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Final Early Works Report

Ontario Line Lakeshore East Joint Corridor Early Works

Prepared by:

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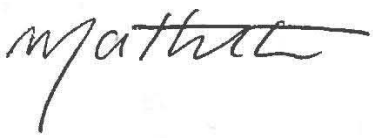

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Executive Summary

ES.1 Ontario Line Lakeshore East Joint Corridor Early Works

The Ontario Line Project (the Project) is being assessed in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act. Ontario Regulation 341/20: Ontario Line Project outlines a Project-specific environmental assessment process that includes an Environmental Conditions Report, Environmental Impact Assessment Report, and an opportunity for Early Works Report(s) for assessment of works that are ready to proceed in advance of the Environmental Impact Assessment Report. The Environmental Conditions Report documents the local environmental conditions of the Ontario Line Study Area and provides a preliminary description of the potential environmental impacts from the Project. Information outlined in the Environmental Conditions Report is used to inform the Early Works Report(s) and Environmental Impact Assessment Report, which study environmental impacts in further detail and confirm and refine preliminary mitigation measures identified in the Environmental Conditions Report.

Ontario Line early works are components of the Project that are proposed to proceed before the completion of the Ontario Line environmental impact assessment process. An overview of the Project is provided in **Section 1.2**. Early works are defined in Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act as follows:

> “any components of the Ontario Line Project that Metrolinx proposes to proceed with before the completion of the Ontario Line assessment process, such as station construction, rail corridor expansion, utility relocation or bridge replacement or expansion.”

The Lakeshore East Joint Corridor early works are considered to be of strategic importance in enabling the timely implementation of the Project. These early works are being advanced where the Project interfaces with GO Expansion and the East Harbour Station. Advancing early works and supporting environmental and technical studies in this area provides planning and design efficiencies for the Project, GO Expansion and the East Harbour Station, and facilitates the timely implementation of these projects.

These early works will set the groundwork for other major construction for the Project, reducing risk of construction delays to the main contracts by completing the joint corridor work in advance of the main contracts.

AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete this Ontario Line Lakeshore East Joint Corridor Early Works Report (this Report) to document the assessment of Lakeshore East Joint Corridor early works (**Figure ES-1**).

The Lakeshore East Joint Corridor early works components and construction activities are further described in **Section 1.3**.

ES.2 Study Process

This Report has been completed in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act and contains the information outlined in **Table ES-1**.

Table ES-1: Report Contents in Accordance with Ontario Regulation 341/20: Ontario Line Project

Reg. Section	Requirement	Report Section
Section 8(2)1	A description of the early works including a description of the alternatives that were considered.	**Section 1.3 and Section 3**
Section 8(2)2	The rationale for proceeding with the early works and a summary of background information relating to them.	**Section 1.3**
Section 8(2)3	A map showing the site of the early works.	**Figure 3-1 and Appendix A**
Section 8(2)4	A description of the local environmental conditions at the site of the early works.	**Section 5 and Appendix A**
Section 8(2)5	A description of all studies undertaken in relation to the early works, including, i. a summary of all data collected or reviewed, and ii. a summary of all results and conclusions.	**Section 5, Section 6, and Appendix A**
Section 8(2)6	Metrolinx's assessment and evaluation of the impacts that the preferred method of carrying out the early works and other methods might have on the environment, and Metrolinx's criteria for assessment and evaluation of those impacts.	**Section 6 and Appendix A**
Section 8(2)7	A description of any measures proposed by Metrolinx for mitigating any negative impacts that the preferred method of carrying out the early works might have on the environment.	**Section 6 and Appendix A**
Section 8(2)8	A description of the means Metrolinx proposes to use to monitor or verify the effectiveness of mitigation measures proposed.	**Section 6 and Appendix A**
Section 8(2)9	A description of any municipal, provincial, federal or other approvals or permits that may be required for the early works.	**Section 7 and Appendix A**

Reg. Section	Requirement	Report Section
Section 8(2)10	A consultation record, including, i. a description of the consultations carried out with Indigenous Nations and interested persons, ii. a list of the Indigenous Nations and interested persons who participated in the consultations, iii. summaries of the comments submitted by Indigenous Nations and interested persons, and iv. a summary of discussions that Metrolinx had with Indigenous Nations, and copies of all written comments submitted by Indigenous Nations.	**Section 8 and Appendix B**

Refer to **Section 2** of this Report for more information on the early works study process.

ES.3 Early Works Description

This Report documents the assessment of Lakeshore East Joint Corridor early works. The locations and components of these early works are shown in **Figure ES-1**.

The Lakeshore East Joint Corridor early works are planned along the Lakeshore East rail corridor between approximately Eastern Avenue and Pape Avenue and will include:

- Reconfiguration of existing GO tracks to support future Ontario Line infrastructure;
- Replacement of the existing rail bridges at Queen Street East, Dundas Street East and Logan Avenue;
- Construction of new bridges at Dundas Street East and Logan Avenue to support future Ontario Line tracks;
- Construction of the foundations for GO Overhead Catenary System (OCS) poles and supporting infrastructure to accommodate future fourth GO track;
- Construction of retaining walls; and
- Construction of noise barriers, including east of Pape Avenue.

The Lakeshore East Joint Corridor Early Works Project Footprint shown in **Figure ES-1** includes permanent infrastructure to be built as part of the Lakeshore East Joint Corridor early works as well as lands anticipated to be temporarily impacted by early works construction staging/laydown and access; these lands are anticipated to be refined to the extent feasible as project planning progresses. Note that lands adjacent to the Eastern Avenue rail bridge on the north of Eastern Avenue will be shared with the East Harbour Station project to reduce temporary land requirements in support of construction activities.

Figure ES-1: Lakeshore East Joint Corridor Early Works Conceptual Design

Figure ES-1: Lakeshore East Joint Corridor Early Works Conceptual Design

Legend

- Lakeshore East Joint Corridor Early Works Project Footprint
- Existing Track

Early Works Components:

- Proposed GO Bridge Replacement
- Proposed Ontario Line Bridge
- GO Track
- Proposed Noise Barrier
- Proposed Retaining Wall
- Proposed Retaining Wall and Noise Barrier

Future Work (Not Part of Early Works):

- Proposed Ontario Line Gerrard Station
- Proposed Future Gerrard Portal (Below Ground)
- Proposed Future Gerrard Portal (Above Ground)
- Proposed Ontario Line Track
- Proposed Ontario Line Underground Track
- GO Track 4

* Conceptual design and noise barrier extents are subject to change

Ontario Line Project

Lakeshore East Joint Corridor Early Works Conceptual Design

0 50 100
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap and Basemap provided by ESRI.

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Figure ES-1

Assessment of project operations and construction of other project components will be documented in the Ontario Line Environmental Impact Assessment Report in accordance with Section 15 of Ontario Regulation 341/20: Ontario Line Project. Note that the assessment of the Lakeshore East Joint Corridor operational noise and vibration impacts is documented in the Lakeshore East Joint Corridor Noise and Vibration Operations Report found in **Appendix C** of this report. As the Lakeshore East Joint Corridor early works include installation of noise barriers and vibration mitigation technologies to address noise and vibration impacts associated with Joint Corridor operation, the Lakeshore East Joint Corridor Noise and Vibration Operations Report is included in this Early Works Report to provide the details of the operational noise and vibration assessment and identification of mitigation measures.

ES.4 Local Environmental Conditions

This section provides a summary of the existing natural, technical, socio-economic, and cultural aspects of the existing environment in the context of Lakeshore East Joint Corridor early works. Information on the following environmental components is provided in the sections below, and where applicable, is supplemented with supporting detailed technical reports:

- Natural Environment..... **Section 5.1** and **Appendix A1**
- Soil and Groundwater…….**Section 5.2**
- Hydrology and Surface Water……...**Section 5.3**
- Air Quality…….**Section 5.4** and **Appendix A2**
- Noise and Vibration……**Section 5.5** and **Appendix A3**
- Socio-Economic and Land Use Characteristics……**Section 5.6**
- Built Heritage Resources and Cultural Heritage Landscapes ..... **Section 5.7** and **Appendix A4**
- Archaeological Resources..... **Section 5.8**
- Traffic and Transportation ..... **Section 5.9** and **Appendix A5**
- Utilities..... **Section 5.10**

The Ontario Line Final Environmental Conditions Report (AECOM, 2020a)[1] was reviewed to support the determination of local environmental conditions within the discipline-specific study areas developed for the Lakeshore East Joint Corridor early

1. The Ontario Line Final Environmental Conditions Report (AECOM, 2020) was published on November 30, 2020 in accordance with Ontario Regulation 341/20: Ontario Line Project.

works. Where necessary, review of additional desktop and field information was undertaken. The local environmental conditions for Lakeshore East Joint Corridor early works are summarized below.

Natural Environment

The Lakeshore East Joint Corridor Natural Environment Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 120-metre buffer. This buffer has been applied in accordance with the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, Second Edition (Ministry of Natural Resources and Forestry, 2010).

A small portion of the Lakeshore East Joint Corridor Early Works Project Footprint falls within the Toronto and Region Conservation Authority's regulation limits. There are no Environmentally Significant Areas within the Lakeshore East Joint Corridor Natural Environment Study Area, nor does the Lakeshore East Joint Corridor Early Works Project Footprint overlap with the City's Natural Heritage System or Ravine Natural Feature Protection By-law Area (City of Toronto, 2017a) or Toronto and Region Conservation Authority's Terrestrial Natural Heritage System.

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (2020), there are no Provincially Significant Wetlands, Locally Significant Wetlands, significant valleylands, or provincially significant Areas of Natural and Scientific Interest within the Lakeshore East Joint Corridor Natural Environment Study Area. In addition, there are no woodlands, or unevaluated wetlands within the Lakeshore East Joint Corridor Natural Environment Study Area as mapped by the Ministry of Natural Resources and Forestry.

There were no waterbodies identified within the Lakeshore East Joint Corridor Natural Environment Study Area; therefore, fish and fish habitat assessments were not required.

Candidate habitat may occur for Common Nighthawk, Eastern Wood-pewee, and Monarch (all identified as Species of Conservation Concern) within the Lakeshore East Joint Corridor Natural Environment Study Area.

Chimney Swift, a Species at Risk, has a high probability to occur within the Lakeshore East Joint Corridor Natural Environment Study Area. Barn Swallow and Bat Species at Risk (including Eastern Small-footed Myotis, Little Brown Myotis, Northern long-eared Myotis and Tri-coloured Bat) have medium probability to occur within the Lakeshore East Joint Corridor Natural Environment Study Area.

The following Species at Risk have been identified to have a low probability to occur within the Lakeshore East Joint Corridor Natural Environment Study Area: Bank Swallow, Bobolink, Eastern Meadowlark, and Blanding's Turtle.

Soil and Groundwater

The Lakeshore East Joint Corridor Soil and Groundwater Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. This buffer has been applied in accordance with the Hydrogeological Assessment Submissions Conservation Authority Guidelines for Development Applications (Toronto and Region Conservation Authority, 2013a), which recommends well data for private wells within 500 metres be used for impact assessment.

The Lakeshore East Joint Corridor Soil and Groundwater Study Area is within the Iroquois Plain physiographic region. The Iroquois Plain is a lowland mainly composed of sand extending north up to 10 kilometres from the shoreline of Lake Ontario.

A review of the Ministry of the Environment, Conservation and Parks water well records database indicates that bedrock depths within the Lakeshore East Joint Corridor Soil and Groundwater Study Area range from approximately 10 to 32 metres below ground surface. Overburden (above bedrock) geologic materials within the Lakeshore East Joint Corridor Soil and Groundwater Study Area consist primarily of clayey silt, silty clay, sand, and silty sand.

Source water areas/features, as defined by the Ministry of the Environment, Conservation and Parks were reviewed and it was determined that the Lakeshore East Joint Corridor Soil and Groundwater Study Area overlaps with a Highly Vulnerable Aquifer, which is an aquifer that is susceptible to contamination due to its location near the ground surface or the surrounding soils. The Lakeshore East Joint Corridor Soil and Groundwater Study Area is also within an Intake Protection Zone (areas of land and water that contribute source water to a surface water drinking system intake with a specified distance) and Event Based Areas (areas within a watershed where a spill could pollute the surface water drinking supply because of sanitary sewers, oil/fuel storage tanks, sewage treatment plants or pipelines close to rivers, streams, and other water bodies).

Hydrology and Surface Water

The Lakeshore East Joint Corridor Hydrology and Surface Water Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. Based on the Toronto and Region Conservation Authority's Stormwater Management Criteria (Toronto and Region Conservation Authority, 2012), the zone of potential impacts is defined by presence of waterbodies. The Lower Don River is located within

the Lakeshore East Joint Corridor Hydrology and Surface Water Study Area. The 500 metre buffer has been applied to include the Toronto and Region Conservation Authority Regulation Limit and Don River Floodplain based on the scale and significance of the Don River, and to consider surrounding flood protection initiatives.

According to Toronto and Region Conservation Authority flood and hazard mapping, the Lakeshore East Joint Corridor Hydrology and Surface Water Study Area is within the Toronto and Region Conservation Authority's Regulation Area (Toronto and Region Conservation Authority, 2020), and the Don River Floodplain. The West Don Lands Flood Protection Landform located west of the Richmond Hill rail corridor and within the Lakeshore East Joint Corridor Hydrology and Surface Water Study Area, is a flood protection landform that was constructed in 2012 to reduce the risk of flooding to the West Don Lands neighbourhood.

Air Quality

The Lakeshore East Joint Corridor Air Quality Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. This buffer has been applied in accordance with the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impact and Greenhouse Gases of Provincial Transportation Projects (Ministry of Transportation, 2020), which states that for major roads, a distance of 500 metres is expected to capture the maximum pollutant concentrations. Though the Lakeshore East Joint Corridor early works do not include construction of major roads, similar ground level sources of fugitive emission, for example on-site vehicle movement, which are expected to have a similar range of pollutant concentration impacts may be anticipated.

Air quality measurements indicate there are existing exceedances of benzene and benzo(a)pyrene according to the Ambient Air Quality Criteria (Ministry of the Environment, 2012) relevant to the Lakeshore East Joint Corridor Air Quality Study Area. Benzene has elevated annual contributions which exceed the threshold guideline from the Ambient Air Quality Criteria. Benzo(a)pyrene, the representative polycyclic aromatic hydrocarbon, shows extremely elevated levels of concentration for both annual and daily provincial air quality thresholds. This is due mainly to high presence of regional air quality contributions, high traffic volumes within the Greater Toronto Area, and industrial contributions from Toronto, the Greater Toronto Area, and Hamilton.

The predominant wind direction, as taken from the Toronto City Centre meteorological station located on Toronto Island, is from the northeast towards the southwest. Secondary predominant winds blow from the west, northwest and southwest. Due to the proximity of receptors to the Lakeshore East Joint Corridor Early Works Project

Footprint, construction activities could be expected to impact receptors in all directions, however the receptors located downwind of the predominant wind directions identified.

Due to the predominant wind conditions in the Lakeshore East Joint Corridor Study Area, the emissions from the construction activities may be directed towards the receptors located southwest of the construction area along Eastern Avenue, Queen Street East, McGee Street, Empire Avenue, Booth Avenue, Logan Avenue, and Dundas Street East. Secondary predominant winds blow from the west, northwest and southwest. Therefore, potential impacts from the early works construction activities may also be directed towards the receptors located along or near parts of Carlaw Avenue, Gerrard Street East, Langley Avenue, Logan Avenue, Paisley Avenue, Pape Avenue, Boultbee Avenue, and Jones Avenue.

Noise and Vibration

The Lakeshore East Joint Corridor Noise and Vibration Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and an approximately 250 metre buffer. This buffer was developed using noise and vibration screening areas which were determined by calculating the distances where the applicable criteria are predicted to be met, using a conservative approach where it was assumed that all construction equipment listed in **Table 3-1** would be simultaneously active. The approximately 250 metre night-time noise screening area was the largest and was thus used to define the Lakeshore East Joint Corridor Noise and Vibration Study Area. This buffer distance was also developed in accordance with the United States Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (2018), and City of Toronto By-law 514 (2008).

Noise measurements indicate that average existing daytime, evening, and night-time noise levels in the vicinity of the Lakeshore East Joint Corridor Noise and Vibration Study Area range as follows:

- **Daytime** (7 AM to 7 PM) Leq, 1hr: 64 dBA to 65 dBA;
- **Evening** (7 PM to 11 PM) Leq, 1hr: 58 dBA to 62 dBA; and
- **Night-time** (11 PM to 7 AM) Leq, 1hr: 52 dBA to 53 dBA.

The local environment does not have any normally occurring sources of perceptible vibration; the most significant source of vibration near the early works is the existing rail lines. Therefore, for the majority of the Lakeshore East Joint Corridor Noise and Vibration Study Area, existing vibration levels are expected to be below human perceptibility, except in close proximity to the existing rail lines. The construction vibration assessment in this Report uses absolute vibration levels, which are not affected by the existing vibration levels.

Socio-Economic and Land Use Characteristics

The Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer.

The lands within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area are designated as primarily Neighbourhoods, Mixed Use Areas, and General and Core Employment Areas in the Official Plan, with slivers of Parks and Apartment Neighbourhood designations. Provincial and municipal policies applicable to the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area have a shared objective of strengthening connections and access to economic opportunities through improved transit networks.

Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area, the following notable public realm elements exist: the Riverside and Leslieville communities; Lower Don Trail, the West Don Lands and Corktown Common.

There are several parks and open spaces and multiple community groups and institutional uses located within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area.

The Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area overlaps with the South Riverdale neighbourhood in the City of Toronto. According to 2016 Census data, the South Riverdale neighbourhood experienced a population increase from 2011 of approximately 8.7%.

Applications for proposed future development were reviewed to understand the scope of future potential changes within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area. There were 16 active development applications identified within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area, as of July 8, 2021.

Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area, there are plans for new or expanded public spaces and community service facilities as part of the Don Mouth Naturalization and Port Lands Flood Protection Project, Lower Don River West Remedial Flood Protection Project, Improving the Esplanade and Mill Street Project, and the Broadview and Eastern Flood Protection Municipal Class Environmental Assessment; and improvements to existing public spaces through the Lower Don Trail Master Plan and Lower Don Trail Phase 2 Improvements (City of Toronto, et al., 2021).

Built Heritage and Cultural Heritage Landscapes

The Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint, adjacent properties[2] to account for potential indirect impacts, and properties within 11.1 metres of the Lakeshore East Joint Corridor Early Works Project Footprint to account for potential impacts to built heritage resources and cultural heritage landscapes that may result from vibration. The distance of 11.1 metres[3]; from the Lakeshore East Joint Corridor Early Works Project Footprint was included in the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area to account for potential vibration impacts to buildings extremely susceptible to vibration damage (including heritage buildings and their foundations) in accordance with the Ontario Line Lakeshore East Joint Corridor Early Works – Final Noise and Vibration Report (AECOM, 2021).

In summary, a total of 11 built heritage resources/cultural heritage landscapes are within the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area consisting of:

- One previously identified Metrolinx Provincial Heritage Property (OLS-014 – Carlaw Avenue Subway and Gerrard Street East Subway);
- One previously identified built heritage resource/cultural heritage landscape, which are also contributing properties in the Riverdale Heritage Conservation District, Designated Part V of the Ontario Heritage Act (OLS-123 – 15 and 17 Tiverton Avenue);
- Two previously identified built heritage resources/cultural heritage landscapes identified in previous heritage studies (OLS-122 – 6, 8 and 10 Paisley Avenue, OLS-124 - 60 and 62 McGee Street);
- Three potential built heritage resources/cultural heritage landscapes identified in the Ontario Line Cultural Heritage Report (OLS-015 – 400 Carlaw Avenue,

2. Adjacent is defined in Section 3.1.5 (Heritage Conservation) of the City of Toronto's Official Plan as "those lands adjoining a property of 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, 2019).
3. The 250 metre buffer from the Ontario Line Cultural Heritage Report was refined using analysis from the Ontario Line Lakeshore East Joint Corridor Early Works – Noise and Vibration Report (AECOM, 2021). The refined buffer was calculated based on the Project-specific anticipated impacts of early works using a conservative approach (where construction equipment was assumed to operate at the edge of the Lakeshore East Joint Corridor Early Works Project Footprint, closest to nearby buildings/structures) and accounts for potential vibration impacts to buildings extremely susceptible to vibration damage (including heritage buildings and their foundations). The resulting buffer is 11.1 metres from the Lakeshore East Joint Corridor Early Works Project Footprint.

OLS-016 – 1 Dickens Street, OLS-126 – De Grassi Street from Queen Street East to Wardell Street) (AECOM, 2020c);

- Two Listed properties on the City of Toronto's Heritage Register; one that was included in the Ontario Line Cultural Heritage Report (OLS-013 – 840 Gerrard Street East) (AECOM, 2020c), and one that was identified in this Heritage Detailed Design Report (LSE-001 – 369 Carlaw Avenue);
- One Heritage Conservation District, Designated Part V of the Ontario Heritage Act (OLS-017 – Riverdale Heritage Conservation District); and
- One Heritage Conservation District currently under study (OLS-018 – Queen Street East – Riverside Heritage Conservation District).

Archaeological Resources

Review of archaeological resources was limited to the Lakeshore East Joint Corridor Early Works Project Footprint. Based on the Standards and Guidelines for Consultant Archaeologists (Ministry of Tourism and Culture, 2011), only areas of direct construction impacts are subject to archaeological assessment.

As per the results of the Stage 1 archaeological assessment developed for the Project, the majority of the Lakeshore East Joint Corridor Early Works Project Footprint has been cleared of archaeological concerns by previous archaeological assessments, though several areas retaining high to moderate archaeological potential remain. In addition to the possibility of uncovering Indigenous artifacts, these areas have higher potential to uncover various 19th century sites related to the City of Toronto expansion.

Traffic and Transportation

The Lakeshore East Joint Corridor Traffic and Transportation Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and adjacent road segments and intersections which meet either of the following criteria:

- Directly impacted by the early works activities within the Lakeshore East Joint Corridor Early Works Project Footprint (i.e., construction of the new rail bridges is anticipated to result in potential lane closure along Queen Street East, Dundas Street East, and Logan Avenue); or
- Provide connection to the Lakeshore East Joint Corridor Project Footprint (i.e., Eastern Avenue, Queen Street East, Dundas Street Est, Gerrard Street, Logan Avenue, Carlaw Avenue, Jones Avenue, Booth Avenue, and McGee Street) and therefore may be considered as a route for construction vehicles, where heavy vehicles are permitted.

Existing elements of the transportation and transit networks within the Lakeshore East Joint Corridor Traffic and Transportation Study Area include:

- Four east-west arterial road (i.e., Eastern Avenue, Queen Street East, Gerrard Street East and Dundas Street East), two north-south arterial roads (i.e., Jones Avenue and Carlaw Avenue), one north-south collector road (i.e., Logan Avenue) and three local roads (i.e., Pape Avenue, Booth Avenue and McGee Street);
- Sidewalks that run along Eastern Avenue, Queen Street East, Dundas Street East, Gerrard Street East, Logan Avenue, Carlaw Avenue, Pape Avenue, Jones Avenue, Booth Avenue and McGee Street; as well as on street bike lanes along both sides of Dundas Street East, Logan Avenue and Jones Avenue;
- Metrolinx-owned rail tracks that service commuter trains operated by Metrolinx (i.e., Lakeshore East and Stouffville GO lines) and VIA Rail (i.e., Toronto-Ottawa and Toronto-Montreal lines) and freight trains operated by Canadian National Railway and Canadian Pacific Railway; and
- Three bus routes operated by Toronto Transit Commission (i.e., bus routes #72, #143, and #325), five streetcar routes operated by Toronto Transit Commission (i.e., #301, #306, #501, #503 and #506).

The findings of the quantitative multi-modal level of service assessment of the existing transportation and transit networks within the Lakeshore East Joint Corridor Traffic and Transportation Study Area are summarized as follows:

- Automobiles experience acceptable Automobile Level of Service ‘C’ or better at all the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections in both the AM and PM peak hours;
- Pedestrians experience critical Pedestrian Level of Service ‘D’ at all the Lakeshore East Joint Corridor Study Area intersections except at the intersection of Gerrard Street and Logan Avenue where pedestrians experience acceptable Pedestrian Level of Service ‘C’. Pedestrians experience critical Pedestrian Level of Service ‘D’ or ‘E’ along all the studied road segments, except along the studied section of Queen Street where pedestrian experience acceptable Pedestrian Level of Service ‘B’;
- Cyclists experience acceptable Bicycle Level of Service ‘B’ at all the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections. Cyclists accommodated through the on-street bike lanes along Dundas Street and Logan Avenue experience acceptable Bicycle Level of

Service ‘B’. Along the remaining road segments, cyclists experience critical Bicycle Level of Service ‘D’ or ‘E’; and

- Transit vehicles operate at acceptable Transit Level of Service ‘C’ or ‘D’ at all signalized intersection within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, except for the intersection of Gerrard Street and Carlaw Avenue which operates at critical Transit Level of Service ‘E’ in the PM peak hour but acceptable Transit Level of Service ‘C’ in the AM peak hour. Along road segments, all transit vehicles experience an acceptable Transit Level of Service ‘D’.

Utilities

Existing private and public utilities were reviewed within the Lakeshore East Joint Corridor Early Works Project Footprint. Private utilities include Aptum, Bell Canada, Bell 360, Rogers Communications Partnership, Cogeco Data Services, Zayo Group, Telus Communications Company, Enbridge, EnWave, Hydro One Networks Incorporated, CN Fiber, B-A Oil Company, Sunoco, Trans Northern, Group Telecom, and Imperial Oil. Public utilities within the Lakeshore East Joint Corridor Early Works Project Footprint include Toronto Hydro and Toronto Water. A refined list will be confirmed as planning progresses.

ES.5 Potential Impacts, Mitigation Measures and Monitoring Activities

Section 6 includes information related to potential impacts, mitigation measures, and monitoring activities.

Refer to **Table ES-2** for a complete list of potential impacts, mitigation measures, and monitoring activities for the Lakeshore East Joint Corridor early works.

Table ES-2: Potential Impacts, Mitigation Measures and Monitoring Activities for the Lakeshore East Joint Corridor Early Works

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Natural Environment	Designated Natural Areas	■ No potential impacts as there are no Designated Natural Areas within 120 metres of the Lakeshore East Joint Corridor Early Works Project Footprint	■ None Required	■ None Required
Natural Environment	Policy Area – City of Toronto Natural Heritage System	■ No potential impacts as the City of Toronto Natural Heritage System is outside of the Lakeshore East Joint Corridor Early Works Project Footprint	■ None Required	■ None Required
Natural Environment	Policy Area – City of Toronto Ravine and Natural Feature Protection	■ No potential impacts as the City of Toronto Ravine and Natural Feature Protection area is outside of the Lakeshore East Joint Corridor Early Works Project Footprint	■ None Required	■ None Required
Natural Environment	Policy Area – Toronto and Region Conservation Authority Regulation Areas	■ Vegetation removal within Toronto and Region Conservation Authority Regulated Areas	■ Refer below to mitigation measures described for Tree Removal under Vegetation Communities. ■ Further consideration to minimize potential effects within regulated areas to the extent possible will be undertaken during detailed design.	■ Refer below to monitoring described for Vegetation Communities. ■ Recommendations for additional monitoring related to vegetation removal within regulated areas may be determined through consultation with Toronto and Region Conservation Authority.
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 will be reduced and limited to within the Lakeshore East Joint Corridor early works construction areas. ■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the Lakeshore East Joint Corridor early works construction areas and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ■ Provide compensation for the removal of vegetation in accordance with Metrolinx's Vegetation Guideline (2020). ■ Temporarily disturbed areas will be re-vegetated using non-invasive, preferably 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 will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds) and features (e.g., Significant Wildlife Habitat). Refer to the wildlife and wildlife habitat and Species at Risk mitigation measures described below.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Monitoring will include inspection of construction fencing/silt fencing to confirm appropriate installation, maintenance and rehabilitation to prevent accidental damage to vegetation or Ecological Land Classification communities outside of the work construction area. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx's Vegetation Guideline (2020).

