, Ontario M1P 3N2	Single-unit Dwelling	639399	4846845
SR91	Sensitive	32 Oakley Boulevard, Scarborough, Ontario M1P 3P3	Single-unit Dwelling	639361	4846929
SR92	Sensitive	44 Oakley Boulevard, Scarborough, Ontario M1P 3P4	Single-unit Dwelling	639327	4847024
SR93	Sensitive	54 Oakley Boulevard, Scarborough, Ontario M1P 3P4	Single-unit Dwelling	639329	4847099
SR94	Sensitive	18 Dogwood Crescent, Scarborough, Ontario M1P 3N6	Single-unit Dwelling	639282	4847185
SR95	Sensitive	40 Dogwood Crescent, Scarborough, Ontario M1P 3N6	Single-unit Dwelling	639256	4847268
SR96	Sensitive	54 Dogwood Crescent, Scarborough, Ontario M1P 3N6	Single-unit Dwelling	639232	4847344
CR1	Critical	1000 Ellesmere Road, Scarborough, Ontario M1P 5G2	Retirement Home	638637	4847470
CR2	Critical	24 Progress Avenue, Scarborough, Ontario M1P 2Y4	School	638427	4847784
CR3	Critical	3 Glamorgan Avenue, Scarborough, Ontario M1P 4N9	Day Care	638218	4847616
CR4	Critical	1939 Kennedy Road, Scarborough, Ontario M1P 2L9	Medical Centre	638351	4847584
CR5	Critical	2025 Midland Avenue, Scarborough, Ontario M1P 2Y9	Medical Centre	639164	4847634
CR6	Critical	1400 Kennedy Road, Scarborough, Ontario M1P 4V6	Retirement Home	638409	4846953
CR7	Critical	1261 Kennedy Road, Scarborough, Ontario M1P 2L4	School	638697	4846374
CR8	Critical	2500 Lawrence Avenue East Suite #207, Scarborough, Ontario M1P 2R7	School	639458	4845746
CR9	Critical	2411 Lawrence Avenue East, Scarborough, Ontario M1P 4X1	Retirement Home	638971	4845478
CR10	Critical	165 Lord Roberts Drive, Scarborough, Ontario M1K 3W5	School	639774	4844604
CR11	Critical	2425 Eglinton Avenue East Unit #12, Scarborough, Ontario M1K 5G8	Medical Centre	639523	4843580
CR12	Critical	21 Kenmark Boulevard, Scarborough, Ontario M1K 3N8	School	639671	4843347
CR13	Critical	2405 Eglinton Avenue East, Scarborough, Ontario M1K 2M5	Medical Centre	639462	4843522
CR14	Critical	959 Midland Avenue, Scarborough, Ontario M1K 4G4	School	640186	4844228
CR15	Critical	1051 Midland Avenue Unit #1085, Scarborough, Ontario M1K 4G7	Day Care	640040	4844698
CR16	Critical	1125 Midland Avenue, Toronto, Ontario M1K 4H2	Day Care	639980	4844860
CR17	Critical	9 Progress Avenue, Scarborough, Ontario M1P 5A4	Medical Centre	638359	4847687

The baseline ambient air quality levels were based on publicly available historical data from ambient air quality monitoring stations within Ontario. The following National Air Pollution Surveillance air quality monitoring stations were selected as representative of the ambient air quality within the Study Area:

- Roadside 401W Toronto
- Toronto North Downsview
- Toronto East
- Wallberg Toronto

These stations are located nearest to the Study Area and monitored (in combination) all relevant Criteria Air Contaminants for the assessment, since one station is unable to monitor all Criteria Air Contaminants. Where multiple stations were found to monitor a common Criteria Air Contaminants, the closest representative station was selected for the assessment.

Details of the air quality monitoring stations closest to the Study Area for each station are provided in **Table 4-6**.

Table 4-6: Air Quality National Air Pollution Surveillance Monitoring Stations' Information

Station Information	Roadside 401W Toronto	Toronto North Downsview	Toronto East	Wallberg Toronto
National Air Pollution Surveillance ID	60438	60440	60410	60439
Address	125 Resources Road	4905 Dufferin Street	Lawrence Avenue East & Kennedy Road	200 College Street
Years of Data Available	2017-2019 2018-2022	2018-2022	2018-2022	2015-2016
Latitude	43.7111	43.7804	43.7479	43.6590
Longitude	-79.5434	-79.4675	-79.2741	-79.3954
Station Type	Urban	Urban	Urban	Urban
Criteria Air Contaminants Measured	Acrolein, Acetaldehyde, Formaldehyde Benzene, 1,3-Butadiene, Benzo(a)pyrene	Carbon Monoxide, Sulfur Dioxide	Nitrogen Dioxide, Particulate Matter 2.5, Ozone	Acrolein, Acetaldehyde, Formaldehyde
Distance from Study Area	21.90 kilometre	14.92 kilometre	0.3 kilometre	12.96 kilometre

Ambient monitoring data was collected for all contaminants from the most recent data available, as per the averaging period(s) listed in **Table 4-7** through **Table 4-11**, and the following methodology was used for the calculations:

- 1 hour, 8 hour, and 24 hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from the representative air monitoring stations (the average value was calculated from the available years).
- Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative air monitoring station:
- The average value was calculated from the available years, when compared to the Ontario Ambient Air Quality Criteria.
- The average of the most recent 3 years used for Particulate Matter 2.5, when compared to Canadian Ambient Air Quality Standards.
- The maximum annual average value from the available years used for Nitrogen Dioxide and Sulfur Dioxide, when compared to the Canadian Ambient Air Quality Standards.

The background concentrations for each contaminant were also compared to the applicable Provincial Ambient Air Quality Criteria and Federal Canadian Ambient Air Quality Standards for the time averaging periods, as shown in **Table 4-11**.

Table 4-7: 90th Percentile Background Concentrations (2018 to 2022)

Criteria Air Contaminants	Station ID	Averaging Period[1] (hour)	90th Percentile Background Concentrations (micrograms per metre^3) 2018	90th Percentile Concentrations (micrograms per metre^3) 2019	90th Percentile Concentrations (micrograms per metre^3) 2020	90th Percentile Concentrations (micrograms per metre^3) 2021	90th Percentile Concentrations (micrograms per metre^3) 2022	90th Percentile Concentrations (micrograms per metre^3) 5-Year Average
NO_2	60410	1	43.6	43.6	35.6	37.6	39.6	39.6
NO_2	60410	24	36.5	35.6	29.1	32.5	31.8	33.5
NO_2	60410	Annual[1]	20.9	20.3	16.7	18.8	19.7	19.3
PM_{10} [2]	60410	24	23.6	23.0	21.8	23.8	21.0	22.8
$PM_{2.5}$	60410	24	12.8	12.4	11.8	12.9	11.4	12.3
$PM_{2.5}$	60410	Annual	7.18	6.99	6.65	7.41	6.64	6.97
CO	60440	1	0.36	0.35	0.33	0.35	0.34	0.35
CO	60440	8	0.35	0.35	0.31	0.35	0.33	0.34
SO_2	60440	1	1.38	0.83	1.10	1.10	1.10	1.10
SO_2	60440	10 min	2.28	1.37	1.82	1.82	1.82	1.82
Ozone	60410	1	84.7	80.6	82.6	84.7	80.6	82.6
Ozone	60410	24	74.9	70.0	75.2	75.5	72.1	73.2
Ozone	60410	Annual[1]	52.1	50.7	53.9	54.0	51.9	52.5
Benzene	60438	24	0.799	0.638	0.583	0.696	0.627	0.690
Benzene	60438	Annual	0.550	0.484	0.478	0.507	0.438	0.491
1,3-Butadiene	60438	24	0.081	0.072	0.051	0.080	0.076	0.079
1,3-Butadiene	60438	Annual	0.054	0.050	0.040	0.053	0.047	0.049
Benzo(a)pyrene	60438	24	1.32E-04	1.14E-04	4.95E-04	6.70E-05	1.07E-04	1.17E-04
Benzo(a)pyrene	60438	Annual	8.23E-05	7.18E-05	2.31E-04	4.62E-05	6.33E-05	9.89E-05

Notes: (1) Annual values were based on average of all available data and was not based on 90th percentile concentration for all contaminants.
(2) PM_{10} was not included in National Air Pollution Surveillance Station measurements, and therefore was estimated using $PM_{2.5}$ measurements, assuming a ratio of 1 mg/m^3 PM_{10} per 0.54 mg/m^3 of $PM_{2.5}$ as per Lall et. al, "Estimation of historical annual $PM_{2.5}$ exposures for health effects assessment", Atmospheric Environment 38 (2004).[1]

Table 4-8: 90th Percentile Background Concentrations (2015 to 2019)

Criteria Air Contaminants	Station ID	Averaging Period[1] (hour)	90th Percentile Concentrations (micrograms per metre^3) 2015	90th Percentile Concentrations (micrograms per metre^3) 2016	90th Percentile Concentrations (micrograms per metre^3) 2017	90th Percentile Concentrations (micrograms per metre^3) 2018	90th Percentile Concentrations (micrograms per metre^3) 2019	90th Percentile Concentrations (micrograms per metre^3) 5-Year Average
Acetaldehyde	60438 & 60439	0.5	5.88	4.88	11.4	7.72	8.93	8.38
Acetaldehyde	60438 & 60439	24	1.99	1.65	3.85	2.61	3.02	2.83
Formaldehyde	60438 & 60439	24	3.80	2.60	4.20	2.43	2.87	3.15
Acrolein	60438 & 60439	1	0.169	0.159	0.234	0.149	ND	0.197
Acrolein	60438 & 60439	24	0.070	0.065	0.096	0.061	ND	0.081

Note: ND – Non-detect; value was below detection limit

1. Lall, R., M. Kendall, K. Ito and G.D. Thurston, 2004: Estimation of historical annual $PM_{2.5}$ exposures for health effects assessment (Atmospheric Environment. 38, 2004), 5217-5226.

Table 4-9: 98th Percentile Background Concentrations (2018 to 2022)

Criteria Air Contaminants	Station ID	Averaging Period (hour)	98th Percentile Concentrations (micrograms per metre^3) 2018	98th Percentile Concentrations (micrograms per metre^3) 2019	98th Percentile Concentrations (micrograms per metre^3) 2020	98th Percentile Concentrations (micrograms per metre^3) 2021	98th Percentile Concentrations (micrograms per metre^3) 2022	3-Year Average (1-Hour/24-Hour) or Maximum Annual [1]
NO_2	60410	1	93.1	104	83.2	93.1	93.1	96.8
NO_2	60410	Annual	20.9	20.3	16.7	18.8	19.7	20.9
$PM_{2.5}$	60410	24	19.5	18.7	18.8	22.5	16.3	20.3
$PM_{2.5}$	60410	Annual	7.2	7.0	6.7	7.4	6.6	7.19

Table 4-10: 99th Percentile Background Concentrations (2018 to 2022)

Criteria Air Contaminants	Station ID	Averaging Period (hour)	99th Percentile Concentrations (micrograms per metre^3) 2018	99th Percentile Concentrations (micrograms per metre^3) 2019	99th Percentile Concentrations (micrograms per metre^3) 2020	99th Percentile Concentrations (micrograms per metre^3) 2021	99th Percentile Concentrations (micrograms per metre^3) 2022	Annual Maximum
SO_2	60440	1	14.9	14.9	11.6	16.9	17.1	16.3

Table 4-11: Comparison of Background Ambient Air Quality Data to Ambient Air Criteria/Standard

Criteria Air Contaminants	Station ID	Averaging Period (hour)	Years	Average of Background Data (10°C & 1 atmosphere) (micrograms per metre^3)	Percentile	Threshold (micrograms/metre^3)	Source	% of Standard Limit
NO_2	60410	1	2018-2022	39.6	90th	400	Ambient Air Quality Criteria	10%
NO_2	60410	1	2018-2022	96.8	98th	119	Canadian Ambient Air Quality Standards (2020)	82%
NO_2	60410	1	2018-2022	96.8	98th	83.2	Canadian Ambient Air Quality Standards (2025)	**116%**
NO_2	60410	24	2018-2022	33.5	90th	200	Ambient Air Quality Criteria	17%
NO_2	60410	Annual	2018-2022	20.9	Mean	33.7	Canadian Ambient Air Quality Standards (2020)	62%
NO_2	60410	Annual	2018-2022	20.9	Mean	23.8	Canadian Ambient Air Quality Standards (2025)	88%
CO	60440	1	2018-2022	350	90th	36200	Ambient Air Quality Criteria	1%
CO	60440	8	2018-2022	339	90th	15700	Ambient Air Quality Criteria	2%
SO_2	60440	1	2018-2022	16.3	99th	193	Canadian Ambient Air Quality Standards (2020)	8%
SO_2	60440	1	2018-2022	16.3	99th	179	Canadian Ambient Air Quality Standards (2025)	9%
SO_2	60440	1	2018-2022	1.10	90th	106	Ambient Air Quality Criteria	1%
SO_2	60440	10 minutes	2018-2022	1.82	90th	178	Ambient Air Quality Criteria	1%
SO_2	60440	Annual	2018-2022	0.490	Mean	10.6	Ambient Air Quality Criteria	5%
SO_2	60440	Annual	2018-2022	0.72	Mean	13.8	Canadian Ambient Air Quality Standards (2020)	5%
SO_2	60440	Annual	2018-2022	0.72	Mean	11.0	Canadian Ambient Air Quality Standards (2025)	7%
PM_{10}	60410	24	2018-2022	22.8	90th	50.0	Ambient Air Quality Criteria	46%
$PM_{2.5}$	60410	24	2018-2022	20.3	98th	27.0	Canadian Ambient Air Quality Standards	75%
$PM_{2.5}$	60410	Annual	2018-2022	7.19	Mean	8.80	Canadian Ambient Air Quality Standards	82%
Acetaldehyde	60438/60439	30 minutes	2015-2019	8.38	90th	500	Ambient Air Quality Criteria	2%
Acetaldehyde	60438/60439	24	2015-2019	2.83	90th	500	Ambient Air Quality Criteria	1%
Acrolein	60438/60439	1	2015-2019	0.197	90th	4.50	Ambient Air Quality Criteria	4%
Acrolein	60438/60439	24	2015-2019	0.081	90th	0.40	Ambient Air Quality Criteria	20%
Benzene	60438	24	2018-2022	0.690	90th	2.30	Ambient Air Quality Criteria	30%
Benzene	60438	Annual	2018-2022	0.490	Mean	0.45	Ambient Air Quality Criteria	**109%**
Benzo(a)pyrene	60438	24	2018-2022	1.17E-04	90th	5.00E-05	Ambient Air Quality Criteria	**234%**
Benzo(a)pyrene	60438	Annual	2018-2022	9.89E-05	Mean	1.00E-05	Ambient Air Quality Criteria	**989%**
1,3-Butadiene	60438	24	2018-2022	8.00E-02	90th	10.0	Ambient Air Quality Criteria	1%
1,3-Butadiene	60438	Annual	2018-2022	5.00E-02	Mean	2.00	Ambient Air Quality Criteria	3%
Formaldehyde	60438/60439	24	2015-2019	3.15	90th	65.0	Ambient Air Quality Criteria	5%
Ozone	60410	1	2018-2022	82.6	90th	-	-	-
Ozone	60410	24	2018-2022	73.2	90th	-	-	-

Notes: (1) Exceedances to Air Quality criteria are shown in **red**.

(2) Standard value from Canadian Ambient Air Quality Standards for NO_2 is 42 parts per billion for the 1-hour averaging period and 12 parts per billion for the Annual averaging period. Standard converted to micrograms/metre^3 using a temperature of 10°C and pressure of 1 atmosphere. The statistical form of the 1-hour background concentration is presented as a 3-year average of the 98th percentile of the daily maximum 1-hour average concentrations. The annual background concentration is presented as an average over a single calendar year of all 1-hour average concentrations.

(3) Standard value from Canadian Ambient Air Quality Standards for SO_2 is 65 parts per billion for the 1-hour averaging period and 4.0 parts per billion for the Annual averaging period. Standard converted to micrograms/metre^3 using a temperature of 10°C and pressure of 1 atmosphere. The statistical form of the 1-hour background concentration is presented as a 3-year average of the 99th percentile of the daily maximum 1-hour average concentrations.

(4) The statistical form of the $PM_{2.5}$ 24-hour background concentration is presented as a 3-year average of the 98th percentile of the daily 24-hour average concentrations. The annual background concentration is presented as a 3-year average of the daily 24-hour average concentrations.

As noted in red font above in **Table 4-11**, two contaminants were found to exceed the Provincial Ambient Air Quality Criteria in the existing ambient air levels. The exceedances for NO_2 and Benzo(a)pyrene are based on the existing background levels measured within the Study Area.

4.3 Socio-Economic and Land Use

This section provides a summary of the methodology and existing conditions identified in the Socio-Economic and Land Use Study which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project to assess potential adverse impacts to socio-economic features and land use, including property, aesthetic/visual, safety, and light spillage associated with the Project. The fulsome Socio-Economic and Land Use Study is included in **Appendix A**.

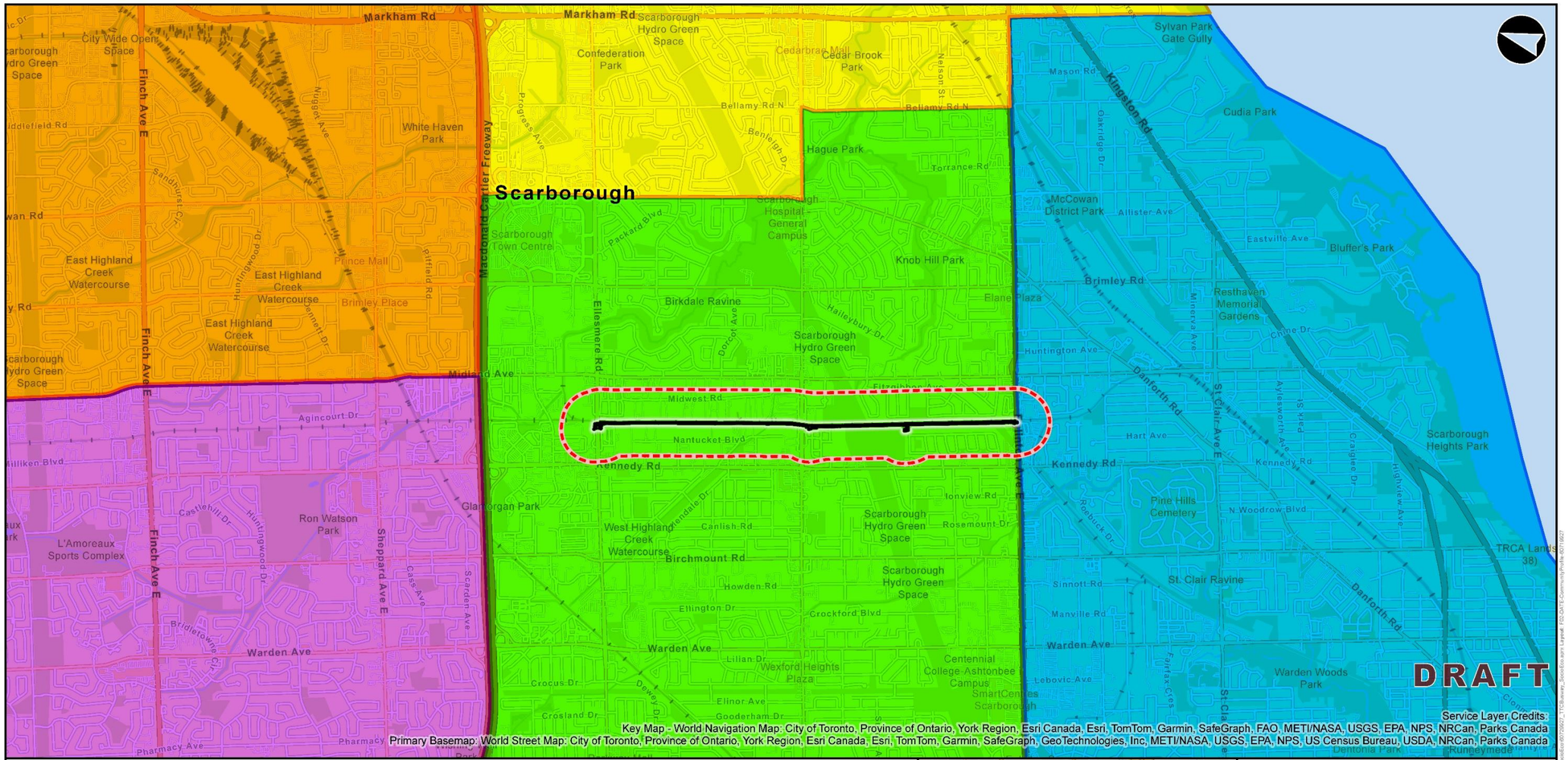
4.3.1 Methodology

The Socio-Economic and Land Use Study Area includes the existing corridor and a boundary that extends 300 metres in all directions. The Study Area identifies the area to be investigated as part of the Socio-Economic and Land Use Study. The Study Area overlaps with several Neighbourhoods. The Neighbourhoods intersected by the Study Area are shown in **Figure 4-2** and include Scarborough North, Scarborough Centre-Don Valley East, Scarborough Southwest, Scarborough-Guildwood-Rouge Park, and Agincourt.

The methodology for the Study involves the completion of three main tasks:

- A background review of applicable provincial, municipal and other relevant policy documents to identify and understand the planning framework and current land use designations affecting the Study Area.
- An existing conditions review was conducted within the Study Area, which included neighbourhood profiles and community services and facilities present. These categories broadly describe the socio-economic and land use environment with the Study Area that the Project may interact with. Neighbourhood profiles were developed using municipal data portals, Census information, mapping software and other desktop resources. Community Amenities were captured using Google maps and the City of Toronto Open Data.
- Documentation of Potential Impacts, Mitigation Measures, and Monitoring Activities to determine potential adverse impacts identified, appropriate mitigation measures and monitoring requirements.

Figure 4-2: Study Area Neighbourhoods



LEGEND

60% Design Project Components

- Study Area Limit
- Construction Disturbance Area

Federal Electoral Districts

- Scarborough Centre
- Scarborough North
- Scarborough Southwest
- Scarborough--Agincourt
- Scarborough--Guildwood

TTC Scarborough
Rapid Transit Busway Conversion Project
Socio-economic Report

Study Area Neighbourhoods

0 0.5 1 2 KM

WGS 1984 UTM Zone 17N

Data Sources:
Contains information licensed under the Open Government License - Canada.
Project components created by AECOM.

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Figure: 4-2

4.3.2 Existing Conditions Review

4.3.2.1 Neighbourhood Profiles

4.3.2.1.1 Land Use and Built Form Patterns

The Study Area features many different land use and density types, including residential uses. Between Ellesmere Road and Lawrence Avenue East, a majority of the land use and buildings are dedicated for either commercial or industrial uses. South of Lawrence Avenue is largely represented by low-rise, mid-rise and some high-rise residential uses. This portion of the Study Area also contains utility corridors and greenspace. The low-rise residential areas along the existing Line 3 corridor and south of Lawrence Avenue East is divided by a noise attenuation wall. At the southern end of the Study Area, the majority of the land use is transit/transportation with Line 2 and the future Line 5 Kennedy Station, Kennedy GO Station and commuter parking lots, as well as low-rise residential areas adjacent to the station.

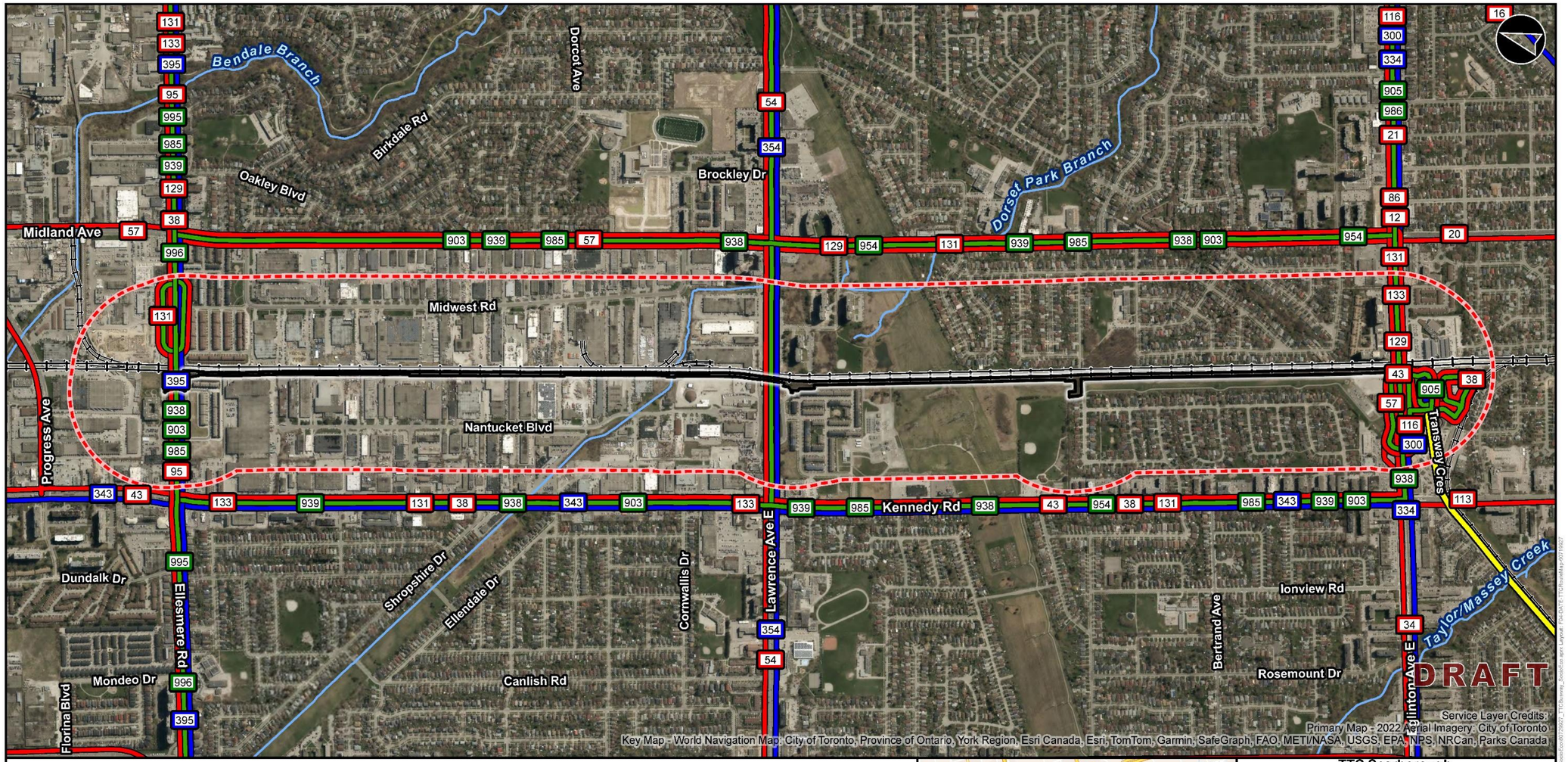
The Study Area features many different land use and density types, including residential uses. Between Ellesmere Road and Lawrence Avenue East, a majority of the land use and buildings dedicated for either commercial or industrial uses. South of Lawrence Avenue is largely represented by low-rise, mid-rise and some high-rise residential uses. This portion of the Study Area also contains utility corridors and greenspace. The low-rise residential areas along the existing Line 3 corridor and south of Lawrence Avenue East is divided by a noise attenuation wall. At the southern end of the Study Area, the majority of the land use is transit/transportation with Line 2 and the future Line 5 Kennedy Station, Kennedy GO Station and commuter parking lots, as well as low-rise residential areas adjacent to the station.

4.3.2.1.2 Transit and Transportation Network

The Study Area is served by a variety of transit and transportation options. Major roads intersecting in the Study Area includes Ellesmere Road, Kennedy Road, Midland Avenue, Lawrence Avenue East, and Eglinton Avenue East. All public transit routes that can be accessed within the Study Area are shown on **Figure 4-3** and are described below in **Table 4-12**.

Currently, buses serving the Line 3 bus replacement depart at Kennedy Station via the West Service Road, and travel northbound along Kennedy Road; followed by eastbound on Ellesmere Road; northbound on Brimley Road, and then eastbound on Triton Road to reach Scarborough Centre Station. Southbound service from Scarborough Centre Station travels westbound along Triton Road; southbound on Brimley Road; westbound on Ellesmere Road, and then southbound on Midland Avenue before returning to Kennedy Station.

Figure 4-3: Toronto Transit Commission Route Map



LEGEND

60% Design Project Components
- Study Area Limit
- Construction Disturbance Area

Subway Route
- Line 2 (Bloor - Danforth)

Bus Routes
- Limited Service Route
- Express Service Route
- Regular Service Route

General Features
- Main Railway
- Spur Railway
- Watercourse

TTC Scarborough Rapid Transit Busway Conversion Project

Toronto Transit Commission Route Map

0 100 200 400 600 800 Meters

WGS 1984 UTM Zone 17N

Data Sources:
Contains information licensed under the Open Government License - Ontario and Toronto. Land use designations created from the Toronto Official Plan - January 2024. Project components created by AECOM.

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Figure: 4-3

Table 4-12: Public Transit Options within the Study Area

Route	Mode	Service Area, Connections, Variations
95 – York Mills	Bus	■ Operates locally east-west between York Mills Station and Kingston Road ■ Intersects with the Study Area at Kennedy Road and Midland Avenue along Ellesmere Road.
995 – York Mills Express	Bus	■ Operates express east-west between York Mills Station and Military Trail. ■ Connects at University of Toronto GO Station at Military Trail. ■ Intersects with the Study Area at Kennedy Road and Midland Avenue along Ellesmere Road.
996 – Wilson Express	Bus	■ Operates express east-west between Humber College Bus Terminal and Scarborough Centre Station. ■ Humber College Bus Terminal connects to GO, York Region Transit, MiWay, Brampton Transit and Zum transit services. ■ Intersects with the Study Area at Kennedy Road along Ellesmere Road.
43 - Kennedy	Bus	■ Operates locally north-south between Steeles Avenue East and Kennedy Station. ■ Intersects with the Study Area at Ellesmere Road, Lawrence Avenue East, and Eglinton Avenue East, along Kennedy Road.
57 – Midland	Bus	■ Operates locally north-south between Milliken GO Station and Kennedy Station. ■ Intersects with the Study Area at Ellesmere Road, Lawrence Avenue and Eglinton Avenue East along Midland Avenue and Eglinton Avenue.
38 – Highland Creek	Bus	■ Operates locally east-west between Kennedy Station, the University of Toronto Scarborough Campus and the Rouge Hill GO Station. ■ Intersects with the Study Area at Ellesmere Road, Lawrence Avenue East and Eglinton Avenue East along Kennedy Road and Midland Avenue.
129 – McCowan North	Bus	■ Operates locally north-south between Major Mackenzie Drive East (as a contracted service for York Region Transit) and Kennedy Station. ■ A second branch operates locally between Steeles Avenue East and Kennedy Station. ■ Intersects with the Study Area at Ellesmere Road, Lawrence Avenue and Eglinton Avenue East along Midland Avenue and Kennedy Road.
131 – Nugget	Bus	■ Operates locally east-west between Kennedy Station and Morningview Trail. ■ Intersects with the Study Area at Ellesmere Road, Lawrence Avenue, Eglinton Avenue East, along Midland Avenue and Kennedy Road.
133 – Neilson	Bus	■ Operates locally north-south between Finch Avenue East and Kennedy Station. ■ Intersects with the Study Area at Ellesmere Road, Kennedy Road, Eglinton Avenue East, along Midland Avenue and Kennedy Road.
54 – Lawrence East	Bus	■ Operates locally east-west between Eglinton Station and Starspray Loop on Lawrence Avenue East, with a second branch between Eglinton Station and Orton Park Drive. ■ Intersects with the Study Area at Kennedy Road and Midland Avenue along Lawrence Avenue East.
954 – Lawrence East Express	Bus	■ Operates express east-west between Kennedy Station and Starspray Loop on Lawrence Avenue East. ■ Intersects with the Study Area at Kennedy Road and Midland Avenue at Lawrence Avenue East, and along Midland Avenue and Kennedy Road
903 – Kennedy-Scarborough Centre Express	Bus	■ Operates express north-south between Centennial College Bus Terminal to Kennedy Station. ■ Intersects with the Study Area at Ellesmere Road, Kennedy Road, Eglinton Avenue East, along Midland Avenue and Kennedy Road.
939 – Finch Express	Bus	■ Operates express east-west between Finch West Station to Kennedy Station. ■ Intersects with the Study Area at Ellesmere Road, Kennedy Road, Eglinton Avenue East, along Midland Avenue and Kennedy Road.
985 – Sheppard East Express	Bus	■ Operates express east-west between Don Mills Station to Kennedy Station on Sheppard Avenue East and Midland Avenue. ■ Intersects with the Study Area at Ellesmere Road, Kennedy Road, Eglinton Avenue East, along Midland Avenue and Kennedy Road.
Line 2 – Bloor-Danforth to Kennedy Station	Subway	■ Operates east-west between Kipling Station to Kennedy Station. ■ Intersects with the Study Area at Kennedy Road and Eglinton Avenue East.
34A – Eglinton East	Bus	■ Operates locally east-west between Eglinton Station to Kennedy Station. ■ Intersects with the Study Area at Kennedy Road and Eglinton Avenue East.
905 – Eglinton East Express	Bus	■ Operates express east-west between University of Toronto Scarborough Campus to Kennedy Station. ■ Intersects with the Study Area at Midland Avenue and Eglinton Avenue East.
986 – Scarborough Express	Bus	■ Operates express east-west between Kennedy Station to Meadowvale Loop. ■ Intersects with the Study Area at Midland Avenue and Eglinton Avenue East.
116 - Morningside	Bus	■ Operates locally north-south between Kennedy Station to Finch Avenue East. ■ Intersects with the Study Area at Midland Avenue and Eglinton Avenue East.
86 – Scarborough	Bus	■ Operates locally east-west between Meadowvale Loop to Kennedy Station. ■ Intersects with the Study Area at Midland Avenue and Eglinton Avenue East.
21 – Brimley	Bus	■ Operates locally north-south between Steeles Avenue East to Kennedy Station along Brimley Road. ■ Intersects with the Study Area at Midland Avenue and Eglinton Avenue East.

Since the closure of Line 3, several local bus routes have been extended to provide service between Kennedy and Scarborough Centre stations, with an intermediate stop at Ellesmere Road and Lawrence Avenue East. These routes include: 129 McCowan North, 131 Nugget, 133 Neilson, 903 Kennedy Station-Scarborough Express, 938 Highland Creek Express, 939 Finch Express, 954 Lawrence East Express, and 985 Sheppard East Express.

4.3.2.2 Pedestrian and Cycling Network

The major roads are serviced by concrete sidewalks and signalized intersections facilitating pedestrian crossing. Large lot sizes and block sizes reduce pedestrian connectivity.

The Study Area contains the Gatineau Hydro Corridor that runs parallel to the busway and connections to the Meadoway, which allows for cycling and pedestrian connectivity. However, the rest of the Study Area is generally not conductive to cycling due to the high volume of vehicle traffic and lack of dedicated cycling infrastructure such as bike lanes or multi-use paths.

4.3.2.3 Demographics

The following section provides key demographic data available from the 2021 Census to outline the existing social and economic conditions in the Study Area. To increase accessibility, availability and transparency of data, this study implements boundaries that more accurately reflects data pertaining to current census subdivisions. As per the 2023 Representation Order (*Electoral Boundaries Readjustment Act*: Preserving Provincial Representation in the *House of Commons Act*., 2023) the jurisdiction and boundary of federal electoral districts were reassigned. Subsequently, this created two new census subdivisions, with the merger of Scarborough Centre and Don Valley East to create the Scarborough Centre-Don Valley East federal electoral district and Scarborough Guildwood and Rouge Park to create the Scarborough Guildwood-Rouge Park federal electoral district as reflected in the latest data from the “2021 Census Profile, 2021 Census of Population” (Statistics Canada, 2023).