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Natural Environment	Vegetation Communities	■ City and private tree removal	■ An Arborist Report by an International Society of Arboriculture Certified Arborist will be prepared in accordance with the Ontario Forestry Act R.S.O. 1990, and other regulations and best management practices as applicable. ■ The Arborist Report will include, but not be limited to the individual identification of all trees within the Lakeshore East Joint Corridor early works construction areas including those that require removal or preservation, or trees that may be injured. Trees to be identified may include those on Metrolinx property, trees on public and private lands, and boundary trees. City of Toronto by-laws dictate the minimum area buffers to be inventoried and Diameter at Breast Height which requires inventory. ■ Prior to the undertaking of tree removals, a Tree Removal Strategy/Tree Preservation Plan will be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees Guidelines (2016b) and adherence with best practices, standards and regulations on safety, environmental and wildlife protections. ■ Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020). ■ Pruning of branches will be conducted through the implementation of proper arboricultural techniques by an International Society of Arborist certified Arborist. ■ Tree Protection Zone fencing will 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.	■ Regular inspection in areas of vegetation removal will be undertaken as required during construction to ensure that fencing is intact, only specified trees are removed and no damage is caused to the remaining trees and adjacent vegetation communities. ■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx's Vegetation Guideline (2020).
Natural Environment	Vegetation Communities	■ Potential for the spread of emerald ash borer, associated with removal, handing and transport of ash trees	■ Removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive 'D-03-08: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the emerald ash borer. To comply with this directive, all Ash trees requiring removal, including any wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.
Natural Environment	Vegetation Communities	■ Increased soil erosion and sedimentation	■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the Lakeshore East Joint Corridor early works construction areas 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 Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), will be prepared prior to and implemented during construction to reduce the risk of sedimentation to the vegetation communities. ■ Stockpiled materials or equipment will be stored within the Lakeshore East Joint Corridor early works construction areas.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt. ■ All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
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 will 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. ■ 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).	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.
Natural Environment	Wildlife and Wildlife Habitat – General	■ Disturbance, displacement or mortality of wildlife	■ Prior to construction, investigation of the Lakeshore East Joint Corridor early works construction areas for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate. ■ If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease or be reduced, and wildlife will be encouraged to move off-site and away from the construction area on its own.	■ Regular on-site inspection by on-site environmental workers or construction staff should occur within the construction area to ensure that no wildlife is trapped within the construction area. ■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.
Natural Environment	Significant Wildlife Habitat: Eastern Wood-pewee	■ Removal of up to 2.06 hectares of candidate habitat for Eastern Wood-pewee	■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests.	■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Natural Environment	Significant Wildlife Habitat: Monarch	■ Removal of up to 0.53 hectares of candidate habitat for Monarchs	■ Identify opportunities to promote pollinator species and habitat in accordance with the Metrolinx Vegetation Guideline (2020). This may include planting or seeding native flowering plants in temporarily disturbed areas.	■ Regular monitoring (site inspections) will be undertaken during construction to prevent unauthorized impacts to habitat used by Monarch.
Natural Environment	Significant Wildlife Habitat: Common Nighthawk	■ Removal of candidate nesting habitat for Common Nighthawk	■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests. ■ Demolition of buildings should be scheduled outside of the breeding bird season of April 1 to August 31. If this is not possible and buildings must be demolished during this period, the following will be completed: – The roofs will be checked for presence of gravel. If gravel is not present, then the building is unlikely to provide suitable nesting habitat for Common Nighthawk. If gravel is present, a search for eggs and nesting activity for Common Nighthawk on the roof will be conducted. If nests or nesting activity of Common Nighthawk are confirmed, the building cannot be demolished until it is confirmed by a Qualified Biologist that young have fully fledged and left the nest.	■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Natural Environment	Migratory Breeding Birds and Nests	■ Disturbance or destruction of migratory bird nests	■ All works must comply with the Migratory Birds Convention Act, including timing windows for the nesting period (April 1 to August 31 in Ontario). ■ If activities (i.e., vegetation clearing and building demolition) are proposed to occur during the general nesting period, a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ■ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection.	■ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Natural Environment	Wildlife Habitat Connectivity	■ Decrease of habitat connectivity for wildlife	■ During detailed design, opportunities to enhance the natural environment and provide a connection to the surrounding natural areas will be explored to the extent feasible.	■ Refer to monitoring described for Vegetation Communities.
Natural Environment	Species at Risk – General	■ Habitat loss, disturbance and/or mortality to Species at Risk	■ All requirements of the Endangered Species Act will be met. Species-specific mitigation measures will be implemented, as required, in consultation with Ministry of the Environment, Conservation and Parks.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ Species-specific monitoring activities will be developed in accordance with any registration and/or permitting requirements under the Endangered Species Act.
Natural Environment	Species at Risk – Barn Swallow	■ Habitat loss, disturbance and/or mortality to Barn Swallow	■ Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active. ■ Where loss or disturbance cannot be avoided (e.g., due to work on bridges), all requirements under the Endangered Species Act will be met, including any registration, compensation, replacement structures and/or permitting requirements. ■ If disturbance to structures confirmed to provide Barn Swallow habitat is scheduled during the nesting season for Barn Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn Swallow are nesting on structures that may be affected by construction activities on or near these areas. Exclusion measures will be implemented prior to nesting season to dissuade use of these areas for nesting.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required.
Natural Environment	Species at Risk – Bats	■ Habitat loss, disturbance and/or mortality to Species at Risk Bats	■ All requirements of the Endangered Species Act will be met. Additional monitoring, mitigation and compensation for removal of suitable treed or anthropogenic roosting habitat may be required based on the results of additional surveys and consultation with the Ministry of the Environment, Conservation and Parks.	■ If mitigation is required, on-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. Additional monitoring measures will be developed in consultation with Ministry of the Environment, Conservation and Parks, if required.
Natural Environment	Aquatic Environment ■ Wetlands and Waterbodies ■ Fish and Fish Habitat	■ There are no wetlands or watercourses within the Lakeshore East Joint Corridor Natural Environment Study Area and therefore no potential effects on these features or fish and fish habitat are anticipated.	■ None Required	■ None Required

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Soil and Groundwater	Soil Stability and Quality	■ Construction activities will cause displacement of the soils and potentially bedrock. This may result in ground movement and settlement (e.g., through excavation/grading and/or dewatering activities). ■ Dewatering activities can cause soil subsidence/settlement and impacts on surface/subsurface structures within the zone of influence. ■ Potential heaving of the excavation base caused by groundwater pressures below the depth of excavation. ■ If required, use of pressurized fluids subsurface could result in fluid migration to surface. ■ Construction activities (e.g., excavation) could expose contaminated materials and/or result in the spreading of contaminated materials.	■ Complete detailed soil investigations, as project planning progresses. ■ Complete pre-construction inspections of structures within the dewatering zone of influence, as required. ■ Potential heave of an excavation base is mitigated through a groundwater depressurization program completed in advance of excavation that sufficiently lowers the potentiometric head in the confined groundwater system and stabilizes the soils being excavated. ■ Excavation support systems will be employed, as required. ■ Conduct dewatering such that ground loss is controlled/minimized. ■ Use excavation/grading equipment designed to reduce the potential for ground loss and the associated potential for ground settlement. ■ If required, conduct ground treatment such as jet grouting to reduce the risk of ground loss. ■ Develop management plan(s) for the handling, management and disposal of all excavated material (i.e., soil, rock and waste) that is generated or encountered during the work. ■ Development and implementation of remedial action plans, risk assessment and risk mitigation plans for encountering contamination, as necessary. ■ Requirements of Ontario Regulation 406/19: On-Site and Excess Soil Management will be met. ■ Geotechnical studies will be completed, as required, during detailed design.	■ If required, develop and conduct a settlement monitoring program that includes all infrastructure and structures within the dewatering zone of influence to identify construction effects, adverse trends and the need for additional mitigation measures; ■ Soil sampling and monitoring plans shall be implemented as required prior to, during, and post construction. Soil will be tracked in the registry, as required by Ontario Regulation 406/19.
Soil and Groundwater	Groundwater Quantity	■ Construction dewatering may include impacts to groundwater-dependent natural features (i.e., Lower Don River) as a result of decreases in groundwater discharge to these features and impacts to private groundwater supply wells (if present) caused by a reduction in local groundwater levels. ■ In the case of discharge to the natural environment, the discharge rate and total volume must be considered within the context of the capacity of the conveyance route (e.g., drainage ditch, etc.) and receiving waterbody. Introducing a quantity of effluent above the capacity of these features can result in impacts such as erosion, scour, and flooding.	■ Potential impacts to groundwater-dependent natural features and/or private groundwater supply wells (if present) can be mitigated with measures such as avoidance of dewatering requirements, minimizing dewatering, and/or utilizing groundwater cut-off techniques to physically exclude groundwater from flowing into excavations advanced for construction. ■ Example contingency measures for impacts to groundwater-dependent natural features and/or private groundwater supply wells (if present) include supplementation of flow within the natural features, minimizing dewatering volume requirements, avoidance of dewatering during low-flow conditions, and provision of temporary water supply during the period of supply well impact. ■ Determination of water taking quantities, quality, and resultant dewatering zone of influence will be completed as project planning progresses, for example through completion of a site-specific hydrogeological investigation, construction dewatering assessment and a plan to manage groundwater. ■ The construction dewatering assessment will be completed as required to: – Provide an estimate of groundwater and/or surface water taking rates and quantities; – Estimate a zone of influence for each dewatering area; – Characterize groundwater and/or surface water quality; – Recommend appropriate dewatering methodologies; and – Provide an assessment of potential impacts related to the dewatering. ■ Dewatering should be assessed in accordance with the Toronto and Region Conservation Authority Technical Guidelines for the Development and Environmental Management Plans for Dewatering (Toronto and Region Conservation Authority, 2013b). Ontario Regulations 64/16 and 387/04, as amended under the Ontario Water Resources Act, as required. ■ The plan to manage groundwater and dewatering will be completed to: – Evaluate potential groundwater discharge options (i.e., sanitary and/or storm sewer, natural environment, off-site disposal, etc.); – Identify effluent treatment requirements; – Outline monitoring, mitigation, and contingency program (if required);	■ Regular site inspections and monitoring activities such as monitoring of water levels in adjacent groundwater and/or surface water features, if required, will be completed by qualified members of the construction team to ensure that mitigation measures are fulfilled and that all regulatory requirements are met.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
			– Determine the potential need for regulatory approvals; and – Identify notification and reporting requirements. ■ Identification of site-specific mitigation measures inclusive of monitoring programs relating to groundwater-dependent natural features, private supply wells (if present), and geotechnical heave/settlement within the anticipated dewatering zone of influence will be determined prior to works commencement.	
Soil and Groundwater	Groundwater Quality	■ Previous land use may have resulted in local contamination of groundwater which may be encountered during construction excavation and/or dewatering activities. ■ General construction activities such as vehicle and machinery operation have the potential to affect groundwater and/or surface water quality through minor contaminant releases. Spills may affect the surrounding groundwater quality and nearby supply wells (if present). ■ Improperly managed construction dewatering activities can result in accidental releases of contaminated groundwater to the environment and/or result in the migration of existing impacted groundwater. ■ The following materials may impact groundwater quality within the highly vulnerable aquifer and Event Based Area: – Application of road salt; – Storage/use of organic solvents and/or dense non-aqueous phase liquids; and, – Storage and handling of fuel.	■ The existing groundwater within each potential construction dewatering area will be characterized prior to construction activities, during a site-specific hydrogeological investigation, as required. ■ On-site treatment of dewatering effluent, if required, such that parameters in excess of the established discharge criteria are removed/reduced and discharge can proceed. ■ Dewatering should be assessed in accordance with the Toronto and Region Conservation Authority Technical Guidelines for the Development and Environmental Management Plans for Dewatering (Toronto and Region Conservation Authority, 2013b). ■ Measures such as avoidance of dewatering requirements, minimizing dewatering, and/or utilizing groundwater cut-off techniques to physically exclude groundwater from flowing into excavations advanced for construction could be considered, when on-site treatment is not technically and/or financially feasible. The removal of water to an off-site disposal facility could also be considered. ■ A Spill Prevention and Response Plan, outlining the steps required to prevent and contain any contaminant releases and/or to avoid impacts to groundwater/surface water is required to be developed prior to initiation of construction activities. This Spill Prevention and Response Plan should include a requirement for spill kits to be maintained on-site at all times during construction. ■ Pre-construction (baseline) groundwater quality testing should be performed at all construction dewatering locations before the outset of any discharge activities and compared to appropriate regulatory guidelines (i.e., Provincial Water Quality Objectives for discharge to the natural environment, storm and sanitary by-laws for discharge to municipal sewers). Appropriate water quality management (i.e., filtration systems and/or water treatment systems) will be required to be designed and implemented in the event that exceedances of regulatory guidelines or limits are detected in the influent groundwater quality. Discharge of dewatering effluent will be governed by the discharge approval(s) obtained for the Project, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval, and/or Ministry of the Environment, Conservation and Parks Environmental Compliance Approval. ■ Ensuring that machinery is maintained and free of leaks to reduce the possibility of fluid release and storing any potential contaminants (e.g., oils, fuels, and chemicals) in designated areas using appropriate secondary containment, where necessary. ■ Education of workers regarding appropriate chemical use, handling, storage and transportation procedures, including spill response and reporting requirements. ■ Conduct a review of Source Protection Plan (SPP) policies and implement the following measures: – A Salt Management Plan that incorporates best management practices where the storage and application of road salt is required; – Best management practices if the handling and storage of dense non-aqueous phase liquids is required; – Best management practices if the storage of organic solvent is required; and – Best management practices if the storage and handling of fuel is required in an Event Based Area.	■ Monitoring activities such as groundwater and dewatering effluent sample collection and measurement of groundwater parameters (e.g., pH) in the field will be completed as required by qualified members of the construction contractor, and in accordance with the discharge requirements of the approval and/or permit, as applicable. ■ Regular inspections of equipment for fuel/fluid leaks, dewatering equipment and containment tanks for leakage, and installed erosion and sediment control measures.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Hydrology and Surface Water	Floodplain	■ Potential to impact flooding conditions within the Don River Floodplain	■ Floodplain impact assessment will be conducted during detailed design following Toronto and Region Conservation Authority guidelines once details on the retaining wall locations and other relevant design information are available. ■ Toronto and Region Conservation Authority staff will be consulted during detailed design to avoid potential infrastructure conflicts and impacts to adjacent flood protection measures/initiatives within the Lakeshore East Joint Corridor Hydrology and Surface Water Study Area with consideration of, but not limited to, the following: – West Don Lands Flood Protection Landform (Toronto and Region Conservation Authority, 2005); – Broadview and Eastern Flood Protection Municipal Class Environmental Assessment (Toronto and Region Conservation Authority, 2021b); – Flood protection measures and tie-in with the existing railway embankment at Don Roadway and Eastern Avenue underpass as identified in the Don Mouth Naturalization and Port Lands Flood Protection Project Environmental Assessment (Toronto and Region Conservation Authority, 2014a); – New Broadview underpass with expanded flood protection tie-ins and drainage with the railway embankment as identified in the Port Lands and South of Eastern Transportation and Servicing Master Plan Class Environmental Assessment (City of Toronto and Waterfront Toronto, 2017a); and – Opening of bridge crossing on east side of Don River through railway embankment to accommodate Hybrid 3 as identified in the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment (City of Toronto and Waterfront Toronto, 2017b).	■ None identified.
Hydrology and Surface Water	Floodplain	■ Potential for flooding impacts on-site during construction within the Don River Floodplain.	■ Minimize using the areas that are located within the Don River Floodplain for proposed works or temporary laydown or staging areas to the extent feasible. If not feasible the following measures shall be undertaken: – Prior to construction, develop a Flood Contingency Plan with specific mitigation measures for any proposed works or temporary laydown and staging areas that are located within the Don River Floodplain. The Flood Contingency Plan may include risk mapping, monitoring strategy. – Include construction site on Toronto and Region Conservation Authority flood warning system to prepare site in advance of possible flood events.	■ Include a monitoring strategy in the Flood Contingency Plan to monitor surface water levels during construction activities for proposed works or temporary laydown or staging areas that are located within the Don River Floodplain.
Hydrology and Surface Water	Surface Water/Stormwater and Drainage	■ Change in stormwater quality and quantity, including: – Erosion of exposed soil and increased sediment loading which may impact receiving waterbodies and/or municipal stormwater drainage system; and, – Increased surface water/stormwater runoff.	■ The overall stormwater quality and quantity control strategy will be developed in accordance with all relevant municipal, provincial, and federal requirements, as amended, and outlined in a Stormwater Management Report. Stormwater management design will consider guidance provided by the Ministry of the Environment, Conservation and Parks, formerly the Ministry of the Environment and Climate Change Stormwater Management Planning and Design Manual (2003) and Ontario Ministry of Transportation Drainage Management Manual (2008), Toronto and Region Conservation Authority Stormwater Management Criteria (2012), and the Low Impact Development Stormwater Management Planning and Design Guide (Toronto and Region Conservation Authority/Credit Valley Conservation, 2010), as required. ■ The following stormwater management best management practices will be considered and implemented, as required: – Minimize clearing and amount of exposed soil;	■ Monitoring activities will be implemented as outlined in the Stormwater Management Plan and/or Erosion and Sediment Control Plan and may include regular inspections and reporting on the performance of implemented erosion and sediment control measures, best management practices, and other monitoring activities, as required. ■ All monitoring procedures should stay in place throughout Lakeshore East Joint Corridor early works construction.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
			– Install key sediment control before grading/land alterations begin; – Sequence construction activities so that the soil is not exposed for long periods of times; – Protect storm drain inlets to filter out debris; and – Stabilize all exposed soil areas as soon as land alterations have been completed. ■ Prior to construction, a Stormwater Management Plan that will outline stormwater discharge management associated with construction activities, and an Erosion and Sediment Control plan will be developed. ■ The applicable Toronto and Region Conservation Authority's Living City Policies (Toronto and Region Conservation Authority, 2014b) will be followed during detailed design. ■ If required, obtain a Municipal Discharge Permit (City of Toronto Private Water Discharge Permit/Agreement) to manage excess surface water/stormwater. ■ Hydrogeological studies will be completed, as required.	
Air Quality	Construction Air Quality	■ Potential air quality impacts could include effects from diesel combustion and particulate emissions. Odour and visible dust may also cause public annoyance. ■ Exhaust emissions from construction vehicles may contribute to increased levels of nitrogen oxides, and volatiles such as benzene and benzo(a)pyrene, which given their existing background concentrations can contribute to existing levels of provincial criteria exceedance. ■ Certain construction activities are likely to emit particulates in higher quantities, which include site preparation and earth works activities, demolition activities, unpaved surfaces with heavy equipment travel, and uncovered soil storage piles. ■ Disruption of contaminated soils may release contaminants.	■ On-site construction vehicle activity shall be managed to control emissions of odourous contaminants and diesel exhaust, including benzene and benzo(a)pyrene emissions from exhaust. A plan to manage air quality will be developed to ensure consistent attention to mitigation of dust and particulates, including silica, from the construction site. The following mitigation measures should be considered in the plan to manage air quality: – All equipment complies with Canadian engine emissions standards. – All equipment visually inspected prior to use and properly maintained. – Implement a no idling policy on site (unless necessary for equipment operation). – Use of electricity from the grid over diesel generators wherever possible. – Retrofitting of combustion engines with specific exhaust emission control measures such as particulate traps. – If applicable, follow guidelines on hot mix asphalt outlined in the Ontario Hot Mix Producers Association's Environmental Practices Guide: Ontario Hot Mix Asphalt Plants, Fifth Edition (Ontario Hot Mix Producers Association, 2015). ■ Applicable mitigation measures from Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005), the Ministry of the Environment, Conservation and Parks' Technical Bulletin Management Approaches for Industrial Fugitive Dust Sources, shall be followed. The following mitigation measures should be considered in the plan to manage air quality: – Complete earthwork grading within 10 days of ceased active construction. – Temporary seeding or mulching of bare soil and storage piles. – Compression or clodding of soil surfaces and storage piles to reduce erosion. – Confine storage pile activity to downwind side of piles. – Reduction of activities during high wind conditions. – Full or partial enclosure of demolition activities. – Wind screens or barriers where possible or necessary. – Off-site construction of certain structures or parts of structures to minimize air emission due to interference with the normal flow of traffic. – Scheduling certain construction activities (i.e., site preparation and earth works activities, demolition activities, unpaved surfaces with heavy equipment travel, and uncovered soil storage piles) to periods of time when exposure to dust is	■ The following monitoring activities should be considered in the development of the plan to manage air quality: – Baseline conditions should be established prior to construction for longer than one week to capture representative concentrations under varying meteorological conditions. – On-site monitoring that includes real-time particulate monitoring representative of receptor impacts. – Place monitors both upwind and downwind of construction activities, where possible. – Application of threshold "Action Level" triggers for implementation of specific and increasing intensity mitigation activities linked to specific construction activities. – Reporting detailing results of ongoing monitoring and mitigation activities. – Monitoring at locations where there are persistent complaints, as required. ■ In addition, relevant construction monitoring activities from the following recommended guidelines will 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).