Table 4-13 provides information regarding the population and area of the five federal electoral districts within and adjacent to the Study Area. Population is shown to be either increasing slightly, but no more than 1.6% which is seen in Scarborough Southwest, or decreasing as shown in Scarborough North, which experienced the greatest population change, decreasing 4.1% from the previous 2016 Census Data population.

Table 4-13: Total Area, Population and Population Density for Neighbourhoods in the Study Area, 2021

Federal Electoral District	Total Area (square kilometres)	Population	Population Density (Persons per square kilometres)	Population Change from 2016 to 2021 (percentage)
Agincourt	21.35	104,423	4981.1	-1.1%
Scarborough Centre-Don Valley East	50.9 (28.12)*	208,143 (113, 104)*	4,089.2 (4021.6)*	+0.46% (+0.4%)*
Scarborough Guildwood-Rouge Park	79.17 (25.94)*	205,703 (103,449)*	2598.2 (3988.2)*	+1.0% (0.51%)*
Scarborough North	30.37	94,717	3,119.1	-4.1%
Scarborough Southwest	28.12	111,994	3982.0	+1.6%

It is notable that the total area of Scarborough Centre-Don Valley East and Scarborough Guildwood-Rouge Park federal electoral districts have increased substantially in area from the 2023 Representation Order from Elections Canada, and bracketed areas indicated with a (*) show values for the pre-merger areas of Scarborough Centre and Guildwood Federal Electoral Districts.

Table 4-14 provides the proportion of population by age group of the five federal electoral districts. In all five federal electoral districts, the distribution across age groups is relatively even and differences within the same age group between federal electoral districts are almost always less than 2%. More than half of the population within the Study Area is within the 25-64 age demographic, however Agincourt has a notably higher distribution of those aged 65 and over, with 19.2% between 65 and 84 years old and 4.3% over 85 years old.

Table 4-14: Proportion of Population by Age Group for Neighbourhoods in the Study Area, 2021

Federal Electoral District	Total Population	Less than 15	15 to 24	25 to 44	45 to 64	65 to 84	Greater Than 85
Agincourt	104,423	12.8%	11.2%	25.5%	27.1%	19.2%	4.3%
Scarborough Centre-Don Valley East	208,143	15.1%	12.1%	27.5%	27.7%	14.7%	2.9%
Scarborough Guildwood-Rouge Park	205,703	15.2%	13.2%	25.0%	27.5%	17.0%	2.2%
Scarborough North	94,717	14.3%	12.8%	24.6%	27.9%	17.8%	2.6%
Scarborough Southwest	111,994	16.4%	12.2%	26.7%	28.3%	13.9%	2.5%

Table 4-15 provides the proportion of education attainment in the five federal electoral districts. There are slight differences in the proportion in the highest level of educational attained with roughly 55% of residents having a post-secondary certificate, degree, or diploma and roughly 28% having a secondary school diploma or equivalency. The largest differences exist in Scarborough North which has the highest proportion with no certificate, diploma, or degree at 21.2% and the lowest attainment of post-secondary certificate, degree or diploma, certificate at 49.3%.

Table 4-15: Proportion Showing Highest Level of Education Attainment for Neighbourhoods in the Study Area, 2021

Federal Electoral District	No Certificate (Diploma or Degree)	Secondary-School (Diploma or Equivalency Certificate)	Post-Secondary Certificate (Degree or Diploma)
Agincourt	18.6%	26.8%	54.7%
Scarborough Centre-Don Valley East	16.5%	27.8%	55.7%
Scarborough Guildwood-Rouge Park	14.1%	28.7%	57.2%
Scarborough North	21.2%	29.4%	49.3%
Scarborough Southwest	16.9%	27.7%	55.4%

Table 4-16 provides the proportion of immigrants, non-immigrants, and those with permanent residence within the five federal electoral districts. Scarborough Guildwood-Rouge Park and Scarborough Southwest are relatively even between immigrants and non-immigrants and is similarly true in but to a lesser extent in the Scarborough Centre-Don Valley East neighbourhood. Agincourt and Scarborough have higher proportions of immigrant residents with both at 64% of the total population.

Table 4-16: Proportion of Immigrants, Non-Immigrants and Permanent Residence for Neighbourhoods in the Study Area, 2021

Federal Electoral District	Non-Immigrants as a Portion of Total Population	Immigrants as a Portion of Total Population	Permanent Residents as a Portion of Total Population
Agincourt	30%	64%	6%
Scarborough Centre-Don Valley East	43%	53%	5%
Scarborough-Guildwood-Rouge Park	47%	49%	3%
Scarborough North	32%	64%	4%
Scarborough Southwest	49%	47%	4%

Table 4-17 provides the household size within the five federal electoral districts. The amount of people living in each neighbourhood varies between each federal electoral district with Scarborough Southwest having a relatively higher proportion of single-person households at 27.5% and Scarborough North having the lowest proportion at 15.5%. Scarborough North subsequently has the highest number of households with five persons or more. Most households however have at two persons with Scarborough Southwest having the lowest proportion at 72.5% and Scarborough North having the highest at 84.5%.

Table 4-17: Proportion of Household Sizes for Neighbourhoods in the Study Area, 2021

Federal Electoral District	One Person	Two Persons	Three Persons	Four Persons	Five of More Persons
Agincourt	23.9%	30.2%	18.8%	14.9%	12.%
Scarborough Centre-Don Valley East	25.9%	28.5%	18.7%	15.5%	11.3%
Scarborough Guildwood-Rouge Park	19%	26.7%	18.8%	18.7%	16.7%
Scarborough North	15.5%	26.2%	20.1%	18.7%	19.5%
Scarborough Southwest	27.5%	27.3%	17.4%	16.2%	11.5%

Table 4-18 provides the place of national origin for immigrated residents within the five federal electoral districts. Overall, immigration is most greatly represented from Asia, where it is roughly 80% in both Agincourt and Scarborough North federal electoral districts. Notably, Scarborough Guildwood-Rouge Park has the highest immigration from the Americas at 23.5% Scarborough Centre-Don Valley East has the highest immigration from Europe at 15.1% and Scarborough Southwest has the highest proportion from Africa at 8.9%.

Table 4-18: Proportion Showing Place of National Origin for Immigrated Residents for Neighbourhoods in the Study Area, 2021

Federal Electoral District	Americas	Europe	Africa	Asia	Australia and Oceania
Agincourt	8.4%	6.7%	4.4%	80.4%	0.1%
Scarborough Centre-Don Valley East	14.2%	15.1%	6.3%	64.3%	0.2%
Scarborough Guildwood-Rouge Park	23.5%	11.4%	5.3%	59.6%	0.2%
Scarborough North	13.6%	3.3%	3.3%	79.7%	0.2%
Scarborough Southwest	14.9%	13.1%	8.9%	62.9%	0.2%

Table 4-19 provides the total after-tax income groups in 2020 for the population aged 15 years and over in private households for the five federal electoral districts. If the total

after-tax household income of at least two persons is 37,480 or less, this would be considered a low-income household. Across the federal electoral districts household income groups are typically within about two percent of each other. However, there is a higher proportion of low-income households within Agincourt and Scarborough Southwest both approximately 20% of the total population, and Scarborough North has the highest proportion of household incomes greater than $100,000.00 at 34.1%.

Table 4-19: Total After-tax Income Groups in 2020 for Populations Aged 15 Years and Over in Private Households for Neighbourhoods in the Study Area, 2020

Federal Electoral District	Low Income Households	Less Than $20,000	$20,000 to $39,999	$40,000 to $60,000	$60,000 to $79,999	$80,000 to $99,999	Greater Than $100,000
Agincourt	19.6%	5.5%	18.8%	17.4%	16.0%	13.2%	29%
Scarborough Centre-Don Valley East	17.5%	5.0%	16.7%	18.4%	16.8%	13.8%	29.4%
Scarborough-Guildwood-Rouge Park	18.9%	6.2%	17%	16.9%	17.1%	13.3%	29.4%
Scarborough North	14%	3.6%	14.3%	16.2%	17%	14.8%	34.1%
Scarborough Southwest	20.1%	6.8%	17.6%	17.0%	15.1%	12.3%	31.2%

Table 4-20 provides the age of construction for private dwellings as their proportion of all dwellings for the five federal electoral districts. For all neighbourhoods, 70% of all private dwellings were built before 1990, and for Scarborough Centre-Don Valley East and Scarborough Southwest 34.7% and 38.7% of private dwellings were built 1960 or earlier. Notably almost half of private dwellings in Agincourt were built from 1961-1980. Areas of newer construction include Scarborough Guildwood-Rouge Park and Scarborough North were approximately 15% of private dwellings were built from 2001 and onwards.

Table 4-20: Age of Construction for Private Dwellings for Neighbourhoods in the Study Area, 2020

Federal Electoral District	1960 or earlier	1961 to 1980	1981 to 1990	1991 to 2000	2001 to 2010	2011 or after
Agincourt	8.8%	48%	18.2%	9.5%	6.1%	9.4%
Scarborough Centre-Don Valley East	34.7%	40.4%	6.5%	8.6%	5.5%	4.3%
Scarborough Guildwood-Rouge Park	12.7%	37%	20%	13%	12.8%	4.5%
Scarborough North	4.8%	38.5%	29.3	12.3%	11.3%	3.9%
Scarborough Southwest	38.7%	29.8%	8.6%	8.2%	7.8%	6.9%

Table 4-21 provides the ownership of private dwellings and the structural type of dwelling used by residents for the five federal electoral districts. Ownership is higher in Agincourt, Scarborough Guildwood-Rouge Park and especially Scarborough North where ownership is approximately 78%. The proportion between owned and rented properties is approximately even in Scarborough Centre-Don Valley East where there are marginally more renters and in Scarborough Southwest where ownership is more common.

Housing types typically favour single-detached houses and both lower and higher-density apartments with the latter receiving the higher proportion. Scarborough Guildwood-Rouge, which has a high home ownership, has by far the highest proportion of single-detached houses at 52.5%; where most private dwellings were built between 1961 and 1980. Agincourt on the hand has the highest proportion of apartments five stories or more, and has home ownership levels of 66.2%, where most private dwellings in this neighbourhood were built between 1961 and 1980.

Table 4-22 provides the labour force statistics for the five federal electoral districts. Labour force is defined as the total populated aged 15 years or older participating in work. Labour participation is relatively even across neighbourhoods ranging from 56 to 61%, with the highest rates seen in Scarborough Centre-Don Valley East and the lowest in Agincourt. Unemployment is notably higher than the national average of 10.3%, and ranges from 14.9 to 17%, with the highest unemployment seen in Scarborough North and the lowest in Scarborough North and the lowest in Scarborough Guildwood-Rouge Park. It is worth noting that the lower levels of employment may have been reflective of the Covid-19 pandemic.

Table 4-23 provides the occupational sector representation for the five federal electoral districts. Occupational sectors were determined by the National Occupational Classification*. Overall, representation across occupational sectors is relatively even, however favours sales and service occupations representing roughly 30% of all jobs, while those in Arts, Culture, Community and Government Services represented the lowest proportion from 10 to 15%.

Table 4-24 indicates the type of transportation used to commute to work by mode within the five federal electoral districts. Commuting by automobile is by far the most common method of travelling to work and is with Agincourt, Scarborough Guildwood-Rouge Park, and Scarborough North having roughly 75% of its residents commuting by private vehicle, Scarborough Centre-Don Valley East and Scarborough Southwest have seen a lower proportion in this form of commuter mode at 66.1% and 61.7% respectively. Scarborough Southwest and Scarborough Centre-Don Valley East are also noted by their higher uptake of public transit at 31.0% and 26.7%, whereas the rest of the Study Area is roughly 20 to 21%. Other commuter modes such as walking are less represented at less than 5% and biking is below 1%.

Table 4-21: Ownership of Private Dwellings and Their Structural Type Dwellings for Neighbourhoods in the Study Area, 2020

Federal Electoral District	Number of Dwellings	Owned	Rented	Single-detached House	Semi-detached House	Row House	Duplex	Apartment 5 Stories or Less	Apartment Greater than 5 Stories	Other Single-attached House	Movable Dwelling
Agincourt	46,155	66.2%	33.8%	29%	3.5%	11.7%	4.0%	4.3%	47.2%	0.2%	0.01%
Scarborough Centre -Don Valley East	41,600	49.1%	50.9%	29.2%	4.8%	8.6%	6.2%	11.6%	39.5%	0.1%	0.01%
Scarborough Guildwood - Rouge Park	37,795	71.4%	25.9%	52.5%	4.2%	12.5%	7.4%	4.3%	19%	0.1%	0.01%
Scarborough North	36,315	77.6%	22.4%	38.3%	8.8%	16.3%	8%	4.9%	23%	0.6%	0.03%
Scarborough Southwest	45,605	54.3%	45.7%	34%	5.4%	5.4%	7.4%	10.5%	36.5%	0.7%	0.01%

Table 4-22: Labour Force Status for Neighbourhoods in the Study Area, 2021

Federal Electoral District	Labour Force	Labour Participation Rate	Unemployment
Agincourt	60,170	55.9%	16.2%
Scarborough Centre-Don Valley East	57,505	61.1%	15.7%
Scarborough Guildwood-Rouge Park	57,505	59.8%	14.9%
Scarborough North	56,090	56.6%	17%
Scarborough Southwest	60,290	59.9%	16.5%

Table 4-23: Representation Occupation Sector* for Neighbourhoods in the Study Area, 2021

Federal Electoral District	Office	Science and Health	Arts& Culture, Community and Government	Sales and Service	Trades, Resources and Manufacturing
Agincourt	20.1%	19.4%	11.9%	28%	20.6%
Scarborough Centre-Don Valley East	20.1%	17.4%	12.9%	28.3%	21.3%
Scarborough Guildwood-Rouge Park	21.1%	18.5%	14.1%	26%	20.2%
Scarborough North	18.3%	16.6%	10.3%	29.9%	25%
Scarborough Southwest	20.8%	16.8%	15.1%	27.3%	20.1%

Table 4-24: Mode of Transportation for Commuters for Neighbourhoods in the Study Area, 2021

Federal Electoral District	Automobile	Public Transit	Walking	Bicycle	Other
Agincourt	73.5%	21.0%	2.7%	0.5%	2.3%
Scarborough Centre-Don Valley East	66.1%	26.7%	4.0%	0.5%	2.7%
Scarborough Guildwood-Rouge Park	74.1%	20.8%	2.0%	0.2%	2.8%
Scarborough North	75.6%	20.1%	2.1%	0.4%	1.9%
Scarborough Southwest	61.7%	31.0%	3.8%	0.5%	3.0%

4.3.2.4 Community Amenities

Community Amenities provide essential program delivery to neighbourhoods by contributing to the social, economic, and cultural fabric of a city. These essential services which may include but are not limited to childcare centres, educational facilities, healthcare facilities, libraries, places of worship and recreation facilities and are vital to building livable communities. The following community amenities were identified within the Study Area shown on **Figure 4-4** and summarized in **Table 4-25** below.

Table 4-25: Available Neighbourhood Community Services & Facilities

Community Service and Facility	Quantity
Ambulance Station	2
Arena	1
Childcare Facility	1
Community Centre	1
Elementary School	3
Place of Worship	5
Park	9

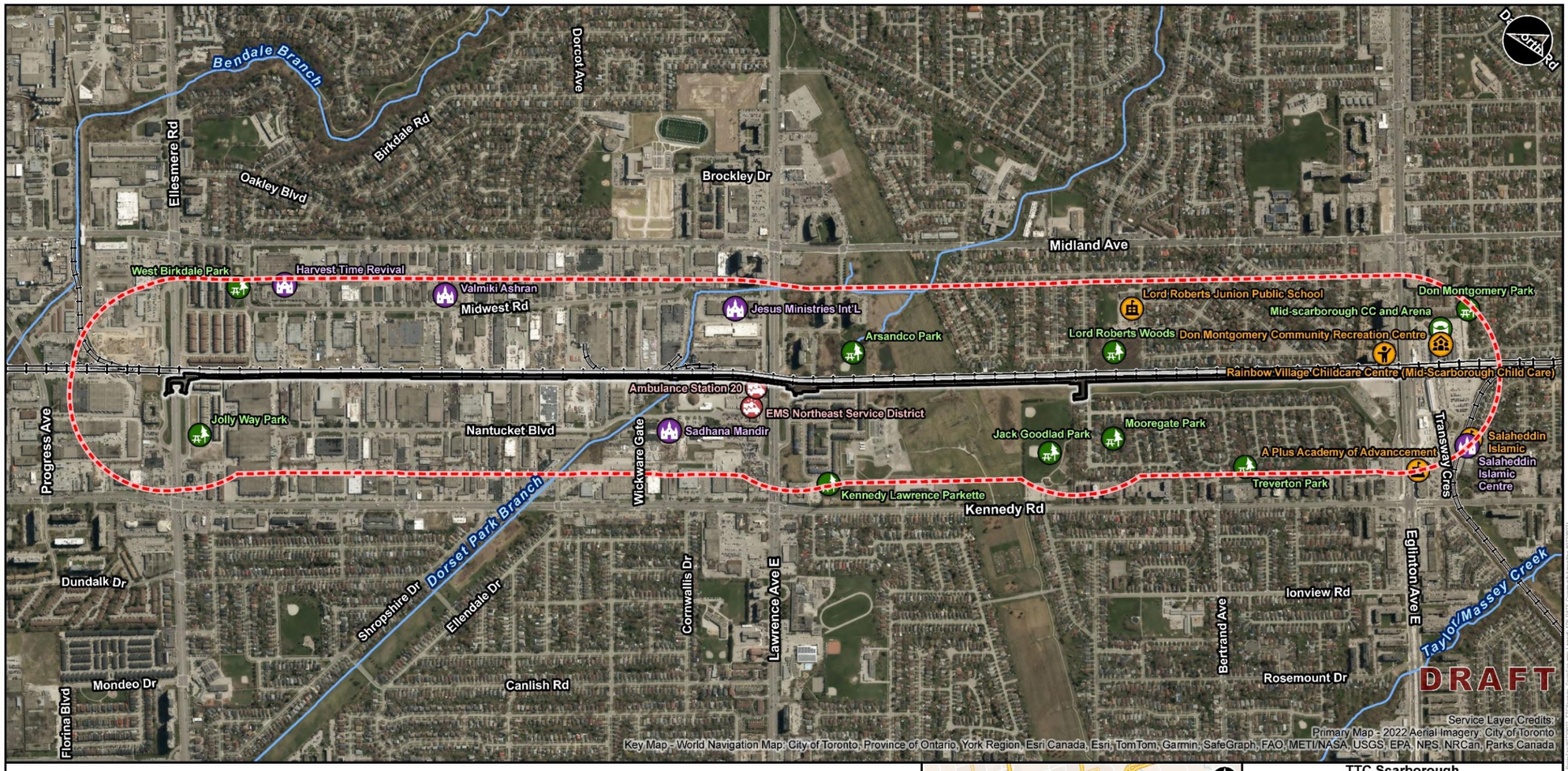
4.3.2.5 Future Development

There are currently a number of active development applications within the Study Area. The nature of the proposed development varies; however the majority are proposing higher densities and mixed use.

4.3.2.5.1 Scarborough Centre Planning Objectives

Scarborough Centre is subject to the City of Toronto's Scarborough Centre Secondary Plan. Key objectives of the Plan include transforming Scarborough Centre into a vibrant urban node. The Our Scarborough Centre is a Council-approved update of the Scarbrough Centre Secondary Plan to support the development of Scarbrough Centre. The Our Scarborough Centre Phase 4 Study was completed by the City of Toronto (City Planning) in March 2023. The study identified the need to build or upgrade several facilities within the Study Area, including approximately 180 hectares of land within Wards 21 and 24 as summarized in **Table 4-26.**

Figure 4-4: Community Amenities



LEGEND

60% Design Project Components
- Study Area Limit
- Construction Disturbance Area

Community Facility
- Ambulance Station
- Arena
- Childcare Facility
- Community Centre
- Elementary School
- Park
- Place of Worship

General Features
- Main Railway
- Spur Railway
- Watercourse

TTC Scarborough Rapid Transit Busway Conversion Project

Community Amenities

0 100 200 400 600 800 Meters

WGS 1984 UTM Zone 17N

Data Sources:
Contains information licensed under the Open Government License - Ontario and Toronto. Land use designations created from the Toronto Official Plan - January 2024. Project components created by AECOM.

AECOM	
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Table 4-26: Future Planned Neighbourhood Community Services & Facilities

Community Service and Facilities Upgrades	Future Development Description
Community Centre	■ The Needs Assessment of the Our Scarborough Centre Report has identified facility upgrades for two community centres: Centennial Recreation Centre and Birkdale Community Centre. The addition of a recreation facility between Brimley and McCowan Roads, south of Highway 401 and north of Triton Road is also planned.
Elementary School	■ As identified in the Our Scarborough Centre Report, two Toronto District School Board elementary schools to accommodate 1000 students will be considered in Scarborough North area over time.
Childcare Facility	■ To accommodate a 62-children-per-space childcare model, based on the Needs Assessment of the Our Scarborough Centre Report, the need for 19 additional facilities has been identified. These facilities are to be located within or nearby Scarborough Centre and are intended to align with early phases of residential development.
Other	■ The Our Scarborough Centre Report has identified the need to revitalize and expand existing facilities and community agency spaces for at least 11 community organizations that may be seeking space within Scarborough Centre.

4.3.2.5.2 The Meadoway Project

The Toronto and Region Conservation Authority has initiated the Meadoway Project, which will provide a complete active transportation system linking eastern Toronto to the downtown core by revitalizing and restoring an existing hydro corridor in north Toronto. Through previous projects, 10 kilometres of multi-use trail has been constructed. The objective of the Meadoway Project is to construct the remaining 6 kilometres, for a total of 16 kilometre of multi-use trails to be provided from the Don River to the Rouge National Urban Park. The Meadoway Project intersects with the Project's alignment just north of the station at Lawrence Avenue East.

The 16 kilometre stretch of urban greenspace and meadowlands will become one of Canada's largest linear urban parks by re-naturalizing the corridor with urban agricultural programming and other community amenities.

4.3.2.6 Utilities

4.3.2.6.1 Public and Publicly Traded Utilities

Public utilities are utility services operated by a municipal or provincial government, or an organization established to operate a utility on behalf of a governing body. Examples of these utility services identified within the corridor include fibre-optic communications that are operated by the City of Toronto, and municipal servicing (water, wastewater, and stormwater systems) that the City of Toronto operates. Toronto Hydro and Hydro One Networks Incorporated, a publicly traded utility, have duct banks and/or overhead lines present in the corridor.

4.3.2.6.2 Private Utilities

Private utility services are those which are operated by private sector organizations. Several private utility services have been identified in the corridor. These include telecommunication lines (mostly fibre optic lines) owned and operated by Bell, Rogers and Zayo, as well as Enbridge Gas natural gas lines.

4.4 Noise and Vibration

This section provides a summary of the methodology and existing conditions identified in the Noise and Vibration Impact Assessment Report which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project to assess the noise and vibration impacts during construction and operation of the Project, and identify appropriate mitigation measures and monitoring requirements that will be provided for potential adverse impacts. The fulsome Noise and Vibration Impact Assessment Report is included in **Appendix A**.

4.4.1 Methodology

The Project Area encompasses the area from the Toronto Transit Commission's Line 2 Kennedy Station, along the Line 3 right-of-way north to Ellesmere Station. The Protocol[2] adopted for this assessment does not provide a definition for the limits of a noise and vibration study area. As such, a review of various Ontario based noise and vibration guidance documents was conducted to determine an appropriate study area for the evaluation of a busway. The review has revealed that the Metrolinx Environmental Guide for Noise and Vibration Impact Assessment (2021) defines a study area,

2. This assessment was conducted using the Ministry of Energy and Environment / Toronto Transit Commission Draft Protocol for Noise and Vibration Assessment for the Proposed Scarborough Rapid Transit Extension document dated May 11, 1993 (the Protocol). Note that the Ministry of Energy and Environment is now operating as the Ministry of the Environment, Conservation, and Parks.

specifically for the assessment of busways, as the area within 300 metres of either side of the applicable roadway.

The Study involves the completion of four main tasks:

- Baseline measurements.
- Construction Assessment.
- Operations Assessment.
- Documentation of recommendations for operations and construction.

An assumptions report was prepared in conjunction with the Toronto Transit Commission and submitted to and approved by the Ministry of the Environment, Conservation and Parks for comment prior to the assessment being conducted. The assumption report with assumptions used in this assessment is presented in **Appendix A**.

Baseline measurements were conducted to be characteristic of the background noise conditions in the noise sensitive areas surrounding the Project. Background vibration measurements were not necessary for the Project as the undertaking is the conversion of a rail line to a busway, which will decrease vibration levels. Further details of the baseline measurements are documented in **Section 4.4.2**.

The construction assessment was separated into two main components: noise and vibration. The construction noise was based upon different construction phases/activities, using assumed equipment quantities, and reference noise data. The data was used to prepare a noise prediction model, and results were compared to the background noise levels to determine the potential for human annoyance. Further details of the construction noise assessment are in **Section 4.4.3.1**.

The construction vibration assessment was based upon the concept of a Zone of Influence. The Zone of Influence is the area where an applicable criterion is exceeded. This is determined by calculating the setback distance, from the construction equipment, where the vibration level meets the applicable criterion. Structures located within this setback distance would be over the criterion limit. Further details of the construction vibration assessment are in **Section 4.4.3.2**.

The operations assessment was based upon the difference in the predicted ambient conditions, and the predicted conditions with the busway as per the definitions in the Protocol. As per discussions with the Ministry of the Environment, Conservation and Parks, for the purposes of assessment, the Scarborough Rapid Transit line was to be considered as part of the existing ambient (see **Appendix A**). Where the difference in noise levels exceeded the criterion in the Protocol, noise mitigation was investigated for feasibility. Further details of the operations assessment are in **Section 4.4.4**.

4.4.2 Baseline Measurements

Baseline data was collected between May 6th and 10th 2024 using B&K type 2250 (Type 1) sound level meters, housed in environmental enclosures mounted to existing poles approximately 3 to 4 metres above the existing grade. An example noise monitor setup is shown on **Figure 4-5**.

Figure 4-5: Example Noise Monitor Setup

The baseline noise measurements were conducted in areas near the identified noise sensitive receptors to be representative of the ambient conditions. Noise sensitive receivers in context of this assessment are approved residential developments as well as nursing homes, group homes, hospitals, and other institutional land uses where people reside. Ambient conditions, as described in the Protocol, is the sound existing at the point of reception. This includes the noise from the existing road traffic and industry, and excludes transient noise from aircraft and railways, except for pre-existing Toronto Transit Commission rail operations.

Given the presence of an existing GO Transit rail line adjacent to the Scarborough Rapid Transit corridor and to determine if any rail noise (GO Transit) had influenced the measurements, monitoring was conducted using 5 minute periods to determine if there were any high impact short duration events affecting the measurements. These were removed from the data set prior to processing into L_{eq} for the applicable time periods. Monitoring locations are shown on, and a summary of monitoring results are presented in **Table 4-27**, with raw data provided in **Appendix A**.

Table 4-27: Baseline Monitoring Results

Location	$L_{eq,16hr}$ (Day) [a-weighted decibels]	$L_{eq,8hr}$ (Night) [a-weighted decibels]	Average Daytime $L_{eq,1hr}$ [a-weighted decibels]	Average Nighttime $L_{eq,1hr}$ [a-weighted decibels]
Tara Ave	53	49	53	48
Prudential Drive	60	54	59	53
Great W Dr	62	57	62	55

As the Project is the conversion of an at grade rapid rail corridor to an at grade busway, the vibration impacts due to the operation of the Project is expected to decrease (improve) from the base case of a rapid rail corridor. As such, vibration impact due to the operation of the Project is considered negligible and baseline vibration is not required.

4.4.3 Construction Assessment

Construction noise was reviewed based upon the expected equipment, construction phases, and expected operational areas. The majority of the construction activities will occur within the existing Scarborough Rapid Transit right-of-way, except for the connections to the existing roadways at Ellesmere Stop, Lawrence East Stop, and Kennedy Station, and the sidewalk connection at Tara Avenue Stop. Much of the

existing concrete foundations of the Scarborough Rapid Transit corridor will be retained as the base of the paved surface. The major construction phases are expected to be:

- Removals (mainly existing rail) and utility works;
- Excavation, grading, and concrete works where additional foundation is needed;
- Shoring for deeper excavation (i.e., sewer connections at Lawrence East and Ellesmere); and
- Paving.

A list of estimated construction equipment for each phase of construction is presented in **Table 4-28**. Quantities were estimated assuming an approximate 100 metre section of construction.

The shoring works would be for deep excavation for sewer connections near the existing Lawrence East and Ellesmere Stations. As the method of shoring has not been finalized, three different type of piling methods were reviewed. Should less intensive shoring be used (e.g., trench boxes), the construction impacts of the shoring should be similar to the excavation scenario.

Table 4-28: Estimated Construction Equipment by Construction Type

Equipment Description	Removals and Utility Work	Excavation, Grading, and Concrete Works	Shoring	Paving
Backhoe	1	1	1	-
Excavator	1	1	-	1
Compaction Machine	-	1	-	-
Cement Trucks per hour	-	2	-	-
Concrete/Metal/Rail Saw	1	-	-	-
Crane - Mobile	1	-	1	-
Dump Trucks per hour	2	2	-	2
Semi-Trucks per hour	2	2	1	-
Generator	1	1	1	1
Front End Loader	1	1	-	-
Jackhammer	1	-	-	-
Skid Steers	2	2	-	2
Paver	-	-	-	1
Vibratory Roller	-	-	-	1
Vacuum Excavator	1	-	-	-
Potential Piles	-	-	1	-

4.4.3.1 Noise Criteria

Excessive noise, including construction noise, may interfere with human comfort and enjoyment from the use of certain spaces. The Ministry of the Environment, Conservation and Parks and the City of Toronto do not have receiver-based construction noise level limits; however, the impact of construction noise should still be evaluated. The primary metric for measuring noise impact is the change in noise level above existing noise levels. **Table 4-29** below represents the perceived impact of changes in sound level. The significance of the noise impact by noise level difference is also presented in **Table 4-29**. The basis of comparison is usually the average background noise levels. For the purposes of this Project, the average 1-hour measured background noise level was compared to the predicted average construction noise levels from the Project.

Table 4-29: Perceived Impact of Increased Sound Levels[3]

Increased Sound Level Above Ambient (decibels)	Perception	Perceived Impact
0 to 3	Potentially Perceptible	Minor
3 to 5	Perceptible	Low
5 to 10	Up to twice as loud	Medium
Greater than 10	Twice as loud or greater	High

According to the City of Toronto Noise By-law 878-2019 (Section 591-3.1 D), government work (including this Project) is exempt from the requirements of the by-law.

4.4.3.2 Vibration Criteria

As construction is temporary, the assessment of construction vibration centres on the potential for building damage. Building damage may occur when there are excessive vibration impacts on a structure. Depending on the type of structure, there are different thresholds of damage. The assessment for potential building damage has been based upon the methodology as presented in the United States Federal Transit Administration's *Transit Noise and Vibration Impact Assessment* document, which defines and provides threshold vibration damage limits for four different building types. The limits are summarized in **Table 4-30**.

3. Adapted from "Engineering Noise Control, Theory and Practice" 4th edition, David A. Bies and Colin H. Hansen, 2009, and International Organization for Standardization R1996-1971E

Table 4-30: Building Type Definitions

Building Type	Description	Vibration Damage Criteria Peak Particle Velocity (millimetres per second)
Type I	Reinforced-concrete, steel or timber (no plaster)	12.70
Type II	Engineered concrete and masonry (no plaster)	7.62
Type III	Non-engineered timber and masonry buildings	5.08
Type IV	Buildings extremely susceptible to vibration damage	3.05

Construction vibration is also subject to City of Toronto By-law 514-2008, which requires that a vibration control form and study be submitted as part of a building permit application. As the construction for this Project is along an established transportation right-of-way, a building permit may not be required, although By-law 514-2008 can be used as best practices to be followed.

This assessment will identify the potential requirement for construction vibration monitoring and building condition surveys with respect to the requirements in By-law 514-2008. Requirements for monitoring and building inspections are triggered when a "zone of influence" (an area where construction vibration is predicted to be equal to or greater than 5 millimetres/second) extends beyond the legal boundaries of the construction site and encompasses any buildings on adjacent properties.

4.4.3.3 Assessment Locations

Representative assessment locations for the noise and vibration impact assessment were selected to be representative of the worst-case noise and vibration impacts due to the project. Receptors located with similar setbacks would have similar noise and vibration impacts, while receptors further away would have lower noise and vibration impacts.

Although the Protocol does not specifically address construction noise and vibration, and the Protocol's applicability to receptors for the operational assessment can be adopted for the assessment of construction noise and vibration impacts. For the purposes of this assessment, the receptors for the construction noise assessment were the same as the operations assessment. Please see **Section 4.4.4.2** for further discussion on noise receptors.

Vibration receptors for the construction phase were taken as any non project structures that could be damaged due to construction vibration from the project. Instead of calculating the vibration impact at each possible structure along the project area, the construction vibration assessment determined at what setback distance from the project the applicable criteria was met, and reviewed mapping to determine if any structures were located within each applicable setback distance. (see **Section 5.4.2** for further details).

4.4.4 Operations Assessment

Vibration caused by rubber tire vehicles is generally not a concern on smooth pavement. As the Project is the conversion of an at-grade rapid rail corridor to an at-grade rapid busway, the vibration impacts due to the operation of the Project is expected to decrease (improve) from the base case of a rapid rail corridor. As such, vibration impacts from the operation of the Project is considered negligible, thus the assessment of the Project operation will concentrate on the noise impact.

4.4.4.1 Criteria

Noise from the operation of the busway will be assessed using the Ministry of Energy and Environment[4]/Toronto Transit Commission Draft Protocol for Noise and Vibration Assessment for the Proposed Scarborough Rapid Transit Extension document dated May 11, 1993 (the Protocol). Noise levels for the transit operations within the public right-of-way are assessed using the 16 hour daytime and 8 hour nighttime equivalent sound levels. Noise level criteria are defined as the higher of the existing day/night time ambient noise levels or the minimum noise levels set out in **Table 4-31** below. Noise control is only warranted if the noise level criteria are exceeded by more than 5 decibels.

Table 4-31: Minimum Noise Level Criteria for Transportation Corridors

Time Period	Limit [A-weighted decibel]
16 hour day (07:00 to 23:00)	55
8 hour night (23:00 to 07:00)	50

The daytime noise level is to be assessed at an outdoor point of reception on a residential property greater than 15 metres from the centreline of the transit system. In Ontario, the outdoor assessment point for traffic (i.e., road and rail) is taken as an outdoor location intended and designed for the quiet enjoyment of the outdoor environment, and the specific location is taken as 3 metres from the midpoint of the building façade at a height of 1.5 metres.

The nighttime noise level is assessed at the plane of any bedroom window, greater than 15 metres from the centreline of the transit line. For this assessment, this was taken as the window on the highest floor, on the most exposed façade.

4. Note that the Ministry of Energy and Environment now operates as the Ministry of the Environment, Conservation and Parks

Where mitigation is considered, the mitigation is required to be technically, economically, and administratively feasible, with design target as close to or less than the noise limits as possible.

4.4.4.2 Assessment Locations

The Protocol applies to approved residential developments as well as nursing homes, group homes, hospitals, and other institutional land uses where people reside (noise sensitive receptors) and does not apply to commercial and industrial land uses. The Protocol does not specifically use the term noise sensitive receptors; the locations where the Protocol applies is typically labelled as noise sensitive receptors.