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
			expected to be limited (e.g., avoid scheduling activities during dry, windy weather conditions). – Landscaping materials ordered close to time of use to reduce on-site storage. – Application of non-chloride soil stabilizers or dust control polymers where feasible. – Daily removal of accumulated mud, dirt and debris deposits on-site, and regular truck washing – Paved and unpaved roadway cleaning, watering or application of a non-chloride dust suppressant. – Minimize drop height of materials on-site. – Covering surface area of hauled bulk material. – Methods and equipment for clean-up of accidental spill of dusty materials. – Limit travel speeds on-site to a maximum of 16 to 24 kilometres per hour. ■ If disruption of contaminated soils is anticipated at any time, **Section 6.2** of this Report includes remedial action plans, risk assessment and risk mitigation plans for encountering contamination and minimizing the release of contaminants. ■ Develop a communications protocol which includes timely resolution of complaints.	
Noise and Vibration	**Construction Noise** Note: Details of the operational noise impacts and planned mitigation are included in the Lakeshore East Joint Corridor Noise and Vibration Operations Report, found in **Appendix C**.	■ Environmental noise may cause annoyance and disturb sleep and other activities. ■ The severity of the noise effects resulting from construction projects varies, depending on: – Scale, location and complexity of the project – Construction methods, processes and equipment deployed – Total duration of construction near sensitive noise receivers – Construction activity periods (days, hours, time period) ■ Number and proximity of noise-sensitive sites to construction area(s)	■ Establish and apply project specific noise criteria/limits. Construction noise impact mitigation measures to be considered to meet project specific noise criteria/exposure limits include but are not limited to the following: – Siting construction staging and laydown areas to avoid/reduce adverse impacts to sensitive receivers where feasible. – Use construction equipment compliant with noise level specifications in Ministry of Environment, Conservation, and Parks guidelines NPC-115 and NPC-118. – Keep equipment in good working order and operate with effective muffling devices. – Equipment enclosures for equipment such as generators and compressors. – Additional equipment silencers/mufflers. – Use of upgraded construction hoarding (considering requirements from Canadian Standards Association Z107.9 for noise barriers) between construction equipment and noise sensitive receivers. – Use of localized movable noise barriers/screens for specific equipment and operations. – Minimize simultaneous operation of equipment where feasible. – Implement a no idling policy on site (unless necessary for equipment operation). – Restrict construction hours where feasible: • Perform construction during daytime hours where feasible. If night time construction is necessary, the activities with the highest noise levels should be conducted during day time periods where feasible. • If construction will occur outside of normal daytime hours, inform local residents before construction of type of construction and expected duration outside of daytime hours. • Consider construction duration limits for construction with adjacent noise sensitive locations such as: 9 Lewis Street, 18 Saulter Street, 2 Paisley Avenue, 15 Tiverton Avenue, 400 Carlaw Avenue, 138 First Street, 369 Pape Avenue, 2 Egan Avenue, and 165 Galt Avenue. – Limit the number of heavy trucks on site to the minimum required. – Stage construction vehicles away from noise sensitive locations, if feasible.	■ Noise levels will be monitored where the impact assessment indicates that noise limits may be exceeded, to identify if any additional mitigation is required and verify mitigation measures(s) effectiveness. ■ Continuous noise monitoring should be completed at each geographically distinct active construction site associated with the Project with monitor(s) located strategically to capture the worst-case construction related noise levels at receiver locations based on planned construction activities, their locations, and the number, geographic distribution and proximity of noise sensitive receivers. ■ Monitoring at locations where there are persistent complaints, as required.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
			– Undertake noise monitoring and regular reporting throughout the construction phase. Where noise level limits are exceeded, additional noise mitigation measures shall be implemented. – Develop a communications protocol which includes timely resolution of complaints. ■ Additional mitigation measures not listed above may be considered.	
Noise and Vibration	**Construction Vibration** Note: Details of the operational vibration impacts and planned mitigation are included in the Lakeshore East Joint Corridor Noise and Vibration Operations Report, found in **Appendix C**.	■ Exposure to vibration may result in public annoyance and complaints. Vibration may also cause damage to buildings and other structures.	■ Project-specific construction vibration criteria limits will be established and applied, where appropriate. Vibration limits for the structures in the Riverdale Heritage District (near Tiverton Street and Dundas Street East) will be reviewed and design vibration limits should be confirmed by a qualified specialist during the next phases of design. Construction vibration impact mitigation measures to be considered include but are not limited to the following to meet applicable vibration criteria: – Siting construction staging and laydown areas to avoid/reduce adverse impacts to sensitive receivers where possible. – Utilize equipment with low vibration emissions where possible. – Off-site construction of components away from sensitive areas. – Restrict construction hours where feasible: • Perform construction during daytime hours where feasible. If night time construction is necessary, the activities with the highest vibration levels should be conducted during the daytime periods where feasible. – Review vibration assessment based upon refined site staging, construction areas/equipment, and building locations prior to the commencement of construction, and update if necessary. – Review and refine the construction activities to avoid potential impacts to vibration sensitive receivers (within the City of Toronto By-law 514-2008 Zone of Influence). Conduct monitoring and pre-construction inspections in accordance with the City of Toronto By-law 514-2008. Monitoring and preconstruction requirements can be determined by calculation of Zone of Influence of construction equipment. The vibration sensitive locations within the Zone of Influence, to be reviewed as project planning progresses, are initially identified as: • 9/11 Lewis Street (Residential), • 20 Saulter Street (Residential), • 33 Saulter Street (Residential), • 1 Strange Street (Commercial), • 791 Queen Street East (Mixed-use Residential), • 400 Eastern Avenue (Commercial), • 7/9 Dibble Street (Commercial), • 38/46 McGee Street (Commercial), • 56 McGee Street (Commercial), • 70 McGee Street (Commercial), • Structure in 80 McGee Street (Park), • 870 Queen Street East (Institutional), • 2 to 14 Paisley Avenue (Residential), • 15/17/17A/17B Tiverton Avenue (Residential), • Backyard structures in 25 and 27 Tiverton Avenue (Residential), • 444 Logan Avenue (Residential),	■ Monitoring will be undertaken at locations within the Zone of Influence to ensure compliance with the City of Toronto By-law 514-2008 and to identify the need for additional mitigation if required. ■ Monitoring will be undertaken to ensure compliance with other applicable vibration level limits identified, as required. ■ Monitoring will be undertaken to verify mitigation measure(s) effectiveness. ■ Pre-construction building inspection of the potentially impacted buildings adjacent to the early works construction sites are to be undertaken in accordance with City of Toronto By-law 514-2008. Continuous vibration monitoring along the construction site property lines closest to these structures will be initiated as warranted. ■ Monitoring at locations where there are persistent complaints, if required.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
			• 388 to 400 Logan Avenue (Residential), • 400 Carlaw Avenue (Commercial), • 445 Logan Avenue (Residential), • 231 First Avenue (Residential), • 234 to 238 First Avenue (Residential), • 843 Gerrard Street East (Commercial), • Riverdale Shopping Centre (425 to 471 Carlaw Avenue – Commercial); • 369 Pape Avenue (Residential), • 1 Egan Avenue (Residential), • 2 Egan Avenue (Residential), • 302/304 Jones Avenue (Commercial – Residential), • 165 Galt Avenue (Residential), • 162 Galt Avenue (Residential), and • 1000 Gerrard Street East (Commercial). – Provide smooth surfaces for trucks to travel and route heavily loaded trucks away from vibration sensitives sites where possible. – Operate construction equipment on lower vibration settings where available. – Maximize distance between equipment and sensitive receivers while receivers where feasible. – Do not operate equipment where the City of Toronto By-law 514-2008 prohibited limits are predicted to be exceeded. Alternative construction methods and/or equipment with lower vibration emissions or power settings can be used if they do not exceed the City of Toronto's prohibited vibration limits. – As Project planning and design progress, conduct a review to identify any sensitive structures/operations that require more stringent vibration limits than the limits in City of Toronto By-law 514-2008; assess requirements, review/revise vibration limits for these locations and, if necessary, develop mitigation measures. US Federal Transit Administration Report No. 0123, Transit Noise and Vibration Impact Assessment Manual (2018) could be used as a source of additional criteria. – Review other applicable vibration limits that may apply, such as the City of Toronto Specification GN117SS. – Develop communications protocol which includes timely resolution of complaints. ■ Additional mitigation measures not listed above may be considered.	
Socio-Economic and Land Use Characteristics	Property	■ Property acquisition – permanent and temporary	■ Specific permanent property requirements associated with the early works infrastructure components, and temporary property requirements, such as those associated with construction staging and access, will be minimized to the extent feasible as planning progresses.	■ None identified.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Socio-Economic and Land Use Characteristics	All Land Uses and Adjacent Lands	■ Nuisance effects from construction activities	■ Mitigation measures related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration potential impacts, mitigation measures, and monitoring activities tables. ■ An Erosion and Sediment Control Plan will be developed in accordance with the Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), as amended from time to time, that addresses sediment release to adjacent properties and roadways.	■ Monitoring activities related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration potential impacts, mitigation measures, and monitoring activities tables. ■ Erosion and sediment control monitoring to be conducted (e.g., on-site inspection of erosion and sediment control measures).
Socio-Economic and Land Use Characteristics	All Land Uses and Adjacent Lands	■ Land use and access disruption	■ Provide well connected, clearly delineated, and appropriately signed temporary walkways and cycling route options, with clearly marked detours where required. ■ Provide temporary walkways with a pedestrian clearway of 2.1 metres, where possible. Temporary walkways required during construction will also meet Accessibility for Ontarians with Disabilities Act requirements for universal accessibility. ■ Provide temporary lighting, as required, and wayfinding signs and cues for navigation around the construction site. ■ Regular (existing) access to businesses during working hours will be maintained, where feasible. Where regular access cannot be maintained, alternative access and signage will be provided. ■ Continue to engage with the City of Toronto, local Business Improvement Areas, and local school board(s), as required, to confirm mitigation measures.	■ Regular monitoring (e.g., on-site inspection) of temporary access paths, walkways, cycling routes and fencing to ensure effectiveness.
Socio-Economic and Land Use Characteristics	Visual Characteristics	■ Visual effects from permanent public-facing structures and construction activities/areas	■ Consult with the City of Toronto as planning progresses. ■ Minimize the visual effects of bridges, retaining walls and noise barriers by selecting appropriate building materials and architectural design. ■ A fence/screened enclosure for the construction area(s) will be provided, as required.	■ Regular monitoring (e.g., on-site inspection) of construction visual effects mitigation measures to ensure effectiveness.
Socio-Economic and Land Use Characteristics	Light Pollution	■ Light trespass, glare and light pollution effects	■ 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 ANSI/IES RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting. Obtrusive light with respect to adjoining residents, communities, and/or businesses will be limited. ■ Perform the work in such a way that any adverse effects of construction lighting are controlled or mitigated to avoid unnecessary and obtrusive light with respect to adjoining residents, communities and/or businesses.	■ Regular monitoring (e.g., on-site inspection) of light pollution mitigation measures to ensure effectiveness.
Socio-Economic and Land Use Characteristics	Public Realm	■ Potential relocation or removal of streetscaping materials, furniture, and landscaping in the public realm	■ Relocation or removal of streetscaping materials, furniture, and landscaping in the public realm will be minimized to the extent feasible. Consultation with the City of Toronto on restoration plans for the impacted areas within public realm will be completed during detailed design. Wherever feasible, lands impacted by construction will be restored to the current City of Toronto standard following construction completion. ■ Consult with the City of Toronto regarding restoration of the public realm areas impacted by early works activities. ■ Consult with the City of Toronto and Business Improvement Areas, as necessary, regarding restoration of assets owned by the City or Toronto and local Business Improvement Areas.	■ There are no monitoring activities associated with the public realm.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Built Heritage Resources and Cultural Heritage Landscapes	Impacts to Built Heritage Resources and Cultural Heritage Landscapes	■ Potential indirect adverse impacts to OLS-015 (400 Carlaw Avenue), OLS-017 (Riverdale Heritage Conservation District), OLS-018 (Queen Street East – Riverside Heritage Conservation District), OLS-122 (6, 8, and 10 Paisley Avenue), and OLS-123 (15 and 17 Tiverton Avenue) are anticipated (Impact Type 3A – Vibration impacts to the building related to the Project on or adjacent to the property (AECOM 2020c)). ■ The 11.1 metre vibration buffer overlaps with buildings within OLS-015, OLS-017, OLS-018, OLS-122, and OLS-123. Therefore, the potential exists for vibration impacts to these buildings during construction of early works.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for vibration impacts are required: – Documentation (Review and establish) of the structural condition of the affected buildings to determine if they are vulnerable to vibration impacts from early works; – Establish vibration limits based on structural conditions, founding soil conditions and type of construction vibration; and – Implement vibration mitigating measures on the construction site and/or at the building (see **Section 6.5**).	■ Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; and ■ Conduct regular condition surveys and reviews during construction to evaluate efficacy of protective measures. Implement additional mitigation as required.
Built Heritage Resources and Cultural Heritage Landscapes	Impacts to Built Heritage Resources and Cultural Heritage Landscapes	■ Potential direct adverse impacts to OLS-017 (Riverdale Heritage Conservation District) are anticipated (Impact Type 2A – Encroachment into the Heritage Conservation District causing a physical impact, including introduction of new elements to the Heritage Conservation District, alterations to a contributing property or diminishment in integrity of the Heritage Conservation District due to the introduction of new elements (AECOM 2020c)). ■ The boundaries of OLS-017 (Riverdale Heritage Conservation District) overlap with the Lakeshore East Joint Corridor Project Footprint. There is potential to impact vegetation including trees that is located within portions of the early works Project Footprint that overlap with the Heritage Conservation District. Trees as features of the public realm are included in the Heritage Conservation District. ■ A non-contributing property, a car repair shop at 240-242 First Avenue, is within the Lakeshore East Joint Corridor Early Works Project Footprint. This area at the eastern end of First Avenue will be used to accommodate retaining walls, noise barriers and the future Ontario Line Gerrard Station. Policy 9.6 of the Riverdale Heritage Conservation District Plan Phase 1 states that demolition of a non-contributing property within the Heritage Conservation District is permitted with approval from the City of Toronto.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for direct impacts are required in accordance with the Riverdale Heritage Conservation District Plan Phase 1: ■ For any physical impact to the Heritage Conservation District: – Consult with City of Toronto's Heritage Planning as planning progresses regarding any physical impact to the Heritage Conservation District, including demolition of the non-contributing building within 240-242 First Avenue, in order to determine and obtain any approval or permits required, and collaborate with the City on the restoration of vegetative elements impacted by early works.	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Built Heritage Resources and Cultural Heritage Landscapes	Impacts to Built Heritage Resources and Cultural Heritage Landscapes	■ Potential direct adverse impacts to OLS-122 (6, 8 and 10 Paisley Avenue) are anticipated (Impact Type 2A - Encroachment onto a property causing a physical impact to a property, while avoiding physical impact to a building and/or the heritage attributes (AECOM 2020b)). ■ The buildings within 6, 8, and 10 Paisley Avenue are in close proximity (between 4 to 5 metres) to the Lakeshore East Joint Corridor Early Works Project Footprint. The rear yards of these properties are within the Lakeshore East Joint Corridor Early Works Project Footprint and are proposed to be used to support construction access on a temporary basis. This temporary encroachment will result in a physical impact to the properties but will not cause a direct adverse impact to the buildings on the properties.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for direct impacts related to encroachment are required: – Consult with City of Toronto's Heritage Planning as planning progresses regarding any physical impact to the properties in order to determine and obtain any approval or permits required.	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
Built Heritage Resources and Cultural Heritage Landscapes	Impacts to Built Heritage Resources and Cultural Heritage Landscapes	■ Potential direct adverse impacts to OLS-126 (De Grassi Street from Queen Street East to Wardell Street) are anticipated (Impact Type 2C- Introduction of new elements and/or alterations that results in a physical impact to a heritage attribute (AECOM 2020c)). ■ OLS-126 (DeGrassi Street from Queen Street East to Wardell Street) is located within the Lakeshore East Joint Corridor Early Works Project Footprint. Removal and replacement of the existing Queen Street East GO rail bridge may result in a direct impact to the Heritage Toronto Plaque located on the north side of the structure attached to the sidewalk as shown in **Figure 5-18**. Although the bridge itself does not retain cultural heritage value or interest, plaques, including the historical plaque near the bridge, are heritage attributes of the public realm of the De Grassi Street streetscape.	■ The following mitigation measures were developed in the Heritage Detailed Design Report: – Consult with City of Toronto's Heritage Planning as planning progresses for any physical impact to the streetscape and its heritage attributes (i.e., historical plaques) in order to determine and obtain any approval or permits required. ■ Apply the following steps if the Heritage Toronto Plaque within OLS-126 can remain *in-situ* during the early works construction: – Mark the plaque on Detailed Design drawings as "To be retained: Implement protection measures prior to construction" – Install protection measures such as box or fence hoarding, prior to construction. ■ Apply the following steps if avoidance of the Heritage Toronto Plaque within OLS-126 during early works construction is not feasible and removal/relocation is required: – Mark the plaque on the Detailed Design drawings as "Remove prior to construction, store, reinstate post-construction" – Prior to construction determine an appropriate removal plan and storage location – Remove plaque prior to construction – Reinstate plaque near the bridge post-construction in relatively the same location as pre-removal.	■ If the Heritage Toronto plaque remains in-situ during early works construction, regular monitoring of the plaque/plaque protective enclosure condition will be undertaken throughout construction to ensure integrity of the plaque/plaque protective enclosure. Post construction, the enclosure will be removed, and the condition of the plaque will be confirmed to ensure it meets pre-construction conditions.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Built Heritage Resources and Cultural Heritage Landscapes	Impacts to Built Heritage Resources and Cultural Heritage Landscapes	■ No direct adverse impacts from Lakeshore East Joint Corridor early works are anticipated to Carlaw Avenue Subway and Gerrard Street East Subway ■ (Impact Type 2A – Introduction of new physical elements and/or alterations to the structure without impacting the heritage attributes identified in Appendix C, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). ■ Both structures at OLS-014 are located entirely within the Lakeshore East Joint Corridor Project Footprint. The structures will be impacted by the addition of noise barriers as shown in **Figure 1-1**. As the noise barriers are proposed to be added along the outer edges of the Gerrard Street East and Carlaw Avenue Subways, the heritage attributes of the structures will not be adversely impacted as listed in **Table 5-14**.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measure for the alteration of the structures are required: ■ Consult with City of Toronto's Heritage Planning as planning and design progresses regarding any physical impact to the structures in order to determine and obtain any approval or permits required. ■ Recognizing that the Gerrard Street East and Carlaw Avenue Subways are over 80 years old, bridge condition and technical feasibility assessments will need to be carried out during early works detailed design as it relates to noise barrier design and installation. Should these assessments show that noise barrier installation is not possible without a physical impact to a heritage attribute, Metrolinx will consult with City of Toronto's Heritage Planning regarding any physical impacts to the bridges and complete detailed documentation of the structure that includes identification of salvageable materials and/or heritage attributes prior to alteration, in order to inform what structure components should be retained and conserved and/or restored. Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measure for the alteration of the structures are required:	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works. Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
Archaeological Resources	Archaeological Potential	■ Potential for the disturbance of unassessed or documented archaeological resources.	■ Areas identified as retaining archaeological potential in the Lakeshore East Joint Corridor Early Works Project Footprint, as per the Ontario Line South Stage 1 Archaeological Assessment Report (AECOM, 20204), are shown on **Figure 5-19**. The following mitigation measures will be applied for areas with archaeological potential: – Should ground disturbing activities be planned within these areas, further archaeological assessment must be completed prior to any ground disturbing activities. – Any additional Archaeological Assessments (e.g., Stage 2, Stage 3 if recommended by the Stage 2) shall be completed as early as possible, and prior to the ground disturbing activities. This work shall be done in accordance with the Ministry of Heritage, Sport, Tourism and Culture Industries' Standards and Guidelines for Consultant Archaeologists (2011) to identify any archaeological resources that may be present. ■ Recommendations from the Stage 1 archaeological assessment reports and any subsequent archaeological assessments will be followed. The report will be submitted to and reviewed by Ministry of Heritage, Sport, Tourism and Culture Industries and a letter will be issued confirming that the report(s) has been entered into the Ontario Public Register of Archaeological Reports, prior to any ground disturbing activities. ■ Indigenous Nations will be invited to participate in any subsequent archaeological work. All future archaeological assessment findings will be shared with the Indigenous Nations that were engaged during the Stage 1 archaeological assessment.	■ None identified.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Archaeological Resources	Archaeological Resources	■ Potential recovery of archaeological resources during construction.	■ Should previously unknown or unassessed deeply buried archaeological resources be uncovered during construction activities, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological field work, in compliance with Section 48 (1) of the Ontario Heritage Act. Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. In addition, consultation with relevant Indigenous Nations will be initiated in the event that archaeological resources or human remains are discovered.	■ None identified.
Traffic and Transportation	Transportation Network – Roads	■ If required, temporary lane closures along some of the Lakeshore East Joint Corridor Traffic and Transportation Study Area roads (i.e., Queen Street East, Dundas Street East, and Logan Avenue) may result in impeding traffic flow and increased average delay of vehicles, including emergency vehicles. ■ Construction vehicle traffic may impact traffic operations resulting in increased vehicular delays and queue lengths, especially at intersections where construction traffic is required to make left-turning movements. ■ Potential overlapping construction timelines with other planned projects (e.g., capital projects and local developments) nearby may result in impacts to the transportation network and its road users.	■ A quantitative traffic impact assessment will be completed as project planning progresses to consider vehicular traffic impacts as a result of the Lakeshore East Joint Corridor early works. The assessment will also consider the impacts of adjacent construction projects and will be completed in coordination with the City of Toronto. ■ Develop and implement a transit and traffic management plan(s), which could include temporary changes to intersection lane configurations, traffic signal timing optimization, modifications to existing signal timing plans, etc. The transit and traffic management plan(s) will also address specific emergency services requirements in consultation with the City of Toronto. ■ Traffic signal timing optimization may be assessed/implemented to increase capacity of affected intersections and to aid in the movement of traffic. Traffic signal timing adjustments would require coordination between Metrolinx and City of Toronto, and will be undertaken if required, to determine appropriate changes to traffic signal timings. ■ Consider scheduling construction activities during off-peak periods and weekends to minimize disruptions to road users during the critical peak periods. ■ Co-ordinate with the City of Toronto regarding other ongoing construction projects when scheduling the early works activities to maintain the mobility of road users. ■ Metrolinx will work with the City of Toronto and corresponding Business Improvement Areas to maintain access to businesses and minimize the potential impacts of the early works.	■ The effectiveness of the transit and traffic management plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.
Traffic and Transportation	Transportation Network – Active Transportation	■ Potential traffic congestion along the Lakeshore East Joint Corridor Traffic and Transportation Study Area roads, as a result of the increase in heavy vehicle traffic, could increase pedestrians' and cyclists' exposure to traffic. ■ If required, temporary realignment of the existing sidewalks along some of the Lakeshore East Joint Corridor Traffic and Transportation Study Area roads (i.e., Queen Street East, Dundas Street East, and Logan Avenue) may increase walking distances and impact the convenience of pedestrians.	■ Reduce interference with pedestrians and cyclists. This may include fencing, hoarding (minimum 2 meters high, solid, and secured), shared-lane markings, signals, wayfinding signs, and lighting as required to provide pedestrians and cyclists with safe, accessible, and continuous routes. ■ If required, co-ordinate with the City of Toronto to ensure any modifications to pedestrian crossing distances at signalized intersections are reflected in revised pedestrian clearance timings. ■ Any temporary pedestrian facilities including temporary or relocated Toronto Transit Commission transit stops will be designed to meet Toronto Transit Commission accessibility standards. ■ Implement flagging where construction vehicles are present to ensure construction vehicle operators are aware of pedestrian and vehicular traffic within the construction area.	■ The effectiveness of the transit and traffic management plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.

Discipline	Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Traffic and Transportation	Transportation Network – Rail	■ Early works construction may require temporary full or partial closure of existing rail tracks, which may disrupt existing commuter and freight rail operations. The extent of track closures is dependent on the type of equipment used and construction sequencing.	■ Consult with rail operators with current service along the rail corridor (i.e., VIA Rail, Canadian National Railway, and Canadian Pacific Railway) to assess how track closures would impact their service and co-ordinate temporary schedules to accommodate all rail services on the open tracks.	■ The effectiveness of the transit and traffic management plan(s) will be monitored throughout the construction period. Adjustments to the construction staging plans and transit and traffic management plan(s) will be made based on actual field observations, as needed.
Traffic and Transportation	Transit Network	■ Potential increase of construction vehicles traffic could result in travel time delays to existing surface transit routes (i.e., streetcar routes #301 Queen Blue Night, #306 Carlton Blue Night, #501 Queen, #503 Kingston, and #506 Carlton, and bus routes #72 Pape, #143 Downtown/Beach Express, and #325 Don Mills Blue Night) that pass through the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections.	■ Co-ordinate with the Toronto Transit Commission and notify transit users regarding travel delays to the bus/streetcar services in advance. ■ Consider scheduling some construction activities during off-peak periods and weekends to minimize delays to bus services during the critical peak periods.	■ Transit services will be monitored through actual field observations throughout the construction period and additional mitigation measures will be considered, as needed.
Utilities	Private Utilities	■ Utilities modification and relocation. ■ It is anticipated that there may be temporary impacts to existing utilities during the construction of early works, with potential relocations and associated disruptions to be determined. ■ Potential impacts to utilities are under review and will be confirmed as project planning progresses.	■ In-depth utility investigations will be undertaken during detailed design to confirm impacts. Any potential conflicts and association relocation requirements or mitigation measures will be identified in consultation with utility providers. ■ During detailed design, the potential impacts to utilities, relocations and mitigation measures will be further refined and confirmed through a subsurface utility engineering investigation. ■ Appropriate mitigation measures including next steps related to consultation with utility companies and stakeholders, and phasing plans will be determined once the impacts are confirmed. Utility relocations will consider potential impacts to the natural environment and comply with mitigation measures outlined in **Table 6-1**.	■ None identified.
Utilities	Public Utilities and Municipal Servicing	■ Utilities modification and relocation. ■ It is anticipated that there may be impacts to existing utilities during the construction of early works, with potential relocations to be determined. ■ Potential impacts to utilities are under review and will be confirmed as project planning progresses.	■ In-depth utility-related investigations such as subsurface utility engineering investigation will be completed during detailed design. Metrolinx will consult with the City of Toronto during the development of these studies to ensure concerns are addressed. ■ Metrolinx will also consult with the City of Toronto and Toronto Hydro, as required, during detailed design regarding potential impacts to municipal infrastructure and servicing and ensure that applicable City standards, guidelines, and criteria are met. ■ Utility relocations will consider potential impacts to the natural environment and comply with mitigation measures outlined in **Table 6-1**.	■ None identified.

ES.6 Permits and Approvals

Section 7 includes a list of permits that may be required for the Lakeshore East Joint Corridor early works construction activities. These potential permitting requirements are summarized below.

Federal

No federal permits are anticipated to be required for the Lakeshore East Joint Corridor early works.

Provincial

A number of provincial permits and approvals have been identified as potentially required, which include, but are not limited to, the following:

- Species at Risk authorizations in accordance with the Endangered Species Act, 2007:
  - Metrolinx will comply with the conditions of the Permit CR-D-002-19 issued on August 7, 2020 under Section 17(1) in accordance with clause 17(2)(d) of the Endangered Species Act, 2007 for Species at Risk that may be affected by the Lakeshore East Joint Corridor early works including Barn Swallow and bat Species at Risk;
- Registration through the Environmental Activity and Sector Registry in accordance with Ontario Regulation 63/16 for surface water takings that are more than 50,000 L/day and are for highway projects and/or transit projects;
- Registration through the Environmental Activity and Sector Registry in accordance with Ontario Regulation 63/16 for water taking for construction site dewatering in excess of 50,000 litres/day and equal to or less than 400,000 litres/day;
- Approvals for the discharge of pumped water, as required, which may include a combination of:
  - Municipal Discharge Permits (City of Toronto Private Water Discharge Permit/Agreement);
  - Conservation Authority notification (Permit for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses); and
  - Environmental Compliance Approvals from the Ministry of the Environment, Conservation and Parks in accordance with the Ontario Water Resources Act, 1990.
- Environmental Compliance Approval(s) from the Ministry of the Environment, Conservation and Parks for equipment held by contractors, owners and operators of that equipment in advance of construction, as required.

Conservation Authority

Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas for the Lakeshore East Joint Corridor early works in relation to Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

Municipal

A range of municipal permits and approvals including Permits to Injure or Remove Trees, and transportation-related permits and approvals (e.g., Street Occupation Permit) may be required for the Project, particularly pertaining to municipally owned lands and infrastructure. Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals. Metrolinx shall continue to communicate and engage with the City of Toronto during detailed design and construction planning to address municipal concerns.

Metrolinx will consult with City of Toronto Heritage Planning regarding any physical impact to the one potential built heritage resources/cultural heritage landscapes (the De Grassi Street streetscape from Queen Street East to Wardell Avenue (OLS-126), the two previously identified build heritage resources/cultural heritage landscapes (the Carlaw Avenue Subway and Gerrard Street East Subway (OLS-014), and 6, 8 and 10 Paisley Avenue (OLS-122)) and to the Heritage Conservation District (the Riverdale Heritage Conservation District, designated Part V of the Ontario Heritage Act (OLS-017)) as planning progresses for early works.

ES.7 Consultation Process

The consultation program followed by Metrolinx for the early works is described in **Section 8** of this Report and all consultation materials are included in **Appendix B**.

The overall approach to consultation for the Project is outlined in Section 7.1.1 of the Ontario Line Final Environmental Conditions Report. To share information and collect feedback related to early works, Metrolinx has undertaken the following communication and engagement activities prior to the publication of the Final Lakeshore East Joint Corridor Early Works Report and during the 31-day public review period:

- Early works specific updates on the Engagement webpage (Project website) (www.metrolinx.com/ontarioline) including:
  - East segment neighbourhood updates (Lakeshore East Joint Corridor is within the East segment) – published on September 17, 2020 and updated on November 30, 2020, April 6, 2021, April 23, 2021 and September 23, 2021;

  - East segment virtual presentation and live question and answer session hosted on April 22, 2021 (https://www.metrolinxengage.com/en/OLliveApril22), June 24, 2021 (https://www.metrolinxengage.com/en/OLLiveEJune24), September 23, 2021 (https://www.metrolinxengage.com/en/olLIVEsept23) and October 5, 2021 (https://www.metrolinxengage.com/en/OLLIVEOct5); and
  - The Ontario Line – Environment webpage (https://www.metrolinxengage.com/en/content/ontario-line-environment) that includes the Ontario Line environmental reporting timeline, early works scope overview and locations and provides an option to learn more about each early works location – published on September 17, 2020 and updated on November 30, 2020, March 9, 2021, May 27, 2021, June 17, 2021, August 9, 2021, September 23, 2021 and November 17, 2021.

- Outreach to Leslieville and Riverside area residents via *The Ontario Line: Your Network Questions, Answered* flyer on June 1, 2021 and *The Ontario Line: Facts and Fiction* flyer on July 1, 2021 to provide residents with up-to-date project facts, address misinformation and encourage residents to reach out to Metrolinx to verify information they have heard regarding the Ontario Line Project;
- Online engagement via an online survey (https://metrolinx-ontario-line-engagement.ethelo.net/page/your-neighbourhood-identity), made available to the public between September 23 and October 24, 2021, about specific elements of the design process (e.g., design objectives and components, noise walls, retaining walls, landscaping, underpass design, and neighbourhood identity) for the East Segment of the Ontario Line that runs through Leslieville and Riverside;
- Online engagement via the Ontario Line Immersive Sound Studio for Lakeshore East Joint Corridor (where East segment of the Ontario Line runs through Leslieville and Riverside) (https://www.ontariolinesoundstudio.ca/), made available to the public as of September 23, 2021, where individuals could view audio and video demonstrations of the future Ontario Line and existing GO vehicles from key locations including Queen and Degrassi Street, Jimmie Simpson Park, Bruce Mackey Park, Tiverton Parkette, First Avenue and Booth and Paisley Avenue and provide feedback;
- Mailings/notifications;
- Emails via the Project email address (ontarioline@metrolinx.com);
- E-newsletters to the Project Distribution List (see **Section 8.1.3** for more details);

- Newspaper advertisements;
- Elected Officials Briefings (see **Section 8.5** for list of Elected Officials and associated electoral districts and Ward numbers);
- Outreach to Indigenous Nations, government review agencies and other technical stakeholders;
- Online engagement via the Engagement webpage (Project website); and
- Meetings with local community groups.

In accordance with Section 8(2)(10) of Ontario Regulation 341/20: Ontario Line Project, the consultation record summarized in **Section 8** and provided in **Appendix B** summarizes the Lakeshore East Joint Corridor early works consultation activities carried out with Indigenous Nations, members of the public, review agencies and other technical stakeholders, elected officials, property owners, and other interested parties, including a summary of feedback and comments received.

On September 23, 2021, the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report was issued through a variety of media (e.g., Engagement webpage, newspaper advertisements, email and registered mail), to commence the 31-day public review period, effective until October 24, 2021, along with the up to 65-day review and Issues Resolution Process period. The Notice was distributed via:

- Engagement webpage (Project website);
- Newspaper advertisements in three major newspapers and three community newspapers in English, French, Greek and Traditional Chinese;
- Email to individuals on the Project Distribution List, including community stakeholders and groups, government review agencies and other technical stakeholders, elected officials, and Indigenous Nations; and
- Mailed to 365 property owners within 30 metres of the Lakeshore East Joint Corridor Early Works Project Footprint and approximately 17,888[4] addresses (i.e., apartments, houses, businesses) within and surrounding the Lakeshore East Joint Corridor Study Area.

Following the consultation program described in **Section 8**, the Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report was issued to the public on November 17, 2021 through a variety of media (Project website, email, registered mail, newspapers, and mail drop to nearby addresses). All parties notified of the Draft

4. The property list has been updated since publishing the Draft Lakeshore East Joint Corridor Early Works Report from 17,915 to 17,888 to accommodate the most recent Canada Post mail routes, which are updated on a monthly basis.

Lakeshore East Joint Corridor Early Works Report were notified of the publication of the Final Lakeshore East Joint Corridor Early Works Report and provided with access to a copy of it. Input/feedback received during the 31-day public review period of the Draft Lakeshore East Joint Corridor Early Works Report was incorporated into the Final Lakeshore East Joint Corridor Early Works Report.

Extensive consultation was also undertaken by Metrolinx for the broader Project and is detailed in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) (under separate cover).

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Appendices

1. Introduction

1.1 Purpose of the Ontario Line Lakeshore East Joint Corridor Early Works

The Ontario Line Project (the Project) is being assessed in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act. Ontario Regulation 341/20: Ontario Line Project outlines a Project-specific environmental assessment process that includes an Environmental Conditions Report, Environmental Impact Assessment Report, and an opportunity for Early Works Report(s) for assessment of works that are ready to proceed in advance of the Environmental Impact Assessment Report. The Environmental Conditions Report documents the local environmental conditions of the Ontario Line Study Area and provides a preliminary description of the potential environmental impacts from the Project. Information outlined in the Environmental Conditions Report is used to inform the Early Works Report(s) and Environmental Impact Assessment Report, which study environmental impacts in further detail and confirm and refine preliminary mitigation measures identified in the Environmental Conditions Report.

Ontario Line early works are components of the Project that are proposed to proceed before the completion of the Ontario Line environmental impact assessment process. An overview of the Project is provided in **Section 1.2**. AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete this Early Works Report (this Report) for the Project. Early works are defined in Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act as follows:

> "any components of the Ontario Line Project that Metrolinx proposes to proceed with before the completion of the Ontario Line assessment process, such as station construction, rail corridor expansion, utility relocation or bridge replacement or expansion."

This Report documents the assessment of the Lakeshore East Joint Corridor early works. The rationale for proceeding with the Lakeshore East Joint Corridor early works is provided in **Section 1.3.1**. Lakeshore East Joint Corridor early works are described in detail in **Section 3**.