Representative receptors used in the assessment were selected to represent the worst-case noise impacts from the Project. Receptors with similar setback from the Project will have similar noise exposures and impacts; receptors further away will have lower Project noise impacts. Assessed representative receptors are presented in **Table 4-32**.

Table 4-32: Assessed Representative Noise Sensitive Receptors

Address	Description	Receptor ID
1000 Ellesmere Road	4 Storey Nursing Home	R01
117 Jolly Way	3 Storey Residence	R02
103 Jolly Way	3 Storey Residence	R03
87 Jolly Way	3 Storey Residence	R04
85 Jolly Way	3 Storey Residence	R05
74 Zezel Way	3 Storey Residence	R06
40 Zezel Way	3 Storey Residence	R07
2 Zezel Way	3 Storey Residence	R08
158 Jenkinson Way	3 Storey Residence	R09
154 Jenkinson Way	3 Storey Residence	R10
138 Jenkinson Way	3 Storey Residence	R11
118 Jenkinson Way	3 Storey Residence	R12
86 Jenkinson Way	3 Storey Residence	R13
84 Jenkinson Way	3 Storey Residence	R14
301 Prudential Drive	16 Storey Multi-unit Residence	R15
64 Romulus Drive	1 Storey Residence	R16
52 Romulus Drive	1 Storey Residence	R17
48 Romulus Drive	2 Storey Residence	R18
40 Romulus Drive	1 Storey Residence	R19
26 Medina Crescent	1 Storey Residence	R20
14 Medina Crescent	1 Storey Residence	R21
2 Medina Crescent	1 Storey Residence	R22
76 Mooregate Avenue	1 Storey Residence	R23

Address	Description	Receptor ID
163 Treverton Drive	2 Storey Residence	R24
145 Treverton Drive	2 Storey Residence	R25
127 Treverton Drive	2 Storey Residence	R26
111 Treverton Drive	1 Storey Residence	R27
53 Treverton Drive	2 Storey Residence	R28
49 Treverton Drive	1 Storey Residence	R29
139 Lord Roberts Drive	1 Storey Residence	R30
133 Lord Roberts Drive	2 Storey Residence	R31
109 Lord Roberts Drive	2 Storey Residence	R32
103 Lord Roberts Drive	1 Storey Residence	R33
89 Lord Roberts Drive	2 Storey Residence	R34
55 Lord Roberts Drive	1 Storey Residence	R35
2460 Eglinton Avenue East	18 Storey Multi-unit Residence	R36

4.5 Built Heritage Resources and Cultural Heritage Landscapes

This section provides a summary of the methodology and existing conditions identified in the Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (Cultural Heritage Report) which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project to assess the existing Built Cultural Heritage Resources and Cultural Heritage Landscapes. The fulsome Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment is available in **Appendix A**.

4.5.1 Methodology

The Cultural Heritage Report Study Area includes the Project Area and a 50-metre buffer that extends from the centreline of the Project Area in all directions. The 50-metre buffer has been applied in accordance with professional judgement to encompass properties adjacent to and framing the Project Area that may be subject to indirect impacts, such as vibration impacts, during construction.[5]

5. The definition of 'adjacent' is drawn from the City of Toronto Official Plan, Section 3.1.6, "Adjacent: means those lands adjoining a property on the Heritage Register or lands that are directly across from and near to a property on the Heritage Register and separated by land used as a private or public road, highway, street, lane, trail, right-of-way, walkway, green space, park and/or easement, or an intersection of any of these; whose location has the potential to have an impact on a property on the heritage register; or as otherwise defined in a Heritage Conservation District Plan adopted by by-law." (City of Toronto Official Plan, June 2024 Consolidation, 3-25).

Following the process for the identification of above-ground Built Heritage Resources and Cultural Heritage Landscapes outlined in the Ministry of Citizenship and Multiculturalism Criteria for Evaluating Potential Built Heritage Resources and Cultural Heritage Landscapes (2016; hereafter 'Ministry Checklist') the following were reviewed to identify known and previously-identified potential Built Heritage Resources and Cultural Heritage Landscapes within the Study Area:

- A review of municipal, provincial, and federal heritage registers and inventories, including the City of Toronto Heritage Register.
- Review of appropriate background documents.
- A review of available online historic mapping.
- A review of several online resources.

In this Cultural Heritage Report, Built Heritage Resources and Cultural Heritage Landscapes were defined according to the Provincial Policy Statement (2020):

- **Built Heritage Resource** – means a building, structure, monument, installation or any manufactured or constructed part or remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Indigenous Nation. Built heritage resources are located on property that may be designated under Parts IV or V of the *Ontario Heritage Act*, or that may be included on local, provincial, federal and/or international registers.
- **Cultural Heritage Landscape** – means a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous Nation. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the *Ontario Heritage Act* or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms.

For the purpose of this Project, the Built Heritage Resources and Cultural Heritage Landscapes are categorized as either:

- **Known Built Heritage Resources or Cultural Heritage Landscapes** – consisting of municipally, provincially, or federally designated or listed properties that have an existing level of heritage protection, designation, or recognition.
- **Potential Built Heritage Resources or Cultural Heritage Landscapes** – means properties identified during desktop screening exercises or previous

> field reviews (in previous heritage reports) that includes a building or structure appearing to be older than 40 years of age, that, informed by the Ministry Criteria Checklist, have been determined to have potential cultural heritage value or interest.

As the Study Area for the Project was part of the area screened for potential Built Heritage Resources and Cultural Heritage Landscapes in the 2017 Environmental Project Report and 2020 Environmental Project Report Addendum, this Cultural Heritage Report did not screen the Study Area for new potential Built Heritage Resources and Cultural Heritage Landscapes. However, the above online resources were reviewed to ensure that there are no new cultural heritage resources, including plaques, within the Study Area that post-date previous heritage reporting. All potential Built Heritage Resources and Cultural Heritage Landscapes identified in this Cultural Heritage Reports were previously-identified in the 2017 Environmental Project Report or the 2020 Environmental Project Report Addendum.

In 2023, the City of Toronto published Our Scarborough Centre: Phase 4 Final Study Report to update the Secondary Plan for Scarborough that integrates the area into Toronto's Official Plan policies and the City-wide urban design guidelines. As part of the Our Scarborough Centre Study, a cultural heritage resource assessment was undertaken to identify potential Built Heritage Resources and Cultural Heritage Landscapes in the Scarborough Centre area. Part of the Study Area for the Project falls within the study area for the Our Scarborough Centre Study. The Our Scarborough Centre study area was reviewed as part of the background research and its findings were integrated into this Cultural Heritage Report for previously-identified potential Built Heritage Resources and Cultural Heritage Landscapes.

4.5.1.1 Background Data Collection

The 1878 *Illustrated Historical Atlas* shows there were no historical structures within the Study Area. The 1878 Atlas shows the Study Area followed the route of the Toronto & Nipissing Railway (today Metrolinx Stouffville GO Railway). The railway line was placed between Lots 27 and 28 in Scarborough Township, and primarily ran along the line dividing the lots. None of the structures shown on the 1878 Atlas on properties the Study Area passes through are extant.

The 1942 and 1943 National Topographic System Index map shows two structures on Lawrence Avenue East in the Study Area. These structures are no longer exist. The National Topographic System Index map shows the Study Area followed the route of the Canadian National Railways (today Metrolinx Stouffville GO Railway). A second railway line crosses the Study Area north of Eglinton Avenue East. The National Topographic System Index map notes that it is an abandoned railway (today part of the

Canadian National Railway). The abandoned railway has been dismantled north of Eglinton Avenue East and is no longer extant through the Study Area. The National Topographic System Index map also shows the power lines that pass over the Study Area south of Lawrence Avenue East.

The 1983 aerial photographs show the development of the surrounding area with the construction of industrial and commercial complexes between Ellesmere Road and Lawrence Avenue East, and the construction of single-dwelling residential houses and greenspace between Lawrence Avenue East and Eglinton Avenue East. The aerial photographs show the Scarborough Rapid Transit under construction, bound by the existing railway right-of-way. The photographs do not show the completed stations at Lawrence Avenue East or Ellesmere Road, but Kennedy Station is present as it was constructed for the Bloor-Danforth subway extension.

The cultural heritage screening map (Cultural Heritage Report Appendix A, Figure 1) shows recent urban development in the Study Area with residential housing and industrial developments. The construction of the Scarborough Rapid Transit through the existing railway corridor ensured that urban development was kept away from the Study Area. The structures within the Study Area were built in the second half of the 20th century.

4.5.1.2 Field Review

A field review was conducted from the public right-of-way of the properties within the Cultural Heritage Study Area in order to confirm or identify the presence of known or potential built heritage resources and cultural heritage landscapes. A field review also allows for the identification and documentation of potential built heritage resources and cultural heritage landscapes not previously identified. It also allows for a more detailed recording and assessment of existing conditions, assessment of potential impacts to potential or known heritage attributes, and for the identification of appropriate mitigation measures.

4.5.2 Description of Existing Conditions

Based on review of the online heritage resources, a review of historical maps in comparison to current aerial photography and Google Street View, and reviews of previous heritage reports in the vicinity of the Study Area there are no known or previously-identified potential Built Heritage Resources or Cultural Heritage Landscapes within or adjacent to the Study Area.

The Study Area has been extensively developed since the 1950s as it experienced large-scale suburbanization. The rapid growth of Scarborough from a rural farming

township into a suburb of the City of Toronto saw the construction of new industries, residential neighbourhoods, shopping and commercial centres, and a new urban plan for the area of Scarborough Centre. The Study Area covers a range of different land uses included single-dwelling residential houses, industrial complexes, green space, commercial businesses, and a railway line.

The construction of the Scarborough Rapid Transit in the early 1980s was behind the growth of Scarborough and necessitated the use of existing rail lines right-of-way and elevated track. The Scarborough Rapid Transit shares and runs parallel to the Metrolinx Stouffville GO rail corridor for its north-south portion between Ellesmere Station and Kennedy Station. A tunnel, followed by an elevated track allows the Scarborough Rapid Transit to turn east from Ellesmere Station into Midland Station. The elevated Scarborough Rapid Transit tracks run parallel to the West Highland Creek along Midland Station and crosses the West Highland Creek between Midland Station and Scarborough Centre Station. The elevated Scarborough Rapid Transit track crosses over Brimley Road and Borough Drive entering Scarborough Centre Station. The elevated Scarborough Rapid Transit track crosses Borough Drive and McCowan Road from Scarborough Centre Station to McCowan Station, the terminus station. The elevated Scarborough Rapid Transit track passes over Bushby Drive and Grangeway Avenue as it enters McCowan Yard where train, maintenance, and storage facilities for the Scarborough Rapid Transit are located.

The area of Scarborough Centre has been identified by the City of Toronto as an important urban centre for further development as seen in the Our Scarborough Centre Study. Scarborough Centre has undergone increased urbanization with the construction of residential high-rise towers focused on the Scarborough Civic Centre, Scarborough Town Centre, and the transit hub of the Scarborough Centre Station. Conceived in the 1960s and 1970s as the heart of the former municipality of Scarborough, the area was identified as an important hub for the surrounding area with increasing demands on the land by the City of Toronto, commercial businesses, and residential developers seeking to leverage the established transportation, civic, commercial, and cultural resources already in place.

The Cultural Heritage Study Area covers a range of different land uses including single-dwelling residential houses, townhouses, apartment building, an industrial area, wooded area, hydro corridors, commercial businesses, and the existing Scarborough Rapid Transit and Metrolinx railway lines.

Between Ellesmere Road and Lawrence Avenue East is 21st century garages associated with townhouses and an industrial/commercial area specifically along Nantucket Boulevard and Midwest Road consisting primarily of one-storey concrete block buildings built in the late 20th century. South of Lawerence Avenue East the

Cultural Heritage Study Area consists primarily of suburban development consisting of single detached houses built in the late 20th century, a hydro corridor with a recreational trail extending east-west through the Study Area, a small wooded area on the east side of the tracks south of Tara Avenue, and a 21st century apartment building. The Project Area primarily consists of the existing Scarborough Rapid Transit tracks as seen in the photographs and small portions of land in existing road rights-of-way. The former Scarborough Rapid Transit stations of Ellesmere Station and Lawrence East Station are within the Construction Disturbance Area.

4.6 Archaeology

This section provides a summary of the methodology and existing conditions identified in the Stage 1 Archaeological Assessment completed for the 2017 Environmental Project Report and the Stage 2 Archaeological Assessments which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway Project to assess the existing archaeological resources. The fulsome Stage 1 Archaeological Assessment and Stage 2 Archaeological Assessment reports are available in **Appendix A**.

4.6.1 Methodology

A Stage 1 Archaeological Assessment was undertaken as part of the 2017 Environmental Project Report. A Stage 1 Archaeological Assessment documents the geographic, archaeological and land use history of lands within the Study Area in order to assess their potential to contain archaeological resources. No optional property inspection was undertaken due to snow covered ground conditions at the time of the assessment. Instead, detailed mapping, satellite imagery and recommendations made in the Master Plan of Archaeological Resources for the City of Toronto (Archaeological Services Inc, 2011) were used in order to evaluate the Study Area's archaeological potential.

A Stage 2 Archaeological Assessment was undertaken by AECOM in 2024 to provide an overview of archaeological resources within the Study Area, make a determination as to whether any of the resources might be artifacts or archaeological sites with cultural heritage value or interest, requiring further assessment, and to recommend appropriate Stage 3 Archaeological Assessment strategies for any archaeological sites identified. The Stage 2 Archaeological Assessment involves 5 metre and 10 metre test pitting, excavated to a depth of 100 centimetres and photo documentation of previously disturbed areas, in accordance with the *Standards and Guidelines for Consultant Archaeologist* (Ontario Government 2011).

In agreement with the Ministry of the Environment, Conservation and Parks, who advised that, given the overlap of the study areas between the 2017 Environmental

Project Report and the current Project, the background studies, inclusive of the previous Stage 1 Archaeological Assessment could be used and elaborated on for the Project. The Stage 2 Archaeological Assessment has been submitted to the Ministry of Citizenship and Multiculturalism for review and approval. At the time of preparing this Environmental Project Report, the Ministry of Citizenship and Multiculturalism has not provided comments on the Stage 2 Archaeological Assessment.

4.6.2 Description of Existing Conditions

The results of the Stage 1 Archaeological Assessment indicate that, while most of the lands within the existing McCowan study corridor appear to have been disturbed by past development, some of the Study Area still retains archaeological potential. This is based on the presence of historic homesteads, the proximity of historic transportation routes, certain physiographic features and previously registered archaeological sites within the Study Area. The Ontario Archaeological Sites Database contains archaeological registered sites within the Study Area and has identified 13 sites previously registered within one kilometre of the Study Area. The 13 registered sites consist of seven pre-contact Indigenous Nation sites, one Euro-Canadian and five with undetermined cultural affiliation. All of the undetermined sites are described as campsites with the exception of one findspot (AECOM, 2015). The Single Euro-Canadian Site was a mid to late 19th century homestead and is located outside of the Project Study Area.

Three sites were identified within the 2017 Stage 1 Archaeological Assessment Study Area:

- The Tabor Hill Ossuary.
- The Thompson site.
- The Jenkinson site.

A written historical context of the Michi Saagiig (Mississauga Anishinaabeg) and their traditional homelands has been provided by Curve Lake First Nation. Please refer to Appendix C-2 of the Environmental Project Report 2020 Addendum (under separate cover).

Approximately 94% of the Study Area was visually confirmed as previously disturbed, consisting of the existing track and infrastructure, including stations at Ellesmere Road and Lawrence Avenue East, paved laneways, parking lots and buried utilities. The Stage 2 Archaeological Assessment did not result in the identification of any archaeological sites, nor the recovery of archaeological material. As a result, no further archaeological assessments are recommended for the Project.

4.7 Traffic and Transportation

This section provide a summary of the methodology and existing conditions identified in the Transportation Assessment Report which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project to assess the transportation impacts of shifting the on-street bus service in Phase 1 to the dedicated busway conversion in Phase 2; where applicable, and discusses mitigation measures to support this transition. The fulsome Transportation Assessment Report is included in **Appendix A**.

4.7.1 Methodology

The Study Area encompasses the area from the Toronto Transit Commission's Line 2 Kennedy Station, along the Line 3 Scarborough Rapid Transit right-of-way to Ellesmere Road. Study findings will also briefly touch on traffic operation impacts on the surrounding road network, including Midland Avenue, Kennedy Road, and Ellesmere Road.

This Transportation Assessment will build upon the base conditions set by Phase 1. The transportation data gathered for the analysis of Phase 1 will be leveraged to establish the baseline conditions, support the qualitative assessment of multi-modal impacts, and identify opportunities and challenges related to walking, cycling, vehicular travel, and goods movement as a result of implementing Phase 2. The assessment will also consider opportunities to integrate the busway with existing on-street transportation facilities.

4.7.1.1 Background Data Collection

The following background reference sources were reviewed to aid in understanding existing and potential future conditions:

- 60% design package (March 2023), prepared by the Toronto Transit Commission.
- Transit Priority Measures to Support Scarborough Rapid Transit Bus Replacement (2023).
- Line 3 Bus Replacement Study Final Recommendations (2022).
- This assessment was completed using travel time and ridership data, traffic data and Synchro files for the surrounding roadways, provided by the Toronto Transit Commission. The most recent Annual Average Daily Traffic (2019) available along the roadways in the Study Area was also used.
- City of Toronto Official Plan (2023).
- City of Toronto Transit Priority Measures to Support Scarborough Rapid Transit Bus Replacement (2023).
- City of Toronto Cycling Network 2025-2027 Public Input.
- Toronto Transit Commission Line 3 Replacement Update (2023).
- Toronto Transit Commission Corporate Plan (2024).

4.7.1.2 Field Data Collection

On May 16, 2024, a site visit to the Study Area was completed by AECOM to verify existing conditions. The key findings from the site visit are outlined in **Table 4-33**.

Table 4-33: Site Visit Key Findings

Location	Side of Line 3 Scarborough Rapid Transit Corridor	Key Findings
Ellesmere Station	East	■ The Ellesmere Station pedestrian tunnel was closed at the time of the site visit. However, it was observed to be not universally accessible with stair access only. ■ AECOM understands that the station parking lot on the east side of the corridor contains accessible parking spaces, but passengers can only cross the corridor through the pedestrian tunnel, again with stair access only.
Ellesmere Station	West	■ Wayfinding signage for stop access is not visible from Ellesmere Road or the access roads which lead directly to the station.
Lawrence East Station	East	■ There are three industrial buildings on the east side of the corridor, within 100 metres of the station parking lot. ■ The Lawrence East Station pedestrian tunnel was closed at the time of the site visit. However, it was observed not to be universally accessible with stair access only. ■ It was noted that the station parking lot located on the east side of the corridor contains accessible parking spaces, but passengers can only cross the corridor through the pedestrian tunnel, which has stair access only.
Lawrence East Station	West	■ On the west side of the corridor, the existing station configuration only allows pedestrian access to the station building via a north entrance. Pedestrians from the south must walk a longer distance around the access road to reach the station entrance.
Tara Avenue	Both	■ An overhead pedestrian crossing is provided across the Line 3 Scarborough Rapid Transit corridor, linking Tara Avenue and Mooregate Avenue.
Tara Avenue	East	■ The future stop will be accessible from the west side of the corridor at Mooregate Avenue. There is no direct access from the east side of the corridor as a result of the Stouffville Line that the GO Train service operates on. ■ Accordingly, passengers coming from the east need to first cross the pedestrian overpass before accessing the station at ground level.
Tara Avenue	West	■ An east-west trail connection through Jack Goodlad Park is available from Kennedy Road to the stop. Wayfinding signage could be implemented.

4.7.2 Description of Existing Conditions

The following section provides an overview of the existing conditions, detailing information related to routing, travel time, and ridership. This section also details the observations taken from a site visit completed on May 16, 2024.

4.7.2.1 Current Transit Services

Currently, Line 3 Bus Replacement Service departing Kennedy Station travels westbound on Eglinton Avenue East, northbound along Kennedy Road, eastbound on Ellesmere Road, northbound on Brimley Road, and eastbound on Triton Road to reach Scarborough Centre Station. Replacement buses heading southbound first exit Scarborough Centre Station, travelling westbound along Triton Road, southbound on Brimley Road, westbound on Ellesmere Road, southbound on Midland Avenue, and westbound on Eglinton Avenue East before arriving at Kennedy Station.

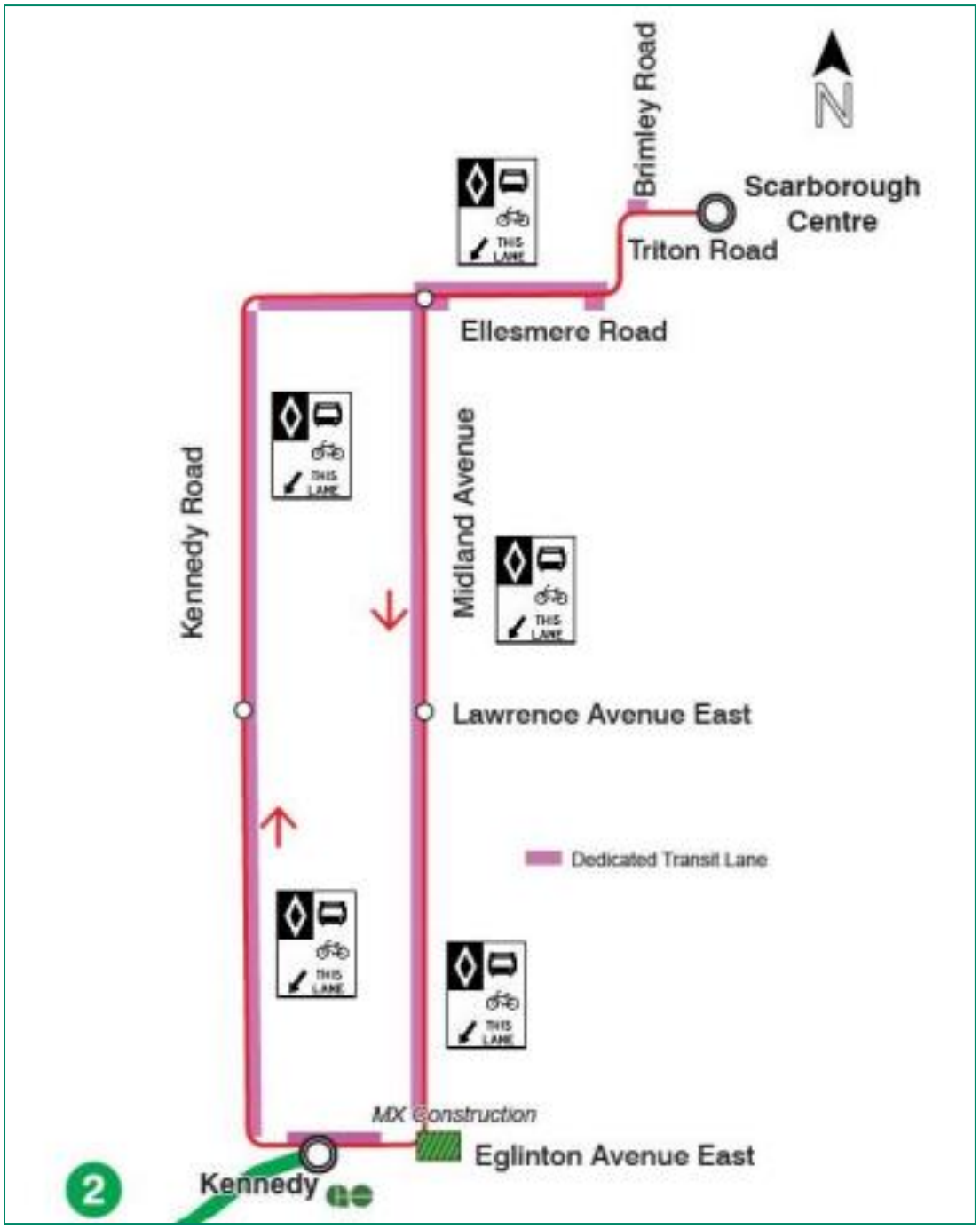
Figure 4-6 illustrates the general routing of buses to and from Scarborough Centre and Kennedy Stations and indicates locations of painted bus lanes for the interim on-street bus routing (Phase 1), per Line 3 Bus Replacement Update (2023). The painted bus lanes are designated as a shared facility for both buses and cyclists.

Since the closure of Line 3 Scarborough Rapid Transit, several bus routes have been adjusted to provide service between Kennedy and Scarborough Centre stations, with the following intermediate stops:

- Kennedy Road at Lawrence Avenue East (Northbound).
- Kennedy Road at Ellesmere Road (Northbound).
- Ellesmere Road at Midland Avenue (Northbound and Southbound).
- Midland Avenue at Lawrence Avenue East (Southbound).

A list of the existing bus routes that act as the Line 3 Bus Replacement Service and their start and end points can be found in **Table 4-34**.

Figure 4-6: Locations of Designated Painted Bus/Bike Lanes



Source: Line 3 SRT Bus Replacement Update (September 26, 2023)[6]

6. https://pw.ttc.ca/-/media/Project/TTC/DevProto/Documents/Home/Public-Meetings/Board/2023/Sep-26/4_Line_3_Bus_Replacement_Update.pdf

Table 4-34: Line 3 Replacement Bus Routes

Toronto Transit Commission Bus Route Name and Number	Route Start Point	Route End Point
129 McCowan North	Major Mackenzie Drive East at Ridgecrest Road (Stop Number 13527)	Kennedy Station (Stop Number 16391)
131 Nugget	Kennedy Station (Stop Number 16391)	Morningview Trail at Sewells Road (Stop Number 13326)
133 Neilson	Finch Avenue East at Morningside Avenue (Stop Number 14444)	Kennedy Station (Stop Number 16392)
903 Kennedy Station to Scarborough Express	Centennial College Bus Terminal (Stop Number 15886)	Kennedy Station (Stop Number 16381)
939 Finch Express	Finch West Station (Stop Number 15568)	Kennedy Station (Stop Number 16390)
954 Lawrence East Express	Kennedy Station (Stop Number 14708)	Starspray Loop at Lawrence Avenue East (Stop Number 9970)
985 Sheppard East Express	Don Mills Station (Stop Number 14631)	Meadowvale Loop at Sheppard Avenue East (Stop Number 9343)

4.7.2.2 Interim On-Street Routing

Interim On-Street Routing is Phase 1 of the Line 3 decommissioning plan. This Phase included implementing bus priority lanes to support on-street operation on Kennedy Road (northbound travel) and Midland Avenue (southbound travel), bus terminal improvements at Scarborough Centre and Kennedy stations, and other transit priority measures, including signal priority and queue jump lanes. The designated bus lanes are painted in red and are shared with cyclists. Other priority measures include pavement markings and turn restrictions at intersections.

4.7.2.2.1 Roadways

The interim on-street bus routes primarily use five roadways within the Study Area: Kennedy Road, Eglinton Avenue East, Ellesmere Road, Midland Avenue, and Brimley Road. Refer to **Table 4-36** for the description of the roadways within the Study Area. The bus routes are connected to stations by service roads. The list below provides the service road location and the connected station or stop.

- Service Road at Eglinton Avenue East which connects the busway to Kennedy Station.

- Service Road at Lawrence Avenue East which connects the busway to bus services at the Lawrence East Stop.
- Service Road at Ellesmere Road which connects the busway to the on-street segment and Ellesmere Stop.

The 24-hour daily traffic counts, indicating the number of vehicles using the corridor within the Study Area in 24 hours, are provided in **Table 4-35**. The values are sourced from the City of Toronto report "Transit Priority Measures to Support Scarborough Line 3 Scarborough Rapid Transit Bus Replacement (2023)".

Table 4-35: Daily Traffic for Interim Bus Route Roads

Segment	24 Hour Daily Traffic (2019) (Rounded to the nearest thousand)
Kennedy Road	37,000
Eglinton Avenue East	49,000
Ellesmere Road	30,000
Midland Avenue	25,000
Brimley Road	28,000

Source: Transit Priority Measures to Support Scarborough Line 3 SRT Bus Replacement (2023)

The recorded volumes are based on data from 2019. It is assumed that the conditions in the current year (2024) are similar because most geographical areas in Canada have shown consistent trends, indicating a near-full recovery from COVID-19 in terms of traffic volumes over the past five years. This can be observed from third-party sources including the annual "INRIX Global Traffic Scorecard (2023)[7]".

The vehicle traffic demand in 2024 closely reflects the data from 2019, as pandemic conditions stunted traffic growth. The highest daily traffic was found to be on Eglinton Avenue East and the lowest can be found along Midland Avenue.

7. https://inrix.com/scorecard/?utm_source=hellobar&utm_medium=direct

Table 4-36: Roadway Description

Roadway	Type	Speed	Configuration	Direction	Sidewalk	By-Laws
Kennedy Road	Major Arterial	50 kilometres per hour	■ Six lanes north of Ellesmere Road and four lanes south of Ellesmere Road. ■ Two-way left-turn lane in most sections between Eglinton Avenue East and Ellesmere Road. ■ Dedicated bus-bike lane in red, in the northbound direction. Signage was provided for lane sharing with cyclists and buses.	North-South	Yes, on both sides of the road.	■ Parking is prohibited.
Eglinton Avenue East	Major Arterial	50 kilometres per hour	■ Six lanes, divided by a concrete median with turning only permitted at the adjacent signalized intersections. ■ Dedicated bus-bike lane in red on north side of roadway.	East-West	Yes, on both sides of the road.	■ Stopping is always restricted between Kennedy Road and Cedar Drive. ■ Restricted parking between Laid Drive and Kennedy Road and from Kingston Road to Cedar Drive.
Ellesmere Road	Major Arterial	50 kilometres per hour	■ Six lanes. ■ Dedicated bus lane in red. Signage was provided for lane sharing with cyclists and buses.	East-West	Yes, on both sides of the road.	■ Parking is prohibited.
Midland Avenue	Major Arterial	50 kilometres per hour	■ Four lanes. ■ Dedicated bus-bike lane in red in the southbound direction. Signage was provided for lane sharing with cyclists and buses.	North-South	Yes, on both sides of the road.	■ Parking is prohibited along the corridor from Eglinton Avenue East to Sheppard Avenue East.
Tara Avenue	Local Road	40 kilometres per hour	■ Two lanes.	East-West	Yes, on both sides of the road.	■ Trucks are prohibited.
Brimley Road	Major Arterial	50 kilometres per hour	■ Four lanes. ■ The southbound lane at Brimley Road and Ellesmere Road is designated as right-turn only with an exception for public transit. The northbound lane at Brimley Road and Triton Road is only designated as a right-turn only.	North-South	Yes, on both sides of the road.	■ Parking is prohibited on the east side of the road between Kingston Road and Eglinton Avenue East.
Triton Road	Local Road	40 kilometres per hour	■ Two lanes.	East-West	Yes, on both sides of the road.	■ Parking is prohibited.

4.7.2.2.2 Ridership

As per the Transit Priority Measures to Support Scarborough Line 3 Bus Replacement (2023) report by the City of Toronto, the 43 Kennedy and 57 Midland bus routes ran in the north-south direction with a daily combined ridership of approximately 30,000 people on an average weekday (in 2019, pre-pandemic), and about 21,000 people in 2022.

There were approximately 35,000 daily passengers on Line 3 before COVID-19 and an estimated 22,000 Line 3 riders in 2022 that would become express bus users after Line 3 was decommissioned by the end of 2023.

4.7.2.2.3 Travel Time

Travel time is the time it takes for a bus to complete its route. As of November 2023, the travel time between Scarborough Centre and Kennedy stations is approximately 17 minutes to 22 minutes (based on scheduled travel times).

4.8 Drainage and Stormwater

This section provides a summary of the methodology and existing conditions identified in the Stormwater Management Report which was prepared as part of the Conversion of Scarborough Rapid Transit Right-of-Way to Busway project to assess the drainage assessments undertaken for hydraulic conveyance, floodplain and stormwater management. The fulsome Stormwater Management Report is available in **Appendix A**.

4.8.1 Methodology

The Study Area is located within the Toronto and Region Conservation Authority jurisdiction, within the Dorset branch of West Highland Creek which crosses the Study Area north of Lawrence Avenue East.

The Toronto Transit Commission has completed the 60% detailed design of the proposed Project, which has been shared with the Toronto and Region Conservation Authority for review and approvals at each design progression. AECOM has reviewed the design package to ensure the proposed works meet applicable design criteria and undergoes due process. AECOM assessed the draining assessments undertaken for hydraulic conveyance, floodplain and stormwater management.

4.8.1.1 Background Data Collection

A field visit was completed on May 31, 2024, to review the existing drainage conditions. It should be noted that during the Site Visit access to the site itself was not available, so observations were made from adjacent properties and overpasses. Close inspection of any drainage infrastructure was not possible.

Previous studies, and relevant guidelines and policies were reviewed to prepare this report.

4.8.2 Description of Existing Conditions

The Study Area falls within the Highland Creek watershed, managed by the Toronto and Region Conservation Authority. This watershed covers a highly urbanized area of Scarborough, as only 6% of the area remains as forest. The general topography of the area slopes south, with runoff draining to several tributaries of the creek. The tributaries converge North of Highway 2A (Kingston Road), and flow is conveyed east, then crosses Highway 2A south and discharges into Lake Ontario. The Toronto and Region Conservation Authority floodplain map online tool shows that Highland Creek overtops the Study Area during a Regional storm event, as shown in **Figure 4-7**.

Under the existing conditions the Scarborough Rapid Transit corridor consists of two tracks set on top of paved concrete. Along the Study Area the Scarborough Rapid Transit corridor has a fully paved cross-section with elevated rails and a control box that runs between the rails. The design drawings show that most of the existing cross-section is flat with no crown at the centre, but some sections have depressions along the edges, acting as a small impervious ditch. Other sections contain what appears to be half a Corrugated Steel Pipe culvert used as a gutter to contain and convey flow. There are also adjacent ditches along the edge of the property or adjacent to it, in some locations.

Runoff from the entire Study Area drains to different storm sewer systems through catch basins and ditch inlets, which are mainly located along the lowered periphery of the cross-section. Any groundwater is captured and conveyed by subdrains.

During large storm events where storm sewers may not have capacity, overland flow will be conveyed along the depressed area of the cross-section towards inlets, and what does not get captured would either continue overland along the same path or would flow to an adjacent ditch, ditch inlet or off-site at local low points. It is assumed that the existing storm sewer networks downstream of the Study Area have the capacity for existing minor runoff.

At the low point near Highland Creek, any overland flow that spills beyond the Study Area will be conveyed to the Creek. The south side of the Creek, upstream of the crossing has a concrete block pattern along the steep bank for several dozen metres. This is likely erosion protection for the steep banks for when large storms cause high flows within the Creek. The extra shear stress along the outside of the creek bend has the potential to erode the bank, however, the concrete protection will prevent erosion. This protection will also be beneficial for any overland flow conveyed to the Creek along the bank’s side.

Figure 4-7: Existing Floodplain Mapping

5. Potential Impacts, Mitigation Measures, and Monitoring Activities

The following sections document the potential impacts and proposed mitigation measures pertaining to the natural, socio-economic, and cultural environments during both the construction and operation phases of the Project.

Overall, the Project has been designed to prioritize the avoidance of negative effects, followed by mitigating negative effects, and compensating for negative impacts will be selected only as a last resort, if required.

5.1 Natural Environment

5.1.1 Potential Impacts of the Proposed Work

The potential environmental impacts associated with the Project relate primarily to construction activities. Many of the potential impacts are commonly encountered with construction, and associated standard mitigation measures are available to minimize or avoid potential impacts. These potential impacts can be prevented or negated if appropriate measures are implemented. If they are not managed and prevented through best management practices and avoidance or mitigation, they may lead to long-term impacts and significant damage to both ecological features and their functions. The following sections outline potential environmental impacts based on the Construction Disturbance Area for the 60% detailed design available at the time of preparation of this report (refer to **Figure 4-1**).

5.1.1.1 Direct Potential Impacts

Potential direct impacts to existing Natural Heritage Features and functions are associated with construction activities (e.g., excavation activities, machinery use) such as vegetation/habitat removal.

5.1.1.1.1 Construction Phase

Direct long-term environmental effects are defined as those impacts that result in the immediate loss of features or functions due to the implementation of the subject works and that have an impact over a long period of time. An example of a direct impact would be the removal of trees or other vegetation in order to clear land for a development. The potential long-term impacts associated with the undertaking include the following:

- **Loss and Damage of Vegetation and Ecological Land Classification Communities, including within Designated Natural Areas**

  Approximately 0.394 hectares of vegetation communities are anticipated to be removed. This represents only 5.58% of the vegetation communities within the Study Area that will be affected by removals, which is minimal as most of the proposed works are set to occur within the existing right-of-way and anthropogenic areas (i.e., mowed lawn, paved areas). Only 0.003 hectares of vegetation removal is anticipated in the Native Deciduous Sapling Regeneration Thicket (CUT1-A1), which is a part of the City's Natural Heritage System. The CUT1-A1 community was mostly comprised of invasive plant species (i.e., Manitoba Maple, Siberian Elm, Dog-strangling Vine) and the small amount of vegetation removal should be limited to disturbed edge vegetation. Where minimal vegetation removal may be required, this will be largely within meadow and hedgerow communities and consist of disturbed edge vegetation which occur within and along the right-of-way. Additionally, connectivity between communities is not anticipated to be impacted as the Construction Disturbance Area largely occurs within the right-of-way and existing railway. The Tara Avenue and Lawrence Avenue East stops are proposed just outside of the existing right-of-way where meadow communities were delineated. However, the majority of the meadow communities should not be impacted and vegetation removal for the stops should occur within disturbed edge vegetation located adjacent to existing infrastructure. Impacts to connectivity are considered negligible given majority of the work will be along the existing right-of-way and meadow communities already exist as fragmented, narrow strips along existing infrastructure. Impacts to vegetation communities are summarized in **Table 5-1**.

- **Loss and Damage of City of Toronto Trees**

  Removal or injury of trees are anticipated in the Construction Disturbance Area. A separate arborist report and tree inventory should be produced, if required, to identify all trees within the Construction Disturbance Area including those that require removal or preservation, or trees that may be injured. The report should also identify required permitting and provide tree protection, mitigation, and compensation measures will also be described in detail in accordance with the City of Toronto's Tree Protection By-laws. Trees in the Construction Disturbance Area receive protection under the following City by-laws:

  - *Street Tree By-Law* (Municipal Code, Chapter 813, Article II) protects all tress situated on City streets.
  - *Private Tree By-Law* (Municipal Code, Chapter 813, Article III) protects trees with a diameter of 30 centimetres or more and trees of any diameter that were planted as a condition of a permit issued under this by-law or site plan agreement.
  - *Ravine and Natural Feature Protection By-Law* (Municipal Code, Chapter 658) protects all trees in these designated areas.
  - *Parks By-Law* (Municipal Code, Chapter 608, Article VII) protects all trees in City-owned parkland.

Table 5-1: Summary of Impacts to Vegetation Communities within the Study Area

Ecological Land Classification Vegetation Code	Ecological Land Classification Vegetation Code Description	Total Area of Ecological Land Classification Community (hectares) within Study Area	Permanent Impacted Area (hectares)	Percentage of Impacted Area (%)
CUH1-A	Treed Hedgerow	1.095	0.166	15.16
CUM	Cultural Meadow	0.273	0.088	32.23
CUM1-1d	Dry - Moist Old Field Meadow	1.781	0.133	7.47
CUM1-1e	Dry - Moist Old Field Meadow	3.361	0.001	0.03
CUT1-A1	Native Deciduous Sapling Regeneration Thicket	0.215	0.003	1.39
FODM4-12	Dry - Fresh Exotic Deciduous Forest Type	0.338	0.003	0.89
Total	-	**7.063**	**0.394**	**5.58**

- **Loss of Candidate Significant Wildlife Habitat, including Habitat for Species of Conservation Concern**

  Approximately 0.003 hectares of candidate Eastern Wood-pewee habitat and 0.001 hectares of Monarch habitat will be removed. This represents only a 0.89% loss of candidate Eastern Wood-pewee habitat and only a 0.03% loss of candidate Monarch habitat within the Study Area. These impacts are anticipated to be negligible given treed and meadow communities will largely remain intact in the Study Area. The form and function of candidate Significant Wildlife Habitat is not anticipated be impaired or eliminated. The small amount of vegetation removal will occur along and adjacent to the existing right-of-way, which is already subject to anthropogenic disturbances. No impacts are anticipated to the remaining candidate Significant Wildlife Habitat (outlined in **Section 4.1.9**) as they do not overlap with the Construction Disturbance Area.

- **Loss of Candidate Significant Wildlife Habitat for Bat Maternity Colonies and Candidate Habitat for Bat Species at Risk**

  Approximately 0.003 hectares of the Dry - Fresh Exotic Deciduous Forest Type (FODM4-12) are anticipated to be removed for the proposed works. This represents approximately 0.89% of the FODM4-12 community within the Study Area. Impacts are considered negligible given that the majority of the FODM4-12 will remain intact and the remaining treed communities in the Study Area won't be impacted. Furthermore, the small amount of vegetation removal proposed within the FODM4-12 is limited to disturbed edge habitat that occurs along the existing right-of-way. No potential roost trees will be removed within treed habitat. The very small amount of vegetation removal in the FODM4-12 is not anticipated to impair or eliminate the form and function of the remaining bat habitat. As noted in **Section 4.1.10**, during field investigations, AECOM ecologists incidentally observed one tree that met the criteria for best candidate roost trees within the FOD5-1. The identified tree within the FOD5-1 is located outside of the Construction Disturbance Area.

- **Loss of Candidate Habitat for Chimney Swift**

  No impacts to candidate Chimney Swift habitat are anticipated as no buildings with potentially suitable chimneys will be demolished or altered as part of the proposed works.

- **Loss of Candidate Habitat for Red-Headed Woodpecker**

  No impacts are anticipated as no potential nest trees were observed in the Construction Disturbance Area.

- **Loss of Tree Species at Risk and Candidate Habitat**

  No impacts to Butternut or Black Ash anticipated as this species did not occur in the Construction Disturbance Area.

5.1.1.1.2 Operation Phase

There are no direct potential impacts anticipated during the operational phase, as all the direct impacts would have occurred during the construction phase (e.g., removal of habitat).

5.1.1.2 Indirect Potential Impacts

Indirect impacts associated with planning and engineering are not immediately caused by the design (e.g., placement of Project components) but may result in an effect on the natural environment through one or more intervening variables.

5.1.1.2.1 Construction Phase

- **Indirect Loss and/or Damage to Vegetation Communities**

  The possibility of incidental intrusion into the adjacent vegetation communities surrounding the vegetation removal areas may occur during construction. This may result in damage (e.g., broken limbs and damage to trunks) to trees and shrubs within adjacent Natural Heritage Features which provide candidate habitat Significant Wildlife Habitat and potential Species at Risk habitat as outlined in **Section 4.1.9** and **Section 4.1.10**. Additionally, machinery use adjacent to Natural Heritage Features can result in soil compaction and trampling of herbaceous vegetation. These impacts can limit a plant's ability to grow and absorb nutrients and water. These impacts can typically be mitigated for with the installation of tree protection fencing along the limits of work to exclude machinery and construction personnel.

- **Introduction or Spread of Invasive Species**

  As mentioned in **Section 4.1.7.2** present vegetation communities have already been anthropogenically influenced. A total of 73 of the 155 plants (47%) recorded within the Study Area during field investigations are non-native, including highly invasive species such as Garlic Mustard, Dog-strangling Vine, and European Buckthorn. Impacts are minimal given that many invasive species are already present. Vegetation clearing and grubbing or grading and movement of construction equipment may perpetuate the establishment of invasive species in new areas and further spread in already established areas if control measures are not implemented.

- **Sediment and Erosion**

  Clearing and grading the land for construction will require vegetation removal. This will likely result in the disturbance and exposure of soils which can result in sediment runoff discharging into nearby aquatic and terrestrial communities and an increase in dust. Deposition of sediment and dust can bury roots and herbaceous vegetation,

resulting in reduced health of the trees. It can also enter the watercourse and suffocate fish and their eggs. In order to mitigate these impacts, sediment and erosion control measures including silt fencing and dust suppressants, should be implemented and maintained through construction.

- **Soil and Water Contamination**

  The use of machinery and vehicles on site could result in spills or leaks of oil, gasoline, and other fluids that could enter the surrounding natural communities. These impacts can be limited and even avoided with proper machinery inspections and maintenance, as well as by establishing areas away from natural features that are dedicated to re-fuelling and storing machinery. It is recommended that the refuelling of any machinery is completed at least 30 metres away from a watercourse or wetland to help prevent deleterious substances from entering the watercourse.

- **Disturbance to Wildlife**

  Construction activities within the Construction Disturbance Area can potentially disturb wildlife (e.g., birds, snakes, and turtles) within adjacent natural features. Construction within the active season may result in wildlife collisions with construction equipment or disruption of life cycle processes (e.g., nesting, hibernating, etc.). During construction, nesting Snapping Turtles may be attracted to recently disturbed soils and exposed stockpiles to lay their eggs. Without exclusion fencing or proper stockpile management, this can lead to adult Snapping Turtle and Snagging Turtle egg mortality. Noise and vibrations from construction activities are anticipated to be temporary and are not anticipated to substantially increase from daily existing road and railway use. A certain degree of disturbance can be avoided by restricting construction activities to certain times of the day and outside of breeding periods for any bird species identified within the Study Area.

- **Disturbance or displacement of *Migratory Bird Convention Act* – Protected Birds, Species of Conservation Concern Birds and Species at Risk Birds as well as Destruction of Their Nests**

  Vegetation communities provide breeding habitat and movement corridors for a variety of wildlife, including Species at Risk, Species of Conservation Concern and/or migratory birds protected under the *Migratory Birds Convention Act*. Furthermore, migratory and/or Species at Risk birds may use manmade structures (e.g., bridges and buildings) for nesting. Vegetation (i.e., trees, shrubs and ground cover) removal or structure demolition/rehabilitation has the potential to destroy migratory bird nests and eggs, which are protected under the *Migratory Birds Convention Act*, if conducted during the overall bird nesting period of April 1 to

August 31. No impacts to Schedule 1 *Migratory Birds Convention Act* – protected species are anticipated as no individuals or evidence of individuals (i.e., nests, foraging cavities) were observed within the Study Area.

With the implementation of the mitigation recommendations outlined in **Section 5.1.2** below, the above listed effects should be avoided or mitigation during the construction phase.

5.1.1.2.2 Operation Phase

- **Wildlife Road Mortality**

  Converting the decommissioned Line 3 Scarborough Rapid Transit into a dedicated busway is anticipated to increase wildlife road mortality. The decommissioned Line 3 Scarborough Rapid Transit will be paved so that buses can run regularly along the busway and widened at bus platform locations to allow passengers to board and alight. This increase in road traffic and wider area for wildlife to cross is anticipated to increase wildlife vehicle collisions.

- **Effects on Water Quality**

  Anticipated indirect potential effects associated with the long-term operation of the busway may include increased inputs of road salt and other deleterious substances in nearby natural heritage features such as the Southwest Highland Creek. However, impacts are not anticipated to increase from baseline conditions given busway is located in a highly urbanized area. As stated in **Section 4.1.6**, however, nearby natural heritage features are already heavily subjected to road salt, oil and gas, sediment, excess nutrients and other deleterious substances from existing infrastructure.

- **Changes in Hydrology Drainage and Water Quantity**

  Increased impervious surfaces as result of the new paved bus stops can indirectly affect the hydrology, drainage and water quantity of nearby natural features. However, the bus stops are not anticipated to change existing flow inputs into nearby natural features according to a drainage study completed for this Project, which is provided under a separate cover titled “Busway Conversion Natural Transit Project Assessment Process Stormwater Management Report” (AECOM, 2024).

5.1.2 Mitigation

Standard mitigation measures are typically used for construction-related impacts. These mitigation measures are commonly implemented with infrastructure projects and include measures intended to reduce or eliminate potential impacts to the natural environment.

The anticipated impacts of the proposed work and the recommended mitigation measures are detailed in **Table 5-5**. The following general measures are proposed to mitigate potential impacts further:

- **Installation of Fencing**

  The installation of tree protection fencing and equipment exclusion fencing can minimize construction-related impacts such as damage to trees or sediment loading in adjacent Natural Heritage Features. Consideration should be given to install protective fencing adjacent to vegetation communities and the Dorset Park Branch of Southwest Highland Creek. Proper installation and maintenance are necessary to reduce the risk of potential impacts.

- **Incidental Take of *Migratory Birds Convention Act* – Protected Birds and Nests**

  To avoid contravention of the *Migratory Birds Convention Act*, any vegetation removal required should be completed outside of the bird nesting period (April 1 to August 31). If this is not possible, nest searches completed by a qualified Avian Biologist can be completed in simple habitat[8] prior to but within 48 hours of vegetation clearing. If a nest of a *Migratory Birds Convention Act* – protected bird is identified, the qualified Avian Biologist will establish an appropriately sized buffer wherein no construction is to occur until the nestling have fledged and the nest is deemed as inactive by the Avian Biologist.

- **Bat Maternity Colonies Significant Wildlife Habitat and Species at Risk**

  Avoid tree removal within the Dry - Fresh Exotic Deciduous Forest Type (FODM4-12) during the bat active season (April 1 to September 30).

- **Wildlife Exclusionary Measures including Species of Conservation Concern**

  Suitable habitat for turtles and amphibians was identified in the larger Study Area. Wildlife exclusionary measures including fencing should also be implemented to prevent wildlife encounters during construction activities. Exclusion fencing type and installation should follow the Best Management Practices for Mitigation the Effects of Roads on Amphibian and Reptile Species at Risk in Ontario (Ministry of Natural Resources and Forestry, 2016).

8. Simple habitats are those in which migratory bird nest absence can be confidently established through nest surveys. These include habitats such as an urban park consisting of mostly lawns with a few isolated trees, a vacant lot with few possible nest sites, a previously cleared area which might attract ground nesters, a structure such as a bridge, a beacon, a tower or a building, snags that can contain primary and secondary cavity nesters, and colonial-breeding species that can often be located from a distance.

- **Sediment, Erosion and Dust**

  A sediment and erosion control plan should be developed that would include installation of sediment and erosion control measures such as silt fencing and hay-bale check dams prior to construction activities. To mitigate dust deposition, a dust suppressant can be applied to areas of exposed soils and areas of concrete drilling/cutting to reduce or eliminate dust generation.

- **Machinery/Equipment Practices**

  Impacts from construction machinery can be limited or avoided with proper machinery inspections and maintenance and by establishing areas away from Natural Heritage Features that are dedicated to re-fuelling and storing machinery. Refuelling should not occur within 30 metres of a watercourse, drainage feature, or wetland. Emergency spill-kits and drop trays should be kept on site and deployed as necessary for equipment working near or over water. No machinery/equipment should enter or ford the Dorset Park Branch of Southwest Highland Creek at any time.

- **Invasive Species Control**

  Consideration should be given to limit the spread of invasive species. The *Clean Equipment Protocol* (Halloran *et al.*, 2013) should be implemented during construction activities.

5.2 Air Quality

5.2.1 Construction Air Quality Impacts

Construction activity creates and releases fine particulates (fugitive dust) and other vapours into the surrounding community, including diesel combustion exhaust, asphalt volatile contaminant emissions, etc. Emissions from construction activity are temporary and unlikely to have long-lasting effects on the surrounding area.

Fugitive dust emissions can result from movement of construction equipment and transport of materials to and from a construction site. Fugitive dust would generally be a problem during periods of intense construction activity and would be accentuated by windy and/or dry conditions.

Construction activities which potentially prove most impactful to the local air quality include, but are not limited to:

- Clearing and grubbing.
- Grading and rock blasting.
- Road and surface paving.

- Storage of granular material.
- Structure construction/deconstruction.
- Mobile on-site equipment.

Construction activities will result in temporary traffic disruption and detour, which can lead to increased traffic congestion, thereby increasing motor vehicle exhaust emissions on nearby roadways, and could result in elevated localized pollutant concentrations.

Construction equipment operating by diesel fuel combustion or other fuel type combustion emit exhaust contaminants during their operation. Compared with emissions from other motor vehicle sources in the Study Area, emissions from construction equipment and trucks are generally insignificant with respect to compliance with the Provincial and Federal ambient air quality standards.

5.2.1.1 Construction Equipment and Vehicle Exhaust

Environment Canada adopted amendments to the Off-Road Compression-Ignition Engine Emission Regulations which align Canadian emission standards with the U.S. EPA Tier 4 standards for non-road engines, including the emission limits, testing methods and effective dates.

The Regulations Amending the Off-Road Compression-Ignition Engine Emission Regulations (the Amendments) impose stricter standards and new requirements starting with engines of the 2012 and later model years.

All equipment and vehicles should be kept properly maintained and repaired to minimize exhaust emissions, including odours.

Excessive idling of vehicles and equipment (greater than five minutes) should be minimized. Other potential mitigation measures may include the use of alternative-fuelled or electric equipment where feasible.

5.2.1.2 Fugitive Dust

Implementing good practices including wetting exposed earth areas; covering dust-producing materials during transport; and limiting construction activities during high wind conditions should minimize the impacts of fugitive dust. Potential mitigation measures that may be employed by the construction contractor to reduce fugitive dust issues include:

- Seeding, paving, covering, wetting, or otherwise treating disturbed soil surfaces
- Minimizing storage and unnecessary transfers of spoils and debris on-site
- Using wind screens or fences

- Covering all truckloads of dust-producing material
- Removing all loose or unsecured debris or materials from empty trucks prior to leaving the site
- Reducing traffic speeds on any unpaved surfaces
- Vacuum sweeping or water truck spraying of all paved surfaces and roadways on which equipment and truck traffic enter and leave the construction areas
- Using wheel washes and truck washes at site egresses
- Modifying work schedules when weather conditions could lead to adverse impacts (e.g., very dry soil and high winds)

Fugitive dust from construction activities can be managed through implementation of an Air Quality Management Plan, where mitigation measures are specified for the planned construction activities and implemented on an as-needed basis.

5.2.2 Mitigation Measures for Construction Activity

Exposure to construction-related emissions can be mitigated by the following:

- Determining that mobile equipment is in good condition, properly and regularly maintained, and compliant with applicable Federal and Provincial Regulations for off-road diesel engines.
- Determining that all machinery is maintained and operated in accordance with manufacturer's specification.
- Locating stationary equipment (generators, compressors, etc.) as far away from sensitive receptors as practical.
- Minimizing idling time and posting signage to this effect around the construction site.
- Determining that stationary and mobile equipment are not operated during early morning (before 6 AM, or sunrise) or evening periods (after 8 PM, or sunset) as often as practical.
- Implementing the use of non-chloride dust suppressants.
- Temporary seeding or mulching and compression of bare soil and storage piles to reduce erosion.
- Air monitoring of contaminants, as applicable, to verify the effectiveness of dust control measures to support the Dust Control Plan.

- Explicit commitment to the implementation of all applicable best practices identified in the Environment Canada document, Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (2005).
- Assessing that the areas most impacted by particulate levels are vegetated (e.g., tree planting) or other types of screening/barriers may be considered where possible between the source of emission and the impacted receptor(s) to reduce the cumulative particulate impacts.

Site supervisors during the construction phase should monitor the site for wind direction and weather conditions to ensure that high-impact activities be reduced when the wind is blowing consistently towards nearby sensitive receptors. The site supervisor should also monitor for visible fugitive dust and take action to determine the root-cause to determine proper mitigation. Specific details to this effect should be included in the Air Quality Management Plan.

It is further recommended that mitigation measures detailed in "*Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)"* prepared by Cheminfo for Environment Canada be implemented, where practical.

5.2.3 Mitigation Measures for Operations

The individual impacts from the proposed project emissions on the local air quality are a result of contributions from both idling vehicles and travelling vehicles within the Study Area. These emissions from roadways and idling vehicles are released with little upward dispersion capacity and are therefore expected to dissipate with increasing distance from the emission source. Areas of concentrated emission impact are influenced by traffic volumes along a given segment of roadway.

Potential mitigation actions to counteract the project emission impacts include the introduction of electric buses and/or more fuel-efficient vehicles to provide significant CAC and GHG reductions. The increasing popularity and affordability of hybrid and full electric vehicles, as well as transit authority led initiatives to increase the percentage of fuel efficient and hybrid vehicles will continue to reduce emission impacts from vehicles in the future.

Areas affected by airborne particulates may be benefited by introducing vegetation (e.g., trees, shrubbery, etc.) or other types of screening/barriers may be considered to help reduce cumulative particulate impacts during the operational phase. Vegetation would be best placed, where feasible, between sources of emission (i.e., roadways) and impacted receptor(s).

5.3 Socio-Economic and Land Use

5.3.1 Land Use and Built Form Patterns

5.3.1.1 Potential Effects

5.3.1.1.1 Construction

Temporary Project effects, such as property takings for laydown areas, are anticipated and the Toronto Transit Commission is in the process of acquiring these properties as easements for construction of stops and small portions of the busway.

Additionally, indirect effects resulting from Project activity during construction includes excess light spillage on to neighbouring properties as well as increased noise, dust and vibration emanating from construction work. It is important to note that anticipated Project effects are subject to change as design is finalized.

5.3.1.1.2 Operations

The Project is anticipated to have a positive effect on adjacent land uses through the provision of both accessible and reliable transit networks to both area residents and local businesses. Increased connection to transit networks is likely to facilitate intensification and diversification of land use within the Project Area and its surroundings as area residents are better able to access goods and services, thus becoming hubs of socio-economic activity. Through increased transit connectivity, communities decrease reliance on single and low-occupancy vehicles, thus enabling socio-economic mobility for various income groups while providing human health and environmental co-benefits.

Conversely, anticipated Project effects during operation may also include excess light spillage onto neighbouring properties as well as noise, dust and vibration as indirect effects, which will be comparable with the previous Scarborough Rapid Transit conditions. It is important to note that anticipated Project effects are subject to change as design is finalized.

5.3.1.2 Mitigation Measures and Monitoring Activities

5.3.1.2.1 Construction

During the construction phase, temporary easements are anticipated at the Tara Avenue, Lawrence Avenue and Ellesmere Road stops, as well as along portions of the busway. To secure the required property for the stop locations, and identify any required site-specific mitigation, consultation and negotiations with property owners have

commenced. Any identified staging or laydown areas during the construction phase will be in accordance with the City of Toronto procedures. Selected staging or laydown areas are to occur in areas that minimize adverse effects to sensitive receptors.

There are no anticipated closures of driveways and building entrances currently identified during construction, and closures when required are to be kept at a minimum or avoided whenever possible. In situations where access to property is required, ongoing consultation with affected landowners can help identify appropriate site-specific mitigation measures.

The mitigation of potential nuisance effects shall be undertaken as described in Air Quality and Noise and Vibration Reports, available under sperate covers. An Erosion and Sediment Control Plan should be developed by the Toronto Transit Commission/Contractor prior to construction that addresses sediment release to adjacent properties and roadways. Additionally, a Communications Protocol should also be developed by the Toronto Transit Commission/Contractor prior to construction. This Communications Protocol is to communicate how and when surrounding property owners and tenants will be informed of anticipated upcoming construction works, including any applicable night-time work. Similarly, a Complaints Protocol should also be developed by the Toronto Transit Commission/Contractor prior to construction.

The implementation of best practices are to mitigate or avoid any Project effects during construction, including light trespass, glare and pollution effects, which may negatively impact area residents and businesses. Applicable municipal by-laws and Ministry of Transportation practices for lighting in areas near or adjacent to highways and roadways regarding outdoor lighting for both permanent and temporary construction activities are subject compliance, and industry best practices shall be followed.

To mitigate impact to the visual environment, screened enclosures should be considered as required, particularly for storage areas. Temporary landscaping may also be implemented, especially at the borders of the construction site between site fencing and walkways where space allows. Site enclosures should consider wayfinding and safety considerations particularly with respect to accidental egress onto a construction site.

5.3.1.2.2 Operations

Permanent property acquisition requirements for the operation of the Project are not anticipated and will be confirmed as design progresses. Where property takings are identified, consultation and negotiation with the property owner will be initiated well in advance to secure the required property and identify site-specific mitigations.

Closures of driveways and building entrances are not anticipated and shall be avoided whenever possible and shall be kept to a minimum when required. Where possible, alternative means of access shall be provided where a driveway is permanently removed.

Nuisance monitoring shall be undertaken as described in the Air Quality and Noise and Vibration Reports, available under separate cover. Erosion and sediment control monitoring will be conducted, and construction activities will be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans.

To mitigate impact to the visual environment, screen enclosures will be considered, as required, particularly for storage areas. The visual effects of project structures (e.g., retaining walls, etc.) should be mitigated by considering their location, building materials, architectural design, and surrounding landscape treatments. Municipal departments and the public will be engaged as needed, as Project planning and design progresses. Whenever possible, activities such as corridor maintenance during operation shall be minimized in duration and their footprint occupied.

5.3.2 Transit and Transportation Network

5.3.2.1 Potential Effects

5.3.2.1.1 Construction

The following are potential effects to traffic flow within the Study Area as a result of the Project:

- Temporary narrowing of lanes (only along the Service Roads; Ellesmere Road, Lawrence Avenue East, and Eglinton Avenue East).
- Traffic may be temporarily halted to allow construction vehicles to enter/exit construction sites and may be slowed by slow-moving equipment transitioning between locations.

5.3.2.1.2 Operations

During the operations phase of the Project, through travel at minor intersections may be restricted.

The Project is anticipated to result in an improved experience for transit users, providing faster and more frequent connections to major destinations along the corridor.

5.3.2.2 Mitigation Measures and Monitoring Activities

5.3.2.2.1 Construction

The following mitigation should be considered to manage construction effects:

- Avoid simultaneous closure and construction on adjacent crossings.
- Install and provide advance advisory signage, such as:
  - Installation of roadway closing information signs at least two weeks in advance of the closing; and
  - Distribution of notices to affected residents and business establishments to advise of the upcoming road closure(s) in their area.
- Prepare and implement emergency response and incident management plans during construction to assist emergency service provides (i.e., Fire, Police and Ambulance) in responding to incidents and emergencies within the construction area (i.e., an incident causing closure of a crossing adjacent to the construction site where the Contractor is able to permit emergency service vehicles to cross the crossing location under construction).
- Conduct pre-construction planning meetings with representatives of Toronto Fire, Police and Ambulance providers, other relevant City of Toronto divisions, and affected local transit authorities.
- Traffic and Transit Management Plans and Traffic Control Plans shall be prepared by the Toronto Transit Commission/Contractor prior to construction.

The following will be done once a Contractor has been selected and a construction schedule developed:

- Co-ordinate the work with other planned road projects that may impact construction, so construction may be staged to minimize traffic impacts.
- Conduct a haul route analysis to confirm haul routes via public roads.
- Maintain existing residential and commercial access through the work zone to the extent practical.

Construction activities will be monitored by a qualified inspector/contract administrator with extensive Ontario Traffic Manual Book 7 (Temporary Conditions) knowledge to confirm that all activities are conducted in accordance with mitigation plans.

Traffic effects will be monitored in accordance with the Construction Traffic and Transit Management Plan and adjust the Traffic Control Plans as necessary during the construction period.

Transit effects to be monitored and adjusted as necessary during the construction period.

5.3.2.2.2 Operations

In general, it is good practice to reduce overall parking availability around higher-order transit corridors, however, significant loss of on-street parking may be compensated for by designing some new off-corridor parking spaces as appropriate and desired.

5.3.3 Pedestrian and Cycling Network

5.3.3.1 Potential Effects

5.3.3.1.1 Construction

The following are possible effects of the construction of the Project:

- Bike lanes, multi-use paths and other cycling facilities may be temporarily restricted or eliminated.
- Sidewalks may be temporarily closed or removed.
- Temporary sidewalks/paths may have a rough or bumpy surface that creates discomfort for those with assisted mobility devices, strollers, etc.
- Operation of construction equipment and large construction trucks in corridor may pose safety and comfort challenges for pedestrians and cyclists.

5.3.3.1.2 Operations

Once completed, the Project is expected to result in an improved experience for pedestrians and cyclists with new, active transportation infrastructure as the Project is to be designed to improve access to key destinations.

5.3.3.2 Mitigation Measures and Monitoring Activities

5.3.3.2.1 Construction

The following mitigation should be considered to manage construction impacts:

- Maintain pedestrian/cyclist access through the work zone whenever possible.
- Where a sidewalk or path needs to be removed, provide a temporary path as soon as the situation allows.

- Provide clear signage at decision points to pedestrians and cyclists informing of closures. For instance, a sidewalk closure should be indicated at an intersection and not mid-block.
- Ensure detours can be observed through line of sight and provide adequate signage where not possible.
- Develop a safety program that implements safety best practices in a construction zone and addresses pedestrian/cyclist movement through the corridor.
- Temporary access paths, walkways, cycling routes and fencing should be monitored.
- Cycling network impacts to be monitored and mitigation adjusted as necessary during the construction period.

5.3.3.2.2 Operations

The Project is expected to result in an improved experience for pedestrians and cyclists with new, active transportation infrastructure. The Project should be designed to improve access to key destinations.

5.3.4 Community Amenities

5.3.4.1 Potential Effects

5.3.4.1.1 Construction

In general, effects to community amenities within the Study Area are mostly anticipated to be minor; mainly in the form of noise, vibration and dust as an indirect effect of construction activity. Some amenities may experience temporary access restrictions, such as trail, or entrance closures due to nearby construction. Impacts to community amenities will be confirmed as the design progresses.

5.3.4.1.2 Operations

No impacts to community amenities are anticipated as a result of the operation of the Project, except where temporary property easements are required.

5.3.4.2 Mitigation Measures and Monitoring Activities

5.3.4.2.1 Construction

Construction noise is subject to City of Toronto Noise Control By-law. When and where work is required outside of permitted times, an exemption shall be applied for in advance of this work.

Closures of trails and entrances are not anticipated and shall be avoided whenever possible during construction and/or shall be kept to a minimum when required. Alternate means of access shall be provided where residential access is temporarily closed.

5.3.4.2.2 Operations

No effects to community amenities are anticipated as a result of the operation of the Project, except where temporary property is required. Consultation and negotiations with property owners has commenced to secure the required property for stop locations, and identify site specific mitigation, as required. Property impacts to community amenities that serve vulnerable populations should be avoided.

5.3.5 Utilities

5.3.5.1 Potential Effects

5.3.5.1.1 Construction

Existing public utilities are typically located at either side of the future busway which is anticipated to significantly reduce the need for utility relocations during construction. The potential for utility shut-off during Project construction may occur in instances of end-of-life or precautionary replacement. Any impacts to public utility during construction are subject to final design.

5.3.5.2 Operations

No effects to public or private utilities are anticipated during Project operations.

5.3.5.3 Mitigation Measures and Monitoring Activities

5.3.5.3.1 Construction

Permits and consents from and with all utility companies shall be obtained with respect to the design, construction, installation, servicing, operation, repair, preservation, relocation, and or commissioning of utility infrastructure.

Where new utility crossings are proposed, applications for a new utility crossing agreement will be required. In circumstances 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. As-built plans shall be obtained of the relocated infrastructure from utility agencies per as-built preparation standards Canadian Standards Association S250-11 – Mapping of Underground Utility Infrastructure (2011), as amended from time to time.

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.

A tracking system shall be developed to track as-built deliverables.

5.3.5.3.2 Operations

No effects are anticipated during the construction phase and therefore, no mitigation is proposed.

5.4 Noise and Vibration

5.4.1 Potential Construction Noise Impacts

To predict the construction impact at each noise sensitive area during each phase of construction, each scenario described in **Table 4-28** was modelled. Each scenario considered the active construction areas generating the greatest noise impacts for each noise sensitive area. The active construction areas were assumed to be 100 metre sections per 8 hour shift along the Scarborough Rapid Transit corridor. For the purposes of this assessment, the noise impact was defined as the difference between the Project construction noise levels, and the existing background noise levels. Existing background noise levels used in the assessment were the average measured 1-hour L_{eq} for each of the day and nighttime periods (see **Table 4-27**). The background noise level used for the area between Eglinton Avenue East and the hydro corridor does not have noise contributions from Eglinton Avenue East. Receptors closer to Eglinton Avenue East would have lower realized impacts in comparison with the modelled impacts due to higher existing background noise levels. Receptors used in the impact assessment of construction noise were the same as the receptors used in the operations assessment.

Reference construction equipment noise source information was sourced from the Federal Highway Administration’s Roadway Construction Noise Model. Noise sources

were input into an environmental noise prediction algorithm (International Organization for Standardization 9613-2 implemented in Cadna/A software package) to predict the noise levels at the most exposed receptor locations within each noise sensitive area. The predicted noise levels were then compared to the background noise levels to determine the maximum noise impacts due to construction of the Project. The shoring is only needed in the areas where connections to existing stormwater sewers and other utilities are required in the areas of the new access roads to the busway near the existing Lawrence East and Ellesmere Stations. As the final shoring extents and footprints are not defined, there is potential for the shoring to extend further into the busway from those access points; construction impacts would be similar to the modelled receptors closest to the shoring.

A summary of the calculated construction noise impacts is presented in **Table 5-2**.

As shown in **Table 5-2**, the noise impact is highest during the nighttime hours. Human annoyance due to construction noise is expected without the implementation of noise control measures. The sound quality from the construction of this Project is expected to be typical of construction activities at other civil engineering projects. Construction is temporary and will cease at the end of the construction periods and will decrease as construction moves along the corridor. Since this is a transportation corridor, construction impacts will be transient and move along once the construction activity has been completed in a particular area.