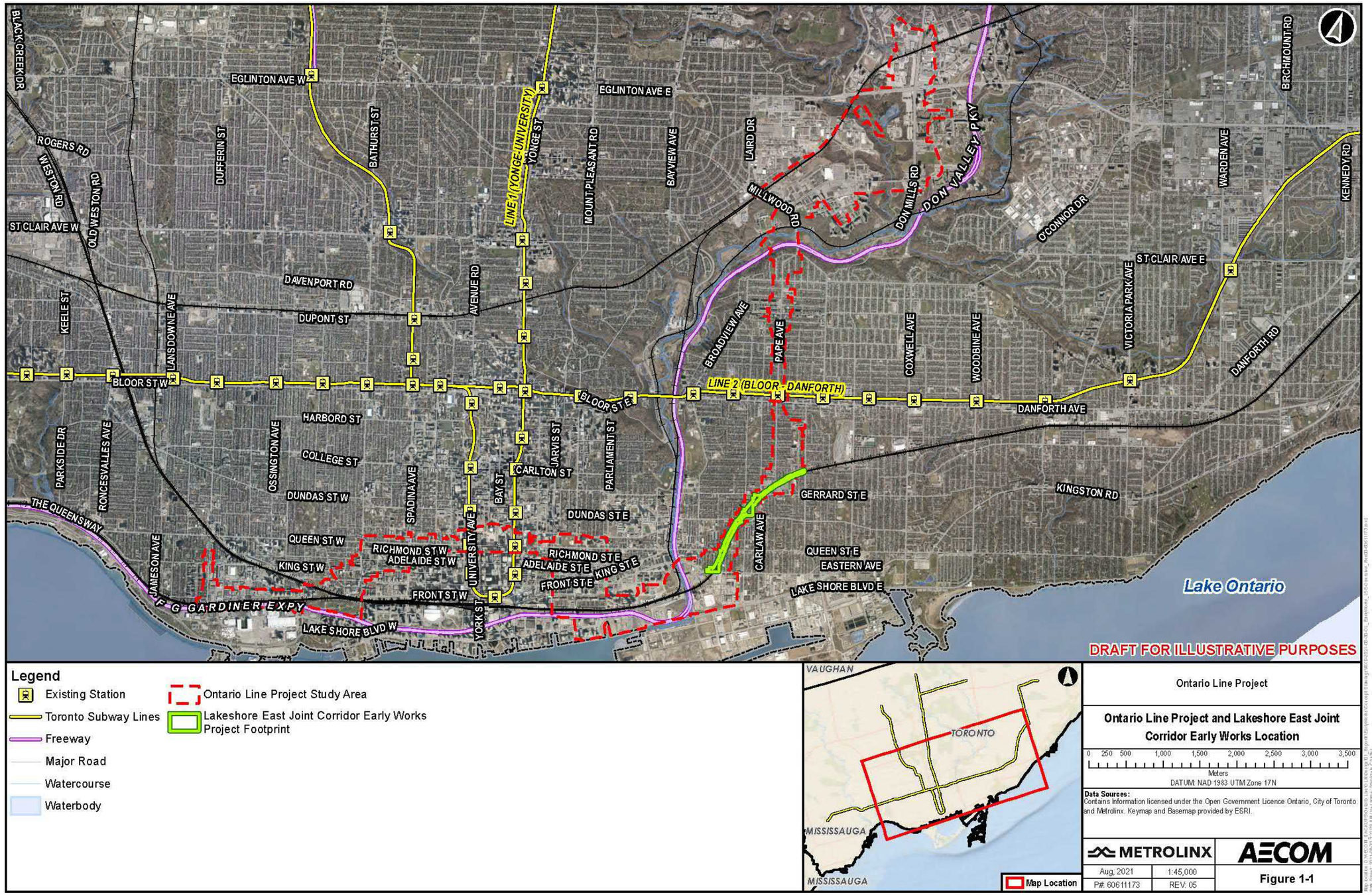
1.2 Ontario Line Project Overview

Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line, extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto.

The Project is a new approximately 15.6-kilometre subway line with connections to Line 1 (Yonge-University) subway service at Osgoode and Queen Stations, Line 2 (Bloor-Danforth) subway service at Pape Station, and Line 5 (Eglinton Crosstown) light rail transit service at the future Science Centre Station. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way with a combination of elevated (i.e., above existing rail corridor/roadway), tunnelled (i.e., underground), and at-grade (i.e., at grade with existing rail corridor) segments at various locations.

The Lakeshore East Joint Corridor early works location within the context of the Project is shown in **Figure 1-1**.

Figure 1-1: Ontario Line Project and Lakeshore East Joint Corridor Early Works Location



1.3 Early Works Overview

The Lakeshore East Joint Corridor early works are planned along the Lakeshore East rail corridor between approximately Eastern Avenue and Pape Avenue and will include:

- Reconfiguration of existing GO tracks to support future Ontario Line infrastructure;
- Replacement of the existing rail bridges at Queen Street East, Dundas Street East and Logan Avenue;
- Construction of new bridges at Dundas Street East and Logan Avenue to support future Ontario Line tracks;
- Construction of the foundations for GO Overhead Catenary System (OCS) poles and supporting infrastructure to accommodate future fourth GO track;
- Construction of retaining walls; and Construction of noise barriers, including east of Pape Avenue.
- A detailed description of Lakeshore East Joint Corridor early works is provided in **Section 3.1**.

1.3.1 Rationale for Proceeding with the Lakeshore East Joint Corridor Early Works

The Lakeshore East Joint Corridor early works are considered to be of strategic importance in enabling the timely implementation of the Project. These early works are being advanced where the Project interfaces with GO Expansion and the East Harbour Station (East Harbour Station is situated immediately to the west of the Lakeshore East Joint Corridor early works). Advancing early works and supporting environmental and technical studies in this area provides planning and design efficiencies for the Project, GO Expansion and the East Harbour Station and facilitates the timely implementation of these projects. These early works will set the groundwork for other major construction for the Project, reducing risk of construction delays to the main contracts by completing the joint corridor work in advance of the main contracts.

1.3.2 Summary of Background Information related to the Lakeshore East Joint Corridor Early Works

In 2017, Metrolinx completed an Environmental Project Report in support of the Lakeshore East Rail Corridor Expansion Project (Don River to Scarborough GO Station). The purpose of this project was construct new Lakeshore East rail corridor infrastructure to accommodate GO Expansion. The main elements of the preferred

design included the addition of a fourth track between the Lower Don River bridge and the Scarborough GO Station, widening of rail bridges, station modifications, and additional supporting infrastructure such as retaining walls, culvert modifications, and noise and vibration mitigation measures.

In 2017, Metrolinx and Hydro One completed an Environmental Project Report for the GO Rail Network Electrification Project. The purpose of the GO Rail Network Electrification Project is to convert Metrolinx-owned rail corridors from diesel to electric propulsion, including traction supply and distribution infrastructure, bridge modifications, and other ancillary works. Notice to Proceed for this project was issued on December 11, 2017.

A Significant Addendum to the 2017 GO Rail Network Electrification Environmental Project Report was completed in 2021 to assess additional electrification infrastructure required for new tracks and layover facilities proposed across various portions of the GO Rail Network that were not previously examined as part of the 2017 Environmental Project Report. This Addendum also included an assessment of any changes to the footprint of the 7-metre Overhead Contact System Impact and Vegetation Clearance Zone, and of noise and vibration[5] and air quality associated with increased service levels across six Metrolinx-owned rail corridors.

Ontario Line was announced by the Province of Ontario in 2019, and the Ontario Line Initial Business Case was published in the same year and documented the Ontario Line scope, cost estimates, benefits, and implementation challenges. The IBC highlighted the benefits of utilizing existing GO corridors for Ontario Line infrastructure and the coordination required between GO Expansion and Ontario Line projects.

Ontario Line was developed with the intent to accelerate delivery of new transit, serve additional markets and reduce costs per kilometre while building on plans developed by City of Toronto, Toronto Transit Commission and Metrolinx under the umbrella of the Relief Line South Project Assessment and Relief Line North Project Assessment. The Ontario Line concept was developed iteratively and with flexibility to allow for implementation using a public-private partnership, transferring risks to a Project Company that would also have the ability to determine the exact design and technology within set parameters. These key drivers led to decisions to use modern standard technology, look at a standalone maintenance and storage facility for Ontario Line, and consider at-grade or elevated alignments (Metrolinx, 2019). As shown in **Figure 1-2** below, the Lakeshore East Joint Corridor is located along such an alignment, at grade with the existing GO tracks, between the future Ontario Line tunnel portal in the Don

5. Operational noise and vibration impacts along the segment of the Lakeshore East rail corridor adjacent to Ontario Line track is assessed in the Ontario Line Lakeshore East Joint Corridor Noise and Vibration Operations Report, located in **Appendix C**.

Yard and the future tunnel portal near Gerrard Street East and Pape Avenue. Here, Ontario Line runs parallel to the existing GO tracks in the Union Station and Lakeshore East rail corridors.

The Ontario Line Preliminary Design Business Case, released in 2020, further documented the benefits of using existing rail corridors. Benefits of a shared corridor as discussed in the Preliminary Design Business Case include reducing underground station construction impacts on businesses, utilities, and the transportation network; improved station accessibility and reduced project costs while serving more communities. Implementing Lakeshore East Joint Corridor early works also accelerates Project construction and aligns Project delivery with GO Expansion delivery (e.g., by constructing the fourth GO track as part of the Lakeshore East Joint Corridor early works, as discussed in **Section 3** below).

1.3.3 Description of the Alternatives Considered

Lakeshore East Joint Corridor Early Works Project Footprint is located along the Lakeshore East Joint Corridor Project segment - the joint Ontario Line–GO corridor Project segment between the future tunnel portal located in the Don Yard and the future tunnel portal located north of Gerrard Street East (**Figure 1-2**). Metrolinx has revised the design concept of this segment for the Ontario Line tracks to be located entirely on the north side of the Lakeshore East GO tracks (North Alignment) rather than on both sides of the GO tracks (Straddle Alignment) as shown in **Figure 1-3** below.

As a result, only one bridge is needed for the Ontario Line crossing of the Lower Don River, and a single portal in the Don Yard. In addition, a single centre platform serving Ontario Line trains is required at East Harbour Station (where the platform would serve exclusively Ontario Line trains), Riverside/Leslieville Station and Gerrard Station. Two platforms serving exclusively GO trains are required at the East Harbour Station, with the ability to serve both express and non-express GO trains. Lastly, the Ontario Line infrastructure is almost entirely limited to the existing corridor.

Metrolinx considered alternative methods of delivering the Project including a non-phased approach to Project implementation. It has been determined that a phased approach to implementation – that is, proceeding with Lakeshore East Joint Corridor early works before the completion of the Ontario Line assessment process – is beneficial for Project planning and design and facilitates timely implementation of both Ontario Line (including the East Harbour Transit Hub) and GO Expansion.

Figure 1-2: Ontario Line Alignment

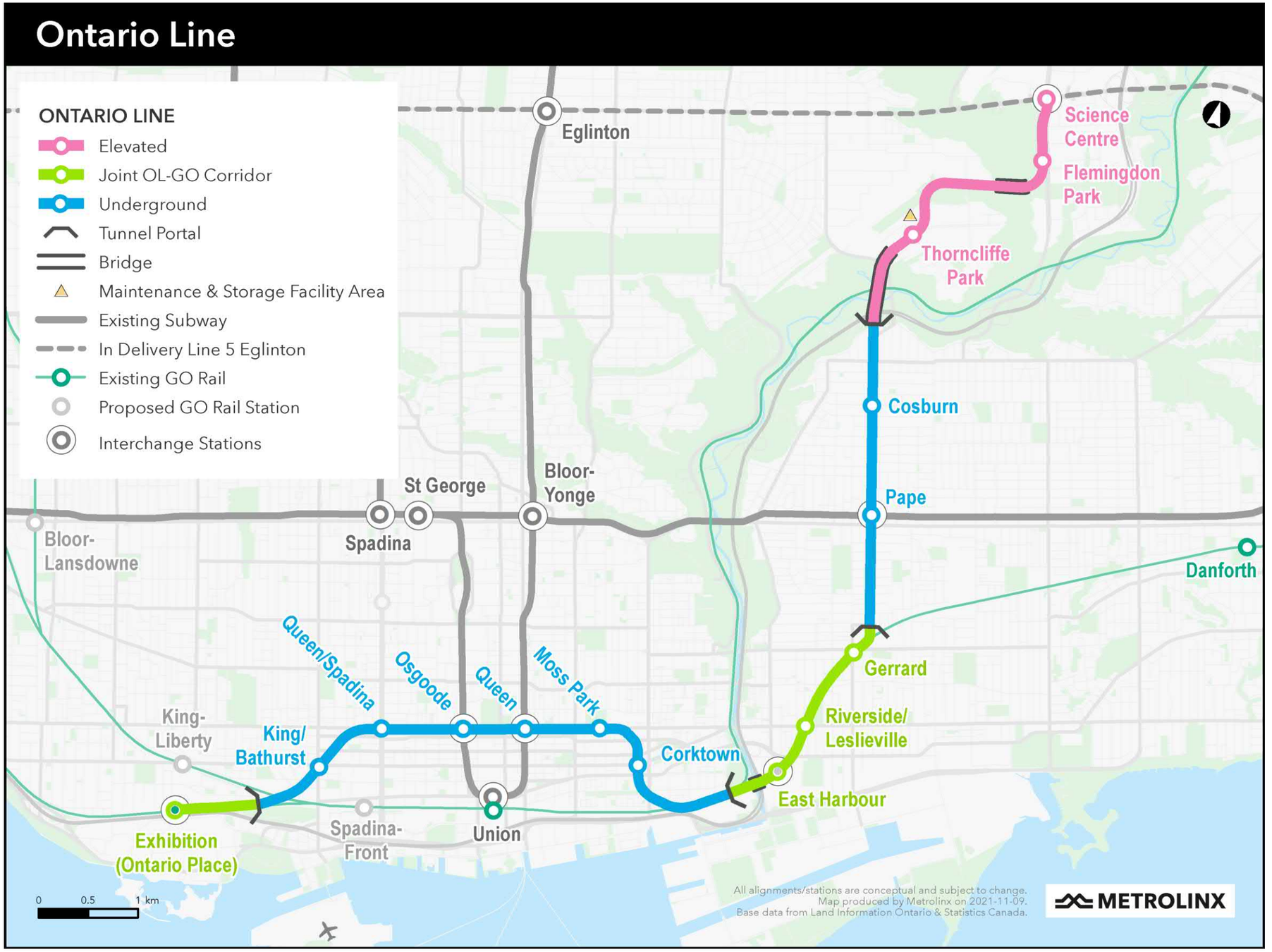
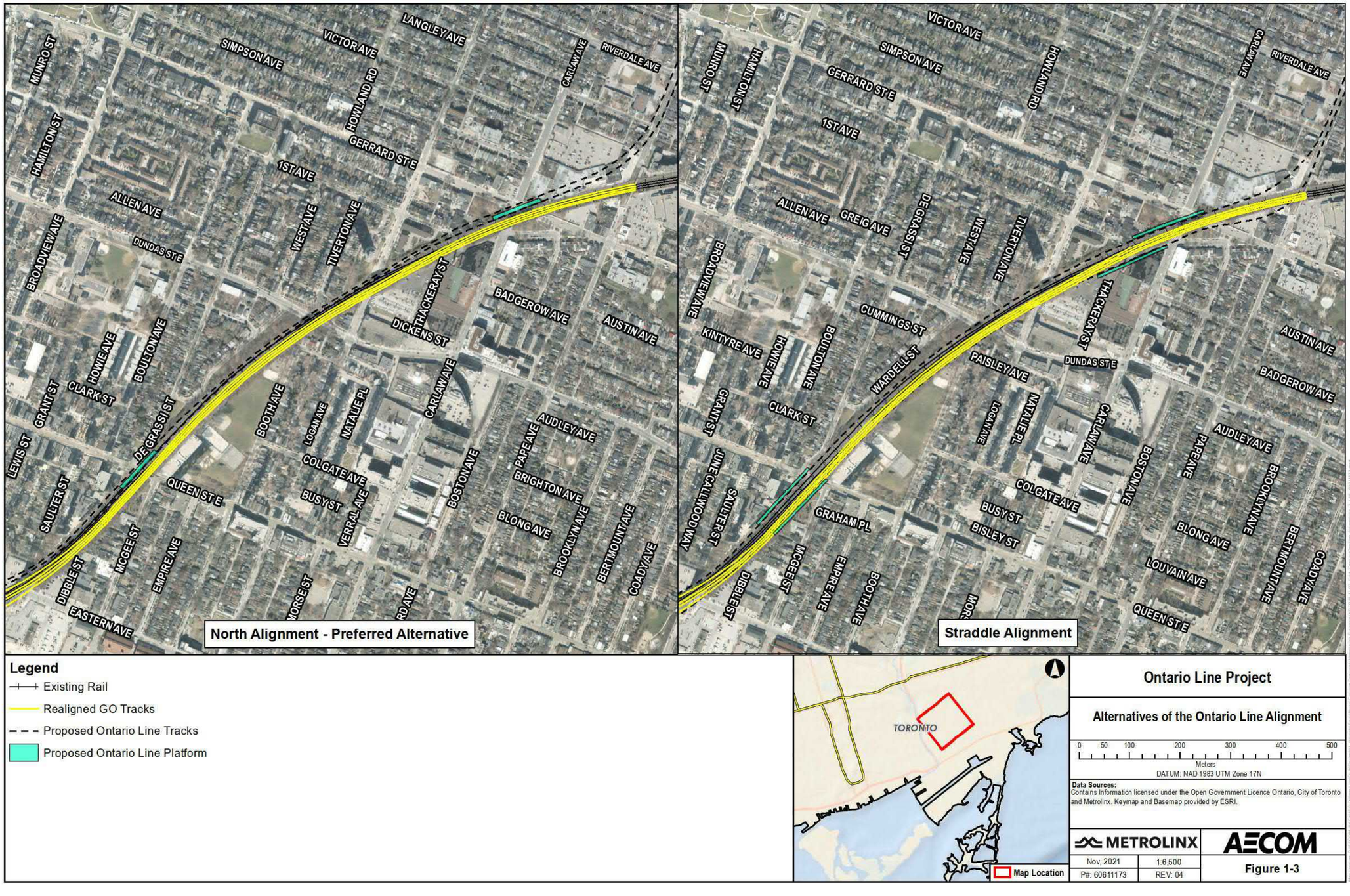


Figure 1-3: Alternatives of the Ontario Line Alignment



2. Study Process

2.1 Ontario Regulation 341/20: Ontario Line Project

This Project is being assessed in accordance with Ontario Regulation 341/20: Ontario Line Project, under the Environmental Assessment Act. Ontario Regulation 341/20: Ontario Line Project provides a defined framework for the proponent to follow to conduct assessment and decision-making surrounding the potential environmental impacts of the Project.

Ontario Regulation 341/20: Ontario Line Project requires consultation with Indigenous Nations and interested persons, an Environmental Conditions Report, and an Environmental Impact Assessment Report. Ontario Regulation 341/20: Ontario Line Project provides opportunity for Metrolinx to prepare one or more early works reports.

2.1.1 Early Works Report

2.1.1.1 Draft Early Works Report

This Report was prepared to satisfy the requirements of Section 8 of Ontario Regulation 341/20: Ontario Line Project. This Report summarizes the local environmental conditions within the discipline-specific study areas developed for the Lakeshore East Joint Corridor early works. The local environmental conditions were characterized through a combination of desktop review and field studies by practitioners using industry standard techniques and provincial standards, protocols, and guidelines, where appropriate. A detailed description of local environmental conditions is documented in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a)[6], prepared under a separate cover in accordance with Section 4 of Ontario Regulation 341/20: Ontario Line Project.

This Report also provides an assessment and evaluation of the impacts that early works might have on the environment. Based on the potential impacts, a description of mitigation measures and monitoring activities is outlined. A list of any municipal, provincial, federal or other permits and approvals that may be required for the early works is also provided.

6. The Ontario Line Final Environmental Conditions Report (AECOM, 2020) was published on November 30, 2020 in accordance with Ontario Regulation 341/20: Ontario Line Project.

Discipline-specific assessment and evaluation of impacts were undertaken for the following disciplines:

- Natural Environment;
- Soil and Groundwater;
- Hydrology and Surface Water;
- Air Quality;
- Noise and Vibration;
- Socio-Economic and Land Use Characteristics;
- Built Heritage Resources and Cultural Heritage Landscapes;
- Archaeological Resources;
- Traffic and Transportation; and
- Utilities.

Lastly, this Report provides a consultation record including a description of the consultations carried out with Indigenous Nations and interested persons.

2.1.1.2 Consultation on the Early Works Report

In order to build strong relationships, to develop an understanding of local issues in the surrounding communities, and to ensure communities stay engaged and informed, Metrolinx engages the public and a range of interested parties, including: Indigenous Nations, Elected Officials, regulatory agencies, community stakeholders and groups and other interested persons. The Lakeshore East Joint Corridor early works consultation activities are outlined below and further detailed in **Section 8** of this Report. All consultation materials are included in **Appendix B**.

The overall approach to consultation for the Project is outlined in Section 7.1.1 of the Ontario Line Final Environmental Conditions Report (AECOM, 2020a). To share information and collect feedback related to early works, Metrolinx has undertaken the following communication and engagement activities prior to the publication of the Final Lakeshore East Joint Corridor Early Works Report and during the 31-day public review period:

- Early works specific updates on the Engagement webpage (Project website) (www.metrolinx.com/ontarioline) including:
  - East segment neighbourhood updates (Lakeshore East Joint Corridor is within the East Segment) – published on September 17, 2020 and updated

on November 30, 2020, April 6, 2021, April 23, 2021 and September 23, 2021;
  - East segment virtual presentation and live question and answer session hosted on April 22, 2021 (https://www.metrolinxengage.com/en/OLliveApril22), June 24, 2021 (https://www.metrolinxengage.com/en/OLLiveEJune24), September 23, 2021 (https://www.metrolinxengage.com/en/olLIVEsept23) and October 5, 2021 (https://www.metrolinxengage.com/en/OLLIVEOct5); and
  - The Ontario Line – Environment webpage (https://www.metrolinxengage.com/en/content/ontario-line-environment) that includes the Ontario Line environmental reporting timeline, early works scope overview and locations and provides an option to learn more about each early works location – published on September 17, 2020 and updated on November 30, 2020, March 9, 2021, May 27, 2021, June 17, 2021, August 9, 2021, September 23, 2021 and November 17, 2021 to include Lakeshore East Joint Corridor early works.

- Outreach to Leslieville and Riverside area residents via *The Ontario Line: Your Network Questions, Answered* flyer on June 1, 2021 and *The Ontario Line: Facts and Fiction* flyer on July 1, 2021 to provide residents with up-to-date project facts, address misinformation and encourage residents to reach out to Metrolinx to verify information they have heard regarding the Ontario Line Project;
- Online engagement via an online survey (https://metrolinx-ontario-line-engagement.ethelo.net/page/your-neighbourhood-identity) made available to the public between September 23 and October 24, 2021 about specific elements of the design process (e.g., design objectives and components, noise walls, retaining walls, landscaping, underpass design, and neighbourhood identity) for the East Segment of the Ontario Line that runs through Leslieville and Riverside;
- Online engagement via the Ontario Line Immersive Sound Studio for Lakeshore East Joint Corridor (where East segment of the Ontario Line runs through Leslieville and Riverside) (https://www.ontariolinesoundstudio.ca/), made available to the public as of September 23, 2021, where individuals could view audio and video demonstrations of the future Ontario Line and existing GO vehicles from key locations including Queen and Degrassi Street, Jimmie Simpson Park, Bruce Mackey Park, Tiverton Parkette, First Avenue and Booth and Paisley Avenue and provide feedback;
- Mailings/notifications;
- Emails via the Project email address (ontarioline@metrolinx.com);

- E-newsletters to the Project Distribution List (see **Section 8.1.3** for more details);
- Newspaper advertisements;
- Elected Officials Briefings (see **Section 8.5** for list of Elected Officials and associated electoral districts and Ward numbers);
- Outreach to Indigenous Nations, government review agencies and other technical stakeholders;
- Online engagement via the Engagement webpage (Project website); and
- Meetings community stakeholders and groups.

In accordance with Section 8(2)(10) of Ontario Regulation 341/20: Ontario Line Project, the consultation record summarized in **Section 8** and provided in **Appendix B** summarizes the Lakeshore East Joint Corridor early works consultation activities carried out with Indigenous Nations, members of the public, government review agencies and other technical stakeholders, community stakeholders and groups, Elected Officials, and other interested parties, including a summary of feedback and comments received.

On September 23, 2021, the Notice of Publication of the Draft Lakeshore East Joint Corridor Early Works Report was issued through a variety of media to commence the public review period, effective until October 24, 2021, along with the up to 65-day review and Issues Resolution Process period. The Notice was distributed via:

- Engagement webpage on the Project website (www.metrolinx.com/ontarioline);
- Newspaper advertisements in three major newspapers and three community newspapers in English, French, Greek and Traditional Chinese;
- Email to individuals on the Project Distribution List, including community stakeholders and groups, government review agencies and other technical stakeholders, Elected Officials, and Indigenous Nations; and
- Mailed to 365 property owners within 30 metres of the Lakeshore East Joint Corridor Early Works Project Footprint and approximately 17,888[7] addresses (i.e., apartments, houses, businesses) within and surrounding the Lakeshore East Joint Corridor Study Area.

7. The property list has been updated since publishing the Draft Lakeshore East Joint Corridor Early Works Report from 17,915 to 17,888 to accommodate the most recent Canada Post mail routes, which are updated on a monthly basis.

Extensive consultation was also undertaken by Metrolinx for the overall Project, which is detailed in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a), under separate cover.

2.1.1.3 Issues Resolution Process

In accordance with Section 10(6) of the Ontario Regulation 341/20: Ontario Line Project, Metrolinx established an issues resolution process for the Lakeshore East Joint Corridor early works. Any concerns raised by Indigenous Nations and interested persons during the 31-day public review period of the Draft Lakeshore East Joint Corridor Early Works Report have been documented in **Section 8.7.2** of this Report, as required by Section 11(1)(b) of Ontario Regulation 341/20: Ontario Line Project. Concerns received after the 31-day public review period will be addressed outside of the issues resolution process.

2.1.1.4 Final Early Works Report

Following the consultation program described in **Section 2.1.1.2** and **Section 8**, the Notice of Publication of the Final Lakeshore East Joint Corridor Early Works Report was issued to the public on November 17, 2021 through a variety of media (Project website, email, registered mail, social media, newspapers, and mail drop to nearby addresses). All parties notified of the Draft Lakeshore East Joint Corridor Early Works Report were notified of the publication of the Final Lakeshore East Joint Corridor Early Works Report and provided with access to a copy of it. Input/feedback received during the 31-day public review period was incorporated into this Report.

Within 35 days of receipt of the Notice of Publication of the Final Lakeshore East Joint Corridor Early Works Report, the Minister may issue a notice to Metrolinx imposing conditions related to the early works, in accordance with Section 12 of the Ontario Regulation 341/20: Ontario Line Project.

After the 35-day Minister review period, Metrolinx will submit a Statement of Completion of the early works assessment process to the Directors of the Ministry's Environmental Assessment Branch and Central Region Office and post the Statement of Completion on the Project website. Metrolinx shall proceed in accordance with the Final Lakeshore East Joint Corridor Early Works Report, subject to any conditions imposed by the Minister.

2.1.2 Contents of the Early Works Report

This Report has been prepared in accordance with Section 8 of Ontario Regulation 341/20: Ontario Line Project and contains the information outlined in **Table 2-1**.

Table 2-1: Report Contents in Accordance with Ontario Regulation 341/20: Ontario Line Project

Reg. Section	Requirement	Report Section
Section 8(2)1	A description of the early works including a description of the alternatives that were considered.	**Section 1.3 and Section 3**
Section 8(2)2	The rationale for proceeding with the early works and a summary of background information relating to them.	**Section 1.3**
Section 8(2)3	A map showing the site of the early works.	**Figure 3-1**
Section 8(2)4	A description of the local environmental conditions at the site of the early works.	**Section 5 and Appendix A**
Section 8(2)5	A description of all studies undertaken in relation to the early works, including, i. a summary of all data collected or reviewed, and ii. a summary of all results and conclusions.	**Section 5, Section 6, and Appendix A**
Section 8(2)6	Metrolinx's assessment and evaluation of the impacts that the preferred method of carrying out the early works and other methods might have on the environment, and Metrolinx's criteria for assessment and evaluation of those impacts.	**Section 6 and Appendix A**
Section 8(2)7	A description of any measures proposed by Metrolinx for mitigating any negative impacts that the preferred method of carrying out the early works might have on the environment.	**Section 6 and Appendix A**
Section 8(2)8	A description of the means Metrolinx proposes to use to monitor or verify the effectiveness of mitigation measures proposed.	**Section 6 and Appendix A**
Section 8(2)9	A description of any municipal, provincial, federal or other approvals or permits that may be required for the early works.	**Section 7 and Appendix A**
Section 8(2)10	A consultation record, including, i. a description of the consultations carried out with Indigenous Nations and interested persons, ii. a list of the Indigenous Nations and interested persons who participated in the consultations, iii. summaries of the comments submitted by Indigenous Nations and interested persons, and iv. a summary of discussions that Metrolinx had with Indigenous Nations, and copies of all written comments submitted by Indigenous Nations.	**Section 8 and Appendix B**

2.2 Planning Context

The Province of Ontario and City of Toronto have plans and policies which are relevant to the development of the Project. An overview of the Project is provided in **Section 1.2**. 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 provide an overview of the planning policies affecting the Project. These individual plans and policies, as well as other planning considerations such as municipal strategies and guidelines, and relevant environmental assessment studies, are described in more detail in **Section 5.6** of this Report.