Table 5-2: Noise Impact in Decibels – Construction

Representative Receptor	Time Period	Removals and Utilities	Excavation, Grading, and Concrete Works	Shoring – Impact Type	Shoring – Vibrator Type	Shoring – Augured Type	Paving
R01	Day	14.4	13.6	11.5	11.5	2.2	11.9
R01	Night	17.8	16.9	14.5	14.5	5.1	15.2
R02	Day	15.7	14.9	19.4	19.4	8.3	13.2
R02	Night	23	22.1	26	26	16.1	20.4
R03	Day	9.9	9.3	16	16	2.1	7.6
R03	Night	16.4	15.7	19.2	19.2	8.5	14
R04	Day	9.7	9.1	11.5	11.5	-	7.3
R04	Night	18	17.3	12.8	12.8	2.2	15.6
R05	Day	3.8	3	-	-	-	1.3
R05	Night	11.8	11.1	-	-	-	9.4
R06	Day	10.1	9.3	9.8	9.8	-	7.6
R06	Night	18.5	17.7	18.8	18.8	9	16
R07	Day	4.3	3.6	-	-	-	1.8
R07	Night	13.5	12.8	9.3	9.3	-	11.1
R08	Day	10	9.3	-	-	-	7.6
R08	Night	14.2	13.4	4.9	4.9	-	11.7
R09	Day	11	10.2	17.5	17.5	7.4	8.5
R09	Night	14.8	14	22.9	22.9	13.2	12.3
R10	Day	16.8	16.1	24.6	24.6	12.3	14.4
R10	Night	23.3	22.5	29.2	29.2	18.9	20.7
R11	Day	16.9	16.3	15.3	15.3	4.1	14.6
R11	Night	24.2	23.4	19.5	19.5	9.1	21.6
R12	Day	15.4	14.9	10.1	10.1	-	13.1
R12	Night	22.7	22	12	12	2.1	20.2
R13	Day	14.8	14.4	5.1	5.1	-	12.6
R13	Night	22	21.2	6.1	6.1	-	19.5
R14	Day	13.7	13.4	-	-	-	11.7
R14	Night	22.4	21.7	5.1	5.1	-	19.9
R15	Day	14.8	14.2	12.4	12.4	2.8	12.5
R15	Night	15.6	14.7	6.2	6.2	-	13

Representative Receptor	Time Period	Removals and Utilities	Excavation, Grading, and Concrete Works	Shoring – Impact Type	Shoring – Vibrator Type	Shoring – Augured Type	Paving
R16	Day	9	8.4	-	-	-	6.7
R16	Night	8.6	7.9	-	-	-	6.1
R17	Day	14.1	13.8	-	-	-	12
R17	Night	14.3	13.9	-	-	-	12.1
R18	Day	12.7	12.3	-	-	-	10.5
R18	Night	15.7	15	-	-	-	13.3
R19	Day	12.6	12.3	-	-	-	10.5
R19	Night	13.4	13.2	-	-	-	11.4
R20	Day	12.8	12.5	-	-	-	10.7
R20	Night	12.9	12.5	-	-	-	10.7
R21	Day	13.3	13.1	-	-	-	11.3
R21	Night	14.2	14.1	-	-	-	12.3
R22	Day	14.4	14.5	-	-	-	12.6
R22	Night	15.4	15.5	-	-	-	13.7
R23	Day	17.3	18	-	-	-	15.7
R23	Night	19.8	20.5	-	-	-	18.3
R24	Day	9	9	-	-	-	7.1
R24	Night	11.8	12.1	-	-	-	10.2
R25	Day	12	12.3	-	-	-	10.5
R25	Night	12.4	12.7	-	-	-	10.8
R26	Day	12.1	12.3	-	-	-	10.5
R26	Night	12.5	12.7	-	-	-	10.8
R27	Day	11.1	10.9	-	-	-	9.2
R27	Night	11	10.9	-	-	-	9.1
R28	Day	13.3	12.8	-	-	-	11
R28	Night	13.5	12.9	-	-	-	11.2
R29	Day	12.6	11.9	-	-	-	10.2
R29	Night	12.4	11.8	-	-	-	10
R30	Day	13	13.1	-	-	-	11.2
R30	Night	13.3	13.4	-	-	-	11.6
R31	Day	11	11.1	-	-	-	9.3
R31	Night	13.9	14	-	-	-	12.2

Representative Receptor	Time Period	Removals and Utilities	Excavation, Grading, and Concrete Works	Shoring – Impact Type	Shoring – Vibrator Type	Shoring – Augured Type	Paving
R32	Day	9.7	9.7	-	-	-	8
R32	Night	13.2	13.3	-	-	-	11.5
R33	Day	9.5	9.4	-	-	-	7.7
R33	Night	10.8	10.8	-	-	-	9.1
R34	Day	9.8	9.7	-	-	-	7.9
R34	Night	11.8	11.8	-	-	-	10.1
R35	Day	11.2	10.7	-	-	-	9
R35	Night	11.3	10.8	-	-	-	9
R36	Day	16.8	16.3	-	-	-	14.6
R36	Night	18.6	17.7	-	-	-	16

5.4.2 Potential Construction Vibration Impacts

The prediction of construction vibration levels was based upon methodology presented in the United States Federal Transit Administration's Transit Noise and Vibration Impact Assessment guide. At this stage of the Project, it was assumed that all the construction equipment could operate anywhere within the indicated construction areas. Vibration levels were predicted to determine the separation distance required to be outside the City of Toronto's construction Zone of Influence. Separation distances were also calculated to determine the distances where building damage criteria would be exceeded. These distances are presented in **Table 5-3** below.

Residential areas are typically Type III buildings while commercial locations (e.g., hotels, nursing homes) were assumed to be Type II. No buildings have been identified as Type IV (extremely sensitive to vibration damage or interference) at the time of this report. Existing Toronto Transit Commission infrastructure that will be remaining are assumed to be protected as part of the construction contract (including the Highland Creek crossing north of Lawrence Avenue East) and have not been considered in this assessment.

Table 5-3: Vibration Building Damage Assessment

Equipment	Reference PPV (inches per second at 25 feet / 7.62 metres)	5 millimetres per second Zone of Influence [metres]	Building Damage Distance (Type II) [metres]	Building Damage Distance (Type III) [metres]
Jackhammers	0.035	2.4	1.8	2.4
Excavator	0.003	0.5	0.4	0.5
Backhoe	0.003	0.5	0.4	0.5
Compaction Machine	0.210	7.9	6.0	7.9
Semi Trucks	0.076	4.0	3.1	4.0
Concrete Pump Truck	0.076	4.0	3.1	4.0
Cement Trucks	0.076	4.0	3.1	4.0
Dump Trucks	0.076	4.0	3.1	4.0
Semi Trucks	0.076	4.0	3.1	4.0
Vibratory Roller	0.210	7.9	6.0	7.9
Impact Pile	1.518	29.4	22.5	29.4
Sonic or Vibratory Piler	0.734	18.1	13.8	18.1
Drill Rig	0.089	4.4	3.4	4.4

The City of Toronto Zone of Influence was preliminarily mapped and is presented in **Appendix A**. The Zone of Influence for general construction was based upon the vibratory roller and compaction machines at 7.9 metres of separation. The Zone of Influence for the impact and vibratory piling/shoring was mapped separately as the separation distances for those activities was much greater at 29.4 and 18.1 metres respectively. Note that augured piling Zone of Influence would be less than the Zone of Influence for general construction activities.

As shown in **Appendix A**:

- Construction would be occurring immediately adjacent to bridge pillars at Eglinton Avenue East and Ellesmere Road, and the pedestrian bridge at Tara Avenue. These structures will be impacted by construction vibration.
- For general construction
  - Residential location 154 Jenkinson Way will fall within the Zone of Influence for general construction.
  - Commercial locations at 51 and 85 Nantucket Boulevard fall within the Zone of Influence for general construction, and vibration levels may exceed the criteria for building damage for Type II structures.
- For shoring/piling
  - Residential locations southwest of the existing Ellesmere Station would fall within the Zone of Influence
  - Residential locations southwest of the existing Lawrence East Station would fall within the Zone of Influence
  - Fewer locations would fall within the Zone of Influence if vibratory piles were used, and most locations would not be in the Zone of Influence if augured piles or trench boxes are used.

5.4.3 Potential Operations Impacts

Similar to other traffic noise impact assessments/environmental assessments in Ontario, noise predictions were used to determine the noise impact from the Project. Design and traffic information was used to develop noise models using the International Organization for Standardization 9613 and Traffic Noise Model prediction algorithms implemented in the Cadna/A modelling package. Existing noise barriers along the corridor (east side around Tara Avenue, and developer installed noise barriers for residences along the west side of the corridor, south of the existing Lawrence East Station) were included in the noise model.

For the base case, noise source information for the Scarborough Rapid Transit was sourced from the Scarborough Rapid Transit reference level provided in the STAMSON V5.04 program (Ministry of the Environment, Conservation and Parks, 2000) and used to calibrate a noise model using the International Organization for Standardization 9613 prediction algorithm. Noise from buses and existing roadways were modelled using the appropriate vehicle types in the Traffic Noise Model prediction algorithm implemented in Cadna/A. The decommissioned Scarborough Rapid Transit line was not modelled in the Post Project scenario as the Project replaces the rail corridor with a busway. Traffic information is summarized in **Appendix A**.

After the assumptions report was prepared, Toronto Transit Commission further refined the bus operations for the nighttime period at Lawerence East Stop. For the nighttime prior to 2:00 am, based on existing stop usage data at Lawrence Avenue East and Kennedy Road, an average of 83% of buses would stop at Lawrence East Stop, with an average idling dwell time of 16 seconds. For the period from 5:00 to 7:00 am, 68% of buses would stop at Lawrence East Stop, with an average idling dwell time of 21 seconds. For safety purposes, buses not serving a stop are required to travel at a speed of 20 kilometres per hour through the stop areas.

As per the Protocol, the noise assessment ‘basis of assessment’ was based on the higher of the predicted base case noise level, or the levels set out in **Table 4-31**. The impact, an increase in noise levels, is the difference between the predicted post Project noise level and the basis of assessment. The assessment of noise is based upon the A-weighted decibel. A summary of the busway predicted noise levels and the predicted impact are presented in **Table 5-4**.

Results in **Table 5-4** indicate that the noise impact is above the noise mitigation investigation threshold at representative receptor R11 during the nighttime, and nearly over the threshold at R12, also during the nighttime period. These locations represent the town houses on the west side of the corridor, south of Lawrence Avenue East. The predicted noise levels at these locations are higher during the nighttime period due to the plane of window assessment location for the nighttime period as per the Protocol. Mitigation analysis is presented in the following section.

Table 5-4: Busway Noise Impact Assessment Summary

Receptor	Time Period	Predicted Base Case Noise [A-weight decibel]	Basis of Assessment [A-weight decibel]	Predicted Post Project Noise [A-weight decibel]	Impact [decibels]
R01	Daytime $L_{eq,16\ hour}$	55.4	55.4	56.2	0.8
R01	Nighttime $L_{eq,8\ hour}$	50.8	50.8	52.0	1.2
R02	Daytime $L_{eq,16\ hour}$	49.4	55.0	52.6	-
R02	Nighttime $L_{eq,8\ hour}$	52.1	52.1	56.4	4.3
R03	Daytime $L_{eq,16\ hour}$	46.6	55.0	47.8	-
R03	Nighttime $L_{eq,8\ hour}$	48.3	50.0	50.4	0.4
R04	Daytime $L_{eq,16\ hour}$	45.5	55.0	45.1	-
R04	Nighttime $L_{eq,8\ hour}$	50.2	50.2	51.7	1.5
R05	Daytime $L_{eq,16\ hour}$	39.7	55.0	36.4	-
R05	Nighttime $L_{eq,8\ hour}$	43.6	50.0	45.8	-
R06	Daytime $L_{eq,16\ hour}$	56.4	56.4	56.4	-
R06	Nighttime $L_{eq,8\ hour}$	52.0	52.0	53.4	1.4
R07	Daytime $L_{eq,16\ hour}$	42.9	55.0	42.3	-
R07	Nighttime $L_{eq,8\ hour}$	45.6	50.0	45.3	-
R08	Daytime $L_{eq,16\ hour}$	45.6	55.0	46.1	-
R08	Nighttime $L_{eq,8\ hour}$	45.5	50.0	46.2	-
R09	Daytime $L_{eq,16\ hour}$	56.2	56.2	56.1	-
R09	Nighttime $L_{eq,8\ hour}$	53.1	53.1	53.5	0.4
R10	Daytime $L_{eq,16\ hour}$	52.7	55.0	54.2	-
R10	Nighttime $L_{eq,8\ hour}$	52.7	52.7	56.3	3.6
R11	Daytime $L_{eq,16\ hour}$	52.5	55.0	55.9	0.9
R11	Nighttime $L_{eq,8\ hour}$	52.9	52.9	58.9	**6.0**
R12	Daytime $L_{eq,16\ hour}$	50.9	55.0	52.0	-
R12	Nighttime $L_{eq,8\ hour}$	52.3	52.3	57.3	5.0
R13	Daytime $L_{eq,16\ hour}$	50.1	55.0	49.1	-
R13	Nighttime $L_{eq,8\ hour}$	51.6	51.6	56.2	4.6
R14	Daytime $L_{eq,16\ hour}$	48.7	55.0	45.8	-
R14	Nighttime $L_{eq,8\ hour}$	52.0	52.0	56.8	4.8
R15	Daytime $L_{eq,16\ hour}$	55.6	55.6	56.6	1.0
R15	Nighttime $L_{eq,8\ hour}$	44.3	50.0	50.0	-
R16	Daytime $L_{eq,16\ hour}$	44.9	55.0	45.8	-
R16	Nighttime $L_{eq,8\ hour}$	38.6	50.0	41.0	-
R17	Daytime $L_{eq,16\ hour}$	48.7	55.0	48.4	-
R17	Nighttime $L_{eq,8\ hour}$	42.6	50.0	44.6	-
R18	Daytime $L_{eq,16\ hour}$	47.2	55.0	46.2	-
R18	Nighttime $L_{eq,8\ hour}$	43.7	50.0	44.4	-

Receptor	Time Period	Predicted Base Case Noise [A-weight decibel]	Basis of Assessment [A-weight decibel]	Predicted Post Project Noise [A-weight decibel]	Impact [decibels]
R19	Daytime $L_{eq,16\ hour}$	46.8	55.0	45.9	-
R19	Nighttime $L_{eq,8\ hour}$	41.3	50.0	42.2	-
R20	Daytime $L_{eq,16\ hour}$	47.1	55.0	46.3	-
R20	Nighttime $L_{eq,8\ hour}$	40.4	50.0	40.7	-
R21	Daytime $L_{eq,16\ hour}$	48.0	55.0	48.2	-
R21	Nighttime $L_{eq,8\ hour}$	42.6	50.0	45.5	-
R22	Daytime $L_{eq,16\ hour}$	49.6	55.0	53.0	-
R22	Nighttime $L_{eq,8\ hour}$	44.3	50.0	50.9	0.9
R23	Daytime $L_{eq,16\ hour}$	48.0	55.0	54.8	-
R23	Nighttime $L_{eq,8\ hour}$	42.7	50.0	52.0	2.0
R24	Daytime $L_{eq,16\ hour}$	44.5	55.0	44.8	-
R24	Nighttime $L_{eq,8\ hour}$	41.7	50.0	45.1	-
R25	Daytime $L_{eq,16\ hour}$	49.2	55.0	50.4	-
R25	Nighttime $L_{eq,8\ hour}$	43.4	50.0	47.7	-
R26	Daytime $L_{eq,16\ hour}$	49.8	55.0	51.4	-
R26	Nighttime $L_{eq,8\ hour}$	44.0	50.0	48.0	-
R27	Daytime $L_{eq,16\ hour}$	50.5	55.0	52.2	-
R27	Nighttime $L_{eq,8\ hour}$	44.2	50.0	48.1	-
R28	Daytime $L_{eq,16\ hour}$	51.2	55.0	52.2	-
R28	Nighttime $L_{eq,8\ hour}$	46.9	50.0	49.3	-
R29	Daytime $L_{eq,16\ hour}$	52.8	55.0	53.3	-
R29	Nighttime $L_{eq,8\ hour}$	46.1	50.0	47.7	-
R30	Daytime $L_{eq,16\ hour}$	49.4	55.0	50.8	-
R30	Nighttime $L_{eq,8\ hour}$	43.6	50.0	47.8	-
R31	Daytime $L_{eq,16\ hour}$	48.0	55.0	47.9	-
R31	Nighttime $L_{eq,8\ hour}$	44.5	50.0	46.4	-
R32	Daytime $L_{eq,16\ hour}$	48.2	55.0	46.1	-
R32	Nighttime $L_{eq,8\ hour}$	45.6	50.0	46.2	-
R33	Daytime $L_{eq,16\ hour}$	48.1	55.0	46.0	-
R33	Nighttime $L_{eq,8\ hour}$	43.3	50.0	43.0	-
R34	Daytime $L_{eq,16\ hour}$	48.3	55.0	46.4	-
R34	Nighttime $L_{eq,8\ hour}$	44.6	50.0	45.0	-
R35	Daytime $L_{eq,16\ hour}$	49.0	55.0	47.6	-
R35	Nighttime $L_{eq,8\ hour}$	41.4	50.0	41.5	-
R36	Daytime $L_{eq,16\ hour}$	63.3	63.3	63.1	-
R36	Nighttime $L_{eq,8\ hour}$	56.6	56.6	57.6	1.0

5.4.4 Construction Mitigation Measures

The following general guidance is provided to decrease construction noise impacts:

- Avoid nighttime construction where possible near residences.
- Avoid the use of impact or sonic piling machines unless noise control (i.e., some sort of enclosure or acoustic shroud) is used. Specific requirements of noise control are to be determined during detailed design based upon exact locations of operations.
  - Consider alternative methods such as installation using augured methods, or if possible, shoring using trench boxes.
- Although exempt from City of Toronto By-law 878-2019, attempt to abide by local noise by-laws and policies.
- Use equipment compliant with Ministry of the Environment (now Ministry of the Environment, Conservation and Parks) publication Noise Pollution Control guidelines-115 and Noise Pollution Control guidelines-118.
- Use of upgraded construction hoarding between construction equipment and noise sensitive receivers.
- Provide occupants of buildings in the vicinity of planned construction activity with the contact details of a person who can assist them with resolving issues related to construction noise, and setup a construction complaint process.
- Limit construction noise levels outside of construction areas (public areas) to a maximum of 85 A-weighted decibels to be compliant with Occupational Health and Safety requirements.
- Ensure all internal combustion engines are fitted with appropriate muffler systems.
- Take advantage of shielding from existing structures, objects, or stockpiles to shield residential locations from construction equipment.
- Minimize simultaneous operation of equipment where possible.
- Implement a noise idling policy on site (unless necessary for safety or equipment operations).
- Maximize distance between construction equipment operations and noise sensitive receptors where possible.
- Keep equipment in good maintenance.

- Limit equipment idling time to the minimum time necessary to complete specified tasks.
- Advise nearby residents of significant noise generating activities to minimize disruption.
- Consult with likely affected persons prior to commencement of works.
- Consider setting construction noise level limits appropriate to Project acceptable community response.
  - Guidance is available in International Organization for Standardization R1996 and the United States Federal Transit Administration's Transit Noise and Vibration Impact Assessment guide. Construction noise levels less than 5 decibels above the pre-construction background are typically acceptable.
  - Consider noise monitoring to verify if construction noise limits are met.

The above guidance will be refined during further design to account for refined considerations such as:

- Time of operation.
- Exact areas of operation.
- Size of equipment.
- Concurrent usages.
- Refined staging plans.

As indicated above, buildings above fall within the Zone of Influence as defined by City of Toronto By-law 514-2008. Although works on a transit corridor may not require a building permit, following the provisions of By-law 514-2008 is considered good practice. The Zone of Influence should be further developed and refined as design progresses to finalize the locations where vibration monitoring and preconstruction building inspections should be conducted. Please see **Table 5-3** for preliminary Zone of Influence for City of Toronto requirements, and setbacks to minimize the potential for building damage. The following recommendations are provided to limit the vibration impacts:

- Abide by all local vibration by-laws.
  - City of Toronto By-law 514-2008 requires a vibration study and a vibration control form to be submitted as part of the building permitting application.

  - Follow provisions in By-law 514-2008 regardless of application requirements.
    - Conduct vibration monitoring for locations within the Zone of Influence.
    - Conduct preconstruction building inspections for structures within the Zone of Influence.
    - Update Zone of Influence as design develops.
- Set vibration limits appropriate for the structure type, guidance can be found in the United States Federal Transit Administration's Transit Noise and Vibration Impact Assessment Guide for Transit Noise and Vibration Impact Assessment, and City of Toronto specification GN117SS.
- Avoid impact or vibratory methods for shoring, consider augured method, or other lower impact forms of shoring such as trench boxes) where feasible.
- Use lower vibration equipment where feasible (e.g., smaller sized equipment).
- Use lower vibration processes where feasible (e.g., caisson drilling instead of impact piling).
- Operate construction equipment during periods where nearby structures are unoccupied when feasible.
- Avoid use of vibration generating equipment during the nighttime in residential areas, when feasible.
- Limit speed of vehicles entering and driving within the site.
- Provide smooth surfaces for vehicle movements when feasible.
- Maximize distance between equipment and sensitive receptors while receptors are occupied where possible.
- Inform occupants of buildings in the vicinity of planned construction activity a reasonable amount of time before construction begins.
- Provide occupants of buildings in the vicinity of planned construction activity with the contact details of a person who can assist them with resolving issues related to vibration generated by construction.
- Operate construction vehicles under lower vibration settings.
- Setup a construction vibration complaint process.

This assessment assumes that bridges and Toronto Transit Commission infrastructure immediate adjacent to, or affected by construction are being protected as part of the construction contract including Eglinton Avenue East, Lawrence Avenue East, Ellesmere Road, Highland Creek bridges, and Toronto Transit Commission Stations and ancillary facilities.

5.4.5 Operations Mitigation Measures

The results of the operations impact assessment indicate that noise mitigation is not feasible to address the nighttime noise levels at the residential development southwest of the existing Lawrence East Station. However, the daytime noise limit (typically the only location assessed during traffic noise impact assessment in Ontario) is met at these locations.

The buses modelled for this assessment are typical diesel type buses. The Toronto Transit Commission currently has a "Green Initiative" to decrease the air emissions of their bus fleet and has purchased some battery electric buses, which anecdotally have lower noise emissions as well. As newer and lower noise emitting buses come into the Toronto Transit Commission's fleet, a recommendation would be to investigate the feasibility of using the lower noise emitting buses exclusively on the bus routes serving the busway, or during the late evening and early morning hours.

Other general considerations include, investigating the use of larger bus shelters as a noise screen, encouraging the bus operators to accelerate slower while near the residents southwest of the existing Lawrence East Station, and distributing the bus stopping across the entire bus stop platform to further distribute the noise emissions where possible.

5.5 Built Heritage Resources and Cultural Heritage Landscapes

Based on the review of the background studies, the review of online heritage resources, and a review of historical maps, no known or previously-identified Built Heritage Resources or Cultural Heritage Landscapes are located within the Study Area. Therefore, there are no impacts to Built Heritage Resources and Cultural Heritage Landscapes of the Project. No mitigation measures or monitoring is required for Built Heritage Resources and Cultural Heritage Landscapes.

5.6 Archaeology

5.6.1 Potential Impacts

A Stage 1 Archaeological Assessment was completed for the 2017 Environmental Project Report which documents the geographic, archaeological and land use history of lands identified within the Study Area in order to assess its potential to contain archaeological resources. The results indicate that, while most of the lands within the

existing corridor appear to have been disturbed by past development, some areas still retain archaeological potential. This was confirmed by the Stage 2 Archaeological Assessment conducted by AECOM in 2018

5.6.2 Mitigation Measures and Monitoring Activities

A Stage 2 Archaeological Assessment has been undertaken and provided to the Ministry of Citizenship and Multiculturalism for approval.

Further archaeological assessments will be completed as necessary, and corresponding documentation will be registered with the Ministry of Citizenship and Multiculturalism. All construction areas which were identified as having archaeological potential in the Stage 1 assessment will be cleared of archaeological potential prior to the commencement of construction.

Should previously undocumented archaeological resources be discovered, there may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resource shall cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

If human remains are encountered during construction, work must cease immediately, the police or Regional Coroner should be contacted, as well as the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer Services, the Bereavement Authority of Ontario, and the Ministry of Citizenship and Multiculturalism. If the remains are not determined to be of forensic interest, a Burials Site Investigation under the *Funeral, Burial and Cremation Services Act*, 2002 may be ordered.

Should additional lands outside of the Study Area boundaries be included as part of the Project, the standard requirements for Archaeological Assessments will be conducted prior to land disturbances.

5.7 Traffic and Transportation

5.7.1 Potential Impacts

5.7.1.1 Construction Impacts

Acknowledging most construction activities will be off the road right-of-way, there is still potential for impacts due to construction staging and heavy vehicle movement in and around the stops.

General Traffic Flow Impacts

- Impacts on general traffic will be minimal or localized since most work will occur off the main roads.
- Traffic disruptions will occur mainly on access routes leading to the work zones for material movement and delivery. There will be increased activity from construction vehicles making specific turning movements at nearby intersections.
- Generally minimal impacts to emergency response times with potential for them to be slightly longer due to the work off the main roads and dependent on location of emergency.

Pedestrian and Cycling Facilities Impacts

- Bike lanes, multi-use paths, and sidewalks may be temporarily restricted, closed, or removed, with temporary paths potentially being less direct or uncomfortable for those with mobility aids.
- The presence of construction equipment and trucks used to access the work zone for the movement and delivery of construction of materials may also pose safety challenges for pedestrians and cyclists.
- Planned cycling improvements in the vicinity of may be impacted and should be co-ordinated.

5.7.1.1.1 Construction Projects in Proximity

Several projects in proximity to the busway may potentially impact the construction of the Project. Impacts could include increased noise levels, increased traffic from construction vehicles, and potential detours as a result of construction activities.

Co-ordination between all parties will be critical to mitigate the impacts of adjacent construction-related activities. The construction projects identified are summarised as follows:

- **Bikeway Trail:** A bikeway trail is being constructed along the Meadoway/Gatineau Corridor, which starts from Kennedy Road and ends at the Line 3 Scarborough Rapid Transit corridor. This trail fills an existing gap in the corridor. Per City of Toronto interactive map of planned construction, the construction timeline is 2022 - 2025.
- **Rehabilitation:** Paving rehabilitation is anticipated at Kennedy Road and Cornwallis Drive (north side), which is expected to be completed by 2025.

- **Moratorium:** A city policy prevents non-emergency utility cuts from taking place on the road surface along Midland Avenue, from Lawrence Avenue East to St. Clair Avenue, and from Ellesmere Road to Highway 401. This policy expires in 2026 and supports the existing Line 3 Bus Replacement Service.

5.7.1.2 Operations Impacts

This section provides an overview of the stops and the potential impacts the busway may have on the adjacent transportation network.

5.7.1.2.1 Ellesmere Road Stop

Ellesmere Road Stop is the northernmost stop along the busway. Buses will be routed east-west from Ellesmere Road Stop to Scarborough Centre Station along Ellesmere Road. This stop is adjacent to several subdivisions consisting of townhomes and single-family homes. The following are potential impacts associated with transportation movements in and around the Ellesmere Road Stop:

Active Transportation Impacts

- Bikes permitted in dedicated transit lanes along Ellesmere Road but lack extension to the stop.
- Sidewalk interface with buses at two locations, posing potential pedestrian safety risks.

Driving and Goods Movement Impacts

- Buses entering and exiting the busway (and stop area) introduces a new turning movement conflict point with general purpose vehicles on the north and south sides of Ellesmere Road including Jolly Way.
- Minimal impacts are anticipated to goods movement vehicles.

Wayfinding, Customer Experience, and Accessibility

- Lack of visible wayfinding signage for stop access from Ellesmere Road and access roads. The Ellesmere Road Stop is not clearly visible from the street due to its location and the substation building, which obstructs it.
- Limited accessible options and connectivity between the east and west sides of the corridor.

5.7.1.2.2 Lawrence Avenue East Stop

Lawrence Avenue East Stop is on the north-south segment of the busway, situated adjacent to a subdivision consisting primarily of single-family homes. The bus stop is approximately 50 metres north of the hydro corridor and Meadoway/Gatineau Corridor Trail. However, there is a gap in the trail connecting Kennedy Road and Marcos Boulevard, where cyclists will need to reroute south to Tara Avenue. The primary bus stop access is provided on the west side of the busway corridor, and a commuter parking lot is available to the east. The following are potential impacts associated with transportation movements in and around the Lawrence Avenue East Stop:

Active Transportation Impacts

- Planned cycling facilities on Lawrence Avenue East and anticipated cycling upgrades in the Meadoway/ Gatineau Corridor Trail may require integration with the stop.

Driving and Goods Movement Impacts

- Potential interaction between freight vehicles (trucks) from three nearby industrial buildings and personal vehicles accessing the stop's parking lot, leading to mixed-traffic operations and potential congestion or safety issues. Impacts to goods movement vehicles would be minimal as no major routes would be disrupted. Residential, industrial, and the City of Toronto emergency services interact on the west side of the corridor.

Wayfinding, Customer Experience, and Accessibility Impacts

- There is no pedestrian access from the south of Lawrence East Stop in current conditions.

5.7.1.2.3 Tara Avenue Stop

Tara Avenue Stop will be a new stop on the busway. It is situated between two subdivisions of primarily single-family homes. An accessible pedestrian railway overpass connects to Mooregate Avenue and the Gatineau Hydro Corridor Trail. The following are potential impacts associated with transportation movements in and around the Tara Avenue Stop:

Active Transportation Impacts

- Potential safety concerns associated with pedestrian crossing between northbound and southbound stop platforms. Safety concerns associated with pedestrian-bus conflict at the crossing location include visibility, distracted walking, and bus speed.

- Inefficient pedestrian connection from the west side of the corridor at Mooregate Avenue, affecting passenger convenience and experience.
- The stop is accessible for cyclists via the existing Gatineau Hydro Corridor Trail and Tara Avenue and Fitzgibbon Avenue which have shared lane markings.
- Anticipate increased pedestrian and cyclist volumes on both sides of the corridor due to the addition of Tara Avenue Stop.

Driving and Goods Movement Impacts

- Vehicular traffic/activities - limited pick-up & drop-offs on Tara Avenue and Mooregate Avenue. An elementary school (Lord Roberts Junior Public School) is located east of the stop. Impacts to goods movement vehicles are not anticipated.

Wayfinding, Customer Experience, and Accessibility

- Slight increased traffic, both in auto and active transportation modes, is anticipated in the neighbourhood around Tara Avenue and Mooregate Avenue. An east-west trail connection through Jack Goodlad Park is available from Kennedy Road to the stop. Street lighting is currently not provided along the trail.

5.7.2 Mitigation Measures

The following section summarizes the mitigation measures proposed for the potential impacts identified in **Section 5.7.1**.

5.7.2.1 Construction

General Traffic Flow Mitigation Measures

- To manage construction effects, advance advisory signage should be installed, including roadway closing information at least two weeks prior and notices distributed to affected residents and businesses.
- Emergency response and incident management plans should be prepared and implemented, with pre-construction planning meetings held with emergency services and relevant authorities. The Toronto Transit Commission shall prepare traffic and Transit Management Plans and Traffic Control Plans before construction.
- Construction should be monitored by a qualified inspector to ensure compliance with mitigation plans, and traffic and transit effects should be continually assessed and adjusted as needed.

- A traffic management plan should be established to ensure access for local businesses and residents can be maintained during construction. Co-ordination between all parties (i.e., businesses, residents, the Toronto Transit Commission, contractors, etc.) will be essential to mitigate impacts.

Pedestrian and Cycling Facilities Mitigation Measures

- To construction impacts, efforts should include maintaining pedestrian and cyclist access through work zones whenever possible and providing temporary paths promptly when sidewalks or paths are removed.
- Clear signage will be placed at decision points to inform of closures, and detours will be made visible or adequately signed.
- A safety program will implement best practices for pedestrian and cyclist movement through the construction zone, and temporary access routes and fencing will be monitored.
- Additionally, impacts on the cycling network will be continuously monitored, and mitigations will be adjusted as needed.

5.7.2.2 Operations

5.7.2.2.1 Ellesmere Road Stop

Active Transportation Mitigation Measures

- Add cycling facilities along service roads from Ellesmere Road to the stop and provide bike parking at the stop.
- Implement safety-enhancing treatments such as continuous sidewalks or high-visibility crosswalks to improve pedestrian safety (subject to further study).

Driving and Goods Movement Mitigation Measures

- “Do Not Enter” signs and “Toronto Transit Commission Vehicle Only” signs are provided per the design to deter general purpose traffic from inadvertently accessing the busway and bus stop area.

Wayfinding, Customer Experience, and Accessibility

- Consider sightlines and implement additional wayfinding signage from both east and west sides of the stop to improve visibility.
- Review and improve accessibility options during the detailed design stage to ensure compliance with accessibility requirements.

5.7.2.2.2 Lawrence Avenue East Stop

Active Transportation Mitigation Measures

- Consider creating connections through Arsandco Park.
- Provide sufficient bike parking and supporting amenities, including bike fix-it stands, at the stop.

Driving and Goods Movement Mitigation Measures

- Introduce adequate signage and traffic control measures to manage the flow of mixed traffic and minimize conflicts.

Wayfinding, Customer Experience, and Accessibility

- Implement signage south of the stop to guide access and create a positive pedestrian experience.

5.7.2.2.3 Tara Avenue Stop

Active Transportation Mitigation Measures

- Select crossing location to ensure clear sightlines and minimize walking distances.
- Install signalization, high-visibility markings, improved lighting, reduced speed limits and clear signage.
- Consider strong wayfinding and amenities such as benches to improve the connection and make it more enjoyable for passengers.
- Implement bike parking facilities at the stop to encourage a shift to sustainable modes for last-mile connections.
- Implement wayfinding at major connecting roadways (Kennedy Road and Midland Avenue).

Driving and Goods Movement Mitigation Measures

- Implement measures to reduce interface conflicts between the different modes of accessing the area, such as cyclists, pedestrians, and auto drivers.

Wayfinding, Customer Experience, and Accessibility

- Implement wayfinding signage for the future Tara Avenue Stop at Kennedy Road.
- Develop a winter maintenance plan for the Kennedy Road trail access to the stop.
- To avoid encroachment onto the trail, keep trees and other vegetation along the south side of the trail pruned and trimmed.
- Implement street lighting to improve safety along the trail.

5.7.2.3 Emergency Access

Emergency vehicle access will be a key consideration at all busway stops to protect the safety and well-being of passengers and the surrounding community. Where large emergency vehicles, such as fire trucks, are unable to access the busway corridor, a comprehensive emergency management plan should be developed and implemented. This should include detailed protocols and alternative routes to maintain safety standards and ensure timely emergency response.

The maneuvering requirements of emergency vehicles in neighbouring streets should also be considered in future phases of busway implementation planning to prevent potential delays in emergency response.

Additionally, regular monitoring activities and assessments should be conducted to test and refine the accessibility plans, ensuring their robust effectiveness under various emergency scenarios. Collaboration with local emergency services during the planning and implementation phases will further enhance the efficacy and reliability of these plans, ultimately contributing to a safer and more resilient transportation network.

Three Toronto Fire Stations have been identified within 1-kilometre of the busway corridor:

- Toronto Fire Station 221 (2575 Eglinton Avenue East).
- Toronto Fire Station 232 (1550 Midland Avenue).
- Toronto Fire Station 245 (1600 Birchmount Road).

5.8 Drainage and Stormwater

5.8.1 Potential Impacts

The site’s drainage patterns will remain unchanged, and as the existing railway cross-section is already paved, there will be no increase in impervious area. Therefore, the same amount of runoff will flow in the same direction as it currently does. If the existing drainage systems that intersect the site have capacity for the existing flows, then under proposed conditions the storm systems will continue to have capacity.

The existing catch basins are to remain on-site; however, with the additional pavement and curb proposed for the busway cross-section, catch basins, manholes, and ditch inlets may have to be adjusted to match the new top of grade.

5.8.2 Mitigation Measures and Monitoring Activities

Changes to City of Toronto infrastructure should be communicated and required permits should be obtained from the City of Toronto and the Toronto and Region Conservation Authority.

Complete a condition assessment for some of the infrastructure, including the half round corrugated steel pipe culverts. If the infrastructure is rust, damaged or filled with sediment, cleaning out or replacing any sections as needed are recommended.

5.9 Summary of Impacts, Mitigation and Monitoring Activities

A complete list of the potential impacts, mitigation measures, and monitoring activities associated with the Conservation of Scarborough Rapid Transit Right-of-Way to Busway project can be found below in **Table 5-5**.

Table 5-5: Potential Impacts, Mitigation Measures, and Monitoring Activities

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	**Natural Heritage Features**	■ Unevaluated wetlands.	■ Unevaluated wetlands are outside of the Construction Disturbance Area and are not anticipated to be impacted by construction activities.	■ None required.
Natural Environment	**Policy Area**	■ Vegetation removal within the City's Natural Heritage System.	■ Refer below to mitigation measures described for Vegetation Communities and Wildlife and Wildlife Habitat.	■ Refer below to monitoring described for Vegetation Communities and Wildlife and Wildlife Habitat.
Natural Environment	**Policy Area**	■ Vegetation removal within the City of Toronto Ravine and Natural Feature Protection.	■ Refer below to mitigation measures described for Vegetation Communities and Wildlife and Wildlife Habitat.	■ Refer below to monitoring described for Vegetation Communities.
Natural Environment	**Policy Area**	■ Vegetation removal within the Toronto and Region Conservation Authority regulated area.	■ Refer below to mitigation measures described for Vegetation Communities and Wildlife and Wildlife Habitat.	■ Refer below to monitoring described for Vegetation Communities and Wildlife and Wildlife Habitat.
Natural Environment	**Vegetation Communities**	■ Removal of vegetation communities. ■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion.	■ Vegetation removal should be kept to a minimum and limited to within the Construction Disturbance Area. ■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ■ Temporarily disturbed areas should be re-vegetated using non-invasive, native plantings and/or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as needed. ■ Vegetation removals should also consider and mitigate potential impacts to sensitive species (e.g., migratory birds and Species at Risk) and features (e.g., Significant Wildlife Habitat). Refer to the Wildlife, Significant Wildlife Habitat and Species at Risk mitigation measures described below. ■ Develop and implement mitigation measures and recommendations in the Environmental Mitigation Management Plan.	■ Onsite inspection should 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 approach to compensation monitoring, if required, will be determined by property ownership, applicable governing by-laws/regulations and location with respect to ecological functioning.
Natural Environment	**Vegetation Communities**	■ City and private tree removal and injury.	■ An arborist report by an International Society of Arboriculture, Certified Arborist may be prepared with regard to the Ontario *Forestry Act R.S.O 1990*, and other regulations and best management practices as applicable. ■ The arborist report may include, but not be limited to the individual identification of all trees within the Study Area including those that require removal or preservation, or trees that may be injured as result of the Project. Trees to be identified within the Study Area may include those on Toronto Transit Commission property, trees on public and private lands, and boundary trees. The City of Toronto by-laws dictate the minimum area buffers to inventoried and diameter at breast height which requires inventory. ■ Trees protected under the City of Toronto's tree protection by-laws are subject to tree protection zones and requirements laid out within the City of Toronto's *Tree Protection Policy and Specifications for Construction Near Trees* (2016). Prior to the undertaking of any tree removals, a Tree Removal Strategy/Tree Preservation Plan may be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto's Tree Protection Policy and Specifications for Construction Near Trees *Guidelines* (2016) and adherence with best practices, standards, and regulations on safety, environmental and wildlife protections.	■ If a separate arborist report is warranted for tree removals, monitoring activities for tree protection measures should be outlined and adhered to.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	**Vegetation Communities (continued)**	■ City and private tree removal and injury.	■ If a tree requires removal, compensation and permitting/approvals (as required) shall be undertaken in accordance with the City of Toronto by-law requirements. ■ Pruning of branches should be conducted through the implementation of proper arboricultural techniques. ■ Tree protection zone fencing should be established to protect and prevent tree injuries. Tree protection zones will be clearly staked prior to construction using barriers in accordance with local by-law requirements.	■ -
Natural Environment	**Vegetation Communities**	■ Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use. ■ Introduction or spread of invasive species.	■ A Spill Prevention and Contingency Plan should be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. ■ Emergency spill-kits and drop trays should be kept on site and deployed as necessary for equipment working near water. ■ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the *Clean Equipment Protocol for Industry* (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations. ■ Emerald Ash Borer (*Agrilus planipennis*) is an invasive pest that has decimated Ash species (*Fraxinus sp.)* in North America (Canadian Food Inspection Agency, 2024). Trees should be removed from site in a manner that will prevent the emergence and spread of Emerald Ash Borer from the infested tree material and such that no trees or wood chips shall be moved outside of the Emerald Ash Borer quarantine zone as defined by the Canadian Food Inspection Agency (2024). An arborist report should be produced during future study stages to outline mitigation measures to avoid/prevent the spread of Emerald Ash Borer.	■ On-site inspection should 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 implementing the *Clean Equipment Protocol for Industry* (Halloran et al., 2013) on equipment and machinery prior to moving sites.
Natural Environment	**Vegetation Communities & Southwest Highland Creek**	■ Increased erosion and sedimentation.	■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ■ An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guideline for Urban Construction (Toronto and Region Conservation Authority, 2019), should be prepared prior to and implemented during construction to minimize the risk of sedimentation to the vegetation communities. The Sediment and Erosion Control Plan should include measures such as silt fencing and hay-bale check dams prior to construction activities. To mitigate dust deposition, a dust suppressant can be applied to areas of exposed soils and areas of concrete drilling/cutting to reduce or eliminate dust generation. ■ Ensure the work site is stabilized prior to removal of Erosion and Sediment Control Plan measures following construction. ■ Stockpiled materials or equipment should be stored within the construction footprint but shall be kept at least 30 metres away from any watercourse or wetland. Signs should be put up on site to indicate the 30 metre setback from any watercourse or wetland.	■ On-site inspection should 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. ■ All fencing (silt, tree and wildlife exclusion) should be monitored during construction on a weekly basis and 24 hours after significant rain or wind events to ensure that all fencing is intact and functioning properly.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	**Southwest Highland Creek**	■ Death of fish and harmful alteration, disruption, or disturbance to fish habitat through: ■ Sedimentation and erosion. ■ Leaks and spills. ■ Riparian vegetation removal.	■ No in-water works are proposed and therefore no machinery/equipment should enter or cross Southwest Highland Creek. ■ The Ministry of Natural Resources and Forestry provided an in-water work timing window of July 1 to March 31 for all tributaries to Highland Creek identified in LGL's Natural Heritage Report (2017). Should in-water works be required, the same timing window is expected to apply; however, correspondence with the Ministry of Natural Resources and Forestry should be refreshed to provide confirmation. ■ A Spill Prevention and Contingency Plan should be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ Emergency spill-kits and drop trays should be kept on site and deployed as necessary for equipment working near water. ■ Refuelling of equipment should occur at least 30 metres away from any watercourse or wetland. Signs will be put up on site to indicate the 30 metres setback from any watercourse or wetland. ■ All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds or plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site. ■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to riparian vegetation within 30 metres of the watercourse or wetland. ■ An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guideline for Urban Construction (Toronto and Region Conservation Authority, 2019), should be prepared prior to and implemented during construction to minimize the risk of sedimentation to the vegetation communities. The Sediment and Erosion Control Plan should include measures such as silt fencing and hay-bale check dams prior to construction activities. To mitigate dust deposition, a dust suppressant can be applied to areas of exposed soils and areas of concrete drilling/cutting to reduce or eliminate dust generation.	■ On-site inspection should 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. ■ All fencing (silt, tree and wildlife exclusion) should be monitored during construction on a weekly basis and 24 hours after significant rain or wind events to ensure that all fencing is intact and functioning properly.
Natural Environment	**Wildlife and Wildlife Habitat – General**	■ Disturbance, displacement or mortality of wildlife.	■ 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 off-site and away from the construction area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife.	■ Regular monitoring (field observations, on-site inspections) should be undertaken to ensure that there are no wildlife trapped in the construction work area.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	**Wildlife and Wildlife Habitat – Species of Conservation Concern birds and Migratory Breeding Birds and Nests**	■ Disturbance or destruction of migratory bird nests. ■ Although no nests belonging to Species of Conservation Concern and *Migratory Bird Convention Act* – protected birds were identified under the Mile 8.60 Bridge, there is potential for nesting under the bridge in subsequent years.	■ All works must comply with the *Migratory Bird Convention Act*, including removing trees and vegetation outside of the bird 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 may be undertaken prior to required activities in simple habitat as identified by a qualified Biologist. Nest searches in simple habitats 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.	■ Regular monitoring (field observations, on-site inspections) should be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
Natural Environment	**Wildlife and Wildlife Habitat – Significant Wildlife Habitat**	■ Potential injury/mortality to wildlife, including Species of Conservation Concern.	■ Installation of exclusion fencing around upland work area and suitable stockpiled material prior to April 1 should prevent turtles from entering the work area following the Ministry of Natural Resource and Forestry's Reptile and Amphibian Fencing Best Management Practices (2020). ■ Stockpiles of gravel and sand required for construction should not be placed in areas that are accessible to nesting turtles. If this is not possible, then exclusion fencing around stockpiled gravel and sand should be installed prior to May 1 and maintained until July 30.	■ On-site inspection should 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.
Natural Environment	**Species at Risk-General**	■ Disturbance and/or mortality to Species at Risk.	■ No Species at Risk are anticipated to be found within the Construction Disturbance Area. However, on-site personnel will be provided with information (e.g., factsheets) that addresses the potential Species at Risk within the surrounding area and the procedure(s) to follow if an individual is encountered or injured.	■ On-site inspection should 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.
Natural Environment	**Species at Risk – Bat Species at Risk**	■ Disturbance and/or mortality to Species at Risk.	■ If tree removal is required within the Dry - Fresh Exotic Deciduous Forest Type (FODM4-12), tree removal should occur outside of the bat active season (April 1 to September 30) to avoid incidental take of roosting bats. ■ The form and function of treed communities in the Study Area should be maintained for potential bat Species at Risk/maternity roosting.	■ Regular inspection in areas of vegetation removal should be undertaken as required during construction to ensure that fencing is intact, only specified trees (if any) are removed and no damage is caused to the remaining trees and adjacent vegetation communities.
Air Quality	**Operations**	■ Increased NO_2, CO, SO_2, particulate matter, and Volatile Organic Compounds impact levels at nearby receptors.	■ Continued promotion of increased electric vehicle purchase and infrastructure within Ontario.	■ Operating Conditions: Increased Traffic Vehicular Emissions

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Air Quality	**Construction**	■ Construction related air pollution include diesel combustion and particulate emissions. Odour and visible dust may cause public annoyance at existing sensitive receptors within the Study Area during construction phase.	■ Implementation of vegetation (such as a green dust control fence around the corridor) within the Study Area to decrease ground level dispersion of particulates. ■ Prior to commencement of construction, a comprehensive Environmental Controls and Methods Plan should be prepared for fugitive dust control, effluent water control, Polychlorinated biphenyls removal and cleanup, and will: ■ Ensure work does not adversely affect adjacent watercourses, groundwater, and wildlife, or contribute to excess air and noise pollution. ■ Ensure proper disposal procedures are maintained for waste or volatile materials including, but not limited to, mineral spirits, oil, petroleum based lubricants or toxic cleaning solutions. ■ Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction. ■ Prevent extraneous materials from contaminating air beyond construction area by providing temporary enclosures during demolition. ■ Prior to commencement of construction, an Emission Control Plan should be prepared for work involving asphalt application, roofing, waterproofing, diesel exhaust, odourous products. The Emission Control Plan will: ■ During construction, provide sufficient measures to control odours and other irritating chemical emissions including, but not limited to, the following: ■ Exhaust from powered equipment, such as vehicles, compressors, generators. ■ Asphalt odours. ■ Smoke from heating kettles, paints and sealers. ■ Prevent odours from entering the ventilation systems through placement options, sealing or shutting down air intakes, and use of positive pressure where possible. ■ Where possible, schedule activities known to generate noxious or irritating odours during off-hours to minimize impact on Toronto Transit Commission employees, passengers, and neighbouring properties. ■ Ensure chemical Products used have been previously reviewed and approved by Toronto Transit Commission for use regarding overall flammability, chemical and environmental Hazards and irritant properties. ■ Prior to commencement of construction, a Dust Control Plan for Non-Asbestos containing material should be prepared and will: ■ Confirm that airborne contaminants are maintained below their respective occupational exposure limits in accordance with *Occupational Health and Safety Act R.R.O 1990, Regulation 833*: Control of Exposure to Biological or Chemical Agents. ■ Provide appropriate enclosure for the Work area to prevent dust from migrating to other areas. ■ Provide sufficient local exhaust and ventilation. ■ Periodically water unpaved construction areas, stockpiles, and during concrete chipping. ■ Limit speed of vehicular traffic. ■ Use water sprays for dust generating loading and unloading of materials. ■ Sweep and water flush entrances to the Site. ■ Wash down streets within the area of Work on a weekly basis and as required in accordance with the Dust Control Plan (Non Asbestos containing materials).	■ During construction, air monitoring of contaminants should be provided, as applicable, to verify the effectiveness of dust control measures to support the Dust Control Plan. ■ In addition, relevant construction monitoring activities from the following recommended guidelines can be implemented during construction: ■ Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005); and, ■ Operations Manual for Air Quality Monitoring in Ontario (Ministry of the Environment, Conservation and Parks, 2018).

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Property: Temporary property effects, such as property takings for laydown areas, are anticipated and the Toronto Transit Commission is in the process of acquiring these properties as easements for construction of stops and small portion of the busway.	■ Temporary property takings for construction of the Project are anticipated for stops at Ellesmere Road, Lawrence Avenue East and Tara Avenue, and will be confirmed as design progresses. To ensure the required property for the stop locations, and identify and required site-specific mitigation, consultation and negotiation have commenced. Where access to property is required, ongoing consultation with affected landowners will help identify appropriate site-specific mitigation measures. ■ Temporary property takings near residential and institutional uses should be avoided if possible. ■ Select staging/laydown areas in accordance with the City of Toronto procedures. Staging/laydown areas should be located in areas that minimize adverse effects to sensitive receptors.	■ Follow City of Toronto guidance with respect to monitoring requirements at construction staging/laydown areas.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Nuisance effects from construction activities	■ Mitigation measures related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration commitment tables. ■ An Erosion and Sediment Control Plan should be developed by the Toronto Transit Commission/ Contractor prior to construction that addresses sediment release to adjacent properties and roadways. ■ Develop a Communications Protocol should be developed by the Toronto Transit Commission/Contractor prior to construction, 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. ■ Prior to construction the Toronto Transit Commission/Contractor should Develop a Complaints Protocol.	■ When applicable, monitoring related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration commitment tables. ■ Erosion and sediment control monitoring to be conducted ■ Number and resolution of complaints received
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Construction work may necessitate the temporary closure of driveways or building entrances	■ Closures of driveways and building entrances are not anticipated and shall be avoided whenever possible during construction and shall be kept to a minimum when required. ■ 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. ■ Access to businesses during working hours will be maintained, where feasible. Where regular access cannot be maintained, alternative access and signage will be provided.	■ Temporary access paths, walkways, cycling routes and fencing should be monitored. ■ Number and resolution of complaints received.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Light trespass, glare, and light pollution effects is anticipated to be similar to the Scarborough Rapid Transit conditions.	■ Comply with all local applicable municipal by-laws and Ministry of Transportation 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 American National Standards Institute/ Illuminating Engineering Society RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting ■ Light trespass, glare and pollution effects should be minimized through the implementation of best practices (i.e., full cutoff fixtures) to mitigate or avoid unnecessary and obtrusive light. ■ Perform the work 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.	■ Construction activities should be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans. ■ Number and resolution of complaints received.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Increased noise, dust and vibration emanating from construction work	■ Monitoring and mitigation of noise and vibration effects shall be undertaken as described in the Noise and Vibration Report, available under separate cover.	■ Monitoring activities should be conducted in accordance with the Noise and Vibration Report.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Excess light spillage onto neighbouring properties	■ Lighting should be designed to minimize trespass, glare, and pollution effects through the implementation of best practices to mitigate or avoid unnecessary and obtrusive light.	■ Not applicable
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Increased noise, dust and vibration emanating from Project operations	■ Operations activities such as corridor maintenance should be minimized in duration and footprint to the extent possible.	■ Operator to monitor operations.
Socio-Economic and Land Use	**Land Use and Built Form Patterns**	■ Negative aesthetic quality if not designed appropriately	■ To mitigate impact to the visual environment, screened enclosures should be considered as required, particularly for storage areas. ■ The visual effects of project structures (e.g., retaining walls, etc.) should be mitigated by considering their location, building materials, architectural design, and surrounding landscape treatments. Municipal departments and the public should be engaged as Project planning and design progresses.	■ Not applicable
Socio-Economic and Land Use	**Transit and Transportation Network**	■ Temporary narrowing of lanes (possibly only along the Service Roads, Ellesmere Road, Lawrence Avenue East and Eglinton East). ■ Traffic may be temporarily halted to allow construction vehicles to enter/exit construction sites, and may be slowed by slow-moving equipment transitioning between locations.	■ Prepare and implement emergency response and incident management plans during construction to assist emergency service provides (i.e., Fire, Police and Ambulance) in responding to incidents and emergencies within the construction area (i.e., an incident causing closure of a crossing adjacent to the construction site where the Contractor is able to permit emergency service vehicles to cross the crossing location under construction); ■ Prepare Traffic and Transit Management Plans and Traffic Control Plans for each construction stage by the Toronto Transit Commission/Contractor prior to construction; and, ■ Conduct pre-construction planning meetings with representatives of the City of Toronto Fire, Police and Ambulance provides, other relevant City of Toronto divisions, and affected local transit authorities. ■ The following should be implemented once a Contractor has been selected and a construction schedule developed: ■ Co-ordinate the work with other planned road projects that may impact construction, so construction may be staged to minimize traffic impacts. ■ Conduct a haul route analysis to confirm haul routes via public roads. ■ Maintain existing residential and commercial access through the work zone to the extent practical. ■ Strive to accommodate local events and festivals by co-ordinating and consulting with local communities and event organizers to find mutually feasible options.	■ Construction activities should be monitored by a qualified Inspector/Contract Administrator with extensive knowledge of Ontario Traffic Manual Book 7 (Temporary Conditions) to confirm that all activities are conducted in accordance with mitigation plans. ■ Traffic impacts to be monitored in accordance with the Traffic and Transit Management Plans and adjust the Traffic Control Plans as necessary during the construction period. ■ Transit impacts to be monitored and mitigation measures to be adjusted as necessary during the construction period.
Socio-Economic and Land Use	**Transit and Transportation Network**	■ Existing on-street parking may be reduced or eliminated as needed.	■ The Project is anticipated to result in an improved experience for transit users, providing faster and more frequent connections to major destinations along the corridor. ■ In general, it is good practice to reduce overall parking availability around higher-order transit corridors, however, significant loss of on-street parking may be compensated for by designating some new off-corridor parking spaces as appropriate and desired.	■ City of Toronto to monitor collision data to ensure driver guidance is achieving desired outcomes.
Socio-Economic and Land Use	**Public Transit**	■ Construction may result in access restrictions to local bus routes and temporary disruptions.	■ 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.	■ Traffic impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and adjusted as necessary during the construction period.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Bike lanes, multi-use paths and sidewalks may be temporarily restricted or eliminated. ■ Temporary sidewalks/paths may have a rough or bumpy surface that creates discomfort for those with assisted mobility devices, strollers, etc.	■ Maintain pedestrian/cyclist access through the work zone whenever possible. ■ Where a sidewalk or path needs to be removed, safe and accessible temporary path in accordance with the applicable municipal and/or provincial guidelines and standards. ■ Provide clear signage at decision points to pedestrians and cyclists informing of closures. For instance, a sidewalk closure should be indicated at an intersection and not mid-block. ■ Ensure detours can be observed through line of sight and provide adequate signage where not possible.	■ Temporary access paths, walkways, cycling routes and fencing should be monitored. ■ Cycling network impacts to be monitored in accordance with the Construction Traffic Control and Management Plan and mitigation adjusted as necessary during the construction period.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Operation of construction equipment and large construction trucks in corridor may pose safety and comfort challenges for pedestrians and cyclists.	■ If required, develop a safety program that implements safety best practices in a construction zone and addresses pedestrian/cyclist movement through the corridor.	■ Construction activities should be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Through travel at minor intersections may be restricted, requiring a detour to a nearby crosswalk.	■ The project is expected to result in an improved experience for pedestrians and cyclists with new active transportation infrastructure. The Project should be designed to improve access to key destinations.	■ Not required.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Noise, vibration, and dust generated by construction activity.	■ Construction noise is subject to the City of Toronto Noise Control By-law. Where work is required outside of permitted times, an exemption shall be applied for in advance of this work.	■ Construction activities should be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Temporary access restrictions, such as driveway, trail, or entrance closures due to nearby construction.	■ Closures of driveways, trails and entrances are not anticipated and shall be avoided whenever possible during construction and shall be kept to a minimum when required. Alternate means of access (ex. temporary driveway) shall be provided where a driveway is temporarily removed.	■ Temporary access paths, walkways, cycling routes and fencing should be monitored.
Socio-Economic and Land Use	**Pedestrian and Cycling Network**	■ Potential property impacts to community amenities.	■ No effects to community amenities are anticipated as a result of the operation of the Project, except where property may be required. Property acquisition will be confirmed as design progresses. Where effects are anticipated, the property owner should be consulted with as soon as property impacts are understood. Property impacts to community amenities that serve vulnerable populations should be avoided.	■ Not required.
Socio-Economic and Land Use	**Utilities Planning and Construction**	■ Utility serviceability effects due to design requirements and construction.	■ 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.	■ Maintain regular communication and co-ordination 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. ■ Construction activities should be monitored by a qualified Inspector to confirm that all activities are conducted in accordance with mitigation plans.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Socio-Economic and Land Use	**Utilities Post-Construction Phase**	■ Future Utility Maintainability.	■ 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 by qualified inspectors 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 S250-11 – Mapping of Underground Utility Infrastructure (2011), as amended from time to time.	■ Develop and implement tracking system for as-built deliverables.
Socio-Economic and Land Use	**Utilities During Operations**	■ No effects to public or private utilities are anticipated during Project operations.	■ No effects are anticipated; therefore, no mitigation is proposed.	■ Not required.
Noise and Vibration	**Construction Impacts - Noise**	■ Human annoyance due to construction noise is expected without the implementation of noise control measures.	■ Avoid nighttime construction where possible near residences. ■ Avoid the use of impact or sonic piling machines unless noise control (i.e., some sort of enclosure or acoustic shroud) is used. Specific requirements of noise control are to be determined during detail designed based upon exact locations of operations. ■ Consider alternative methods such as installation using augured methods, or if possible, shoring using trench boxes. ■ Although exempt from City of Toronto By-law 878-2019, attempt to abide by local noise by-laws and policies. ■ Use equipment compliant with Ministry of the Environment (now Ministry of the Environment, Conservation and Parks) publication Noise Pollution Control guidelines-115 and Noise Pollution Control guidelines-118. ■ Use of upgraded construction hoarding between construction equipment and noise sensitive receivers. ■ Provide occupants of buildings in the vicinity of planned construction activity with the contact details of a person who can assist them with resolving issues related to construction noise, and setup a construction complaint process. ■ Limit construction noise levels outside of construction areas (public areas) to a maximum of 85 A-weighted decibels to be compliant with Occupational Health and Safety requirements. ■ Ensure all internal combustion engines are fitted with appropriate muffler systems. ■ Take advantage of shielding from existing structures, objects, or stockpiles to shield residential locations from construction equipment. ■ Minimize simultaneous operation of equipment where possible. ■ Implement a noise idling policy on site (unless necessary for safety or equipment operations). ■ Maximize distance between construction equipment operations and noise sensitive receptors where possible. ■ Keep equipment in good maintenance. ■ Limit equipment idling time to the minimum time necessary to complete specified tasks.	■ Respond to occupancy issues as they arrive. ■ Review construction compliant process. ■ Review concerns of likely affected persons.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Noise and Vibration	**Construction Impacts – Noise (continued)**	■ -	■ Advise nearby residents of significant noise generating activities to minimize disruption. ■ Consult with likely affected persons prior to commencement of works. ■ Consider setting construction noise level limits appropriate to Project acceptable community response. ■ Guidance is available in International Organization for Standardization R1996 and the United States Federal Transit Administration's Transit Noise and Vibration Impact Assessment guide. Construction noise levels less than 5 decibels above the pre-construction background are typically acceptable. ■ Consider noise monitoring to verify if construction noise limits are met.	■ -
Noise and Vibrations	**Construction Impacts - Vibration**	■ Bridge pillars at Eglinton Avenue East and Ellesmere Road, and the pedestrian bridge at Tara Avenue are expected to be impacted by construction vibration. ■ Commercial locations at 51 and 85 Nantucket Boulevard fall within the Zone of Influence and vibrations levels may exceed criteria for building damage for Type II structures.	■ Abide by all local vibration by-laws. ■ City of Toronto By-law 514-2008 requires a vibration study and a vibration control form to be submitted as part of the building permitting application. ■ Follow provisions in By-law 514-2008 regardless of application requirements. ■ Conduct vibration monitoring for locations within the Zone of Influence. ■ Conduct preconstruction building inspections for structures within the Zone of Influence. ■ Update Zone of Influence as design develops. ■ Set vibration limits appropriate for the structure type, guidance can be found in the United States Federal Transit Administration's Transit Noise and Vibration Impact Assessment Guide for Transit Noise and Vibration Impact Assessment, and City of Toronto specification GN117SS. ■ Avoid impact or vibratory methods for shoring, consider augured method, or other lower impact forms of shoring such as trench boxes) where feasible. ■ Use lower vibration equipment where feasible (e.g., smaller sized equipment). ■ Use lower vibration processes where feasible (e.g., caisson drilling instead of impact piling). ■ Operate construction equipment during periods where nearby structures are unoccupied when feasible. ■ Avoid use of vibration generating equipment during the nighttime in residential areas, when feasible. ■ Limit speed of vehicles entering and driving within the site. ■ Provide smooth surfaces for vehicle movements when feasible. ■ Maximize distance between equipment and sensitive receptors while receptors are occupied where possible. ■ Inform occupants of buildings in the vicinity of planned construction activity a reasonable amount of time before construction begins. ■ Provide occupants of buildings in the vicinity of planned construction activity with the contact details of a person who can assist them with resolving issues related to vibration generated by construction. ■ Operate construction vehicles under lower vibration settings. ■ Setup a construction vibration complaint process.	■ Review the construction vibration compliant process. ■ Respond to occupancy issues as they arrive.
Noise and Vibration	**Operations Impacts - Noise**	■ Noise levels are expected to exceed the noise mitigation threshold at the residences on the west side of the corridor, south of Lawrence Avenue East, during the nighttime period.	■ Consider implementing lower noise emitting buses when they become part of the Toronto Transit Commission's fleet. ■ Consider the use of larger buses shelters as a noise screen. ■ Consider encouraging bus operators to accelerate slower while near the residents southwest of the existing Lawrence East Station and utilize the entire bus stop platform to come to a slower stop.	■ Investigations should be conducted to determine the feasibility of the implementing lower noise emitting buses as they become available. ■ Investigations should be conducted to determine the possibility to include new bus operator best practices.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Noise and Vibration	**Operations Impacts - Vibration**	■ Vibration impacts from the operation of the Project is considered negligible; thus the assessment of the Project operation will concentrate on the noise impact.	■ None required.	■ None required.
Cultural Heritage	**Built Heritage Resources and Cultural Heritage Landscapes**	■ No known previously identified Built Heritage Resources and/or Cultural Heritage Landscapes within the Study Area.	■ None required.	■ None required.
Cultural Heritage	**Archaeological Resources**	■ Impacts to previously unidentified archaeological resources.	■ A Stage 2 Archaeological Assessment has been undertaken and provided to the Ministry of Citizenship and Multiculturalism for approval. ■ Further archaeological assessments will be completed as necessary, and corresponding documentation will be registered with the Ministry of Citizenship and Multiculturalism. All construction areas which were identified as having archaeological potential in the Stage 1 assessment will be cleared of archaeological finds prior to the commencement of construction. ■ Should previously undocumented archaeological resources be discovered, there may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resource shall cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48 (1) of the *Ontario Heritage Act*. ■ If human remains are encountered during construction, work must cease immediately, the police or Regional Coroner should be contacted, as well as the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer Services, the Bereavement Authority of Ontario, and the Ministry of Citizenship and Multiculturalism. If the remains are not determined to be of forensic interest, a Burials Site Investigation under the *Funeral, Burial and Cremation Services Act*, 2002 may be ordered. ■ Should additional lands outside of the Study Area boundaries be included as part of the Project, the standard requirements for Archaeological Assessments will be conducted prior to land disturbances.	■ None required.
Traffic and Transportation	**Traffic Flow**	■ Impact on general traffic will be minimal or localized since most work will occur off the main roads. ■ Traffic disruptions will occur mainly on access routes leading to the work zones for material movement and delivery. There will be increased activity from construction vehicles making specific turning movements at nearby intersections. ■ Generally minimal impacts to emergency response times with potential for them to be slightly longer due to the work off the main roads and dependent on location of emergency.	■ To manage construction effects, advance advisory signage will be installed, including roadway closing information at least two weeks prior and notices distributed to affected residents and businesses. ■ Emergency response and incident management plans should be prepared and implemented, with pre-construction planning meetings held with emergency services and relevant authorities. The Toronto Transit Commission shall prepare traffic and Transit Management Plans and Traffic Control Plans before construction. ■ A suitable traffic management plan should need be established to ensure access for local businesses and residents can be maintained during construction. Co-ordination between all parties (i.e., businesses, residents, the Toronto Transit Commission, contractors, etc.) will be essential to mitigate impacts.	■ Construction activities should be monitored by a qualified inspector to ensure compliance with mitigation plans, and traffic and transit effects will be continually assessed and adjusted as needed. ■

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Traffic and Transportation	**Pedestrian and Cycling Facilities**	■ Bike lanes, multi-use paths, and sidewalks may be temporarily restricted, closed, or removed, with temporary paths potentially being less direct or uncomfortable for those with mobility aids. ■ The presence of construction equipment and trucks used to access the work zone for the movement and delivery of construction of materials may also pose safety challenges for pedestrians and cyclists. ■ Planned cycling improvements in the vicinity of may be impacted and should be co-ordinated.	■ To manage construction impacts, efforts should include maintaining pedestrian and cyclist access through work zones whenever possible and providing temporary paths promptly when sidewalks or paths are removed. ■ Clear signage should be placed at decision points to inform of closures, and detours will be made visible or adequately signed. ■ A safety program should implement best practices for pedestrian and cyclist movement through the construction zone. ■ Additionally, impacts on the cycling network should be continuously monitored, and mitigations will be adjusted as needed.	■ Temporary pedestrian and cycling access routes and safety fencing should be monitored
Traffic and Transportation	**Ellesmere Road Stop – Active Transportation**	■ Bikes permitted in dedicated transit lanes along Ellesmere Road but lack extension to the stop. ■ Sidewalk interface with buses at two locations, posing potential pedestrian safety risks.	■ Add cycling facilities along service roads from Ellesmere Road to the stop and provide bike parking at the stop. ■ Implement safety-enhancing treatments such as continuous sidewalks or high-visibility crosswalks to improve pedestrian safety (subject to further study).	■ Collect and analyze data on pedestrian incidents or near-misses.
Traffic and Transportation	**Ellesmere Road Stop – Driving and Goods Movement**	■ Buses entering and exiting the busway (and stop area) introduces a new turning movement conflict point with general purpose vehicles on the north and south sides of Ellesmere Road including Jolly Way. ■ Minimal impacts are anticipated to goods movement vehicles.	■ “Do Not Enter” signs and “Toronto Transit Commission Vehicle Only” signs are provided per the design to deter general purpose traffic from inadvertently accessing the busway and bus stop area.	■ Regularly review and update traffic signage and control measures to ensure clarity and effectiveness.
Traffic and Transportation	**Ellesmere Road Stop – Wayfinding, Customer Experience, and Accessibility**	■ Lack of visible wayfinding signage for stop access from Ellesmere Road and access roads. ■ The Ellesmere Road Stop is not clearly visible from the street due to its location and the substation building, which obstructs it. ■ Limited accessible options and connectivity between the east and west sides of the corridor.	■ Consider sightlines and implement additional wayfinding signage from both east and west sides of the stop to improve visibility. ■ Review and improve accessibility options during the detailed design stage to ensure compliance with accessibility requirements.	■ Regularly inspect and maintain wayfinding signage to ensure visibility and effectiveness.
Traffic and Transportation	**Lawrence Avenue East Stop – Active Transportation**	■ Planned cycling facilities on Lawrence Avenue East and anticipated cycling upgrades in the Meadoway/ Gatineau Corridor Trail may require integration with the stop.	■ Consider creating connections through Arsandco Park. ■ Provide sufficient bike parking and supporting amenities, including bike fix-it stands, at the stop.	■ None required.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Traffic and Transportation	**Lawrence Avenue East Stop – Driving and Goods Movement**	■ Potential interaction between freight vehicles (trucks) from three nearby industrial buildings and personal vehicles accessing the stop's parking lot, leading to mixed-traffic operations and potential congestion or safety issues. Impacts to goods movement vehicles would be minimal as no major routes would be disrupted. ■ Residential, industrial, and the City of Toronto emergency services interact on the west side of the corridor.	■ Introduce adequate signage and traffic control measures to manage the flow of mixed traffic and minimize conflicts.	■ Regularly review and update traffic signage and control measures to ensure they are effective and clear.
Traffic and Transportation	**Lawrence Avenue East Stop – Wayfinding, Customer Experience and Accessibility**	■ There is no pedestrian access from the south of Lawrence East Stop in current conditions.	■ Implement signage south of the stop to guide access and create a positive pedestrian experience.	■ Regularly inspect and maintain wayfinding signage to ensure visibility and effectiveness.
Traffic and Transportation	**Tara Avenue Stop – Active Transportation**	■ Potential safety concerns associated with pedestrian crossing between northbound and southbound stop platforms. ■ Safety concerns associated with pedestrian-bus conflict at the crossing location include visibility, distracted walking, and bus speed. ■ Inefficient pedestrian connection from the west side of the corridor at Mooregate Avenue, affecting passenger convenience and experience. ■ The stop is accessible for cyclists via the existing Gatineau Hydro Corridor Trail and Tara Avenue and Fitzgibbon Avenue which have shared lane markings. ■ Anticipate increased pedestrian and cyclist volumes on both sides of the corridor due to the addition of Tara Avenue Stop.	■ Select crossing location to ensure clear sightlines and minimize walking distances. ■ Install signalization, high-visibility markings, improved lighting, reduced speed limits and clear signage. ■ Consider strong wayfinding and amenities such as benches to improve the connection and make it more enjoyable for passengers. ■ Implement bike parking facilities at the stop to encourage a shift to sustainable modes for last-mile connections. ■ Implement wayfinding at major connecting roadways (Kennedy Road and Midland Avenue).	■ Conduct safety audits and gather data on pedestrian incidents or near-misses at the crossing.
Traffic and Transportation	**Tara Avenue Stop – Driving and Goods Movement**	■ Vehicular traffic/activities - limited pick-up & drop-offs on Tara Avenue and Mooregate Avenue. ■ An elementary school (Lord Roberts Junior Public School) is located east of the stop. ■ Impacts to goods movement vehicles are not anticipated.	■ Implement measures to reduce interface conflicts between the different modes of accessing the area, such as cyclists, pedestrians, and auto drivers.	■ Conduct traffic studies to monitor the flow and interaction of personal vehicles and cyclists.

Environmental Condition	Component	Potential Effects	Mitigation Measures	Monitoring Activities
Traffic and Transportation	**Tara Avenue Stop – Wayfinding, Customer Experience, and Accessibility**	■ Slight increased traffic, both in auto and active transportation modes, is anticipated in the neighbourhood around Tara Avenue and Mooregate Avenue. ■ An east-west trail connection through Jack Goodlad Park is available from Kennedy Road to the stop. ■ Street lighting is currently not provided along the trail.	■ Implement wayfinding signage for the future Tara Avenue Stop at Kennedy Road. ■ Develop a winter maintenance plan for the Kennedy Road trail access to the stop. ■ To avoid encroachment onto the trail, keep trees and other vegetation along the south side of the trail pruned and trimmed. ■ Implement street lighting to improve safety along the trail.	■ Inspect and maintain wayfinding signage, vegetation, and trail for safety and security both prior to and post-implantation of street lighting along the trail.
Traffic and Transportation	**Emergency Access**	■ Large emergency vehicles may be unable to access the busway corridor.	■ A comprehensive emergency plan should be developed and implemented.	■ Regular monitoring activities and assessments should be conducted to test and refine the accessibility plans, ensuring their robust effectiveness under various emergency scenarios.
Drainage and Stormwater	**Hydraulics**	■ Additional pavement and curb may require catch basins, manholes and ditch inlets to be adjusted.	■ Changes to City of Toronto infrastructure should be communicated and required permits should be obtained. ■ Complete a condition assessment for some of the infrastructure, including the half round corrugated steel pipe culverts. If the infrastructure is rust, damaged or filled with sediment, cleaning out or replacing any sections as needed are recommended.	■ None required.