2.2.1 Provincial

2.2.1.1 Provincial Policy Statement, 2020

The Provincial Policy Statement, 2020 is issued under Section 3 of the Planning Act and provides policy direction on matters related to land use planning and development. The Provincial Policy Statement is premised upon 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 Lakeshore East Joint Corridor Study Area are policies that relate to transportation systems and infrastructure, long-term economic prosperity, and the protection of natural, cultural heritage and archaeology. 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);
- 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);
- Maintaining or restoring the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems (Provincial Policy Statement, 2020, Section 2.1.2);
- Restricting development and site alteration in, or adjacent to, significant wetlands, woodlands, valley lands, wildlife habitat, and Areas of Natural and Scientific Interest, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (Provincial Policy Statement, 2020, Sections 2.1.4 and 2.1.5);
- Restricting development and site alteration in habitat of endangered or threatened species except in accordance with Provincial and Federal requirements (Provincial Policy Statement, 2020, Section 2.1.7);

- Restricting development and site alteration in or near sensitive surface or groundwater features such that their features and related hydrological functions will be protected, improved, or restored (Provincial Policy Statement, 2020, Section 2.2.2), and
- Providing conservation to significant built heritage resources and significant cultural heritage landscapes (Provincial Policy Statement, 2020, Section 2.6.1).

The Project is consistent with the objectives of the Provincial Policy Statement 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 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.

As noted in **Section 1.3.1**, the Lakeshore East Joint Corridor early works support the of the timely implementation of the Project and are therefore also consistent with the objectives of the Provincial Policy Statement.

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

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020 (Growth Plan) is a long-term plan for Ontario designed 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 designation for many people and businesses relocating from other parts of Canada and around the world. To accommodate such growth, an integral part of the Plan's vision is focused on investing in transit infrastructure to support the regional transit network.

The Project is consistent with the relevant policies of the Growth Plan by extending the higher-order transit network into existing residential and employment areas, which optimizes the efficiency and viability of existing and planned transit and help develop more vibrant and complete communities.

The Growth Plan identifies Downtown Toronto as an "urban growth centre" and the GO Transit rail lines and subway lines within the Downtown Toronto area "priority transit corridors" (Province of Ontario, 2020). The Growth Plan notes that urban growth centres will be planned:

a) as focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural, and entertainment uses;

b) to accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit;

c) to serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses; and

d) 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 Downtown Toronto is 400 residents and jobs combined per hectare. To support these growth and density targets, “priority transit corridors” are identified with policies for infrastructure development, such as requiring municipalities to recognize these areas in their official plans to implement the policies of the Growth Plan.

The Project promotes the Growth Plan’s policies by providing Downtown Toronto with improved regional connections that will accommodate the increased population and employment to be achieved by the density targets.

As noted in **Section 1.3.1**, the Lakeshore East Joint Corridor early works support the timely implementation of the Project and are therefore also consistent with the objectives of the Growth Plan.

2.2.1.3 2041 Regional Transportation Plan

The 2041 Regional Transportation Plan is a strategic, long-term vision for interconnected transportation in the Greater Toronto and Hamilton Area. The Regional Transportation Plan was adopted by Metrolinx in March 2018. The Regional Transportation Plan is the successor to Metrolinx’s first long-term transportation plan, The Big Move (2008).

The Regional Transportation Plan identifies the following five key strategies:

1. Complete delivery of current regional transit projects.
2. Connect more of the region with frequent rapid transit.
3. Optimize the transportation system.
4. Integrate transportation and land use.
5. Prepare for an uncertain future.

Under Strategy 1, the Regional Transportation Plan notes that planning is underway for 13 rapid transit projects including the Relief Line Subway, which is described as a “new subway line linking downtown Toronto, the Bloor-Danforth Subway and Sheppard Avenue” and “will manage congestion along the Yonge Subway Line, from Osgoode Station to Sheppard Avenue East in Toronto” (Metrolinx, 2018). The Relief Line Subway

is listed under “Projects in Development” and Relief Line Subway West Extension (Osgoode Station – Bloor West) is listed under “Projects beyond 2041” (Metrolinx, 2018). The Regional Transportation Plan notes that earlier planning will occur for the West Extension (Metrolinx, 2018).

The Project meets the intent of the Regional Transportation Plan, as it will provide a new subway connecting downtown Toronto and providing relief to the existing Yonge-University Subway (Line 1). As noted in **Section 1.3.1**, the Lakeshore East Joint Corridor early works support the of the timely implementation of the Project and are therefore also consistent with the objectives of the Regional Transportation Plan.

2.2.1.4 The Greenbelt Plan, 2017

The Greenbelt Plan, 2017, identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological and hydrological features, areas, and functions occurring within the Greater Golden Horseshoe landscape (Province of Ontario, 2017). The Greenbelt Plan was introduced in 2005 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[8]. 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 (Province of Ontario, 2017).

The Don River is designated as an Urban River Valley under the Greenbelt Plan, 2017. The Urban River Valley designation promotes protection of natural and open space lands along river valleys in urban areas, provides connectivity between the Greenbelt and Lake Ontario, and directs land use planning in areas where the Greenbelt occupies river valleys in an urban context (Province of Ontario, 2017).

The Project is consistent with the Greenbelt Plan, 2017, as the Urban River Valley policies, provided under Section 6 of the Greenbelt Plan, 2017, note that all existing, expanded, or new infrastructure subject to and approved under the Environmental Assessment Act (or similar approval) are permitted within the Urban River Valley designation, provided that the goals of the Growth Plan and Greenbelt Plan are supported (Province of Ontario, 2017).

A portion of the Don River is located within the Lakeshore East Joint Corridor Early Works Project Footprint; therefore, the Urban River Valley policies outlined in the Greenbelt Plan, 2017 are applicable to the Lakeshore East Joint Corridor early works.

8. The Lakeshore East Joint Corridor Study Area does not fall within the protections of the Niagara Escarpment Plan or Oak Ridges Moraine Conservation Plan.

2.2.1.5 Conservation Authorities Act, 1998

The Lakeshore East Joint Corridor Early Works Project Footprint falls under the jurisdiction of the Toronto and Region Conservation Authority. Ontario Regulation 166/06 under Section 28 of the Conservation Authorities Act (1998), establishes regulated areas within Toronto and Region Conservation Authority's jurisdiction where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. The Lakeshore East Joint Corridor Early Works Project Footprint is located within the Toronto and Region Conservation Authority Regulation Limit; therefore, Toronto and Region Conservation Authority policies are applicable under the Conservation Authorities Act, 1990.

2.2.1.6 Toronto and Region Conservation Authority Living City Policies, 2014

The Toronto and Region Conservation Authority Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority (Toronto and Region Conservation Authority, 2014b) outlines the objectives and policies approved by the Toronto and Region Conservation Authority's roles and responsibilities in the planning and development approvals process (Toronto and Region Conservation Authority, 2014b). The purpose of the Toronto and Region Conservation Authority Living City Policies include guiding Toronto and Region Conservation Authority's review of planning applications and environmental assessments and provide the basis for approving permit applications under Section 28 of the Conservation Authorities Act.

As noted in **Section 2.2.1.5**, the Lakeshore East Joint Corridor Early Works Project Footprint is located within the Toronto and Region Conservation Authority Regulation Limit, therefore the policies outlined within the Toronto and Region Conservation Authority Living City Policies apply to the Lakeshore East Joint Corridor early works.

2.2.2 Municipal

2.2.2.1 City of Toronto Official Plan

The City of Toronto Official Plan (Official 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. Chapters 1 to 5 of the Official Plan contain city-wide policies that guide new development and related decision-making, including policies related to the preservation of publicly-owned lands such as parks and open space areas. As a municipal document, the Official Plan reflects provincial policies, plans, and initiatives (as described in **Section 2.2.1**) for effective implementation at the city level.

Further to the Official Plan's city-wide policies, Chapter 6 of the Official Plan is dedicated to Secondary Plans, which are more detailed local development policies to guide growth and change in a defined area of the City. Each Secondary Plan focuses on a key area, community, or neighbourhood to implement visions and objectives specific to these areas. The following two City of Toronto secondary plans are applicable to the Lakeshore East Joint Corridor Study Area:

- Downtown Plan; and
- Unilever Precinct Secondary Plan.

Refer to **Section 5.6** for descriptions of all secondary plans applicable to the Lakeshore East Joint Corridor early works.

2.2.2.1.1 Downtown Plan

The Downtown Plan area is roughly bounded by Dupont Street, Bloor Street, and the Don River Valley to the north, the Don River to the east, the Bathurst Street to the west and the Toronto waterfront to the south.

The main objectives of the Downtown Plan include:

- Create a diverse community with easy access to local amenities;
- Enhance the strong employment base, and make Downtown Toronto an economic driver for the City, Region, Province and Country;
- Access to a varied and extensive network of parks and public spaces;
- Conserve heritage buildings, and creating new buildings that are built and scaled to fit within their setting;
- Provision of a range of housing options, including shelters, affordable housing and program and facilities to support the vulnerable population;
- A reliable surface transit network and an expanded subway system;
- Reliable and cost-effective networks of water, wastewater and stormwater infrastructure; and
- Varied streetscapes featuring iconic architecture, layered on centuries of development, that promote public life.

2.2.2.2 Unilever Planning Framework

The City of Toronto initiated the Unilever Planning Framework, approved in June 2018. to guide the transformation of the Unilever Precinct. The framework provides an opportunity to re-imagine former industrial lands east of the downtown core as a thriving

employment node supported by new transit, flood protection, open space, servicing and transportation infrastructure. The study applies a city-building lens to area development applications, to capitalize on and coordinate development with adjacent infrastructure investments. The Unilever Planning Framework is intended to provide direction for redevelopment of the Unilever Precinct through a comprehensive visioning statement and series of recommendations. The Unilever Precinct is designated for employment uses, supported by additional non-residential uses such as retail, cultural uses, community uses, and open spaces. These uses, in addition to the surrounding existing and emerging neighbourhoods, are essential components of the vibrancy of the precinct (City of Toronto, n.d.f).

2.2.2.3 City of Toronto Parkland Strategy

The City Planning Division and the Parks, Forestry and Recreation Division developed the Parkland Strategy to provide the City of Toronto with a long-term vision and framework for enhancing Toronto's park system (City of Toronto, 2019b). The following principles support the City's vision for the parks system and form the foundation of the Parkland Strategy:

- Expand the parks system by creating new parks to support growth and address gaps to ensure an effective parks system that will support the needs of a livable, diverse city;
- Improve the function of existing parks to promote community cohesion, ecological sustainability, and health and well being through active living, access to nature, and the provision of spaces for rest, relaxation, and leisure;
- Connect parks and other open spaces, physically and visually, and leverage opportunities to use other open spaces so that people, communities and wildlife have abundant access to parks and open spaces and can seamlessly navigate to and through the parks and open space system;
- Include everyone by removing barriers so that parks and other open spaces are inclusive and inviting places that are equitably accessible for people of all ages, cultures, genders, abilities, and incomes.

The Final Parkland Strategy Report was adopted by Council on November 26, 2019.

2.2.3 Applicable Environmental Assessments and Planning Studies

2.2.3.1 East Harbour – SmartTrack Transit Project Assessment Process

The East Harbour Station will be located south of Eastern Avenue on the Metrolinx Lakeshore East rail corridor and will occupy lands from the eastern side of the Don

Valley Parkway to Eastern Avenue. The transit hub station will serve both Ontario Line and GO service. The station will provide connectivity with the future Broadview Ave streetcar, as well as connectivity with adjacent communities.

In July 2016, Metrolinx issued the Initial Business Case for the East Harbour SmartTrack Station (previously referred to as Don Yard/Unilever). In fall 2016, the City of Toronto confirmed the location, general design concept and inclusion of the station in the SmartTrack program. The Environmental Project Report for the New SmartTrack Stations Project, including East Harbour SmartTrack Station, was completed in 2018 in accordance with Ontario Regulation 231/08 (Transit Project Assessment Process).

Since the completion of the New SmartTrack Stations Project Environmental Project Report, the East Harbour station layout has evolved to accommodate the inclusion of Ontario Line. Early plans had Ontario Line tracks running on either side of the GO tracks within the rail corridor. The revised track alignment has the two Ontario Line tracks running in parallel along the north side of the GO tracks. Design progress at East Harbour Station is ongoing in co-ordination with stakeholders.

2.2.3.2 Leslieville Traffic Management and Mitigation Study

There have been a large number of development projects approved and proposed within the Leslieville Community that will impact travel patterns and congestion. The Traffic Management and Mitigation Study will assess the impacts on traffic from development projects on the transportation network within the Leslieville Community, and include associated mitigation measures (City of Toronto, n.d.e).

The focus of this study is to determine the following:

- Existing traffic conditions and future traffic conditions with proposed development;
- Determine if the existing and future transportation system can accommodate additional traffic generated by the proposed developments; and
- Evaluate if road improvements are necessary in addition to those included in the Transportation Master Plan.

Since the Notice of Study Commencement for the project in June 2018, the study team is developing the Traffic Management and Mitigation Plan on the basis of feedback received from the first Public Open House. As of September 2019, the second Public Open House has been postponed to a later date (City of Toronto, n.d.e).

2.2.3.3 Waterfront Transit Reset

The City of Toronto, in partnership with the Toronto Transit Commission and Waterfront Toronto, is undertaking the Waterfront Transit "Reset" study, including a comprehensive assessment of needs and options for transit improvements for the waterfront area. The Waterfront Transit Reset study area extends from the Long Branch GO Station and the Mississauga border in the west to Woodbine Avenue in the east, and south of the Queensway/Queen Street corridor to Lake Ontario.

The Phase 1 study was completed in 2016 and the Phase 2 study was completed in 2018. City Council endorsed the overall Waterfront Transit Network Plan on January 31, 2018 and directed City staff to proceed with detailed planning and design studies (City of Toronto, 2020e). Consultation activities are currently underway for detailed design between Union Station and Cherry Street (City of Toronto, 2020e).

2.2.3.4 Don Mouth Naturalization and Port Lands Flood Protection Project

The Lakeshore East Joint Corridor Early Works Project Footprint is within the boundary of the Don Mouth Naturalization and Port Lands Flood Protection Project (Toronto and Region Conservation Authority, 2014a).

Toronto and Region Conservation Authority, on behalf of and in cooperation with Waterfront Toronto and the City of Toronto, completed an Individual Environmental Assessment for the Don Mouth Naturalization and Port Lands Flood Protection Project. The environmental assessment study was approved by the Minister of the Environment, Conservation and Parks (formerly the Minister of the Environment and Climate Change) in March 2014. Construction commenced in the Port Lands in late 2018.

A minor amendment to the March 2014 Environmental Assessment Report was released in April 2021 to address the following modifications (Toronto and Region Conservation Authority, 2021a):

- Hydraulic modifications in the vicinity of the Lake Shore Bridge:
  - Four-bay Lake Shore Bridge and upstream sediment trap configuration;
  - Hydro One Networks Inc. utility bridge across Don River (to remain); and
  - Flow diversion structures (adjustable and fixed sideflow weir to detachable flow curtain).
- Revised phasing approach to the Don Mouth Naturalization Project:
  - Overall Port Lands Flood Protection Project construction phasing approach;
  - Interim sediment management area; and
  - Keating Channel revetment.

2.2.3.5 Lower Don River West Remedial Flood Protection Project

The West Don Lands area was a brownfield site within the Don River flood plain, and before any revitalization and development of the area could occur, the area required flood mitigation. The Lower Don River West Remedial Flood Protection Project Class Environmental Assessment (Toronto and Region Conservation Authority, 2005) was undertaken to examine alternative flood protection systems for the elimination of flood risk along the Don River. The study was completed by Toronto and Region Conservation Authority in partnership with Waterfront Toronto, and in 2007 construction began on a flood protection landform along the Don River from the rail corridor to King Street. The landform is eight hectares in size and was constructed to provide flood protection for the West Don Lands community and Toronto's financial district. Corktown Common is located atop the flood protection landform.

2.2.3.6 Port Lands and South of Eastern Transportation and Servicing Master Plan and Class Environmental Assessment

The City of Toronto, in collaboration with Waterfront Toronto and Toronto and Region Conservation Authority, completed the Port Lands and South of Eastern Transportation and Servicing Master Plan and Environmental Assessment in 2017 to support Toronto's only active port and continued employment growth in the South of Eastern area. The Transportation and Servicing Master Plan Environmental Assessment identifies preferred solutions for streets, including transit in dedicated rights-of-way, pedestrians and cycling, and water, wastewater and stormwater infrastructure, as well as preferred conceptual cross-sections for Eastern Avenue and Broadview Avenue extension. The Transportation and Servicing Master Plan Environmental Assessment seeks to create a dynamic urban mix, connect the Port Lands to the city, develop a high quality public realm, and contribute to the sustainable future of the city (City of Toronto, 2017a).

2.2.3.7 Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment and Integrated Urban Design Study

The City of Toronto and Waterfront Toronto completed an environmental assessment for changes to the existing Gardiner Expressway and Lake Shore Boulevard from approximately Lower Jarvis Street to just east of the Don Valley Parkway at Logan Avenue. The preferred alternative includes the removal of the existing Gardiner-Don Valley Parkway connection and rebuilding of the connection along an alignment closer to the rail corridor. The preferred alternative design also requires the lengthening of the Metrolinx Lakeshore East rail bridge, removal of the Logan Street ramps and the addition of two ramps in Keating Channel Precinct (City of Toronto, 2017c).

2.2.3.8 Broadview and Eastern Flood Protection Municipal Class Environmental Assessment

Toronto and Region Conservation Authority, in conjunction with the City of Toronto and Waterfront Toronto completed a Class Environmental Assessment to identify a flood protection solution for an 8-hectare parcel of urban land near the intersection of Broadview Avenue and Eastern Avenue, north of the Metrolinx railway corridor, east of the Don River. The study built upon the outcomes of the Don Mouth Naturalization and Port Lands Flood Protection Project and the Port Lands and South of Eastern Transportation and Servicing Master Plan, to address the project area that remains at risk to flooding under the regional storm. The Notice of Completion was released on April 13, 2021, allowing the project to move into the detailed design and implementation phase (Toronto and Region Conservation Authority, 2021b).

2.2.3.9 GO Rail Network Electrification

In support of the GO Expansion Program, Metrolinx is electrifying six GO-owned rail corridors including: Union Station Rail Corridor, Lakeshore West Rail Corridor, Kitchener Rail Corridor, Barrie Rail Corridor, Stouffville Rail Corridor, and Lakeshore East Rail Corridor (Metrolinx, 2017a).

Since the completion of the GO Rail Network Electrification Environmental Project Report in 2017, an Addendum was prepared to:

- Assess additional electrification infrastructure across various portions of the GO Rail Network that were not previously examined;
- Assess additional infrastructure within the Union Station Rail Corridor to address identified utility conflicts; and
- Update noise, vibration and air quality assessment.

The Environmental Project Report Addendum for the GO Rail Network Electrification Addendum has been reviewed by the Minister of the Environment, Conservation and Parks and is proceeding to the detailed design and implementation phases (Metrolinx, 2021).

2.2.3.10 Broadview Avenue Extension Environmental Assessment

The City of Toronto is completing the Broadview Avenue Extension Environmental Assessment to develop recommendations for:

- Broadview Avenue extension, south between Eastern Avenue and Lake Shore Boulevard; and

- New East-West Street, between Don Roadway and Booth Avenue in the Unilever Precinct.

The Broadview Avenue Extension Environmental Assessment continues work completed in the Port Lands Transportation and Servicing Master Plan (City of Toronto, n.d.g.). The Broadview Extension Environmental Assessment will complete Phases 3 and 4 of the Municipal Class Environmental Assessment Process.

2.2.3.11 Riverside Business Improvement Area Streetscape Master Plan

In 2018, the Riverside Business Improvement Area undertook a process to develop a comprehensive streetscape plan to guide future streetscape improvements.

The plan identifies a long term vision for streetscape improvements within the Riverside Business Improvement Area, along with more tangible proposed projects which can be implemented by the Business Improvement Area with support from City of Toronto Business Improvement Area cost-sharing programs and other government and private sector funding sources (Riverside Business Improvement Area, 2019).

2.2.3.12 Union Station East Rail Corridor

Metrolinx is working on various projects along the Union Station East Rail Corridor including the following within the Lakeshore East Joint Corridor Study Area (Metrolinx, 2021b):

- Signalling System Upgrades:
  - The Signaling and Train Control Improvement Program includes projects designed to improve reliability and service of the signalling and train control systems. Once complete the new system will reduce signal disruptions improve recovery time and combine operations into one control centre, providing a more effective service.
- Signal Tower Renewal Project:
  - Required state-of-good-repair restoration of the signalling towers at John, Scott and Cherry Streets is underway and is schedule to be complete in May 2022.
- Wilson Yard Upgrade and Expansion:
  - Upgrading and expanding the Wilson Yard will allow trains to be serviced closer to Union Station and avoid using the corridor to move empty trains. Construction is expected to start in early 2022.

3. Early Works Description

3.1 Project Description

The Lakeshore East Joint Corridor early works are planned along the Lakeshore East rail corridor between approximately Eastern Avenue and Pape Avenue and will include:

- Reconfiguration of existing GO tracks to support future Ontario Line infrastructure;
- Replacement of the existing rail bridges at Queen Street East, Dundas Street East and Logan Avenue;
- Construction of two new bridges at Dundas Street East and Logan Avenue to support future Ontario Line tracks;
- Construction of the foundations for GO Overhead Catenary System (OCS) poles and supporting infrastructure to accommodate future fourth GO track;
- Construction of retaining walls; and
- Construction of noise barriers, including east of Pape Avenue.

The Lakeshore East Joint Corridor early works will support the future Ontario Line infrastructure located between Eastern Avenue and Pape Avenue (e.g., Leslieville and Gerrard stations, and Ontario Line tracks). These early works will also streamline implementation of GO Expansion through the construction of supporting infrastructure for the future fourth track for the Lakeshore East GO corridor and the foundations for GO Overhead Catenary System (OCS) poles. The noise barriers constructed as part of these early works will mitigate noise impacts from both Ontario Line and GO operations. Lakeshore East Joint Corridor early works components are shown in **Figure 3-1** and described in sections below.

3.1.1 Relocation of Existing Lakeshore East GO Tracks and Construction of Supporting Infrastructure for the New Track

The three existing GO tracks 1, 2 and 3 will be shifted by approximately 10 metres to the south from their current position to accommodate future Ontario Line tracks which will be located to the north of the Lakeshore East rail tracks (Figure 3 1). Relocation of existing GO tracks will accommodate the four GO rail tracks, two new Ontario Line tracks and supporting rail corridor infrastructure such as retaining walls almost entirely within the existing corridor lands. In addition, supporting infrastructure for a future fourth southern-most GO track (Track 4) will be constructed, including grading and installation

of the drainage system and ballast, between approximately Eastern Avenue and Pape Avenue. Realignment of the existing GO tracks 1, 2 and 3 and construction of the future GO Track 4 supporting infrastructure will be completed such that rail operations are maintained, utilizing temporary diversion track(s) and/or conducting track shifts in phases. The profile (elevation) of GO tracks will be raised to accommodate the improved Queen Street East, Dundas Street East and Logan Avenue GO bridge vertical clearances (Refer to Section 3.1.4.1 and 3.1.4.2 for more information on the GO bridges). Relocation of existing GO tracks and construction of new GO track supporting infrastructure will include implementation of the operational vibration mitigation technologies, as required. Track 4 will be installed as part of GO Expansion implementation. Ontario Line tracks construction will take place as part of the main Ontario Line contracts and will be assessed in the Ontario Line Environmental Impact Assessment Report.

3.1.2 Retaining Walls

Retaining walls will be constructed on both sides of the Lakeshore East rail corridor between Eastern Avenue and Carlaw Avenue, and at select areas in vicinity of the future Ontario Line station locations in this area (Riverside/Leslieville Station and Gerrard Station). Retaining walls are necessary to ensure the stability of GO and future Ontario Line tracks and to accommodate the tracks largely within the existing rail corridor. Retaining walls will be designed to reduce construction impacts by allowing retaining wall installation to take place from within the rail corridor wherever feasible.

3.1.3 Replacement of Existing GO Rail Bridges and Construction of New Ontario Line

3.1.3.1 Queen Street East GO Bridge

A new GO bridge will be constructed at Queen Street East to support the realigned Lakeshore East GO rail tracks. The existing bridge will be demolished and replaced with a new bridge which will support four GO tracks and have improved (higher) vertical clearance. Demolition of the existing bridge and construction of the new bridge will proceed in phases such that rail operations are maintained.

The Ontario Line bridge over Queen Street East will be constructed as part of the Ontario Line main contracts, along with Riverside/Leslieville Station. These components of the Ontario Line will be assessed in the Environmental Impact Assessment Report.

3.1.3.2 Logan Avenue and Dundas Street East GO and Ontario Line Bridges

New bridges are required at Logan Avenue and Dundas Street East to accommodate future Ontario Line tracks and four GO tracks. The existing bridges will be demolished and replaced with new bridges which will support four GO tracks at each location and have improved (higher) vertical clearance. A separate bridge will be constructed at each location, north of the new GO bridges, to support the new Ontario Line tracks.

3.1.3.3 Preparatory Works and Relocation or Protection of Signalling Infrastructure and Utilities

Preparatory works include vegetation removal, grading, and demolition of existing structures or buildings where required. Railway signalling infrastructure and utilities such as sewers, water, electrical, communications, and gas located within the rail corridor as well as other parts of the Lakeshore East Joint Corridor Early Works Project Footprint will be relocated or protected to facilitate completion of the work, as required.

3.1.4 Construction of Foundations for the GO Overhead Catenary System (OCS)

Foundations for the Overhead Catenary System[9], required for GO Expansion, will be constructed as part of the early works. These will support future portals[10], gantries[11], and cantilevers[12] which will power electrified GO Transit trains. Construction of the Overhead Catenary System foundations as part of the Lakeshore East Joint Corridor early works will improve constructability and reduce construction complexity for the main Ontario Line contracts and streamline GO Expansion delivery.

3.1.5 Noise Barriers

Following construction of retaining walls, noise barriers will be constructed on both sides of the corridor between approximately Eastern Avenue and Pape Avenue, as well as on the north side of the corridor between Pape Avenue and Jones Avenue. Noise barriers may be integrated with or separated from the retaining walls, subject to the alignment of walls and barriers throughout the corridor.

In addition to meeting the Ministry of the Environment, Conservation and Parks/GO Transit and Ministry of the Environment, Conservation and Parks/Toronto Transit

9. An overhead catenary system is a system of overhead wires to supply electricity to trains.
10. Ontario Line portals are both entry points for the trains to travel underground and points of exit to travel above ground.
11. Gantries are a type of crane used during construction of subway systems.
12. Cantilevers are equipment used in bridge construction that include a horizontal beam that is supported by only one end.

Commission operational rail noise protocol objectives, Metrolinx is seeking to limit adjusted noise impacts from the Project to existing predicted levels at receptors between Eastern and Pape Avenue, where feasible, even for receptors with predicted noise impacts that do not require mitigation investigation per the Ministry of the Environment, Conservation and Parks/GO Protocol and/or Ministry of the Environment, Conservation and Parks/Toronto Transit Commission Protocol. Heights of noise barriers predicted to achieve this are shown in **Appendix C**. Metrolinx will install noise barriers with a minimum height of 5 meters, in alignment with the noise barrier implementation approach planned to be undertaken by GO Expansion.

3.2 Early Works Project Footprint and Study Area

The Lakeshore East Joint Corridor Early Works Project Footprint, shown in **Figure 3-3** is defined as the area of direct disturbance associated with the early works construction activities, including anticipated required construction staging and laydown areas and construction access. Construction is anticipated to occur primarily within the existing Metrolinx right-of-way (Metrolinx-owned rail corridor/properties). The extent of lands anticipated to be temporarily impacted by construction staging/laydown and access will continue to be refined and reduced to the extent feasible as project planning progresses. Note that lands adjacent to the Eastern Avenue rail bridge on the north of Eastern Avenue will be shared with the East Harbour Station project to reduce temporary land requirements in support of construction activities.

The Lakeshore East Joint Corridor Early Works Project Footprint extends from approximately 325 metres east of the Lower Don River at Eastern Avenue and follows the Lakeshore East rail corridor northeast to Jones Avenue.

The Lakeshore East Joint Corridor Study Area, shown in **Figure 3-3**, includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. This general study area was identified for assessment of potential impacts of the Lakeshore East Joint Corridor early works. As shown in **Table 4-1**, select discipline-specific study areas were identified for assessment of the discipline-specific potential impacts of the Lakeshore East Joint Corridor early works.

3.3 Construction Activities

Table 3-1 provides a description of the anticipated construction activities for the Lakeshore East Joint Corridor early works. These typical activities serve as the basis for the assessment of construction-related potential environmental effects. These activities may be expanded, further refined, or found to be unnecessary as the Project progresses through detailed design and construction.