6. Consultation and Engagement

6.1 Consultation Overview

Public and stakeholder consultation is an integral and mandatory component of transit projects that are subject to *Ontario Regulation 231/08*, which requires meaningful consultation with individuals, groups, and organizations that have an interest in the project per Section 8 of the Regulation. Active consultation throughout a transit project allows the project team to:

- Inform and engage parties and individuals who may hold an interest in the transit project.
- Identify and inform the public about the range of potential impacts of the transit project through environmental, technical, and socio-economic lenses and mitigation measures.
- Respond to the questions and concerns of interested persons and agencies.
- Gather feedback that could help inform the project.

The Toronto Transit Commission's project team has been proactively engaging the public, stakeholders, regulatory agencies, and Indigenous Nations throughout the pre-planning and Transit and Rail Project Assessment Process phases of the Project. The team has made use of a broad range of communications and engagement methods that include but are not limited to:

- A dedicated Project website page with regular Project updates.
- A dedicated Project Community Liaison Officer.
- E-mail address database of members of the public, stakeholder groups and local institutions (Business Improvement Areas, libraries, hospitals, and community centres).
- Notices, letters, and notifications.
- Social media posts (Facebook, X [previously known as Twitter], Instagram).
- Toronto Transit Commission media channels (platform screens and Public Address announcements).
- Newsletters.
- Public and Stakeholder Meetings.
- Online and print public surveys.

The public and stakeholder consultation activities carried out as part of the Project to-date can be categorized into four phases:

- Phase 1: Line 3 bus replacement alternatives, options, and development.
- Phase 2: Line 3 busway replacement service.
- Phase 3: 60% detailed design of the proposed busway.
- Phase 4: Transit and Rail Project Assessment Process.

The consultation and engagement milestones completed in each phase are outlined in the subsequent sections.

6.1.1 Record of Consultation

Public and stakeholder consultation was initiated by the Toronto Transit Commission in 2021, prior to decommissioning of the former Line 3 Scarborough Rapid Transit. This consultation effort focused on evaluating feasible alternatives to improving on-street transit service in Scarborough. This consultation effort consisted of the distribution of notifications to the public and stakeholders, and the initiation of the Project website. The project team has maintained a record of all public and stakeholder consultation undertaken for this Project to-date, including during the Transit and Rail Projects Assessment Process regulatory consultation phase. **Appendix B** documents project-related correspondence, meeting summaries, and survey results to-date. All personal information included in project inquiries – such as name, address, telephone number and property location – is collected, maintained and disclosed by the Ministry of the Environment, Conservation and Parks for the purpose of transparency and consultation. The information is collected under the authority of the *Environmental Assessment Act* and is collected and maintained for the purpose of creating a record that is available to the general public as described in Section 37 of the *Freedom of Information and Protection of Privacy Act*. Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential.

6.1.2 Identification of Interested Parties

At the onset of this Project, a Project Distribution List (**Appendix B**) was developed to ensure that all stakeholders and interested parties receive notifications related to the Project. This distribution list included appropriate contacts at each review agency (e.g., federal, provincial, municipal, conservation authorities, etc.), confirmed through outreach during initial consultation activities. Elected officials (e.g., City Council members, Members of Parliament, and Members of Provincial Parliament) with

jurisdiction in the Study Area were identified through online resources. Indigenous Nations were identified through consultation with the Ministry of the Environment, Conservation and Parks, and the Ministry of Indigenous Affairs (**Appendix B**).

The Project Distribution List is a living document that is continuously updated in response to project feedback (e.g., requests to be added/removed) and is used to inform stakeholders and the public of project milestones (e.g., Notice of Public Information Session).

6.1.3 Consultation and Engagement Approach

All phases of public and stakeholder engagement were centred on four project milestones:

- Milestone 1: Assessment of Line 3 replacement options.
- Milestone 2: Evaluation of constructing a busway.
- Milestone 3: 60% detailed design review of the busway.
- Milestone 4: Transit and Rail Project Assessment Process consultation, documenting potential Project impacts, mitigation measures and monitoring.

Consultation involved documenting Project impacts, mitigation, and monitoring. The project team built a public and stakeholder engagement plan into the Project's broader work plans and schedules to incorporate meaningful consultation and engagement activities during Project development.

Through this plan, the project team established the following goals for its public and stakeholder consultation program:

- **Equitable Consultation:**
  - Ensure inclusivity by accommodating various needs such as work schedules, travel limitations, childcare, language barriers, and internet access via hybrid consultation sessions, and drop-in public information sessions.
  - Collaboratively work with City of Toronto Divisions and Agencies including Social Development, Finance and Administration, Toronto Community Housing Corporation and the Toronto Public Library to reflect varied socio-economic status along the corridor.
  - Address concerns like equitable access to higher order transit, land speculation, and changes to neighbourhood character as a result of redeveloping a transit corridor.

- **Open Communication:**
  - Communicate the Project's history, current status, and changes based on past consultations.
  - Explain the Project alternatives, benefits and concerns, and outline what will be studied in each respective phase.
  - Provide a summary of scope of what is considered via a Transit and Rail Project Assessment Process.
  - Communicate impacts related to auto traffic, turning restrictions, and lane reductions with the addition of a priority bus lane, as well as proposed changes to the public realm and opportunities for improvement.
  - Communicate the outcomes of the February 2024 Toronto Transit Commission Board decision to fully fund the cost of construction for the busway.
  - Communicate early plans to leverage transit investment as a legacy in Scarborough for community benefits beyond interim construction and operation, after the Scarborough Subway Extension is completed.
  - Clearly define the differences in design between the 60% design and earlier plans.
- **Constant Collaboration:**
  - Gather feedback on alternatives, preferred alignments, design sections, and technical considerations at key locations and throughout the design development.
  - Collaborate on the service concept for the busway and intersecting bus network in Scarborough.
  - Outline co-ordination with other transit projects to help the public understand how the busway fits into the Toronto Transit Commission's transit vision.
  - Collaborate with communities to suggest improvements as well as to mitigate property impacts.

The specific tools and tactics used to realize these goals differed in the two phases of consultation and are described in the subsequent sections of this document.

6.1.4 Project Website

A Project website, www.ttc.ca/line3, was developed and regularly updated by the Toronto Transit Commission for the Project throughout all phases of consultation. Key information can be found on the Project website, including:

- The Project background, history, and study process.
- News releases, and public reports to the Toronto Transit Commission Board.
- A map of the Project area.
- Design features.
- Public consultation opportunities, event links, materials, and updates.
- Project contact information of the assigned Community Liaison Officer.

6.2 Pre-Planning Consultation

The foundations for the Project extend as far back as 2006, with the assessment of Line 3 replacement options. This section summarizes the consultation activities that were undertaken during the pre-planning period of the distinct service design which began in 2021, spanning the development of the busway proposal. Pre-planning engagement occurred through a set of Virtual Public Meetings, in-Station pop-up sessions and online surveys in 2021 and 2023. A full Public Consultation Report for this phase of public and stakeholder engagement is found in **Appendix B**.

6.2.1 Public Engagement

Since 2021, the Toronto Transit Commission has held multiple rounds of engagement with customers, local residents, local businesses, local elected officials, local Business Improvement Areas, and other interested stakeholders on the Line 3 Bus Replacement service and the busway. During the main consultation period of Phase 1 and Phase 2, which spanned over 18 weeks, approximately 1,200 people participated across 20 events. Leading up to and during the pre-planning consultation, the project team used several avenues of outreach to notify the public, stakeholders, and Indigenous Nations about opportunities to engage and provide comments on the Project, including:

- Multiple stakeholder meetings with transit customers, residents, Business Improvement Areas, and other stakeholders representing Scarborough transit advocacy groups, Scarborough community groups, and city-wide transit advocacy groups.
- A public survey available during summer and fall 2021, both online and as a postage-paid hard copy. Over 880 responses were received.

- A dedicated voicemail and email for customers to contact the project team to learn about the Project and share feedback.
- Stakeholder emails sent to 116 stakeholder organizations in and around the Study Area.
- Social media posts on the Toronto Transit Commission's official X account (formerly known as Twitter), Instagram, and Facebook accounts in 2021 and 2023.
- In November and December 2023, the Toronto Transit Commission re-engaged with the public on the preferred design of the busway. Approximately 70 participants attended three events hosted over two weeks, providing feedback on station amenities, station access, security and safety, bus service, parking, and more. Input from these consultation events helped refine the design of the busway.
- Elected officials were briefed in advance and after each round of consultation to ensure they were well-informed of public feedback and the Project's status.
- Pop-up events took place within the Line 3 corridor, particularly at Scarborough Centre and Kennedy Stations, to engage with transit customers directly.
- Letters were sent to Indigenous Nations via a list approved by Ministry of the Environment, Conservation and Parks, introducing the project, providing opportunities to learn more about the Project, and observe archaeological assessments.

Toronto Transit Commission media channels leveraged during both rounds of consultation to-date include:

- Toronto Transit Commission transit platform screens on all lines.
- Toronto Transit Commission transit platform screens in Victoria Park, Warden, and Kennedy Stations.
- Public Address Announcements in Kennedy, Victoria Park, and Warden Stations.
- Toronto Transit Commission social media (X account, Instagram, and Facebook).
- Toronto Transit Commission project webpage: www.ttc.ca/line3.

6.2.1.1 Hybrid Public Meetings

The project team hosted three hybrid public meetings during the 60% detailed design planning consultation phase in 2023 (dates outlined below). The objective of these virtual public meetings was to share Project updates and design progress with the public and seek feedback on proposed plans. Participants provided feedback and

questions on the 60% design, including the stops, typical design, and technical details of specific focus areas.

- Meeting 1 (November 28, 2023; 28 participants) hosted at the Scarborough Civic Centre.
- Meeting 2 (November 30, 2023; 18 participants) hosted at the Don Montgomery Community Recreation Centre.
- Meeting 3 (December 5, 2023; 27 participants) hosted virtually via WebEx.

6.2.1.2 Public Survey

A public survey was posted to the Project webpage and was live to the public for three weeks in July 2021, and two weeks in October 2021. It covered various transit topics such as travel behaviour, transfer priorities, stop amenities, transit efficiency, reliability, and more. The survey had a total of 889 respondents and demonstrated in the sensitivity analysis that the busway is the best performing option for customers, particularly with customer experience and equity. The survey was available online, in multiple languages, and in the mail by request with pre-paid postage.

6.2.2 Stakeholder Engagement

The Project has followed a three-round consultation process to-date. Round One focused on introducing the Project and sharing and seeking feedback on: bus route and corridor options, a proposed evaluation framework, and adaptive re-use of the Line 3 corridor and stations. Round Two focused on sharing and seeking feedback on the Final Recommendations of the Project, shortlist of bus routing options for the Line 3 bus replacement service and potential next steps for adaptive re-use of Line 3 infrastructure (e.g., stations and corridors), and Round Three displayed a 60% detailed design review of the busway.

Round One ran from June 29 to July 29, 2021, and involved broad and targeted engagement activities, and a focus on reaching often under-represented voices through several equity-focused engagement tactics including:

- A stakeholder meeting on June 29, 2021, with organizations representing Scarborough transit advocacy groups, Scarborough community groups, and city-wide transit advocacy groups invited.
- A public survey available June 30 to July 23, 2021, both online and as a postage-paid hard copy. Over 430 responses were received.
- A dedicated voicemail and e-mail for customers to contact the project team to learn about the Project and share feedback.

- Meetings with Community Co-ordination Plan Tables, convened by the City of Toronto and the United Way of Greater Toronto as part of their emergency response to COVID-19, including a meeting with the North Scarborough Cluster on July 14, 2021, and the South Scarborough Cluster on July 21, 2021.
- A focus group on July 29, 2021, with recruitment focused on resident members of the two Neighbourhood Planning Tables affected by the Project (Kennedy Eglinton Progressive Engagement Collaborative and Southeast Scarborough Planning Table).

Round Two ran from October 5 – October 29, 2021. Detailed activities for Round Two consultation included:

- Stakeholder Meeting 2 (October 5, 2021).
- Virtual Public Meeting (October 19, 2021).
- Public survey (October 12 to 29, 2021) – was available online, in multiple languages, and in the mail by request with pre-paid postage.
- Meetings with Community Co-ordination Plan tables:
  - North Scarborough Community Cluster Meeting 2 (October 13, 2021).
  - South Scarborough Community Cluster Meeting 2 (October 20, 2021).
- Resident Focus Group (October 27, 2021) – based on learnings from Round One, the recruitment approach was adjusted to capture a larger pool of eligible participants, focusing on those who live, work, or study in Scarborough, take public transit, and have identified belonging to one of the following audiences:
  - Resident members of the local Neighbourhood Planning Tables – Kennedy Eglinton Progressive Engagement Collaborative or Southeast Scarborough Planning Table.
  - Participants in City of Toronto Partnership-Opportunities-Legacy programs.
  - Participants in a City of Toronto Neighbourhood Grants program.
  - People identified as Local Champions.
  - Participants in City of Toronto’s Toronto Strong Neighbourhoods Strategy activities.
- Pop-ups at Line 3 stations:
  - Kennedy Station (October 21, 2021).
  - Scarborough Centre Station (October 21, 2021).
  - Midland Station (October 25, 2021).

  - Ellesmere Station (October 25, 2021).
  - Lawrence East Station (October 28, 2021).
  - McCowan Station (October 28, 2021).
- Engagement Toolkit (October 12 to 29, 2021) – available online and in the mail with pre-paid postage, translated into Arabic, Chinese (simplified and traditional), Spanish, Tagalog, and Tamil.
- Dedicated engagement website.
- Dedicated voicemail and email.

6.2.3 Summary of Feedback received at Pop-up Sessions

At the pop-up sessions, the following questions and comments related to the Project were received:

- When will the busway be built?
- How will the busway be funded?
- What type of amenities will Toronto Transit Commission provide at the busway stops that are located outside of existing Line 3 Stations?
- What will the service hours be for the busway?
- What happens to the busway once the Scarborough Subway Extension is open and in service?
- What will happen if the busway conversion funds are not received?
- Will Line 3 Stations continue to be used to service the busway?
- Will buses cause more pollution and congestion?
- Can the Toronto Transit Commission widen the busway corridor to accommodate a multi-use path? Particularly, cycling, walking facilities?
- Is there a way to use the above-grade portion of the Line 3 right-of-way for buses instead of operating buses along Ellesmere Road?

Detailed summaries of each session are provided in **Appendix B**.

6.2.4 Summary of Feedback received at Stakeholder Sessions

At the pop-up sessions, the following questions and comments related to the Project were received:

- Consider partnership with GO Transit and other transit systems to use the busway to offer transfer free express trips in Scarborough.
- Prioritize pedestrian and cyclist safety at the stops and interchanges – allow for easy connection to cyclist networks in Scarborough.
- Consider connections to active transportation network alongside the busway.
- Consider using the elevated portion of the Line 3 right-of-way for the busway, offering an exclusive off-road solution for transit riders.
- Will the distance to get to the subway at Kennedy Station from the bus platform increase?
- It is important that replacement bus service is delivered on schedule and on budget.
- Ensure the bus replacement service can deal with large volumes of customers.
- Make sure to co-ordinate with other planned transit and road projects, including the Durham – Scarborough Bus Rapid Transit.
- How much of the station buildings at Ellesmere, Lawrence East, and the upper level of Kennedy Stations will be available for adaptive reuse after the busway is open?

Over 1,186 people participated in approximately 18 weeks of extensive consultation during the initial two phases of consultation for the Project. The consultations provided valuable input from customers and stakeholders, and this input has been used to develop the busway proposal. **Table 6-1** provides a summary of the number of responses received during Project consultation events.

Table 6-1: Summary of Number of Responses Received

Responses	Round One	Round Two	Total
Stakeholder Meeting	20	16	**36**
Meetings with Community Co-ordination Plan Tables	51	40	**91**
Resident Focus Group	3	19	**22**
Public Survey	434	455	**889**
Virtual Public Meeting	Not Applicable	68	**68**
Line 3 Pop-ups	Not Applicable	80+	**80+**
Total	**508**	**678+**	**1,186+**

Round Three of consultation took place November to December of 2023. This round provided members of the public with a review of the 60% detailed design of the proposed Project. Detailed activities included:

- Dedicated engagement website.
- Dedicated contact and email.
- Public Open House (November 28, and November 30, 2023).
- Virtual Public Meeting (December 5, 2023).

The Toronto Transit Commission promoted all rounds of public consultations through its website, social media channels, and email lists, with the help of Councillors and members of the stakeholder group and consultation meeting participants, Line 3 station announcements and video screens, print and digital advertising, community posters, and news release. Further promotion was made with the addition of stop pole posters, community posters at community spaces near Line 3 stations (including libraries, recreation centres, community centres, places of worship, grocery stores, coffee shops, and post-secondary institutions). A mail drop at approximately 18,000 households was completed by Canada Post during Rounds One and Two of consultation within the area bounded by Highway 401 to the north, Eglinton Avenue to the south, Brimley Road to the east, and Kennedy Road to the west.

6.2.5 Summary of Information Presented

- Background of Toronto Transit Commission's Line 3 and Replacement Options.
- Recent Progress of Line 3's on-Street Bus Replacement Delivery.
- Overview of the busway.
- Ellesmere Station – detailed design review and engineering render.
- Lawrence East Station – detailed design review and engineering render.
- New stop along Line 3 corridor – Tara Avenue and Mooregate Avenue.
- Kennedy Station Bus Terminal and Future Access.
- Current and future bus routes, and travel time impacts for customers once busway is implemented.
- Project funding and next steps.
- Adaptive Re-use of the Line 3 guideway.

Information was shared during in-person sessions via display boards set up around the room for participants to review and take-home materials including a map of the Study

Area. Virtual sessions delivered a PowerPoint presentation to attendees with dedicated time for questions, and feedback.

Information was collected via sign-in sheets where participants included their names, mailing addresses and email addresses and indicated whether or not they would like to join the Project distribution list and feedback forms that participants could fill out and return at the end of the information session or up to two weeks following the last session via email or mail. The materials presented at the information sessions were also made available online on the Project webpage (www.ttc.ca/line3).

6.2.6 Indigenous Engagement

At the start of the Transit and Rail Project Assessment Process pre-planning consultation phase, the project team notified the Ministry of the Environment, Conservation and Parks of their intent to begin public consultation on the Project and requested information about which Indigenous Nations were required to be consulted during this phase of the Project.

The project team circulated a formal email on April 30, 2024, to Indigenous Nations identified by the Ministry of the Environment, Conservation and Parks as potentially having an interest in this Project.

The email provided information about the Project, a notice of the upcoming public consultation period and an opportunity to provide feedback or request a meeting. This notification was sent to:

- Alderville First Nation.
- Beausoleil First Nation.
- Curve Lake First Nation.
- Hiawatha First Nation.
- Huron – Wendat Nation.
- Mississaugas of Scugog Island First Nation.
- Mississaugas of the Credit First Nation.
- Williams Treaties First Nations.

Representatives from the Mississaugas of the Credit First Nation contacted the Toronto Transit Commission's project team requesting a meeting about the Project. A meeting between the Mississaugas of the Credit First Nation and the Toronto Transit Commission project team took place on May 28, 2024. In general, the Mississaugas of

the Credit First Nation sought to learn more information about the Project, the results of the preliminary environmental studies, and where their input would be needed on the Project moving forward. The project team prepared a presentation to provide the Project's background and history, an overview of the studies being conducted as part of the draft Environmental Project Report, details about the upcoming Transit and Rail Project Assessment Process, and the Project's immediate next steps. The Mississaugas of the Credit First Nation held a particular interest in the results of the Stage 2 Archaeological Assessment and requested that they be included in any site work associated with any Stage 3 Archaeological Assessments, if they were determined to be necessary. At that time, the project team was actively planning (but had not completed) various environmental and archaeological studies that would ultimately inform this Environmental Project Report. The Mississaugas of the Credit First Nation agreed to meet on-site and observe a Stage 2 Archeological Assessment dig which took place on June 18, 2024.

A response was received from Huron – Wendat Nation on May 6, 2024, requesting a fee for the observation of Stage 2 Archeological Assessment field program. The Toronto Transit Commission and Huron – Wendat Nation were not able to secure an agreement on attending the archeological assessments.

A response was also received from the Mississauga's of Scugog Island First Nation on May 6, 2024, acknowledging the receipt of the Project information package, and requesting updates as the draft Environmental Project Report is published.

No other Indigenous Nation responses related to the Project were received.

Table 6-2 provides a summary of consultation with Indigenous Nations.

The project team circulated the Stage II archaeological report and the draft Environment Project Report as well as the updated supporting technical reports to Indigenous Nations for review and comment in August 2024. A log of pre-planning communications with Indigenous groups as well as a full summary of the meetings detailed above are found in **Appendix B**.

Table 6-2: Summary of Indigenous Nations Consultation

Indigenous Nation	Date	Engagement
Alderville First Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Beausoleil First Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Curve Lake First Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Hiawatha First Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Huron – Wendat Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Mississaugas of Scugog Island First Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Mississaugas of the Credit First Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Williams Treaties First Nation	April 30, 2024	■ Toronto Transit Commission provided a formal letter with high level Project details including a link to the Project webpage. ■ Letter included details of required Stage 2 Archeological Assessment and an invitation to observe digs.
Mississauga's of the Credit First Nation	May 6, 2024	■ Sought to organize a virtual meeting in late-May to learn more about the project. Virtual meeting confirmed to take place May 28, 2024.
Mississauga's of Scugog Island First Nation	May 7, 2024	■ Acknowledged the email provided regarding the Project and requested to receive draft Environmental Project Report when available.
Huron – Wendat Nation	May 13, 2024	■ Provided Toronto Transit Commission a quote to attend Stage 2 archeological digs.
Huron – Wendat Nation	May 23, 2024	■ Toronto Transit Commission responded to quote, offering honoraria to attend Stage 2 observations.
Mississauga's of the Credit First Nation	June 7, 2024	■ Confirmed to have a representative attend Stage 2 archeological digs.
Alderville First Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Beausoleil First Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Curve Lake First Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Hiawatha First Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Huron – Wendat Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Mississaugas of Scugog Island First Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Mississaugas of the Credit First Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Williams Treaties First Nation	August 9, 2024	■ Provided a copy of Stage II Archaeological Assessment report seeking review and feedback.
Alderville First Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.
Beausoleil First Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.
Curve Lake First Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.
Hiawatha First Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.
Huron – Wendat Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.
Mississaugas of Scugog Island First Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.

Indigenous Nation	Date	Engagement
Mississaugas of the Credit First Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.
Williams Treaties First Nation	August 16, 2024	■ Provided a copy of the Toronto Transit Commission's Notice of Commencement of the Transit and Rail Project Assessment Process, notice of Public Open House on September 24, 2024 and reminder to provide feedback and comments regarding Stage II archeological assessments.
Huron – Wendat Nation	September 3, 2024	■ Huron-Wendat requested a filing and review fee for Stage II archeological assessments.
Huron Wendat Nation	September 3, 2024	■ Toronto Transit Commission agreed to proceed with filing and review fee for Stage II archeological assessments.
Alderville First Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Beausoleil First Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Curve Lake First Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Hiawatha First Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Huron-Wendat Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Mississaugas of Scugog Island First Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Mississaugas of the Credit First Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Williams Treaties First Nation	September 9, 2024	■ Reminder seeking comments on Toronto Transit Commission's Stage II archeological assessment and provided a copy of the notice of public open house.
Mississaugas of the Credit First Nation	September 9, 2024	■ Mississaugas of the Credit First Nation confirmed interest in project moving forward. Advised did not have capacity currently to review draft environmental project report.
Hiawatha First Nation	September 9, 2024	■ Provided a letter advising the Indigenous Nation has no concerns with this project.
Huron – Wendat Nation	September 27, 2024	■ Provided a letter advising the Indigenous Nation had no outstanding concerns regarding the Stage II archeological assessment and confirm no further investigation is required.

6.3 Transit and Rail Project Assessment Process Consultation

This section summarizes the consultation activities planned for the Transit and Rail Project Assessment Process phase of the Project, often referred as Phase 4 consultation. The Phase 4 Consultation Report, found in **Appendix B**, provides additional details on the consultation methods, activities and key findings of the public outreach throughout the Transit and Rail Project Assessment Process

6.3.1 Notice of Commencement and Outreach

On August 15, 2024, the Toronto Transit Commission initiated the Transit and Rail Project Assessment Process. The Notice of Commencement was distributed to Study Area residents and published online at the following link: www.ttc.ca/line3. The notification was intended to notify members of the public in the vicinity of the Project area as well as stakeholder agencies and Indigenous Nations of essential information regarding the Project including Project area, scope, and timelines, as well as to inform recipients of ways to participate in the upcoming public consultation events.

The Notice of Commencement is found in **Appendix B**.

The Toronto Transit Commission undertook a multi-pronged approach to informing the public of the Transit and Rail Project Assessment Process launch and of the public open house drop-in event. A summary of the outreach is provided in **Table 6-3** below.

Table 6-3: Summary of Transit and Rail Project Assessment Process Outreach

Communication Tactic	Details
Notice of Commencement	■ Circulation of 27,000 pieces of the Notice of Commencement to residents within 1 kilometre of the corridor via Canada Post.
Postcards	■ 250 postcards distributed to customers on September 19, 2024 at Kennedy Station, inviting members of the public to the Public Open House
Public Open House	■ In-person public open house that took place on September 24, 2024 in Scarborough.
Print Ads	■ Published in the: - Toronto Sun on August 15, 2024. - Senthamarai (Tamil) on August 16, 2024 – 12,300 distribution. - The Caribbean Camera on August 15, 2024 – 35,000 distribution. - Canadian Chinese Express (Simplified Chinese) on August 23, 2024 – 18,000 distribution. - Ming Pao Daily News on August 23, 2024 – 28,000 distribution.
Social Media Ads and Posts	■ Posted throughout the consultation period via Facebook, Instagram and X using Toronto Transit Commission institutional accounts
Web	■ Update on the dedicated project website: www.ttc.ca/line3 ■ Post on the “Latest news” section of www.ttc.ca.
Platform Video Screens	■ Landscape (1920 x 1080) Platform Video Screens for Victoria Park, Warden and Kennedy Stations.
Station Announcements	■ Made throughout the day at Victoria Park, Warden, Kennedy and Scarborough Centre Stations.
Toronto Transit Commission Stakeholder Newsletter (August 2024)	■ Information regarding the busway Transit and Rail Project Assessment Project and upcoming open house included in the monthly stakeholder newsletter to be distributed to 1,850 people throughout the City including Councillors, staff, general public, and interested local organizations.
Project Team Mailing List	■ An email notice and invitation to participate in the fourth round of public consultations was circulated to 596 registrants of the Project mailing list on September 17, 2024.
Community Town Hall	■ Community Town Hall by Local Councillor for Scarborough-Guildwood on September 16, 2024.

6.3.1.1 Public Open House

The project team hosted one in-person public consultation event to share information about the Project and the findings from the draft Environmental Project Report. This event served as an opportunity for members of the public to ask questions and give feedback on the Project's proposed design and identified impacts and mitigation measures. The event was drop-in style, meaning the project team did not provide a formal presentation and attendees could arrive and depart at their convenience. Event information and number of attendees as follows:

- **Event:** Line 3 Busway Public Open House
- **Location:** St. Joan of Arc Catholic Academy, 959 Midland Avenue, Scarborough, Ontario
- **Date:** Tuesday, September 24, 2024
- **Time:** 6:30 p.m. to 8:30 p.m.
- **Attendees:** 45 participants

Upon arrival, attendees were asked to sign in prior to entering the event space but were free to explore the Project materials at their own pace once inside. The rooms was loosely broken up into different sections of information:

- Welcome and Introduction.
- Project Background and Context.
- Project Timeline and Details.
- Environmental Project Report Findings.
- Project Benefits and Public Realm Improvements.
- Public Takeaway Items (Project notice, Toronto Transit Commission pins, vehicle cut-outs).

A number of representatives from the Toronto Transit Commission, and the consultant AECOM staffed the event.

6.3.1.2 Public Feedback

Public feedback was received during the public open house, via email, and from telephone calls. Feedback received during Transit and Rail Project Assessment Process is relevant for, and will be considered during, final phases of project development and design. Key findings of the public consultation are summarized below.

Overall, the public expressed their support for the project. In many cases, support was in the form of comments pleading to expedite the project and questions inquiring on the status of funding and timelines to construction. General non-specific comments of opposition were much less common, as most people who opposed the project had specific reasons why. In response to information on the project impacts and mitigation measures, the public was generally most concerned with:

- **Transit and traffic impacts:** members of the public were worried that traveling through Scarborough may remain challenging irrespective of potential changes to existing and proposed bus routing. Two areas generated the most public concern, the priority bus lanes installed along Kennedy Road (northbound) and Midland Avenue (southbound) for the existing Line 3 express bus replacement service. Residents sought confirmation that this infrastructure would be removed following completion of the Line 3 Busway.
- **Impacts to the natural environment:** citing the need to preserve and protect the City's Meadoway, and the habitats and ecosystems within and adjacent to it as much as possible during construction, and operation of the proposed Busway.
- **Noise and vibration impacts:** There was concerns that the Busway would be louder than the former Line 3 train service and clarity sought on how the Toronto Transit Commission intends to mitigate noise and vibration impacts during construction and operation, affecting quality of life for Scarborough residents.

Members of the public had comments and feedback beyond the Environmental Project Report as follows:

- Changes in route stop design and service plan, along with other miscellaneous design suggestions. Participants had various ideas for how to improve the Project's design, some suggested eliminating stops to decrease travel times.
- A small group shared concern of increased traffic infiltration and on-street parking with the addition of the proposed stop at Tara Avenue and Mooregate Avenue.
- Bicycle and pedestrian accommodations, as well as connection to green space along the Project corridor. Participants reaffirmed their desire for improved active transportation and an enhanced public realm.
- Concerns were raised about the speed, frequency, and reliability of the Busway – seeking clarity on travel time today and expected travel time with the Busway. Reliability concerns involved bus break-downs while on the dedicated corridor and contingencies.

- Several residents emphasized the need for safety for the public and workers during construction, and that construction be maintained Monday to Friday between 7:00 a.m. and 7:00 p.m.
- Participants requested comprehensive communication and consultation strategies to keep residents, businesses, and commuters informed throughout construction.

Appendix B contains a complete summary of feedback received in the Transit and Rail Project Assessment Process consultation and provides records of correspondence with members of the public following the commencement of the 120-day Environmental Project Report development period, along with follow-ups and responses to such comments.

6.3.2 Indigenous Engagement

As part of the Transit and Rail Project Assessment Process environmental review process, a transit project team has a duty to consult with Indigenous communities that may have an interest in or may potentially be affected by the Project.

When the Transit and Rail Project Assessment Process for the Line 3 Busway formally commenced on August 15, 2024, a formal email was circulated to Indigenous Communities identified by the Ministry of the Environment, Conservation and Parks as potentially having an interest in the Line 3 Busway Project. The email included a copy of the Notice of Commencement; a link to the Environmental Project Report and supporting studies, Project web page information; ways to contact the Line 3 Busway project team by email and telephone; and an invitation to ask questions, request more information, provide input, and arrange a meeting. This email notification was sent to:

- Mississaugas of Scugog Island First Nation.
- Hiawatha First Nation.
- Alderville First Nation.
- Curve Lake First Nation.
- Beausoleil First Nation.
- Mississaugas of the Credit First Nation.
- Huron-Wendat Nation.
- Williams Treaties First Nation.

A reminder about the closure of the public consultation was sent out by the Toronto Transit Commission on September 9, 2024 to all Indigenous Communities to encourage Project feedback. During the Transit and Rail Project Assessment Process consultation phase, the project team received:

- No response from the Mississaugas of Scugog Island, Alderville, Beausoleil, Curve Lake, and Williams Treaties First Nation was received.
- Hiawatha First Nations acknowledged they had no concerns about the Project and asked to be kept involved as the Project progresses.
- A request for filing and review fees for the Stage II archeological assessment from the Huron – Wendat.
- The pre-planning meeting with the Mississaugas of the Credit First Nations had resolved their concerns at this stage in the study.

Indigenous Communities engagement is expected to continue as the project advances into the next phases of design and into implementation.

6.3.3 Agency and Utility Engagement

In addition to public and stakeholder engagement, the project team is consulting with affected agencies, conservation authorities and impacted utility companies to seek input on the proposed undertaking. This includes:

- City of Toronto.
- Hydro One Networks Incorporated.
- Metrolinx.
- Ministry of Citizenship and Multiculturalism.
- Ministry of the Environment, Conservation and Parks.
- Toronto District School Board and Catholic School Board.
- Toronto Regional Conservation Authority.

The bulk of engagement with stakeholders occurred in the Pre-Planning phase when discussions were required as part of design development. As the proponent, the Toronto Transit Commission has engaged multiple public agencies for feedback on the project, including but not limited to, the alignment, service planning, design, coordination with surrounding planning initiatives and real estate.

A draft Environmental Project Report was circulated with affected stakeholders and agencies on August 9, 2024. Feedback from stakeholders was received and addressed in September 2024.

6.3.4 Notice of Completion

The Project Notice of Completion was filed on October 3, 2024. Its circulation closely follows that of the Notice of Commencement and consists of broad outreach to members of the public, potentially impacted property owners, review agencies, other stakeholders, and Indigenous Communities, using similar methods.

To summarize, the following means are used to engage potential interested persons following the Notice of Completion:

- Posting in the following newspapers with local circulation:
  - Senthamarai (Tamil) on September October 4, 2024.
  - The Caribbean Camera on October 3, 2024.
  - Canadian Chinese Express (Simplified Chinese) on October 4, 2024.
  - Ming Pao Daily News (Traditional Chinese) on October 4, 2024.
- Physical mailout sent to all properties in or near the Project area.
- Email to Project mailing list, including members of the public who have expressed an interest in receiving Project updates.
- Post updated project information, Notice of Completion, and Environmental Project Report on the Project website.
- Circulate the Project Notice of Completion, including information on the Project and links to the Environmental Project Report, via email to interest group representatives.
- Circulate the Project Notice of Completion individually via email to all other stakeholders, review agencies, and Indigenous Communities who received the Notice of Commencement.
- Letters to potentially impacted property owners.

The proponent commits to continue engagement with Indigenous Communities during future phases of the Project, specifically regarding any future studies and fieldwork related to natural heritage, cultural heritage, and archaeology.

A copy of the Notice of Completion is included in **Appendix B**.

6.4 Future Communications and Engagement

The project team is committed to continued consultation with stakeholders, residents, neighbourhood associations, interest groups, businesses, and others beyond the Transit and Rail Project Assessment Process and into the next phases of the Project.

The proponent commits to:

- Maintain the Project webpage (www.ttc.ca/line3) through detailed design and construction where the public can access updated Project information.
- Maintain the Project distribution list to help ensure all interested individuals receive Project updates throughout planning, design and construction.
- Develop an online engagement strategy to keep interested members of the public and stakeholders informed during the addendum process.
- Developing a Public and Stakeholder Consultation Plan for the next phase of the Project's design, detailing the outreach and engagement methods, tools, and tactics throughout that phase of the Project.
- Continue discussions with members of the public, local stakeholders and Indigenous Nations with respect to potential impacts and mitigation during detailed design and construction, as appropriate.
- Continuing to communicate with potentially impacted property owners about their rights during any property acquisition process, what that process entails and when it may begin.
- Continuing engagement with Indigenous Nations during future phases of the Project, specifically regarding any future studies and field work related to natural heritage, Built Heritage Resources and Cultural Heritage Landscapes, and archaeology.
- Design and implement a response strategy to address/resolve potential construction concerns.