Table 3-1: Anticipated Construction Activities for the Ontario Line Lakeshore East Joint Corridor Early Works

Anticipated Construction Activity	Description	Associated Equipment
Site Preparation	■ Mobilization of equipment and temporary facilities to the site. ■ Clearing and grubbing of vegetation, tree removal and protection. ■ Protection of trees & sensitive environmental features. ■ Erection of temporary and permanent fences. ■ Installation of environmental management features (e.g., erosion and sediment controls). ■ Dewatering works. ■ Preparation of temporary laydown areas including access roads, fencing and lighting. ■ Preparation of temporary access roads to construction sites including temporary shoring, access roads, fencing, signage, gate and lighting. ■ Temporary closure of road curb lanes. ■ Removal of roadway, sidewalks, buildings and retaining walls impacted by temporary or permanent conditions.	■ Site compaction equipment and grading equipment. ■ Vegetation removal equipment. ■ Excavation equipment. ■ Haulage/dump trucks.
Site Servicing/ Removals/ Demolition	■ Relocation and/or extension of services and utilities on the site; which may include both underground and aerial services and utilities (e.g., sewers, water, electrical, communications, gas). This may also involve installation of utilities within the site. Includes utilities on the rail corridor and off the rail corridor. ■ Demolition and/or alteration of existing buildings and/or structures such as retaining walls and existing bridges. ■ Removal and reinstatement of railway track. ■ Locates and daylighting of underground utilities.	■ Excavation equipment including backhoe, dump trucks, spoil removal equipment, jackhammers, vacuum truck and high rail equipment. ■ Track stabilizer. ■ Hand tools. ■ Mobile crane. ■ Flatbed trucks. ■ Boom truck. ■ Spreader for track work.
Construction of Structures	■ All structures will be constructed using standard civil construction techniques. ■ Includes noise walls, pre-cast and cast-in-place retaining walls including stormwater management, grounding, bonding and backfill using selected material.	■ Foundation placement equipment. ■ Augured piles or rammed aggregate piers. ■ Drill rigs. ■ Mobile cranes and hoists. ■ Concrete trucks, pumps and vibrators.
Construction of Bridges	■ Will be constructed using standard civil construction techniques. ■ Dewatering is anticipated. ■ Includes stormwater management, grounding and bonding.	■ Augured piles or rammed aggregate piers. ■ Drill rigs. ■ Mobile cranes and hoists. Concrete trucks, pumps and vibrators. ■ Flatbed trucks, crane, excavators, and light equipment. ■ Back hoe. ■ Jack hammers.
Temporary Road / Sidewalk Closures	■ All road / sidewalk closures will follow standard traffic control management guidelines.	■ Temporary traffic control devices such as signs, signals, barriers, traffic barrels.
Site Grading and Earthworks	■ Removal of topsoil and excavation of unsuitable material and disposal off site ■ Borrow additional material for fill ■ Grading and compaction of track bed including subdrain ■ Installation of sub ballast and pre-ballasting	■ Excavator ■ Dozer ■ Motor grader ■ Compactor ■ Water truck ■ Dump trucks
Management of Stormwater	■ All precipitation falling within the site will be managed as stormwater within a designed system of collection, conveyance, retention and discharge features, as required. The system will be designed and operated in compliance with applicable standards and regulatory requirements. Surface flows within the site will be managed within the site to ensure discharge to off-site receivers (i.e., municipal storm sewers) is appropriate in terms of water quantity and quality.	■ Site compaction equipment and general grading equipment. ■ Groundwater pumping equipment.
Track construction	■ Staged realignment of existing tracks (rail on timber ties). ■ Installation of 4 tracks in final position including ballast utilizing new rail and new concrete ties.	■ High rail excavators, Track laying machine, ballast regulator, stabilizer.
Signaling infrastructure alteration/ installation	■ Staged upgrade of track signals to reflect temporary staged realignment of tracks and installation of four tracks in a final position. ■ Relocation of existing bridge and bungalow including temporary track crossings, bridge foundations, aspects, bungalow, power supply, conduits and cables. Removal from site of existing signal bridge and bungalow.	■ Backhoe. ■ Vacuum truck. ■ High rail crane. ■ Drill rig. ■ Concrete pump and concrete trucks.
Fiber Optic Cable (FOC) relocation	■ Staged relocation of multiple Fiber Optic Cable (FOC) to reflect temporary staged realignment of tracks and installation of four tracks in a final position, including multiple conduits, hand wells, split steel casings and splicing.	■ Backhoe. ■ Vacuum truck.

Figure 3-1: Lakeshore East Joint Corridor Early Works Conceptual Design

Figure 3-2: Lakeshore East Joint Corridor Early Works Conceptual Design

Legend

- Lakeshore East Joint Corridor Early Works Project Footprint
- Existing Track

Early Works Components:

- Proposed GO Bridge Replacement
- Proposed Ontario Line Bridge
- GO Track
- Proposed Noise Barrier
- Proposed Retaining Wall
- Proposed Retaining Wall and Noise Barrier

Future Work (Not Part of Early Works):

- Proposed Ontario Line Gerrard Station
- Proposed Future Gerrard Portal (Below Ground)
- Proposed Future Gerrard Portal (Above Ground)
- Proposed Ontario Line Track
- Proposed Ontario Line Underground Track
- GO Track 4

* Conceptual design and noise barrier extents are subject to change

Ontario Line Project

Lakeshore East Joint Corridor Early Works Conceptual Design

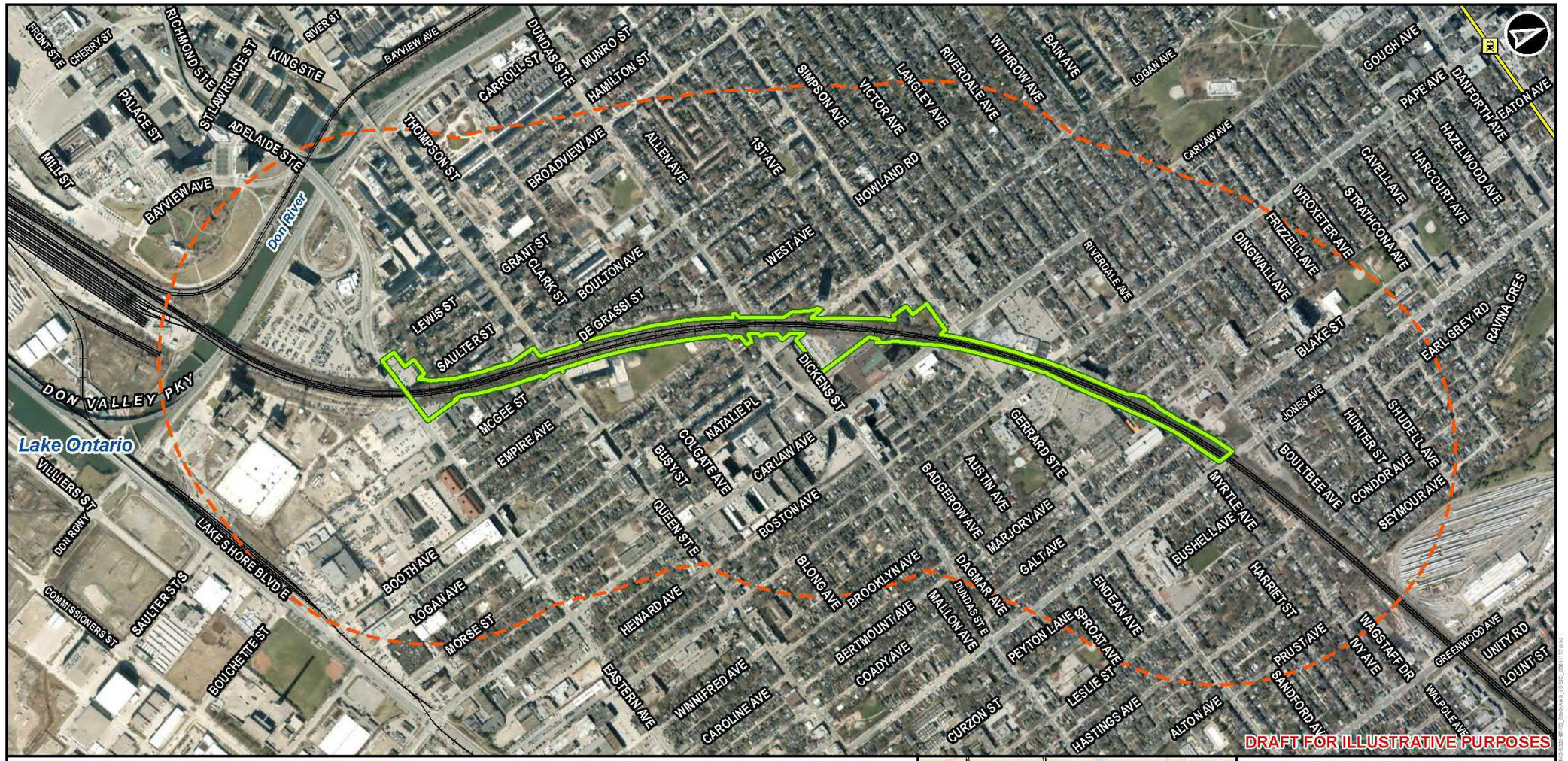
0 50 100
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap and Basemap provided by ESRI.

METROLINX	AECOM
Sep, 2021	1:2,500
P#: 60611173	REV: 04

Figure 3-1

Figure 3-3: Lakeshore East Joint Corridor Early Works Project Footprint and Study Area



Legend

- Existing Station
- Toronto Subway Lines
- Existing Rail
- Lakeshore East Joint Corridor Study Area
- Lakeshore East Joint Corridor Early Works Project Footprint

Ontario Line Project

Lakeshore East Joint Corridor Early Works Project Footprint and Study Area

0 50 100 200 300 400 500 600
Meters
DATUM: NAD 1983 MTM 10

Data Sources:
Contains information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap and Basemap provided by ESRI.

METROLINX	AECOM
Aug, 2021	1:8,500
P#: 60611173	REV: 04

Figure 3-2

4. Methodology

This Report documents the potential impacts, mitigation measures and monitoring activities associated with Lakeshore East Joint Corridor early works construction. Potential impacts, mitigation measures, and monitoring activities associated with Project operations and construction of other Project components, except those components that may be advanced as early works, will be documented in the Ontario Line Environmental Impact Assessment Report in accordance with Section 15 of Ontario Regulation 341/20: Ontario Line Project. Note that the assessment of the Lakeshore East Joint Corridor operational noise and vibration impacts is documented in the Lakeshore East Joint Corridor Noise and Vibration Operations Report found in **Appendix C** of this report. As the Lakeshore East Joint Corridor early works include installation of noise barriers and vibration mitigation technologies to address noise and vibration impacts associated with Joint Corridor operation, the Lakeshore East Joint Corridor Noise and Vibration Operations Report is included in this Early Works Report to provide the details of the operational noise and vibration assessment and identification of mitigation measures. As noted in **Section 3.2**, the Lakeshore East Joint Corridor Early Works Project Footprint represents the area of primary disturbance which may result from any anticipated early works construction activities. Discipline-specific study areas were developed for some environmental disciplines to account for potential impacts from the early works construction. The Lakeshore East Joint Corridor study areas for each discipline are defined in **Table 4-1**. Methodology used to define the local environmental conditions and complete the impact assessment for each discipline is described in **Section 4.1** to **Section 4.10**.

Background information and documentation relevant to the Lakeshore East Joint Corridor study areas is contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) prepared for the Project. Information sourced from the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) was used to establish local environmental conditions within the Lakeshore East Joint Corridor study area for each environmental discipline within this Report. Where necessary, review of additional desktop and field information was undertaken.

Table 4-1: Lakeshore East Joint Corridor Study Area Definition by Discipline

Discipline	Study Area Definition Approach
Natural Environment	The Lakeshore East Joint Corridor Natural Environment Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 120-metre buffer. This buffer has been applied in accordance with the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, Second Edition (Ministry of Natural Resources and Forestry, 2010).
Soil and Groundwater	The Lakeshore East Joint Corridor Soil and Groundwater Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. This buffer has been applied in accordance with the Hydrogeological Assessment Submissions Conservation Authority Guidelines for Development Applications (Toronto and Region Conservation Authority, 2013a), which recommends well data for private wells within 500 metres be used for impact assessment.
Hydrology and Surface Water	The Lakeshore East Joint Corridor Hydrology and Surface Water Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. Based on the Toronto and Region Conservation Authority's Stormwater Management Criteria (Toronto and Region Conservation Authority, 2012), the zone of potential impacts is defined by presence of waterbodies. The Lower Don River floodplain is partially located within the Lakeshore East Joint Corridor Early Works Project Footprint. This buffer has been applied to include the Toronto and Region Conservation Authority Regulation Limit and Don River Floodplain based scale and significance of the Don River, and to consider surrounding flood protection initiatives.
Air Quality	The Lakeshore East Joint Corridor Air Quality Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. This buffer has been applied in accordance with the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impact and Greenhouse Gases of Provincial Transportation Projects (Ministry of Transportation, 2020), which states that for major roads, a distance of 500 metres is expected to capture the maximum pollutant concentrations.
Noise and Vibration	The Lakeshore East Joint Corridor Noise and Vibration Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and an approximately 250 metre buffer. This buffer was developed using noise and vibration screening areas, which were determined by calculating the distances where the applicable criteria are predicted to be met, using a conservative approach where it was assumed that all construction equipment listed in **Table 3-1** would be simultaneously active. The approximately 250 metre night-time noise screening area was the largest and was thus used to define the Lakeshore East Joint Corridor Noise and Vibration Study Area. This buffer distance is also in accordance with the United States Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual (2018), and City of Toronto By-law 514 (2008).

Discipline	Study Area Definition Approach
Socio-Economic and Land Use Characteristics	The Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and a 500-metre buffer. This buffer has been applied in socio-economic studies for approved transit project environmental assessments of similar scope (e.g., Lawrence-Kennedy SmartTrack Station – Socio-Economic and Land Use Study (4Transit, 2018) and Barrie Rail Corridor Expansion Volume 2: Spadina-Front GO Station Design and Technical Studies – Socio-Economic and Land Use Study (4Transit, 2018)).
Built Heritage Resources and Cultural Heritage Landscapes	The Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint, adjacent properties[13] to account for potential indirect impacts, and properties within 11.1 metres of the Lakeshore East Joint Corridor Early Works Project Footprint to account for potential structural impacts to built heritage resources and cultural heritage landscapes that may result from vibration. The distance of 11.1 metres from the Lakeshore East Joint Corridor Early Works Project Footprint was included in the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area to account for potential vibration impacts to buildings extremely susceptible to vibration damage (including heritage buildings and their foundations) in accordance with the Ontario Line Lakeshore East Joint Corridor Early Works – Final Noise and Vibration Report (AECOM, 2021).
Archaeological Resources	Review of archaeological resources was limited to the Lakeshore East Joint Corridor Early Works Project Footprint. Based on the Standards and Guidelines for Consultant Archaeologists (Ministry of Tourism and Culture, 2011), only areas of direct construction impacts are subject to further archaeological assessment.
Traffic and Transportation	The Lakeshore East Joint Corridor Traffic and Transportation Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint and adjacent road segments and intersections which meet either of the following criteria: ■ Provide connection to the Lakeshore East Joint Corridor Early Works Project Footprint (i.e., Eastern Avenue, Queen Street East, and Dundas Street East) and are thus potentially considered a part of the construction vehicles' routes; or ■ Impacted directly by the early works activities, outlined in **Table 3-1,** within the Lakeshore East Joint Corridor Early Works Project Footprint.
Utilities	Review of utilities was limited to the Lakeshore East Joint Corridor Early Works Project Footprint. This approach captures potential direct impacts to private and public utilities as a result of the early works construction activities.

13. Adjacent is defined in Section 3.1.5 (Heritage Conservation) of the City of Toronto's Official Plan as "those lands adjoining a property of 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, 2019).

Preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the following:

- Early works components as described in **Section 3.1**;
- Lakeshore East Joint Corridor Early Works Project Footprint as described in **Section 3.2**;
- Construction activities as described in **Section 3.3**; and
- Local environmental conditions within the Lakeshore East Joint Corridor study areas as described in **Section 5**.

Mitigation measures and monitoring activities for each environmental discipline have been recommended to mitigate the identified potential impacts.

4.1 Natural Environment

4.1.1 Local Environmental Conditions

A review of available background information was conducted to establish local natural environment conditions within the Lakeshore East Joint Corridor Natural Environment Study Area. The following aspects of the natural environment were examined:

- Designated Natural Areas and Planning Policy Areas;
- Vegetation Community and Plant Inventory;
- Fish and Fish Habitat;
- Wildlife and Wildlife Habitat; and
- Significant Wildlife Habitat and Species at Risk.

For the purpose of this background information review, terrestrial and aquatic features and functions were identified within the boundaries of the Lakeshore East Joint Corridor Natural Environment Study Area through a desktop review of available secondary sources. The natural environment background information review included information from the following sources contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020a):

- Ontario Ministry of Natural Resources and Forestry Ontario GeoHub base mapping data (Ministry of Natural Resources and Forestry, 2020; Land

Information Ontario, 2017; Ministry of Natural Resources and Forestry, 2017a; Ministry of Natural Resources and Forestry, 2017b);

- Wildlife atlases;
- Planning documents and guidelines;
- Open Data Portals;
- Reports; and
- Aerial photography.

Other background information was collected through correspondence with the following agencies:

- Toronto and Region Conservation Authority; and
- Ontario Nature.

In addition to the secondary sources listed above, the following previously completed studies relevant to the Lakeshore East Joint Corridor Natural Environment Study Area, contained in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a), were also reviewed in support of the background review:

- Natural Environment Existing Conditions – Relief Line South, Toronto, Ontario (Golder Associates, 2018);
- Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project – Natural Environment Effects Assessment Report (AECOM, 2017a); and
- East Harbour SmartTrack Station – Natural Environment Report (4Transit, 2018a).
- Field investigations were not completed for the Lakeshore East Joint Corridor Natural Environment Study Area as lands within the Lakeshore East Joint Corridor Natural Environment Study Area were recently investigated in 2016 to support other Metrolinx projects (i.e., Union Station Rail Corridor East Enhancements and Lakeshore East Rail Corridor Expansion [Don River to Scarborough GO Station]). The survey results were reviewed and summarized to supplement the established existing conditions within the Lakeshore East Joint Corridor Natural Environment Study Area and were deemed to be sufficient to support an impact assessment.

Detailed methodology for establishing local natural environment conditions is provided in **Appendix A1**. Local natural environment environmental conditions are described in **Section 5.1**.

4.1.2 Impact Assessment

As noted in **Table 4-1**, potential natural environment impacts within 120 metres of the Lakeshore East Joint Corridor Early Works Project Footprint were assessed. The natural environment preliminary potential impacts, mitigation measures, and monitoring activities to verify the effectiveness of mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**) and anticipated construction activities (outlined in **Table 3-1**).

For the purpose of the natural environment impact assessment, as a conservative approach, all vegetation communities and buildings overlapping with the Lakeshore East Joint Corridor Early Works Project Footprint were assumed to be permanently removed during the construction phase.

Detailed methodology for the natural environment impact assessment is provided in **Appendix A1**. The results of the natural environment impact assessment are provided in **Section 6.1**.

4.2 Soil and Groundwater

4.2.1 Local Environmental Conditions

A review of available information was conducted to establish soil and groundwater existing conditions within the Lakeshore East Joint Corridor Soil and Groundwater Study Area. The following aspects of soil and groundwater were examined:

- Geological setting, including physiography and topography, surficial geology, quaternary geology, and bedrock geology;
- Hydrogeological setting, including regional groundwater flow; and
- Groundwater resources, including source water protection features and Ministry of the Environment, Conservation and Parks' water well records.

The soil and groundwater background information review included information from the following sources contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020a):

- Ministry of the Environment, Conservation and Parks open data catalogue resources, including the Water Well Records database and Source Water Protection Information Atlas;

- Toronto and Region Conservation Authority reports and plans, including the Source Water Protection Conceptual Understanding of the Water Budget Report (2007), Don River Watershed Plan: Geology and Groundwater Resources (2009), and Toronto and Region Source Protection Area, Approved Updated Assessment Report (2015); and
- Ontario Geological Survey resources, including The Physiography of Southern Ontario, Third Edition (1984), Paleozoic Geology of Southern Ontario (2007), and Metropolitan Toronto Bedrock Contours (1961).

Local soil and groundwater conditions are described in **Section 5.2**.

4.2.2 Impact Assessment

As noted in **Table 4-1**, potential soil and groundwater impacts within 500 metres of the Lakeshore East Joint Corridor Early Works Project Footprint were assessed. The soil and groundwater preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**), and anticipated construction activities (outlined in **Table 3-1**).

The results of the soil and groundwater impact assessment are provided in **Section 6.2**.

4.3 Hydrology and Surface Water

4.3.1 Local Environmental Conditions

A review of available background information was conducted to establish existing hydrology and surface water conditions within the Lakeshore East Joint Corridor Hydrology and Surface Water Study Area, including:

- Toronto and Region Conservation Authority's Regulated Area online mapping (Toronto and Region Conservation Authority, 2020a);
- Toronto and Region Conservation Authority's Flood Plain online mapping (Toronto and Region Conservation Authority, 2020b); and
- Toronto and Region Conservation Authority's Watersheds online mapping (Toronto and Region Conservation Authority, 2020c).

Local hydrology and surface water conditions are described in **Section 5.3**.

4.3.2 Impact Assessment

As noted in **Table 4-1**, potential hydrology and surface water impacts within 500 metres of the Lakeshore East Joint Corridor Early Works Project Footprint were assessed. The hydrology and surface water impact assessment considered the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**), and anticipated construction activities (outlined in **Table 3-1**).

The results of the hydrology and surface water impact assessment are provided in **Section 6.3**.

4.4 Air Quality

4.4.1 Local Environmental Conditions

Local environmental conditions within Lakeshore East Joint Corridor Air Quality Study Area were established through a review of relevant background information, a definition of appropriate air quality contaminants, and determining existing concentrations of the air quality contaminants from local monitoring stations. Existing air quality is also defined by volume of traffic within the Lakeshore East Joint Corridor Air Quality Study Area. Higher levels of traffic result in higher local air quality concentrations. The existing levels of air quality contaminant concentrations were compared to federal and provincial standards for acceptable levels of air quality concentration to determine which contaminants exceed standard thresholds within the Lakeshore East Joint Corridor Air Quality Study Area.

Background information and documentation relevant to Lakeshore East Joint Corridor Air Quality Study Area is contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020a), which includes:

- Identification of air quality representative receptors within the Lakeshore East Joint Corridor Air Quality Study Area;
- Determination of representative background air quality monitoring stations within the National Air Pollution Surveillance network for the Lakeshore East Joint Corridor Air Quality Study Area. Appropriate representation was based on proximity to the Lakeshore East Joint Corridor Air Quality Study Area, availability of contaminant monitoring data, and proximity to similar nearby air quality sources as those existing within the Lakeshore East Joint Corridor Air Quality Study Area;

- Traffic peak levels and/or annual averaged daily traffic volumes along primary routes of travel within the Lakeshore East Joint Corridor Air Quality Study Area were reviewed, where available; and
- Review of existing meteorological data representative of the Lakeshore East Joint Corridor Air Quality Study Area.

Emissions from diesel trains traversing the Lakeshore East Joint Corridor Air Quality Study Area were not assessed due to the relatively low contribution of air contaminants. For example, the Air Quality Assessment Report prepared for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process (AECOM, 2018a) included a quantitative assessment of downtown Toronto air quality sources and project source impacts where it was shown that hourly road air contaminant contributions were exponentially higher than those of both GO Train emission contributions and VIA/Canadian National contributions (e.g., 23.9 g/hour of carbon monoxide from roads, compared with 2.0 g/hour from GO rail and 0.05 g/hour from VIA/Canadian National Rail). Certain contaminants had a higher contribution from the Metrolinx GO network within the Union Station Rail Corridor East Enhancements study area, such as NO_X and fine particulate matter ($PM_{2.5}$). These emissions were not specifically quantified in the Lakeshore East Joint Corridor early works air quality assessment; however, it should be noted that diesel rail traffic can present as a minor source of air quality contamination for these two specific contaminants.

Based on recommendations within the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (Ministry of Transportation, 2020), the following criteria air contaminants from vehicle emissions were considered:

- Nitrogen dioxide, NO2 (assessed over 1-hour, 24-hour, and annual averaging periods);
- Carbon monoxide, CO (assessed over 1-hour and 8-hour averaging periods);
- Sulphur Dioxide, SO2 (assessed over 1-hour, 24-hour, and annual averaging period);
- Particulate matter (<10 microns), PM10 (assessed over 24-hour and annual averaging periods);
- Particulate matter (<2.5 microns), PM2.5 (assessed over 24-hour and annual averaging periods);
- Acetaldehyde (assessed over 30-minute and 24-hour averaging period);
- Acrolein (assessed over 1-hour and 24-hour averaging periods);
- Benzene (assessed over 24-hour and annual averaging periods);
- Benzo(a)pyrene, B(a)P (assessed over 24-hour and annual averaging periods);

- Formaldehyde (assessed over 24-hour averaging period); and
- 1,3-butadiene (assessed over 24-hour and annual averaging periods).

The applicable standards for the criteria air contaminants are established by the Ministry of the Environment, Conservation and Parks and Canadian Council of Ministers of the Environment as the Ambient Air Quality Criteria (Ministry of the Environment, 2020) and Canadian Ambient Air Quality Standards (Canadian Council of Ministers of the Environment, 2012), respectively, as shown in **Table 4-2**.

Table 4-2: Summary of Applicable Guidelines and Standards

Criteria Air Contaminant	Source of Standard	Averaging Period	Air Quality Threshold Value (µg/m^3)
NO_2	Ambient Air Quality Criteria	One hour	400
NO_2	Ambient Air Quality Criteria	24 hours	200
NO_2 (1)	Canadian Ambient Air Quality Standards	One hour (2020)	113
NO_2 (1)	Canadian Ambient Air Quality Standards	Annual (2020)	32
NO_2 (1)	Canadian Ambient Air Quality Standards	One hour (2025)	78
NO_2 (1)	Canadian Ambient Air Quality Standards	Annual (2025)	22
CO	Ambient Air Quality Criteria	One hour	36,200
CO	Ambient Air Quality Criteria	Eight hours	15,700
SO_2 (2)	Ambient Air Quality Criteria	10-minute	178
SO_2 (2)	Ambient Air Quality Criteria	One hour	106
SO_2 (2)	Ambient Air Quality Criteria	Annual	11
SO_2 (3)	Canadian Ambient Air Quality Standards	One hour (2020)	183
SO_2 (3)	Canadian Ambient Air Quality Standards	Annual (2020)	13
SO_2 (3)	Canadian Ambient Air Quality Standards	One hour (2025)	170
SO_2 (3)	Canadian Ambient Air Quality Standards	Annual (2025)	10
PM_{10} (4)	Ambient Air Quality Criteria	24 hours	50
$PM_{2.5}$ (5)	Canadian Ambient Air Quality Standards	24 hours (2020)	27
$PM_{2.5}$ (5)	Canadian Ambient Air Quality Standards	Annual	8.8
Acetaldehyde	Ambient Air Quality Criteria	30-minute	500
Acetaldehyde	Ambient Air Quality Criteria	24 hours	500
Acrolein	Ambient Air Quality Criteria	One hour	4.5
Acrolein	Ambient Air Quality Criteria	24 hours	0.4
Benzene	Ambient Air Quality Criteria	24 hours	2.3
Benzene	Ambient Air Quality Criteria	Annual	0.45
Benzo(a)pyrene	Ambient Air Quality Criteria	24 hours	0.00005
Benzo(a)pyrene	Ambient Air Quality Criteria	Annual	0.00001
1,3-Butadiene	Ambient Air Quality Criteria	24 hours	10
1,3-Butadiene	Ambient Air Quality Criteria	Annual	2
Formaldehyde	Ambient Air Quality Criteria	24 hours	65

Notes: (1) The Canadian Ambient Air Quality Standards Air Quality threshold for nitrogen dioxide is based on the three-year average of the annual 98th percentile of the daily maximum one-hour average concentrations.
(2) The Ambient Air Quality Standards for SO_2 are reported in parts per billion and converted using the factor 2.66 µg/m^3 of SO_2 per 1 ppb of SO_2 (at 20.0 degrees Celsius and 1 atmosphere, rounded).
(3) The Canadian Ambient Air Quality Standards Air Quality threshold for sulphur dioxide is based on the three-year average of the annual 99th percentile of the daily maximum one-hour average concentrations.
(4) The value of 50 µg/m^3 (24 hr) is an interim Ambient Air Quality Criteria and is provided as a guide for decision making.
(5) The Air Quality threshold for fine particulate ($PM_{2.5}$) is based on the 98th percentile ambient measurement (24-hour), annually averaged over three years.

The existing ambient air quality levels were quantified using publicly available historical data from ambient air quality monitoring stations from the National Air Pollution Survey network within Toronto. Data utilized were the most recent and complete data available at the time of the preparation of this Report[14] (**Appendix A2**). The following National Air Pollution Surveillance Air Quality monitoring stations were selected as representative of the ambient air quality of the Lakeshore East Joint Corridor Air Quality Study Area:

- Toronto West (National Air Pollution Surveillance ID 60430);
- Toronto Downtown (National Air Pollution Surveillance ID 60433);
- Gage Institute Station (National Air Pollution Surveillance ID 60427); and
- Roadside Wallberg (University of Toronto) Station (National Air Pollution Surveillance ID 60439).

These stations are located nearest to the Lakeshore East Joint Corridor Air Quality Study Area and monitored (in combination) all relevant contaminants for the assessment, since a single station is unable to monitor all contaminants. Where multiple stations were found to monitor a common contaminant, the closest representative station was selected for the assessment.

One-hour, eight-hour, and 24-hour ambient concentrations for the contaminants were obtained from the 90th percentile of hourly measurements from the representative air quality monitoring stations (the average value was calculated from the available years). The 90th percentile of available background data was used following the methodology outlined in the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (Ministry of Transportation, 2020).

Land use within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area was reviewed to identify existing and planned future developments that are considered sensitive or critical receptors.

Detailed methodology for establishing local air quality conditions is provided in **Appendix A2**. Local air quality conditions are described in **Section 5.4**.

4.4.2 Impact Assessment

As noted in **Table 4-1**, potential air quality impacts within 500 metres of the Lakeshore East Joint Corridor Early Works Project Footprint were assessed. The air quality

14. National Air Pollution Surveillance data used was from 2017. Traffic data used to estimate existing conditions was determined from traffic counts from 2017, 2018, and 2019. An annual growth rate of 1% was applied to 2017 and 2018 data to produce comparable 2019 annual average daily traffic.

preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**), and anticipated construction activities (outlined in **Table 3-1**).

Land use within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area was reviewed to identify existing and planned future developments that are considered sensitive or critical receptors. The Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects defines a sensitive receptor as a "residential dwelling" and a critical receptor as a "retirement home, hospital, childcare centre, school, or similar institutional building" (Ministry of Transportation, 2020).

Representative receptors within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area were selected based on proximity to the Lakeshore East Joint Corridor Early Works Project Footprint and surrounding emission sources to account for variability in wind directions based on guidance from the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (Ministry of Transportation, 2020).

Detailed methodology for the air quality impact assessment is provided in **Appendix A2**. The results of the air quality impact assessment are provided in **Section 6.4**.

4.5 Noise and Vibration

4.5.1 Local Environmental Conditions

Baseline noise and vibration measurements were collected, as described in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a), to characterize the existing noise and vibration levels within the Ontario Line Study Area. Data relevant to the Lakeshore East Joint Corridor early works construction have been excerpted from the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) and provided in **Section 5**.

Baseline conditions methodology specific to noise and vibration are described in **Section 4.5.1.1** and **Section 4.5.1.2** below, respectively. Detailed methodology for

establishing local noise and vibration conditions is provided in **Appendix A3**. Local noise and vibration conditions are described in **Section 5.5**.

4.5.1.1 Noise

Continuous noise measurements were collected over several days at locations representative of noise sensitive receivers. Noise sensitive receivers are defined as properties that accommodate a dwelling unit(s), are used for noise sensitive commercial purposes, such as sleeping facilities, or for noise sensitive institutional purposes such as educational facilities. Noise measurements were conducted using Quest SoundPro Type 1 and 2 sound level meters. Data collected during inclement weather conditions were discounted from statistical analysis.

4.5.1.2 Vibration

Baseline vibration measurements were not required, as the construction vibration assessment in this Report uses absolute limits that do not change based upon the existing vibration levels. The local environment does not have any normally occurring sources of perceptible vibration; the most significant source of vibration near the early works locations are the existing rail lines. Thus, for the majority of the Lakeshore East Joint Corridor Noise and Vibration Study Area, existing vibration levels are expected to be below human perceptibility, except in close proximity to the existing rail lines.

4.5.2 Impact Assessment

As noted in **Table 4-1**, potential noise and vibration impacts within 250 metres of the Lakeshore East Joint Corridor Early Works Project Footprint were assessed. The noise and vibration preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**), and anticipated construction activities[15] (outlined in **Table 3-1**).

Impact assessment methodology specific to noise and vibration are described in **Section 4.5.2.1** and **Section 4.5.2.2** below, respectively. Detailed methodology for the noise and vibration impact assessment is provided in **Appendix A3**. The results of the noise and vibration impact assessment are provided in **Section 6.5**.

15. Note that signaling and fiber optic cabling are considered utilities in the context of the assessment of construction noise and vibration in this report.

Noise and vibration criteria from various sources – City of Toronto, the Ministry of the Environment, Conservation and Parks, and the United States Federal Transit Administration – were reviewed for applicability to the project.

4.5.2.1 Noise

A noise screening was conducted to determine if receptor-specific noise predictions were required. The noise screening was completed by determining the distances where the day or night time criteria are predicted to be met, assuming all construction equipment in **Table 3-1** was active, using a conservative approach to determine the screening distance, which assumed flat ground and no shielding or other noise attenuation effects. The screening distances were then used to create screening areas on maps to determine if any possible sensitive receivers were located within the screening areas.

Noise predictions at selected representative receptors included the modelling of various scenarios, using detailed noise calculation algorithms which account for building and geometric noise shielding effects, ground effects, and air attenuation. The receptor-specific noise predictions were conducted for the nearest (to the Lakeshore East Joint Corridor Early Works Project Footprint) noise sensitive receivers (closest and with highest noise exposures).

An acoustic model using the International Organization for Standardization 9613 (1996) prediction algorithms was prepared. As the construction equipment cannot all operate in the same physical position, the equipment was modelled as operating over an area closest to the assessed representative receiver. Activities that can only occur at certain locations, for example rail works and bridge construction, was modeled at those specific locations.

The predicted construction noise levels are estimates based on conservative assumptions, reference equipment noise levels and the Lakeshore East Joint Corridor early works information (Lakeshore East Joint Corridor Early Works Project Footprint and construction activities) available to date. Results were compared to guideline limits and mitigation recommendations were made to reduce the noise impacts. Mitigation recommendations are included in **Table 6-5**. The impact assessment will be updated prior to the commencement of construction using the most up-to-date information on construction methods and techniques, equipment, and refined construction areas, as required.

4.5.2.2 Vibration

The assessment of construction vibration was based on the City of Toronto's definition of Zone of Influence – the area (zone) in which vibration levels are predicted to be at or above a screening threshold. Zone of Influence mapping determines which locations may be above the applicable criteria and where vibration controls may need to be implemented.

The Lakeshore East Joint Corridor early works vibration Zone of Influence was calculated using the Federal Transit Administration Guide's construction vibration propagation equations to calculate the distances where the screening threshold is met. These distances define the Zone of Influence.

A conservative approach was used, where construction equipment operations within the construction areas were assumed to be unrestricted to specific areas, and the equipment with the maximum vibration levels was used as the basis of assessment. As a result, Lakeshore East Joint Corridor early works vibration Zone of Influence is based upon the equipment with the highest vibration levels operating at the edge of the Lakeshore East Joint Corridor Early Works Project Footprint.

Screening distances for the other applicable vibration criteria (City of Toronto By-law prohibited limit, Federal Transit Administration Guide limit for buildings extremely susceptible to building damage, and human perceptibility) were also mapped. Structures within the Lakeshore East Joint Corridor Early Works Project Footprint were assumed to be the responsibility of Metrolinx and have not been included as receivers in the analysis.

4.6 Socio-Economic and Land Use Characteristics

4.6.1 Local Environmental Conditions

A review of available background information was conducted to establish socio-economic environment existing conditions within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area. The following aspects of the socio-economic environment were examined:

- Land use designations and applicable Secondary Plans under the City of Toronto Official Plan;
- Physical neighbourhood composition, including existing land use and built form patterns, transit and transportation network, and public realm characteristics;

- Community amenities, including institutional uses, parks and recreational uses, community groups and resources, and planned services and facilities;
- Neighbourhood demographics; and
- Future development.

The background information review of socio-economic and land use characteristics included information contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) from the following sources:

- Provincial planning and policy documents, including the Provincial Policy Statement (Ontario Ministry of Municipal Affairs and Housing, 2020), Growth Plan (Province of Ontario, 2019), 2041 Regional Transportation Plan (Metrolinx, 2018), Greenbelt Plan (Province of Ontario, 2017), and Conservation Authorities Act (Province of Ontario, 1998);
- Municipal land use and development planning and policy documents, including the City of Toronto Official Plan and secondary plans (City of Toronto, 2019a), Waterfront Transit Reset (City of Toronto, 2020e), Don Mouth Naturalization and Port Lands Flood Protection Project (Toronto and Region Conservation Authority, 2014a), East Harbour SmartTrack Station Environmental Project Report (4Transit, 2018), Port Lands and South of Eastern Master Plan Class Environmental Assessment (City of Toronto, 2017b), Gardiner Expressway Environmental Assessment (City of Toronto, 2017c); Leslieville Traffic Management and Mitigation Study (City of Toronto, n.d.e), Lower Don River West Remedial Flood Protection Project (Toronto and Region Conservation Authority, 2005), Broadview and Eastern Flood Protection Municipal Class Environmental Assessment (Toronto and Region Conservation Authority, 2021b), and GO Rail Network Electrification(Metrolinx, 2018);
- City of Toronto Open Data Portal (City of Toronto, 2020d);
- Statistics Canada, 2016 Census of Population (City of Toronto, 2018a); and
- City of Toronto Application Information Centre (City of Toronto, 2020a).

Future development includes recent, ongoing, and proposed development within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area based on active development applications available in the City of Toronto's Application Information Centre online database (City of Toronto, 2020b) as of July 8, 2021.

Local socio-economic and land use characteristics are described in **Section 5.6**.

4.6.2 Impact Assessment

As noted in **Table 4-1**, potential socio-economic and land use characteristics impacts within 500 metres of the Lakeshore East Joint Corridor Early Works Project Footprint were assessed. The socio-economic and land use characteristics preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**), and anticipated construction activities (outlined in **Table 3-1**).

The results of the socio-economic and land use characteristics impact assessment are provided in **Section 6.6**.

4.7 Built Heritage Resources and Cultural Heritage Landscapes

4.7.1 Local Environmental Conditions

Background information and documentation relevant to the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area is contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) prepared for the Project and was reviewed prior to commencing the assessment of built heritage resources and cultural heritage landscapes potentially contained in the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area.

The Ontario Line Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (hereafter the ‘Ontario Line Cultural Heritage Report’; AECOM 2020c), completed as part of The Ontario Line Final Environmental Conditions Report (AECOM, 2020a), was used as a primary source of background information for the following:

- Existing cultural heritage conditions within the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area, including a historical summary of the development of neighbourhoods, and provides the locations of known, previously identified and potential built heritage resources/cultural heritage landscapes within the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area.

Following background research and utilizing the 40 year old threshold[16], Criteria Checklist for Evaluating Potential for built heritage resources and cultural heritage landscapes (hereafter Criteria Checklist) (Ministry of Heritage, Sport, Tourism and Culture Industries, 2016), and professional judgement, a field review was conducted to of the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area in order to identify any additional potential built heritage resources/cultural heritage landscapes and interpretive and commemorative features such as plaques, that were not identified in the Ontario Line Cultural Heritage Report (AECOM, 2020c).

Detailed methodology for establishing local environmental conditions for built heritage resources and cultural heritage landscapes is provided in **Appendix A4**. Local built heritage resources and cultural heritage landscapes are described in **Section 5.7**.

4.7.2 Impact Assessment

As noted in **Table 4-1**, the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area includes the Lakeshore East Joint Corridor Early Works Project Footprint, adjacent properties[17] to account for potential indirect impacts, and properties within 11.1 metres of the Lakeshore East Joint Corridor Early Works Project Footprint to account for potential structural impacts to built heritage resources and cultural heritage landscapes that may result from vibration[18]. The built heritage resources and cultural heritage landscapes preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works

16 The 40-year-old threshold may be used an indicator that a property may be of cultural heritage value or interest. While identification of a built heritage resources/cultural heritage landscapes that is 40 years old or older does not confer outright heritage significance, the 40-year-old threshold provides a means to collect information about resources that may retain cultural heritage value or interest. Similarly, if a built heritage resource/cultural heritage landscape is less than 40 years old, this does not preclude the resource from retaining cultural heritage value or interest.

17. Adjacent is defined in Section 3.1.5 (Heritage Conservation) of the City of Toronto's Official Plan as "those lands adjoining a property of 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, 2019).

18. The 250 metre buffer from the Ontario Line Cultural Heritage Report was refined using analysis from the Ontario Line Lakeshore East Joint Corridor Early Works – Draft Noise and Vibration Report (AECOM, 2021). The refined buffer was calculated based on the Project-specific anticipated impacts of early works using a conservative approach (where construction equipment was assumed to operate at the edge of the Lakeshore East Joint Corridor Early Works Project Footprint, closest to nearby buildings/structures) and accounts for potential vibration impacts to buildings extremely susceptible to vibration damage (including heritage buildings and their foundations). The resulting buffer is 11.1 metres from the Lakeshore East Joint Corridor Early Works Project Footprint.

Project Footprint (described in **Section 3.2**), and anticipated construction activities (outlined in **Table 3-1**).

The proposed impacts of early works have been evaluated according to the Ministry of Heritage, Sport, Tourism and Culture Industries Information Bulletin 3: Heritage Impact Assessments for Provincial Heritage Properties. The Ministry of Heritage, Sport, Tourism and Culture Industries document defines “impact” as a change, either positive or adverse, in an identified cultural heritage resource resulting from a particular activity. The document identifies direct adverse impacts, indirect adverse impacts, and/or positive impacts an activity may have on a heritage resource.

Detailed methodology for the built heritage resource and cultural heritage landscape impact assessment is provided in **Appendix A4**. The results of the built heritage resources and cultural heritage landscapes impact assessment are provided in **Section 6.7**.

4.8 Archaeological Resources

4.8.1 Local Environmental Conditions

The Ontario Line South Stage 1 Archaeological Assessment Addendum Report (AECOM, 2021) includes the Lakeshore East Joint Corridor Early Works Project Footprint and was entered into the Ontario Public Register of Archaeological Reports on July 25, 2021, in support of the Ontario Line Final Environmental Conditions Report.

The Lakeshore East Joint Corridor Early Works Project Footprint was overlaid with the archaeological mapping prepared for the Ontario Line South Stage 1 Archaeological Assessment Addendum Report (AECOM, 2021) to determine the areas retaining archaeological potential within the Lakeshore East Joint Corridor Early Works Project Footprint.

Local archaeological resources are described in **Section 5.8**.

4.8.2 Impact Assessment

As noted in **Table 4-1**, the archaeological resources impact assessment was limited to Lakeshore East Joint Corridor Early Works Project Footprint. The archaeological resources preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**),

and anticipated construction activities (outlined in **Table 3-1**). In addition, recommended methods of completing further archaeological assessment were outlined.

The results of the archaeological resources impact assessment are provided in **Section 6.8**.

4.9 Traffic and Transportation

4.9.1 Local Environmental Conditions

The following traffic and transportation elements within the Lakeshore East Joint Corridor Traffic and Transportation Study Area were assessed:

- Transportation network:
- Road Network
- Pedestrian Network
- Cycling Network
- Transit network.

The types and sources of traffic data collected for the above-noted transportation elements are summarized in **Appendix A5**. The methodology and assumptions followed in the quantitative assessment of the transportation elements in the existing conditions are discussed in detail in **Appendix A5**.

Most recent available Turning Movement Count data at intersections within the Lakeshore East Joint Corridor Traffic and Transportation Study Area were provided by the City of Toronto, consisting of eight-hour counts of vehicles (cars, trucks, and buses), pedestrians, and bicycles and collected at 15-minute intervals during the weekday peak periods. The Turning Movement Count data are presented in **Appendix A5**.

A review of available background information included information contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) from the following sources to establish local traffic and transportation conditions within the Lakeshore East Joint Corridor Traffic and Transportation Study Area:

- City of Toronto’s Open Data Portal (City of Toronto, 2021a) to obtain mapping data related to roads, pedestrian and cyclist routes related to the Lakeshore East Joint Corridor Traffic and Transportation Study Area;
- City of Toronto’s Road Classification System Update (City of Toronto, 2018) and Vision Zero Mapping Tool (City of Toronto, 2020b) to obtain road classification and speed information related to roads within the Lakeshore East Joint Corridor Traffic and Transportation Study Area;

- City of Toronto's Application Information Centre (City of Toronto, n.d.) to obtain some of the missing traffic data at the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections; and
- GO Transit website (GO Transit, 2020), VIA Rail website (VIA Rail, 2020), and Toronto Transit Commission website (Toronto Transit Commission, 2019) to obtain transit schedule and route data related to the Lakeshore East Joint Corridor Traffic and Transportation Study Area.

The Ontario Line Final Environmental Conditions Report (AECOM, 2020a)[19] notes that turning movement counts and signal timing plans were not available at some intersections within the Ontario Line Study Area, and were not collected through new traffic surveys considering the uncharacteristic traffic conditions as a result of the COVID-19 pandemic. As a result of the data limitations related to the identified road network within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, a quantitative traffic assessment of some intersections could not be undertaken.

The intersection capacity analyses for the intersections within the Lakeshore East Joint Corridor Traffic and Transportation Study Area were completed using Synchro 9 capacity analysis software in accordance with the methodologies outlined in the Highway Capacity Manual (Transportation Research Board, 2000) and in line with the capacity analysis guidelines outlined in the City's Guidelines for Using Synchro 9 (City of Toronto, 2016). Synchro models were developed to replicate local traffic conditions within the Lakeshore East Joint Corridor Traffic and Transportation Study Area as the 2020 Existing Conditions[20] (herein referred to as Existing Conditions) during the AM and PM peak hours on a typical weekday. Detailed methodology for establishing local traffic and transportation conditions is provided in **Appendix A5**. Local traffic and transportation conditions are described in **Section 5.9**.

The measure of effectiveness used to assess the operations of the existing transportation network is through the multi-modal level of service assessment. The level of service is an indicator describing the performance of individual transportation network elements from the perspective of motorists, pedestrians, cyclists, and transit users. The level of service designation for all the noted modes ranges from level of service 'A' to level of service 'F', where level of service 'A' through 'D' typically indicate acceptable operations (e.g., low average delays, high level of comfort, safety and convenience for active transportation users, etc.) while level of service 'E' and 'F' typically indicate

19. The Ontario Line Final Environmental Conditions Report (AECOM, 2020) was published on November 30, 2020 in accordance with Ontario Regulation 341/20: Ontario Line Project.
20. Traffic data were collected between 2015 and 2018 and were projected to year 2020 using an annual growth rate of 1% to account for the ambient growth in traffic volumes. The observed turning movement counts from 2015 and 2018 and the assumptions used in the analysis, including the adopted growth rate, are presented in **Appendix A4**.

unacceptable operations (e.g., increasing traffic congestion and at capacity operations, etc.). Additional details on the multi-modal level of service criteria as well as the level of service targets (i.e., the minimum desirable level of service) for each mode are discussed in **Appendix A5.**

4.9.2 Impact Assessment

As noted in **Table 4-1**, potential traffic and transportation impacts within the Lakeshore East Joint Corridor Early Works Project Footprint and adjacent road segments and intersections to capture the transportation and transit network elements were assessed. Refer to **Section 5.9.1.1** for a list of studies road segments.

The traffic and transportation potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**) and anticipated construction activities (outlined in **Table 3-1**).

A quantitative impact assessment was not completed at this stage as the detailed construction staging schemes that describe the potential modifications to the existing transportation network were not available. Quantitative impact assessment will be completed, as planning progresses and this information becomes available. The quantitative impact assessment may include larger study area. Prior to construction, transit and traffic management plan(s) shall be developed to provide more specific mitigation measures and monitoring activities. Traffic Control and Management Plan(s) will outline the potential haul routes, staging and laydown areas, construction access, and road closures and potential detour routes.

Detailed methodology for the traffic and transportation impact assessment is provided in **Appendix A5**. The results of the traffic and transportation impact assessment are provided in **Section 6.9**.

4.10 Utilities

4.10.1 Existing Conditions

Private and public utilities within the Lakeshore East Joint Corridor Early Works Project Footprint were identified in **Section 5.10**. This list will be confirmed and refined as planning progresses.

4.10.2 Impact Assessment

As noted in **Table 4-1**, the utilities impact assessment was limited to the Lakeshore East Joint Corridor Early Works Project Footprint. The utilities preliminary potential impacts and mitigation measures identified in the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) were reviewed and expanded upon in further detail specific to the Lakeshore East Joint Corridor early works by considering the early works components (described in **Section 3.1**), Lakeshore East Joint Corridor Early Works Project Footprint (described in **Section 3.2**) and anticipated construction activities (outlined in **Table 3-1**).

The results of the utilities impact assessment are provided in **Section 6.10**.

5. Local Environmental Conditions

This section describes the existing natural, technical, socio-economic and cultural aspects of the existing environment in the context of the Lakeshore East Joint Corridor early works. Information on the following environmental components is provided in the sections below and where applicable, is supplemented with supporting detailed technical reports:

- Natural Environment..... **Section 5.1** and **Appendix A1**
- Soil and Groundwater..... **Section 5.2**
- Hydrology and Surface Water..... **Section 5.3**
- Air Quality..... **Section 5.4** and **Appendix A2**
- Noise and Vibration ..... **Section 5.5** and **Appendix A3**
- Socio-Economic and Land Use Characteristics ..... **Section 5.6**
- Built Heritage Resources and Cultural Heritage Landscapes ..... **Section 5.7** and **Appendix A4**
- Archaeological Resources..... **Section 5.8**
- Traffic and Transportation ..... **Section 5.9** and **Appendix A5**
- Utilities..... **Section 5.10**

5.1 Natural Environment

5.1.1 Designated Natural Areas/Planning Policy Areas

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (2020), there are no Provincially Significant Wetlands, Locally Significant Wetlands, significant valleylands or provincially significant Areas of Natural and Scientific Interest within the Lakeshore East Joint Corridor Natural Environment Study Area. In addition, there are no woodlands or unevaluated wetlands within the Lakeshore East Joint Corridor Natural Environment Study Area.

According to the City of Toronto's Interactive Map (City of Toronto, 2020a), a small portion of the Lakeshore East Joint Corridor Early Works Project Footprint (0.88 hectares) falls within the Toronto and Region Conservation Authority's regulation limits.

There are no Environmentally Significant Areas within the Lakeshore East Joint Corridor Natural Environment Study Area, nor does the Lakeshore East Joint Corridor Early Works Project Footprint overlap with the City's Natural Heritage System or Ravine Natural Feature Protection By-law Area or Toronto and Region Conservation Authority's Terrestrial Natural Heritage System.

Further details on the planning policy areas are included in **Appendix A1**.

5.1.2 Ecological Land Classification and Plant Inventory

Ecological Land Classification is the provincially accepted standard for classifying vegetation communities in Ontario. This protocol uses a series of six nested levels (i.e., Site Region, System, Community Class, Community Series, Ecosite, and Vegetation Type) to describe the ecological form and function of a vegetation community in a spatial context, from largest to smallest scale.

All of the vegetation communities in the Lakeshore East Joint Corridor Natural Environment Study Area are generally disturbed as a result of anthropogenic activities and are largely limited to narrow vegetation strips within the existing rail corridor, which are surrounded by heavily developed commercial, industrial and residential areas, as shown in **Figure 5-1**. These vegetation communities contain large proportions of non-native and invasive plant species and none were identified as being provincially significant (AECOM, 2017; AECOM, 2018; 4Transit, 2018b). Descriptions of vegetation communities and their structural compositions within the Lakeshore East Joint Corridor Natural Environment Study Area are summarized in **Table 5-1.**

There were no butternuts (*Junglans cinerea*) or any other plant Species at Risk, provincially significant or Regional Species of Conservation Concern plants identified in the Lakeshore East Joint Corridor Natural Environment Study Area (AECOM, 2018).

5.1.3 Fish and Fish Habitat

There were no waterbodies identified within the Lakeshore East Joint Corridor Natural Environment Study Area; therefore, fish and fish habitat assessments were not required.

Figure 5-1: Ecological Land Classification Within the Lakeshore East Joint Corridor Natural Environment Study Area

Legend

- Existing Track
- Lakeshore East Joint Corridor Early Works Project Footprint
- Lakeshore East Joint Corridor Natural Environment Study Area

ELC Collection Method

- ELC Previously Reported (AECOM 2016, Lakeshore Segment 1)
- ELC Field Verified (AECOM 2016, Lakeshore Segment 1)

ELC Communities

- Cultural (CU)

* Conceptual designs are subject to change

Ontario Line Project

Ecological Land Classification Within the Lakeshore East Joint Corridor Natural Environment Study Area

0 50 100 200 300 400
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap and Basemap provided by ESRI.

METROLINX	AECOM
Sep, 2021	1:5,500
P#: 60611173	REV: 04

Figure 5-1

Table 5-1: Ecological Land Classification Vegetation Communities Identified within the Lakeshore East Joint Corridor Natural Environment Study Area

Ecological Land Classification Code – Cultural Communities	Ecological Land Classification Name	Tree Canopy	Shrub Layer	Ground Layer	Source
Cultural Meadow (CUM1)	Dry-moist Old Field Cultural Meadow (CUM1-1)	■ No tree canopy layer identified in this community.	■ No shrub layer identified in this community.	■ Cultural meadows were identified through interpretation of aerial imagery. These communities were generally dominated by grasses, weeds, and other herbaceous species.	■ Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) EPR (AECOM, 2017a)
Cultural Meadow (CUM1)	Dry-moist Old Field Cultural Meadow (CUM1-1)	■ No tree canopy layer identified in this community.	■ No shrub layer identified in this community.	■ Greater than 60% ground cover primarily dominated by dog strangling vine (Vincetoxicum rossicum), garlic mustard (Alliaria petiolata), white sweet-clover (Melilotus alba), Canada goldenrod (Solidago canadensis), tall goldenrod (Solidago altissima), thicket creeper (Parthenocissus quinquefolia) and wild carrot (Daucus carota).	■ Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017a)
Cultural Woodland (CUW)	Mineral Cultural Woodland (CUW1)	■ Less than 60% tree canopy was dominated by Manitoba maple, Siberian elm (*Ulmus pumila*) or black walnut (*Juglans nigra*). Less dominant trees included tree-of-heaven (Ailanthus altissima), Norway maple (Acer platanoides), green ash (Fraxinus pennsylvanica) and black locust (*Robinia pseudoacacia*). Red oak (*Quercus rubra*) was sometimes noted on the edge of city parks but was generally outside of the existing rail corridor.	■ The shrub cover generally consisted of choke cherry, Manitoba maple, honeysuckles, staghorn sumac and common buckthorn.	■ Ground species were largely either dominated by dog strangling vine or garlic mustard, both highly invasive species. Other ground species consisted of thicket creeper, wild carrot, riverbank grape, field horsetail (Equisetum arvense), goldenrods (Solidago sp.), bracken fern (Pteridium aquilinum), common St. John's wort (Hypericum perforatum) and sometimes to a lesser extent, false Solomon's seal (Maianthemum racemosum).	■ Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017a)
Cultural Hedgerow (CUH)	Cultural Hedgerow (CUH)	■ The tree canopy was dominated by Siberian elm (Ulmus pumila), Manitoba maple (Acer negundo), tree-of-heaven or black walnut depending on the location. Other less dominant tree species noted included poplar (*Populus sp.*), Norway maple and black locust.	■ The shrub layer was dominated by thicket creeper. Japanese knotweed was also noted at certain locations	■ Ground cover consisted of the same herbaceous and grass species described above for cultural meadows.	■ Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017a)

5.1.4 Wildlife and Wildlife Habitat

Based on a review of wildlife atlases, the majority of the wildlife within the Lakeshore East Joint Corridor Natural Environment Study Area are common in the City of Toronto and tolerant to anthropogenic disturbances, while a small proportion is comprised of sensitive or rare species.

There is limited natural cover providing wildlife habitat within the Lakeshore East Joint Corridor Natural Environment Study Area in the form of urban parks, hedgerows and residential yards (HDR, 2018; Golder Associates, 2018). Similarly, there is limited wildlife habitat within the existing rail corridor as vegetation communities are largely disturbed containing a high proportion of non-native and invasive plant species that were highly fragmentated with low connectivity to other significant natural features (AECOM, 2017a).

Most of the bird species recorded in the Lakeshore East Joint Corridor Natural Environment Study Area consisted of common species in Ontario that are tolerant to urban disturbances (AECOM, 2017a). The most abundant species recorded between Queen Street East to Gerrard Street East in 2016 in support of the Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project Environmental Project Report (AECOM, 2017a) were House Sparrow (Passer domesticus) followed by American Robin (Turdus migratorius) and Rock Pigeon (Columba livia). One Chimney Swift was observed in 2016 flying over Queen Street East to Dundas Street East. Generally, the Lakeshore East Joint Corridor Natural Environment Study Area provided limited wildlife habitat throughout with low connectivity to other significant natural features with many barriers to animal movement (i.e., railways, roads, construction areas, fences). The existing rail corridor provides a low-quality movement corridor for some small mammals, birds and insects. It is also important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings, bridges) can provide nesting habitat for many migratory birds, which are protected under the Migratory Bird Convention Act.