If, in the future, changes are proposed to the Project Description provided in Chapter 3 of this Environmental Project Report, and the changes result in significant impacts to the environment, consultation will be undertaken with the Ministry of the Environment, Conservation and Parks regarding the process to be followed under Section 15 of *Ontario Regulation 231/08*.

7. Permits and Approvals

The following section outlines anticipated permits ad approvals that may be required to construct and operate the project.

7.1 Federal Permits and Approvals

Table 7-1 provides a summary of Federal permits, the regulatory authority, legislation and a general description of the activities covered with respect to the natural heritage system.

Table 7-1: Federal Permits

Permit Name	Regulatory Authority	Legislation	General Description
Request for Review	Fisheries and Oceans Canada	*Fisheries Act, 1985*	As no in-water works are proposed, the death of fish or the harmful alteration, disruption, or disturbance of fish habitat is not anticipated should all mitigation measures be followed to protect fish and fish habitat. As such, a Request for Review is not required. However, should any of the proposed works occur below the high water mark it is highly recommended that the impacts to fish habitat be reassessed and a Request for Review from Fisheries and Oceans Canada may be deemed necessary.
Not Applicable	Government of Canada	*Migratory Birds Convention Act, 1994*	Contravention of the *Migratory Birds Convention Act* is not anticipated provided vegetation removal occurs outside of the breeding bird season (April 1 to August 31).

7.2 Provincial Permits, Approvals and Legislative Requirements

Table 7-2 provides a summary of Provincial permits, the regulatory authority, legislation and a general description of the activities covered.

Table 7-2: Provincial Requirements

Permit Name	Regulatory Authority	Legislation	General Description
Not Applicable	Government of Ontario	*Provincial Policy Statement, 2020*	■ There are no permits to be obtained under the Provincial Policy Statement; however, mitigation measures and best management practices will prevent negative impacts to Significant Wildlife Habitat.
***Endangered Species Act* Permit**	Ministry of the Environment Conservation and Parks	*Endangered Species Act, 2007*	■ No impacts to Species at Risk are anticipated and therefore no authorization under the *Endangered Species Act* are expected.
Environmental Compliance Approval	Ministry of Environment, Conservation and Parks	*Environmental Protection Act,* 1990, and *Ontario Water Resources Act*, 1990, as amended	■ Mainly required for the implementation of new or extension/replacement of existing sewage works and/or stormwater management infrastructure, and watermains over 1,500 millimetres in diameter.
Environmental Activity and Sector Registration	Ministry of Environment, Conservation and Parks	*Environmental Protection Act*, 1990 and *Ontario Regulation 245/11*	■ Required for construction activities with impacts below Environmental Compliance Approval or Permit to Take Water Thresholds of more than 50,000 Litres per day and less than or equal to 400,000 Litres per day.
Permit To Take Water	Ministry of Environment, Conservation and Parks	*Ontario Water Resources Act*, 1990, as amended	■ Required for any dewatering of groundwater during construction over 400,000 Litres per day.
Archaeological Assessment Review Letters	Ministry of Citizenship and Multiculturalism	*Ontario Heritage Act*, 1990	■ Archaeological assessments must be undertaken by an archaeologist licensed under the *Ontario Heritage Act*, who will then submit the report for the Ministry of Citizenship and Multiculturalism's review. Archaeological concerns have not been addressed until reports have been entered into the Ontario Public Register of Archaeological Reports where those reports recommend that: - The archaeological assessment of the project area is complete. - All archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(3) of the *Ontario Heritage Act*) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy.
Wildlife Scientific Collectors Authorization	Ministry of Natural Resources and Forestry	*Fish and Wildlife Conservation Act, 1997*	■ No permits or approvals required as mitigation measures and best management practices will prevent negative impacts to wildlife.

7.3 Municipal Permits and Approvals

Table 7-3 provides a summary of municipal permits, the regulatory authority, legislation and a general description of the activities covered.

Table 7-3: Municipal Permits

Permit Name	Regulatory Authority	Legislation	General Description
Tree Removal and Injury Permits	City of Toronto	*City of Toronto Official Plan Policies*	■ Tree removal and injury permits may be required if the following tree removals are required for the proposed work: - Trees of any size within municipal streets and/or City of Toronto Ravine and Natural Feature Protection Area. - Trees with a diameter of 30 centimetres or more on private property.
Street Occupation Permit	City of Toronto	*City of Toronto Official Plan Polices*	■ Required if a proponent is planning to temporarily occupy any portion of a public right-of-way during construction.
Building Permit	City of Toronto	*City of Toronto Official Plan Policies*	■ A Building Permit is required for the construction or demolition of a new building, addition or alteration of any building or structure.
Noise Exemption Permit	City of Toronto	*City of Toronto Official Plan Policies*	■ Operation of construction equipment Is permitted between 7:00 am and 7:00 pm on Monday to Friday and Saturdays between 9:00 am to 7:00 pm. No construction noise is permitted on Sundays and statutory holidays. A permit can be requested for construction noise outside the allowable hours.
Construction Permit	City of Toronto	*City of Toronto Official Plan Policies*	■ Required for any work that will occur within the public right-of-way.
Drink Water Works Permit	City of Toronto	*City of Toronto Official Plan Policies*	■ Required for any work that may alter drinking water system watermains within the City of Toronto.
Sewer Discharge Permits	City of Toronto	*City of Toronto Official Plan Policies*	■ Sewer Discharge Permits and Agreements are required when private water is discharged into the City's sewer system during construction.

7.4 Conservation Authority Permits and Approvals

The Project falls under the jurisdiction of the Toronto and Region Conservation Authority. Toronto and Region Conservation Authority has permitting authority for activities that impact their regulated areas, in the form of Application for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses under *Conservation Authorities Act*. Permits will be obtained during the detailed design process as required.

Table 7-4 provides a summary of conservation authority permits, the regulatory authority, legislation and a general description of the activities covered.

Table 7-4: Conservation Authority Permits

Permit Name	Regulatory Authority	Legislation	General Description
Section 28.1 Permit	Toronto and Region Conservation Authority	*Conservation Authorities Act*	A Section 28.1 permit is required as it relates to natural hazards in the Toronto and Region Conservation Authority's regulated area.

7.5 Other Permits and Approvals

Further permissions may be required from non-governmental or crown corporations. These requirements are likely to include the following:

- Notifications or Permissions from Enbridge Gas, Alectra, Bell, Rogers, and other utilities as required.
- Where temporary access to private property is required to carry out the Project, permission will be obtained from the relevant owner in advance through Permit to Enter agreements or other means as appropriate.

7.6 Timing Windows and Preventive Measures

There are several pertinent timing windows that must receive attention during the course of project works. An overview of these timing windows are outlined below in **Table 7-5**.

Table 7-5: Overview of Timing Windows

Type	Range	Overview of Timing Windows
Breeding Bird	April 1 to August 31	■ Vegetation and tree removals must have consideration for the bird breeding window (i.e., April 1 – August 31), as outlined under the *Migratory Birds Convention Act*. ■ If vegetation and tree removals occur within this timing window, a visual inspection of the area proposed for clearing must be conducted by a qualified avian biologist.
Species at Risk Bat	April 1 to September 30	■ Vegetation and tree removals within the Deciduous Woodland and the Dry – Fresh Oak Deciduous Woodland Ecosite must occur outside of the Species at Risk bat active window, as outlined under the *Endangered Species Act*.
In-water Work	July 1 to March 31	■ The Ministry of Natural Resources and Forestry provided an in-water work timing window of July 1 to March 31 for all tributaries to Highland Creek identified in LGL's Natural Heritage Report (2017). As the Dorset Park Branch of Southwest Highland Creek is within the Highland Creek watershed and shares a similar fish community as the tributaries discussed in LGL's Natural Heritage Report (2017), the same in-water work timing window is expected to apply. However, should in-water works be required, correspondence with the Ministry of Natural Resources and Forestry should be refreshed to provide confirmation.

7.7 Ecological Compensation

If compensation is required in association with approvals from the Toronto Region Conservation Authority as a result of construction activities, the Toronto and Region Conservation Authority's Guideline for Determining Ecosystem Compensation (2023) should be applied with respect to ecological compensation.

8. Commitments and Future Work

The following section outlines potential opportunities, constraints, and other considerations that should be assessed during future works once the selection of the preferred solution becomes available.

8.1 Natural Environment

Table 8-1: Natural Environment Future Commitments

Environmental Component	Project Phase	Commitments for Future Work
All	Construction	■ Due to the records of provincially and federally listed Species at Risk within the Study Area it is recommended that screening for Species at Risk continues to be conducted during future study stages of this Project since species can be added to or removed from the scheduled list of protected species under the *Endangered Species Act* or *Species at Risk Act* on a periodic basis.
All	Construction	■ Regulatory agencies should also be consulted at the time of the Species at Risk screening to confirm the presence of Species at Risk and the requirement for permits under the provincial *Endangered Species Act* and/or the federal *Species at Risk Act*.
All	Construction	■ An Erosion and Sediment Control Plan should be developed during future study stages and implemented to contain/isolate exposed soils, stockpiled materials and unstable areas in the work zone and to prevent the release of sediment to all waterbodies.
Aquatic Environment	Construction	■ The Ministry of Natural Resources and Forestry provided an in-water work timing window of July 1 to March 31 for all tributaries to Highland Creek identified in LGL's Natural Heritage Report (2017). As the Dorset Park Branch of Southwest Highland Creek is within the Highland Creek watershed and shares a similar fish community as the tributaries discussed in LGL's Natural Heritage Report (2017), the same in-water work timing window is expected to apply. However, should in-water works be required, correspondence with the Ministry of Natural Resources and Forestry should be refreshed to provide confirmation.
Aquatic Environment	Construction	■ Aquatic Habitat Assessments during future study stages should be conducted, if in-water works are required for Project sites, to characterize and confirm existing aquatic conditions.
Aquatic Environment	Construction	■ As no in-water works are proposed at this time, the death of fish or the harmful alteration, disruption, or disturbance of fish habitat is not anticipated should all mitigation measures be followed to protect fish and fish habitat. As such, a Request for Review is not required. However, if the proposed works change to involve any work below the high water mark the potential impacts to fish and fish habitat will need to be reassessed and a Request for Review may need to be submitted to Fisheries and Oceans Canada.
Terrestrial Environment	Construction	■ Vegetation removal activities should be limited to outside of the breeding bird nesting period (April 1 to August 31) in all types of vegetation communities and bat active season (April 1 to September 30) in treed or forested communities of any given year. Other wildlife sensitive periods may need to be considered as well based on the results of field investigations to be completed during future study stages as applicable.
Terrestrial Environment	Construction	■ The proposed work may require tree removals and/or may result in the harm or mortality of trees adjacent to the Construction Disturbance Area. As such, an arborist report and tree inventory will likely be required to document tree removals, identify tree protection measures, and support permitting requirements.
Permits and Approvals	Construction	■ A Spill Prevention and Contingency Plan should be developed during future study stages and implemented to contain and clean up spills in accordance with provincial regulatory requirements.

8.2 Air Quality

Table 8-2: Air Quality Future Commitments

Environmental Component	Project Phase	Commitments for Future Work
All	Construction and Operations	■ Implementation of vegetation along the busway during construction (such as a green dust control fence around the corridor), where feasible, within the Study Area primarily for the highest impact receptors mentioned above, to decrease ground level dispersion of particulates.
All	Construction and Operations	■ Continued promotion of increased electric vehicle purchase and infrastructure within Ontario.
All	Construction	■ Prior to commencement of construction, a comprehensive Environmental Controls and Methods Plan should be prepared for fugitive dust control, effluent water control, Polychlorinated biphenyls removal and cleanup. ■ Prior to commencement of construction, an Emission Control Plan should be prepared for work involving asphalt application, roofing, waterproofing, diesel exhaust, odourous products. ■ Prior to commencement of construction, a Dust Control Plan for Non-Asbestos containing material should be prepared.

8.3 Socio-Economic and Land Use

Table 8-3: Socio-Economic and Land Use Future Commitments

Environmental Component	Project Phase	Commitments for Future Work
All	Construction	■ Construction activities should be monitored by a qualified inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas.
Traffic and Transportation	Construction	■ Traffic effects to be monitored in accordance with the Traffic and Transit Management Plan and adjusted as necessary during the construction period. ■ Transit effects to be monitored and mitigation adjusted as necessary during the construction period.
Pedestrian Network	Construction	■ Temporary access paths, walkways and fencing should be monitored.

8.4 Noise and Vibration

Table 8-4: Noise and Vibration Future Commitments

Environmental Component	Project Phase	Commitments for Future Work
Noise	Construction and Operations	■ Specific requirements of noise control are to be determined during detailed design based upon exact locations of operations.
All	Operations	■ As newer and lower noise emitting buses come into the Toronto Transit Commission's fleet, a recommendation would be to investigate the feasibility of using the lower noise emitting buses on the bus routes serving the busway.

8.5 Built Heritage Resources and Cultural Heritage Landscapes

No future commitments are required for Built Heritage Resources and Cultural Heritage Landscapes within the Study Area.

8.6 Archaeology

Table 8-5: Archaeology Future Commitments

Environmental Component	Project Phase	Commitments for Future Work
All	Construction	■ A Stage 2 Archaeological Assessment has been undertaken and submitted to the Ministry of Citizenship and Multiculturalism for approval. ■ Archaeological assessments must be undertaken by an archaeologist licensed under the *Ontario Heritage Act*, who will then submit the report for the Ministry of Citizenship and Multiculturalism's review. Archaeological concerns have not been addressed until reports been entered into the Ontario Public Register of Archaeological Reports where those reports recommend that: - The archaeological assessment of the project area is complete. - All archaeological sites identified by the assessment are either of no further cultural heritage value or interest (as per Section 48(3) of the *Ontario Heritage Act*) or that mitigation of impacts has been accomplished through excavation or an avoidance and protection strategy.

8.7 Traffic and Transportation

Table 8-6: Traffic and Transportation Future Commitments

Environmental Component	Project Phase	Commitments for Future Work
All	Construction	■ Emergency response and incident management plans should be prepared and implemented, with pre-construction planning meetings held with emergency services and relevant authorities. The Toronto Transit Commission shall prepare traffic and Transit Management Plans and Traffic Control Plans before construction. ■ A safety program should implement best practices for pedestrian and cyclist movement through the construction zone, and temporary access routes and fencing will be monitored.
Cycling	Construction and Operations	■ Add cycling facilities along service roads from Ellesmere Road to the stop. ■ Provide bike parking and supporting amenities at all stops.
Pedestrians	Construction and Operations	■ Implement safety-enhancing treatments such as continuous sidewalks or high-visibility crosswalks to improve pedestrian safety (subject to further study). ■ Implement signage at all stops to guide access and create a positive pedestrian experience. ■ Develop a winter maintenance plan for the Kennedy Road trail access to the stop.
Transit	Construction	■ The Toronto Transit Commission will consult with Metrolinx throughout the detailed design phase of the Project.

8.8 Drainage and Stormwater

Table 8-7: Drainage and Stormwater Future Commitments

Environmental Component	Project Phase	Commitments for Future Work
Drainage and Hydrology	Construction	■ The Toronto and Region Conservation Authority and City of Toronto criteria have been addressed in this report, and ongoing communication with both parties is advised.
Permits and Approvals	Construction	■ Communication with the City of Toronto and other utilities providers should be maintained. ■ The proposed design will not impact watercourses, however, if any construction activities will impact watercourses, the Toronto and Region and Conservation Authority should be consulted.

9. Bibliography

AECOM, 2015:
Stage 1 Archaeological Assessment Scarborough Subway Extension City of Toronto/Toronto Transit Commission Various Lots and Concessions Geographic Township of Scarboro (now Scarborough), County of York (Now the City of Toronto), Ontario Transit Project Assessment Process. April 20, 2015.

AECOM, 2017:
Scarborough Subway Extension Environmental Project Report. Prepared for the City of Toronto and Toronto Transit Commission. August, 2017. 665p.

AECOM, 2018:
Scarborough Subway Extension Environmental Project Report

AECOM, 2020:
Cultural Heritage Report: Existing conditions and Preliminary Impact Assessment: Scarborough Subway Extension Environmental Project Report – 2020 Addendum

AECOM, 2020a:
Scarborough Subway Extension Environmental Project Report – 2020 Addendum DRAFT. Prepared for the City of Toronto and Toronto Transit Commission. July, 2020. 206p.

AECOM, 2020b:
Natural Environment Report Scarborough Subway Extension Environmental Project Report – March 2020 Addendum

AECOM, 2024:
Busway Conversion. Natural Transit Project Assessment Process Stormwater Management Report. Toronto Transit Commission. June 2024.

Archaeological Services Inc., 2011:
A Master Plan of Archaeological Resources for the City of Toronto.

Bat Conservation International, 2024:
Range Maps and Species Profiles. Available online at: http://www.batcon.org/resources/media-education/species

Bateman, C., 2013:
“A brief history of the Scarborough RT.” Posted July 20, 2013. Accessed Online: https://www.blogto.com/city/2013/07/a_brief_history_of_the_scarborough_rt/

Bird Canada, 2024:
Important Bird Areas. Accessed April 2024.

Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources, 2006:
Ontario Breeding Bird Atlas Website. Available online at: http://www.birdsontario.org/atlas/index.jsp.

Canadian Council of Ministers of the Environment, 2020:
Guidance Document on Achievement Determination for Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone (PN 1483). Available at: https://ccme.ca/en/res/pn1483_gdad_eng-secured.pdf

Canadian Council of Ministers of the Environment, 2020:
Guidance Document on Achievement Determination for Canadian Ambient Air Quality Standards for Sulphur Dioxide (PN 1610). Available at: https://ccme.ca/en/res/pn1483_gdad_eng-secured.pdf

Canadian Council of Ministers of the Environment, 2020:
Guidance Document on Achievement Determination for Canadian Ambient Air Quality Standards for Nitrogen Dioxide (PN 1608). Available: https://ccme.ca/en/res/gdadforcaaqsfornitrogendioxide_en1.0.pdf

Canadian Food Inspection Agency, 2024:
Emerald Ash Borer. Updated February 26, 2024.

Cheminfo Services Inc., 2005:
Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities

City of Toronto, 2008:
By-law 514-2008 – Construction Vibration", 2008

City of Toronto, 2017:
"Best Practices for Effective Lighting." https://www.toronto.ca/wp-content/uploads/2018/03/8ff6-city-planning-bird-effective-lighting.pdf.

City of Toronto, 2019:
"By-law 878-2019 - Noise", 2019

City of Toronto, 2019a:
City of Toronto Parkland Strategy. Available: https://www.toronto.ca/city-government/accountability-operations-customer-service/long-term-vision-plans-and-strategies/parkland-strategy/

City of Toronto, 2019b:
City of Toronto Multiyear Accessibility Plan. Available: https://www.toronto.ca/wp-content/uploads/2021/02/94fc-MYAP-Status-Report-2020-to-2024.pdf

City of Toronto, 2021:
"The TTC – 100 Years of Moving Toronto." Accessed Online: https://www.toronto.ca/explore-enjoy/history-art-culture/online-exhibits/web-exhibits/web-exhibits-transportation/the-ttc-100-years-of-moving-toronto/

City of Toronto, 2021:
Major City-wide Cycling Routes. Retrieved from City of Toronto Cycling Network Plan: https://www.toronto.ca/wp-content/uploads/2023/02/8d17-For-Attachment-3-Map-of-Major-Citywide-Routes.pdf

City of Toronto, 2022a:
City of Toronto Municipal Code, Chapter 813 (Street Tree Protection By-law No. 388-2000, Private Tree By-law No. 780-2004, Ravine and Natural Feature Protection (RNFP) By-law No. 248-2013).

City of Toronto, 2022b:
Environmentally Significant Areas Interactive Map. Accessed May 2024. Available online at: https://www.toronto.ca/explore-enjoy/parks-gardens-beaches/ravines-natural-parklands/environmentally-significant-areas-2/.

City of Toronto, 2022c:
City of Toronto Open Data Portal. Available at: https://open.toronto.ca/.

City of Toronto, 2023:
"Albert Campbell's Dream – A New Scarborough Civic Centre." Accessed Online: https://www.toronto.ca/explore-enjoy/history-art-culture/online-exhibits/web-exhibits/web-exhibits-local-government/albert-campbells-dream-a-new-scarborough-civic-centre/

City of Toronto, 2023:
"City of Toronto Official Plan." https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/official-plan/.

City of Toronto, 2023:
Our Scarborough Centre Phase 4 Final Study Report. Accessed Online: https://www.toronto.ca/wp-content/uploads/2023/06/9654-city-planning-our-scarborough-phase4-final-study-report.pdf

City of Toronto, 2023:
Transit Priority Measures to Support Scarborough SRT Bus Replacement. https://secure.toronto.ca/council/agenda-item.do?item=2023.EX4.10

City of Toronto, 2024:
City of Toronto Municipal Code, Chapter 608 (Parks By-law No. 144-2012). June 3, 2024.

City of Toronto, 2024:
TTC Corporate Plan 2024-2028 & Beyond: Moving Toronto. Retrieved from https://cdn.ttc.ca/-/media/Project/TTC/DevProto/Documents/Home/About-the-TTC/2024-2028_TTC_Corporate_Plan_FINAL_ACCESSIBLE.pdf?rev=22813f1afc45446abccda87a94d213ca&hash=2A23B0A06128F3795CF18B45C7890EDB

City of Toronto, n.d.:
“Resources on Former Municipalities.” City of Toronto Archives. Accessed Online: https://www.toronto.ca/city-government/accountability-operations-customer-service/access-city-information-or-records/city-of-toronto-archives/using-the-archives/research-by-topic/resources-on-former-municipalities/

City of Toronto, n.d.:
Cycling Network 2025-2027 Public Input. Retrieved from City of Toronto: https://www.toronto.ca/services-payments/streets-parking-transportation/cycling-in-toronto/cycling-pedestrian-projects/cycling-network plan/cycling-network-public-input/

City of Toronto, n.d.:
Heritage Register. Accessed Online: https://www.toronto.ca/city-government/planning-development/heritage-preservation/heritage-register/

City of Toronto, n.d.:
T.O.INview (Infrastructure Viewer). Interactive Map of Planned Construction. Retrieved from https://map.toronto.ca/toinview/

Couture, Y., 2008:
Québec Ministry of the Sustainable Development, Environment, and Parks “Technical guide for calculating atmospheric concentration of NO_2 for application in atmospheric dispersion modelling” ISBN 978-2-550-53731-1

Eakins, R.J., 2024:
Ontario Freshwater Fishes Life History Database. Version 5.31. Online database. (https://www.ontariofishes.ca). Accessed 23 May 2024.

eBird, 2024:
An online database of bird distribution and abundance. eBird, Cornell Laboratory of Ornithology, Ithaca, New York. Accessed April 2024. Available at http://www.ebird.org.

Electoral Boundaries Readjustment Act:
Preserving Provincial Representation in the *House of Commons Act*, 2023: Canada Gazette, Part II, 157(2). Retrieved from the Canada Gazette website: https://www.gazette.gc.ca/rp-pr/p2/2023/2023-09-27-x2/html/si-tr57-eng.html

Environment and Climate Change Canada, 2021:
Species at Risk Public Registry. Accessed April, 2024. Available at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html.

Environment and Climate Change Canada, 2022:
National Air Pollution Surveillance Program. Available at: https://www.canada.ca/en/environment-climate-change/services/air-pollution/monitoring-networks-data/national-air-pollution-program.html

Environment and Climate Change Canada, 2022:
Past Weather and Climate. Historical Data. Available: https://climate.weather.gc.ca/historical_data/search_historic_data_e.html

Federal Government of Canada, 2023:
National Air Pollution Surveillance Program ambient air quality monitoring database, accessed June 2024. Website address: https://open.canada.ca/data/en/dataset/1b36a356-defd-4813-acea-47bc3abd859b

Fisheries and Oceans Canada, 2024:
DFO Aquatic Species at Risk Map. Accessed online, April 2024 at: https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html.

Gardiner, H.F., 1899:
Nothing But Names: An Inquiry into the Origin of the Names of the Counties and Townships of Ontario. Toronto: G.N. Morang.

Government of Canada, 1985:
Fisheries Act (R.S.C., 1985, c. F-14). Amended 2019.

Government of Canada, 1994:
Migratory Birds Convention Act, 1994. SCC 1994, C. 22.

Government of Canada, 2002:
Species at Risk Act c.29. Accessed April 2024. Available at https://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html.

Government of Canada, 2022:
Migratory Birds Regulations, 2022: SOR/2022-105. Canada Gazette, Part II, Volume 156, Number 12.

Government of Ontario, 1990a:
Planning Act. R.S.O. 1990, c. P.13.

Government of Ontario, 1990b:
Conservation Authorities Act. Ontario Regulation 41/24: Prohibited Activities, Exemptions, and Permits.

Government of Ontario, 1997:
Fish and Wildlife Conservation Act. SOO 1997, Chapter 41

Government of Ontario, 2007:
Endangered Species Act, SOO 2007, Chapter 6.

Halloran, J., H. Anderson and D. Tassie, 2013:
Clean Equipment Protocol for Industry. Prepared for the Peterborough Stewardship Council and Ontario Invasive Plant Council. Peterborough, ON. Printed April 2013. Updated May 2016.

Heritage Toronto, 2023:
"Heritage Toronto Exploration Map." Published September 27, 2023. Accessed Online: https://www.google.com/maps/d/viewer?mid=1qawOt5bgYZHZsnod-3lMva38kvE&hl=en_US&ll=43.70004681735254%2C-79.38881615&z=11

Heritage Toronto, n.d.:
"Eglinton East: The Golden Mile*."* Accessed Online: https://www.heritagetoronto.org/explore-learn/scarborough-history-golden-mile/

Heritage Toronto, n.d.:
"Plaques." Accessed Online: https://www.heritagetoronto.org/programs/plaques/

iNaturalist, 2024:
Research grade observations. Accessed April 2024. Available online at: https://www.inaturalist.org

INRIS, 2024:
2023 Global Traffic Scorecard. INRIX. Retrieved from https://inrix.com/scorecard/?utm_source=hellobar&utm_medium=direct

International Organization for Standardization, 1996:
International Organization for Standardization 9613-2: Acoustics - Attenuation of Sound during Propagation Outdoors Part 2: General Method of Calculation, Geneva, Switzerland.

Kaposi, D., A. Macnaughton and B. Edwards, 2024:
Ontario Moth Atlas. Accessed April 2024. Available at: https://www.ontarioinsects.org/moth/.

Lall, R., M. Kendall, K. Ito and G.D. Thurston, 2004:
Estimation of historical annual PM2.5 exposures for health effects assessment (Atmospheric Environment. 38, 2004), 5217-5226.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurrary, 1998:
Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

LGL, 2017:
Natural Heritage Report Scarborough Subway Extension from Kennedy Station to Scarborough Centre. Prepared for AECOM. April 2017.

Metrolinx, 2018:
2041 Regional Transportation Plan For the Greater Toronto and Hamilton Area. Available: https://assets.metrolinx.com/image/upload/v1671552931/Images/Metrolinx/Metrolinx_-_2041_Regional_Transportation_Plan_Final_-_EDIT_kk1qax.pdf

Metrolinx, 2021:
“Environmental Guide for Noise and Vibration Impact Assessment”, 2021

Miles & Co., 1878:
Illustrated Historical Atlas of the county of York and the township of West Gwillimbury & town of Bradford in the county of Simcoe, Ont. Toronto.

Ministry of the Environment, Conservation and Parks, 1993:
"Draft Protocol for Noise and Vibration Assessment for the Proposed Scarborough Rapid Transit Extension"

Ministry of the Environment, Conservation and Parks, 2000:
"STAMSON V5.04", 2000

Ministry of Transportation, July 2020:
Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects.

Natural Resource Canada, 2018:
Transportation Sector (Ontario) annual reporting database (2000 – 2018): Table 8 "GHG Emissions by Transportation Mode." Accessed, June 2024: https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/showTable.cfm?type=CP&sector=tran&juris=on&rn=8&page=0

NatureServe, 2024:
Natureserve Conservation Status Ranks. Available online at: https://help.natureserve.org/biotics/content/record_management/Element_Files/Element_Tracking/ETRACK_Definitions_of_Heritage_Conservation_Status_Ranks.html.

Oldham, M.J., W.D. Bakowsky and D.A. Sutherland, 1995:
Floristic quality assessment system for Southern Ontario. Ontario Ministry of Natural Resources, Natural Heritage Information Centre. Peterborough, Ontario.

Ontario Government, 2019:
Ministry of Citizenship and Multiculturalism, Sample Tables and Language for "Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment" and Environmental Project Reports (EPR) under Transit Project Assessment Process for Proponents and their Consultants. On file with author.

Ontario Government, 2021:
Ontario Heritage Act, R.S.O. 1990, c.0.18. Available online at: https://www.ontario.ca/laws/statute/90o18

Ontario Heritage Trust, n.d.:
Easement Properties. Ontario Heritage Trust. https://www.heritagetrust.on.ca/en/property-types/easement-properties.

Ontario Heritage Trust, n.d.:
Ontario *Heritage Act* Register. Ontario Heritage Trust. https://www.heritagetrust.on.ca/en/index.php/pages/tools/ontario-heritage-act-register

Ontario Heritage Trust, n.d.:
Places of Worship Inventory. Ontario Heritage Trust. https://www.heritagetrust.on.ca/en/index.php/places-of-worship/places-of-worship-database

Ontario Heritage Trust, n.d.:
Provincial Plaque Program. Ontario Heritage Trust. https://www.heritagetrust.on.ca/en/pages/programs/provincial-plaque-program.

Ontario Ministry of Agriculture, Food and Rural Affairs, 2023:
Ag Maps. Accessed April 2024. Available at: https://www.lioapplications.lrc.gov.on.ca/AgMaps/Index.html?viewer=AgMaps.AgMaps&locale=en-CA.

Ontario Ministry of Citizenship and Multiculturalism, 2016:
Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, A Checklist for the Non-Specialist. https://forms.mgcs.gov.on.ca/en/dataset/021-0500.

Ontario Ministry of Environment and Climate Change, 2020:
Ontario's Ambient Air Quality Criteria (PIBS # 6570e01). Toronto, ON: Standards Development Branch.

Ontario Ministry of Environment, Conservation and Parks, May 2020:
Human Toxicology and Air Standards Section, Technical Assessment and Standards Development, Ambient Air Quality Criteria

Ontario Ministry of Environment, Conservation, and Parks, 2018:
Species at Risk in Ontario (SARO) List. Accessed April 2024. Available at https://www.ontario.ca/page/species-risk-ontario.

Ontario Ministry of Environment, Conservation, and Parks, 2022:
Maternity Roost Surveys. June 2022.

Ontario Ministry of Municipal Affairs and Housing, 2017:
Greenbelt Plan. Available: https://www.ontario.ca/document/greenbelt-plan/greenbelt-plan

Ontario Ministry of Municipal Affairs and Housing, 2020a:
A Place to Grow: Growth Plan for the Greater Golden Horseshoe. Available: https://files.ontario.ca/mmah-place-to-grow-office-consolidation-en-2020-08-28.pdf

Ontario Ministry of Municipal Affairs and Housing, 2020b:
The Provincial Policy Statement. Available: https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf

Ontario Ministry of Natural Resources and Forestry, 2000:
Ministry of Natural Resources, Significant Wildlife Habitat Technical Guide. 151p.

Ontario Ministry of Natural Resources and Forestry, 2010:
Ministry of Natural Resources, Natural Heritage Reference Manual for Policy 2.3 of the Ontario Provincial Policy Statement. 245 pp.

Ontario Ministry of Natural Resources and Forestry, 2015:
Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E. January 2015. Peterborough: Queen's Printer for Ontario. 39pp.

Ontario Ministry of Natural Resources and Forestry, 2016:
Best Management Practices for Mitigation the Effects of Roads on Amphibian and Reptile Species at Risk in Ontario. April 2016. 104 pp.

Ontario Ministry of Natural Resources and Forestry, 2024a:
Make a Map: Natural Heritage Areas, Natural Heritage Information Centre. https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US.

Ontario Ministry of Natural Resources and Forestry, 2024b:
GeoHub Database. Land Information Ontario. Available at: https://geohub.lio.gov.on.ca/.

Ontario Ministry of the Environment, Conservation, and Parks, 2024:
"Guide to Ontario's Transit and Rail Project Assessment Process"

Ontario Nature, 2019:
Ontario Reptile and Amphibian Atlas. Accessed April 2024. Available at: https://www.ontarionature.org/protect/species/herpetofaunal_atlas.php.

Parks Canada, n.d.:
Canada's Historic Places. www.historicplaces.ca.

Parks Canada, n.d.:
Canadian Register of Historic Places. https://www.historicplaces.ca/en/home-accueil.aspx.

Parks Canada, n.d.:
Directory of Federal Heritage Designations. https://www.pc.gc.ca/apps/dfhd/search-recherche_eng.aspx.

Planning Act, 1990:
The *Planning Act*, Revised Statutes of Ontario 1990, chapter, page 13. Available: https://www.ontario.ca/laws/statute/90p13

Scarborough Historical Society, n.d.:
"The Naming of Scarborough." Accessed Online: http://scarboroughhistorical.ca/local-history/naming-of-scarborough/

Scarborough Historical Society, n.d.:
"Communities." Accessed Online: http://scarboroughhistorical.ca/local-history/communities/

Scarborough Historical Society, n.d.:
"Reeves and Mayors of Scarborough." Accessed Online: http://scarboroughhistorical.ca/local-history/reeves-and-mayors-of-scarborough/

Statistics Canada, 2023:
Census Profile, 2021 Census of Population. Available: https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm

Toronto and Region Conservation Authority, 2017:
Annual local occurrence and local rank update for 2017: terrestrial species and vegetation communities.

Toronto and Region Conservation Authority, 2018a:
TRCA Open Data Portal. Accessed April 2024. Available at: https://data.trca.ca/.

Toronto and Region Conservation Authority, 2018b:
Highland Creek Watershed Report Card 2018. Available at: https://reportcard.trca.ca/watershed-report-cards/highland-creek/

Toronto and Region Conservation Authority, 2019:
Erosion and Sediment Control Guideline for Urban Construction. Toronto and Region Conservation Authority, Vaughan, Ontario.

Toronto and Region Conservation Authority, 2023:
"Guideline for Determine Ecosystem Compensation." https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2023/08/18123313/TRCA-Ecosystem-Compensation-Guideline-June-2023.pdf

Toronto Entomologists Association, 2023:
Ontario Butterfly Atlas. Accessed April 2024. Available at: http://www.ontarioinsects.org/atlas_online.htm.

Toronto Transit Commission, 2022:
Line 3 Bus Replacement Study Final Recommendations.

Toronto Transit Commission, 2023:
Line 3 Replacement Update. Toronto: Toronto Transit Commission.

Toronto Transit Commission, 2023:
Scarborough Rapid Transit Bus Replacement Conversion of Scarborough Rapid Transit Right-of-Way to Busway 60% Detailed Design Drawings.

TransitToronto.ca, n.d.:
"The Rise and Fall of the Scarborough RT." Last modified January 21, 2024. Accessed Online: https://transittoronto.ca/subway/5107.shtml

United States Environmental Protection Agency, 2023:
User's Guide for the AMS/EPA Regulatory Model (AERMOD)

United States Federal Highway Administration, 2006:
"Road Construction Noise Model", 2006

United States Federal Highway Administration, 2023:
"Traffic Noise Model", Datakustik

United States Federal Transit Administration, 2018:
"Transit Noise and Vibration Impact Assessment", 2018

Welch, D. and M. Payne, 2013:
"Scarborough." *The Canadian Encyclopedia*. Last Edited 2019. Accessed Online: https://www.thecanadianencyclopedia.ca/en/article/scarborough