The general area likely supports a range of mammals often found in urban environments, including: Common Raccoon (Procyon lotor), Eastern Cottontail (Sylvilagus floridanus), Eastern Grey Squirrel (Sciurus carolinensis), Striped Skunk (Mephitis mephitis), and a number of small mammals that often go undetected (e.g., shrews, voles, mice) (Dobbyn, 1994).

Refer to **Appendix A1** for comprehensive species lists.

5.1.5 Significant Wildlife Habitat

Significant Wildlife Habitat, including habitats for Species of Conservation Concern, receive protection under the Provincial Policy Statement and should thus be considered when corridors and right-of-way for significant transportation are being planned according to Section 1.6.8.6 of the Provincial Policy Statement. Species of Conservation Concern may also be afforded protection under the Migratory Birds Convention Act or Ontario Fish and Wildlife Conservation Act, 1997.

Significant Wildlife Habitat screening and habitat screening for Species of Conservation Concern were completed for the Lakeshore East Joint Corridor Natural Environment Study Area. Species with historical records were deemed unlikely to persist in the general area given the vast urbanization within the City of Toronto and for this reason were not included in the Species of Conservation Concern screening. Refer to **Appendix A1** for the complete Significant Wildlife Habitat screening and Species of Conservation Concern habitat screening.

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015), the following Significant Wildlife Habitat types may occur within the Lakeshore East Joint Corridor Natural Environment Study Area.

- Habitats of Species of Conservation Concern:

  Candidate Habitat for Species of Conservation Concern

  - **Common Nighthawk** – This species may nest on the flat, gravel rooftops of buildings in urban areas (Brigham et al., 2011). There are a few flat roofed buildings within the Lakeshore East Joint Corridor Early Works Project Footprint, and others within the Lakeshore East Joint Corridor Natural Environment Study Area. This species may also nest on the ground devoid of vegetation. This species is protected by Migratory Birds Convention Act;
  - **Eastern Wood-pewee (Contopus virens)** – Treed areas (e.g., cultural woodlands) may provide suitable nesting habitat for this species. This species is protected by Migratory Birds Convention Act; and
  - **Monarch (Danaus plexippus)** – Cultural meadows may provide suitable foraging and rearing habitat for this species.

- Refer to **Appendix A1** for the complete Species of Conservation Concern habitat screening).

Based on the results of the screening exercises there were no candidate or confirmed seasonal concentration areas, rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the Lakeshore East Joint Corridor Natural Environment Study Area (refer to **Appendix A1** for the complete Significant Wildlife Habitat screening). In addition, there were no confirmed Species of Conservation Concern habitat identified within the Lakeshore East Joint Corridor Natural Environment Study Area.

5.1.6 Species at Risk Habitat Screening

A habitat screening for Species at Risk was completed for the Lakeshore East Joint Corridor Natural Environment Study Area. Species with historical records were deemed unlikely to persist in the general area given the vast urbanization within the City of Toronto and for this reason were not included in the Species at Risk screenings.

The following Species at Risk have a high probability of occurring within the Lakeshore East Joint Corridor Natural Environment Study Area:

- **Chimney Swift –** This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Chimney Swifts are aerial insectivores and are typically concentrated in urban settlements where there are suitable chimneys for nesting and roosting (Steeves et al., 2014; Committee on the Status of Endangered Wildlife in Canada, 2018). Buildings with suitable chimneys or standalone smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Lakeshore East Joint Corridor Natural Environment Study Area. Breeding bird surveys conducted in 2016 reported fly-over observations of Chimney Swift between Queen Street East and Dundas Street East (AECOM, 2017). Buildings with suitable chimneys may provide nesting or roosting habitat for Chimney Swifts within the Lakeshore East Joint Corridor Natural Environment Study Area, such as the chimneys on the East Alternative School of Toronto located west of Jones Avenue. In addition, there were two uncapped smokestacks located south of the existing rail corridor and east of Thackery Street. However, there are no suitable chimneys present within the Lakeshore East Joint Corridor Early Works Project Footprint.

The following Species at Risk have a medium probability of occurring within the Lakeshore East Joint Corridor Natural Environment Study Area:

- **Barn Swallow –** This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory

Birds Convention Act. Generally, the buildings/structures within the Lakeshore East Joint Corridor Natural Environment Study Area were deemed to have limited potential to support nesting Barn Swallows as these were located more than 200 metres from the nearest waterbody (Lower Don River); and

- **Bat Species at Risk**, including Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Long-eared Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) – Bat Species at Risk are listed as Endangered and receive protection under the Endangered Species Act. Little Brown Myotis and Northern Myotis may roost in trees that are hollow, have cavities or loose bark. There are no suitable buildings within the Lakeshore East Joint Corridor Early Works Project Footprint that provide roosting habitat for bat Species at Risk as these buildings appear to be occupied and intact (i.e., well maintained and lacking potential entry/exit points).

The following Species at Risk have low probability of occurrence due to lack of habitat identified within the Lakeshore East Joint Corridor Natural Environment Study Area

- Bank Swallow (*Riparia riparia*);
- Bobolink (*Dolichonyx oryzivorus*);
- Eastern Meadowlark (*Sturnella magna*); and
- Butternut (*Junglans cinerea*).
- In addition, there are no aquatic Species at Risk present and no potential for Blanding's Turtle (*Emydoidea blandingii*) to occur given that there are no water features identified within the Lakeshore East Joint Corridor Natural Environment Study Area.

Refer to **Figure 5-2** for the potential Species at Risk habitats within the Lakeshore East Joint Corridor Natural Environment Study Area.

Refer to **Appendix A1** for the full Species at Risk habitat screening.

Figure 5-2: Potential Species at Risk Habitat Within the Lakeshore East Joint Corridor Natural Environment Study Area

5.2 Soil and Groundwater

5.2.1 Geological Setting

5.2.1.1 Physiography and Topography

The Lakeshore East Joint Corridor Soil and Groundwater Study Area is situated within the Iroquois Plain physiographic region, as mapped by Chapman and Putnam (1984). A physiographic map of the area is provided in **Figure 5-3**.

According to the Physiography of Southern Ontario (Chapman and Putnam, 1984), the Iroquois Plain occurs as a lowland bordering the western component of Lake Ontario, extending from the Niagara River to the Trent River over a distance of approximately 305 kilometres. The Iroquois Plain represents the historic bottom of glacial Lake Iroquois and stands in striking contrast to the shoreline areas (and their identifiable features) of the former glacial lake situated farther inland (Chapman and Putnam, 1984). Across its length, the width of the Iroquois plain varies from only a few hundred metres up to about 13 kilometres. In the vicinity of the City of Toronto, the Iroquois Plain is approximately 3 kilometres wide and is cut into previously deposited clay and till; being partly floored with glaciolacustrine sand deposits.

The ground surface topography within the Lakeshore East Joint Corridor Soil and Groundwater Study Area is shown in **Figure 5-4**. The elevations within the Lakeshore East Joint Corridor Soil and Groundwater Study Area range from approximately 80 to 110 metres above sea level. The topography in the vicinity of the Lakeshore East Joint Corridor Soil and Groundwater Study Area is highly affected by the extensive local development and is relatively flat to slightly undulating in nature, with a general downward slope in the direction of the Lower Don River and Lake Ontario.

5.2.1.2 Surficial Geology

The surficial geology within the Lakeshore East Joint Corridor Soil and Groundwater Study Area is shown in **Figure 5-5**. Identified surficial soils consist of:

- Till Deposits (undifferentiated older tills, may include stratified sediments);
- Coarse-textured Glaciolacustrine Deposits (sand, gravel, minor silt and clay derived from foreshore-basinal deposits); and
- Modern Alluvial Deposits (clay, silt, sand, gravel, may contain organic remains).

Figure 5-3: Physiography Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area

Figure 5-4: Topography and Drainage Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area

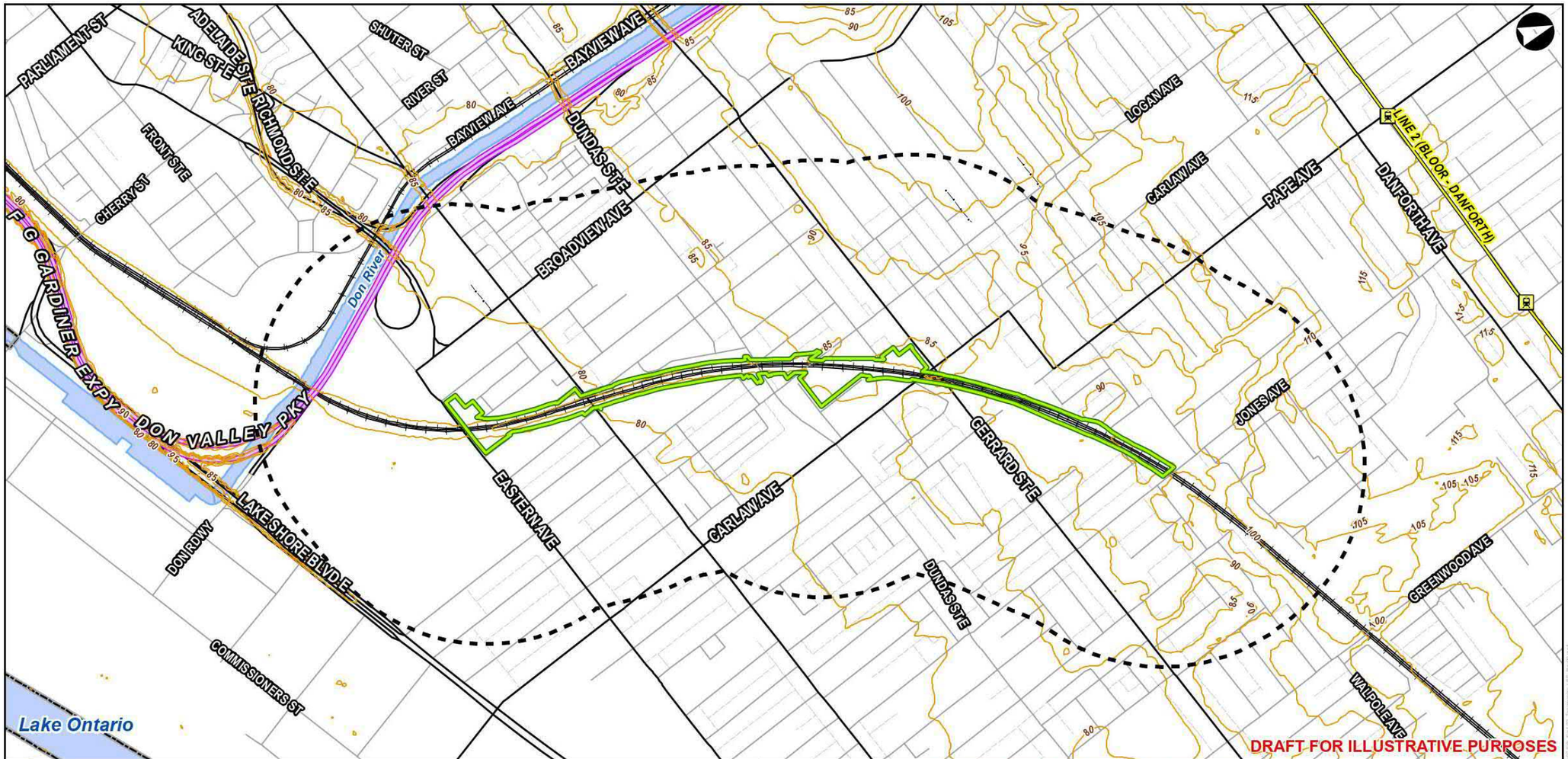
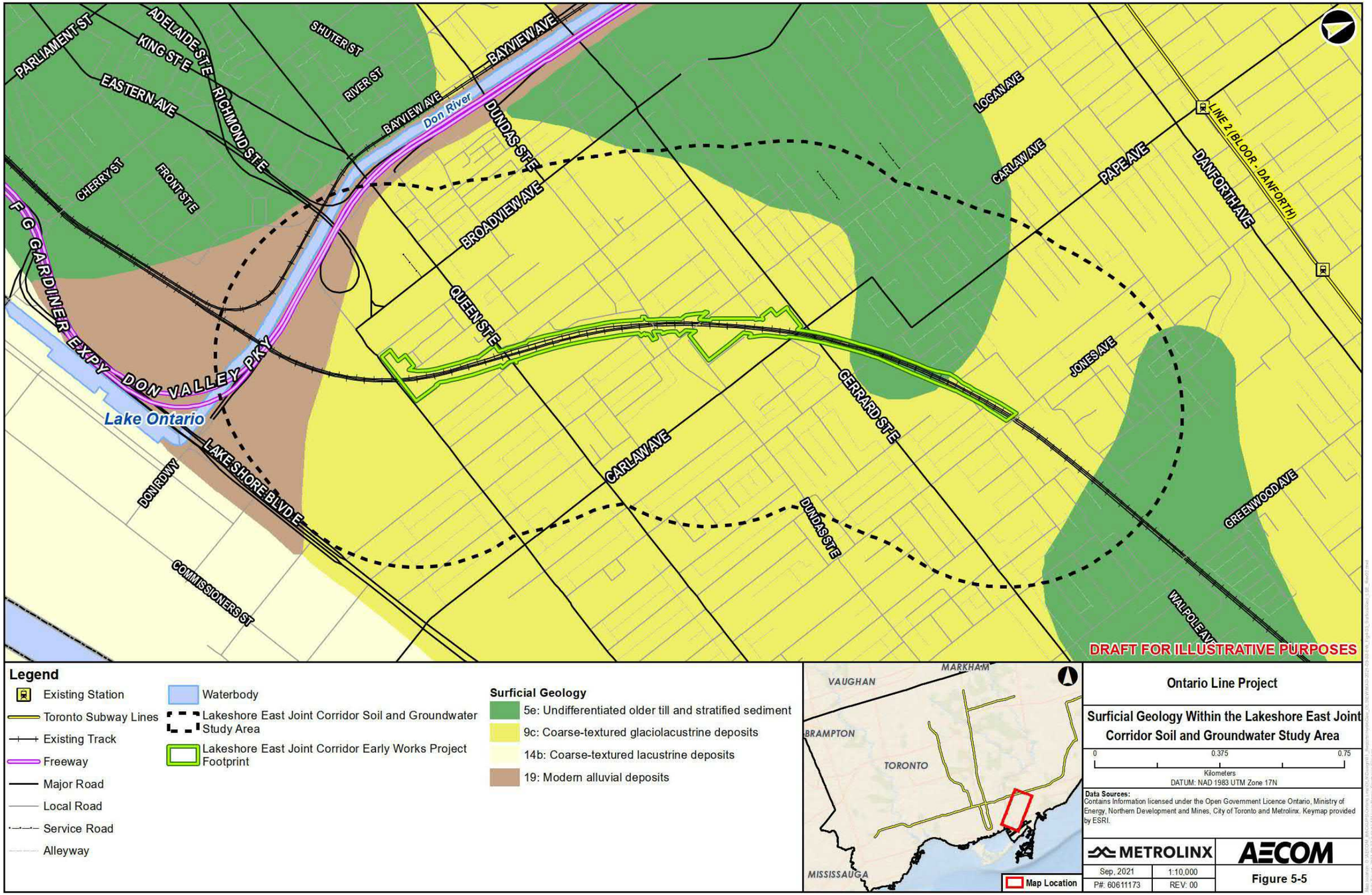


Figure 5-5: Surficial Geology Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area



5.2.1.3 Quaternary Geology

The Quaternary geology within the Lakeshore East Joint Corridor Soil and Groundwater Study Area is shown in **Figure 5-6**. A review of Quaternary geology mapping, available at a smaller scale than the Surficial Geology mapping, indicates that the primary surficial deposits within the Lakeshore East Joint Corridor Soil and Groundwater Study Area consist of Glaciolacustrine Deposits (sand, gravelly sand and gravel, nearshore and beach deposits) and Till with a sandy silt to silt matrix.

5.2.1.4 Bedrock Geology

Bedrock geology within the Lakeshore East Joint Corridor Soil and Groundwater Study Area is shown in **Figure 5-7**. Based on this Ontario Geological Survey regional mapping, the uppermost bedrock is composed of shale and limestone of the Georgian Bay Formation from the Upper Ordovician period (Armstrong, D.K. and Dodge, J.E.P. 2007).

Based on the Metropolitan Toronto Bedrock Contours map (Rogers et al. 1961), the bedrock surface elevation ranges from approximately 46 to 73 metres above sea level within the Lakeshore East Joint Corridor Soil and Groundwater Study Area.

5.2.2 Hydrogeological Setting

Hydrostratigraphy is the classification of major stratigraphic units into aquifers and aquitards, with some simplification or combination of units with similar properties. An aquifer is classically defined as a geological unit that is sufficiently permeable to permit the extraction of a useable supply of water.

Where present, surficial aquifer units within the Lakeshore East Joint Corridor Soil and Groundwater Study Area are typically comprised of coarse-textured unconsolidated (overburden) sand and gravelly sediments, as described in the previous section.

A review of the Ministry of the Environment, Conservation and Parks water well records database indicates that the overburden geologic materials within the Lakeshore East Joint Corridor Soil and Groundwater Study Area consist primarily of clayey silt, silty clay, sand, and silty sand. Bedrock was encountered in some of the reviewed Ministry of the Environment, Conservation and Parks well records, at depths ranging from approximately 10 to 32 metres below ground surface within the Lakeshore East Joint Corridor Soil and Groundwater Study Area.

The well-established hydrostratigraphic framework for the Greater Toronto Area is summarized in **Table 5-2** (TRSPA, 2015).

Figure 5-6: Quaternary Geology Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area

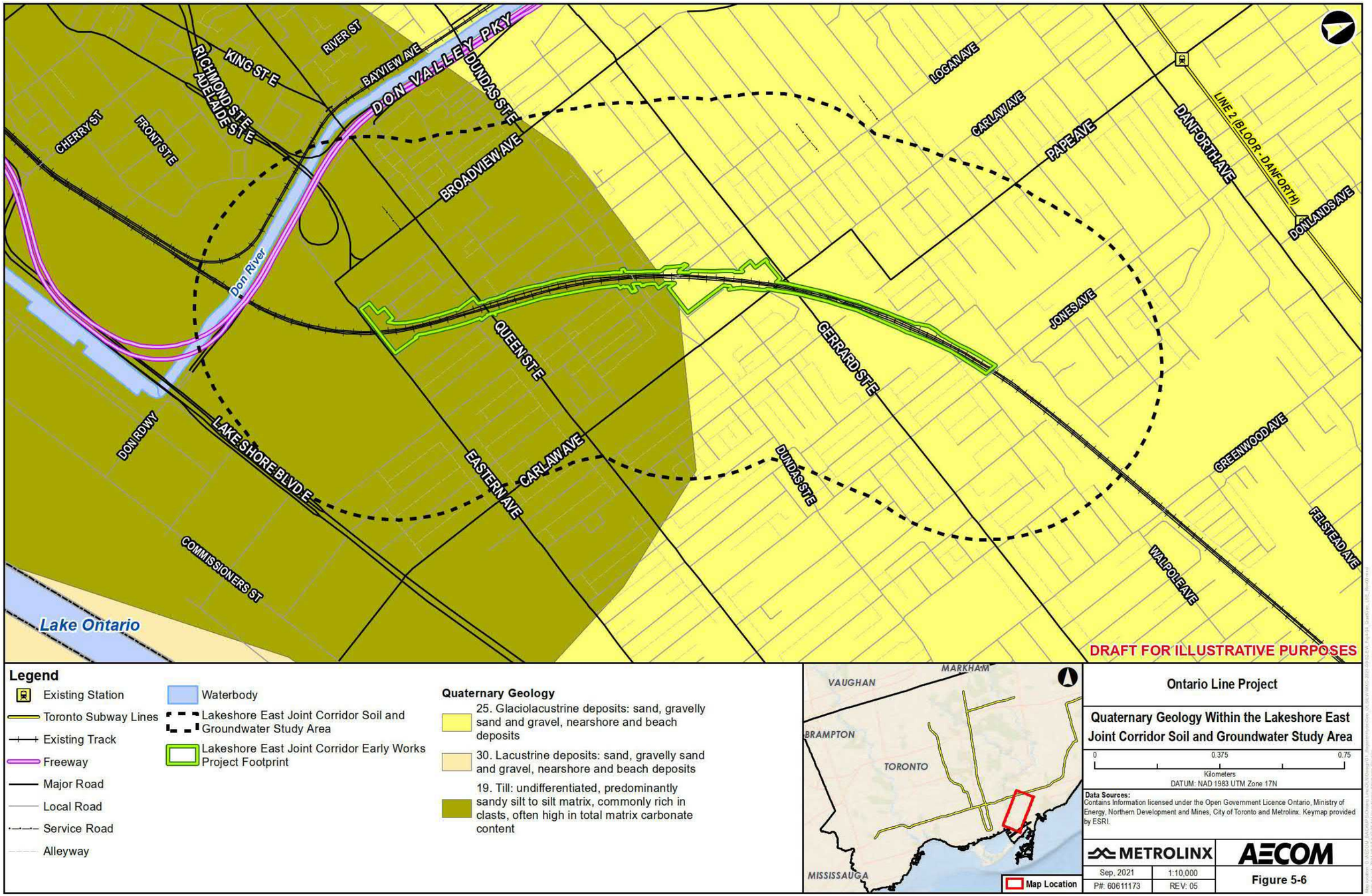


Figure 5-7: Bedrock Geology Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area

Table 5-2: Hydrostratigraphic Units of the Greater Toronto Area

Age	Geological Units	Hydrostratigraphic Units (Aquifer)	Hydrostratigraphic Units (Aquitard)
Late Wisconsin Glacial Complex	Glaciolacustrine Deposits and Recent Sediments	Surficial Aquifer	N/A
Late Wisconsin Glacial Complex	Halton Till	N/A	Halton Aquitard
Late Wisconsin Glacial Complex	Oak Ridges Moraine/Mackinaw Interstadial Deposits	Oak Ridges Aquifer Complex	N/A
Late Wisconsin Glacial Complex	Newmarket (Northern) Till	N/A	Newmarket Aquitard
Early-Mid Wisconsin Glacial Lake Deposits	Thorncliffe Formation	Thorncliffe Aquifer Complex	N/A
Early-Mid Wisconsin Glacial Lake Deposits	Sunnybrook Drift	N/A	Sunnybrook Aquitard
Early Wisconsin Delta	Scarborough Formation	Scarborough Aquifer Complex	N/A
Sangamon Interglacial Illinoian Glaciation	Don Formation	N/A	N/A
Sangamon Interglacial Illinoian Glaciation	York Till	N/A	N/A
Late Ordovician Bedrock	Georgian Bay Formation	N/A	Bedrock Aquitard

Based on the Toronto and Region Conservation Authority (2009) cross-section along the Don River Watershed (West Don River), the following two (2) Hydrostratigraphic Units may be present within the Lakeshore East Joint Corridor Soil and Groundwater Study Area: Surficial Aquifer (Recent Sediments – associated with the former Lake Iroquois shoreline deposits) and the Scarborough Aquifer Complex (organic-rich sands over silts and clays).

5.2.2.1 Regional Groundwater Flow

In general, the dynamics of shallow groundwater flow within overburden deposits is related to the surface topography with flow directed to topographic lows, wetlands, and surface watercourses. Deeper aquifer systems, including bedrock aquifer(s), tend to be more uniform and are less influenced by topographic variations. Groundwater flow in shallow aquifer(s) will be primarily horizontal with a minor vertical component (flow rate depends on the hydraulic conductivity and gradient of the unit). Flow within aquitard units tends to be primarily downward towards deeper units. Variations in flow direction will change depending on proximity to surface watercourses/water bodies and subsurface geology.

The surficial/shallow groundwater system within the Lakeshore East Joint Corridor Soil and Groundwater Study Area is influenced by surface topography and likely flows towards the Don River valley and Lake Ontario.

5.2.3 Groundwater Resources

5.2.3.1 Source Water Protection

The Lakeshore East Joint Corridor Soil and Groundwater Study Area is located within the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Region. The Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Region is responsible for undertaking a technical assessment of municipal water sources to identify potential vulnerabilities and for developing a Source Protection Plan. The Ministry of the Environment Conservation and Parks defines several source water areas/features that are of relevance to the Lakeshore East Joint Corridor Soil and Groundwater Study Area. These include:

- Intake Protection Zones;
- Highly Vulnerable Aquifers; and
- Event Based Areas.

These areas are further described below, summarized in **Table 5-3**, and are shown in **Figure 5-8**.

5.2.3.1.1 Intake Protection Zone

Intake Protection Zone applies to those areas of land and water that contribute source water to a surface water drinking water system intake within a specified distance, period of flow time, and/or watershed area and within which it is desirable to regulate or monitor drinking water threats. The southern portion of the Lakeshore East Joint Corridor Soil and Groundwater Study Area is located within an Intake Protection Zone 3 (Intake Protection Zone-3), as shown in **Figure 5-8**. Intake Protection Zone-3 is an area where modelling has shown that contaminants could be transported to a surface water intake following an extreme event.

5.2.3.1.2 Highly Vulnerable Aquifer

The Lakeshore East Joint Corridor Soil and Groundwater Study Area overlaps with a regional Highly Vulnerable Aquifer feature, as defined in **Section 5.2.3.1** and shown in **Figure 5-9**. A Highly Vulnerable Aquifer is an aquifer that is susceptible to contamination due to its location near the ground surface, or the type of material found in the ground around the aquifer provides little barrier to contamination.

Table 5-3: Source Water Protection Details for the Lakeshore East Joint Corridor Soil and Groundwater Study Area

Source Water Protection Feature	Present	Source Protection Plan Policies21	Legal Effect of Policy
Intake Protection Zone	Yes, Zone 3	No policies related to Intake Protection Zone-3 are specified in the Source Protection Plan	None identified
Highly Vulnerable Aquifer	Yes, Highly Vulnerable Aquifer Score of 6	Related Source Protection Plan policies[1]: SAL-10, SAL-11, SAL-12, SAL-13, DNAP-3, OS-3	Listed policies include both legally binding and non-binding examples
Event Based Area	Yes	Related Source Protection Plan policies[1]: LO-G-1, LO-G-2, LO-G-3, LO-NGS-1, LO-SEW-1, LO-SEW-2, LO-PIPE-1, LO-FUEL-1, LO-FUEL-2	Listed policies include both legally binding and non-binding examples

Source: Source Water Protection Information Atlas (Ministry of the Environment, Conservation, and Parks, January 2020).

Notes: 1 – SAL-10: Threat – Application of Road Salt; Implementing Body – Planning Approval Authority; Source Water Protection Area: Highly Vulnerable Aquifer

SAL-11: Threat – Application of Road Salt; Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area: Highly Vulnerable Aquifer

SAL-12: Threat – Application of Road Salt; Implementing Body – Municipality; Source Water Protection Area: Highly Vulnerable Aquifer

SAL-13: Threat – Application of Road Salt, and Handling and Storage of Road Salt; Implementing Body – Source Protection Authority and Municipality; Source Water Protection Area: Highly Vulnerable Aquifer

DNAP-3: Threat – Handling and Storage of a Dense Non-Aqueous Phase Liquid; Implementing Body – Municipality; Source Water Protection Area: Highly Vulnerable Aquifer

OS-3: Threat – Handling and Storage of an Organic Solvent; Implementing Body – Municipality; Source Water Protection Area: Highly Vulnerable Aquifer

LO-G-1: Threat – All Lake Ontario Threats; Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area: Event Based Area

LO-G-2: Threat – All Lake Ontario Threats; Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area: Event Based Area

LO-G-3: Threat – All Lake Ontario Threats; Implementing Body – Municipality (Peel, Toronto, Durham); Source Water Protection Area: Event Based Area

LO-NGS-1: Threat – Spill of Tritium From NGS; Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area: Event Based Area

LO-SEW-1: Threat – The Establishment, Operation or Maintenance of a System That Collects, Stores, Transmits, Treats or Disposes of Sewage; Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area: Event Based Area

LO-SEW-2: Threat – Spill from a Sanitary Trunk Sewer Break; Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area: Event Based Area

LO-PIPE-1: Threat – Pipelines Transporting Petroleum Product (Containing Benzene) Crossing Tributaries of Lake Ontario; Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area - Event Based Area

LO-FUEL-1: Threat – Handling and Storage of Fuel (Petroleum Tank Farm Spill); Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area – Event Based Area

LO-FUEL-2: Threat – Handling and Storage of Fuel (Spill from Petroleum Storage Tanks); Implementing Body – Ministry of the Environment, Conservation and Parks; Source Water Protection Area – Event Based Area

21. Due to the location of the Lakeshore East Joint Corridor Soil and Groundwater Study Area within source water areas/features, these are several SPP policies that may be relevant to the Early Works construction.

Figure 5-8: Intake Protection Zone and Event Based Areas Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area

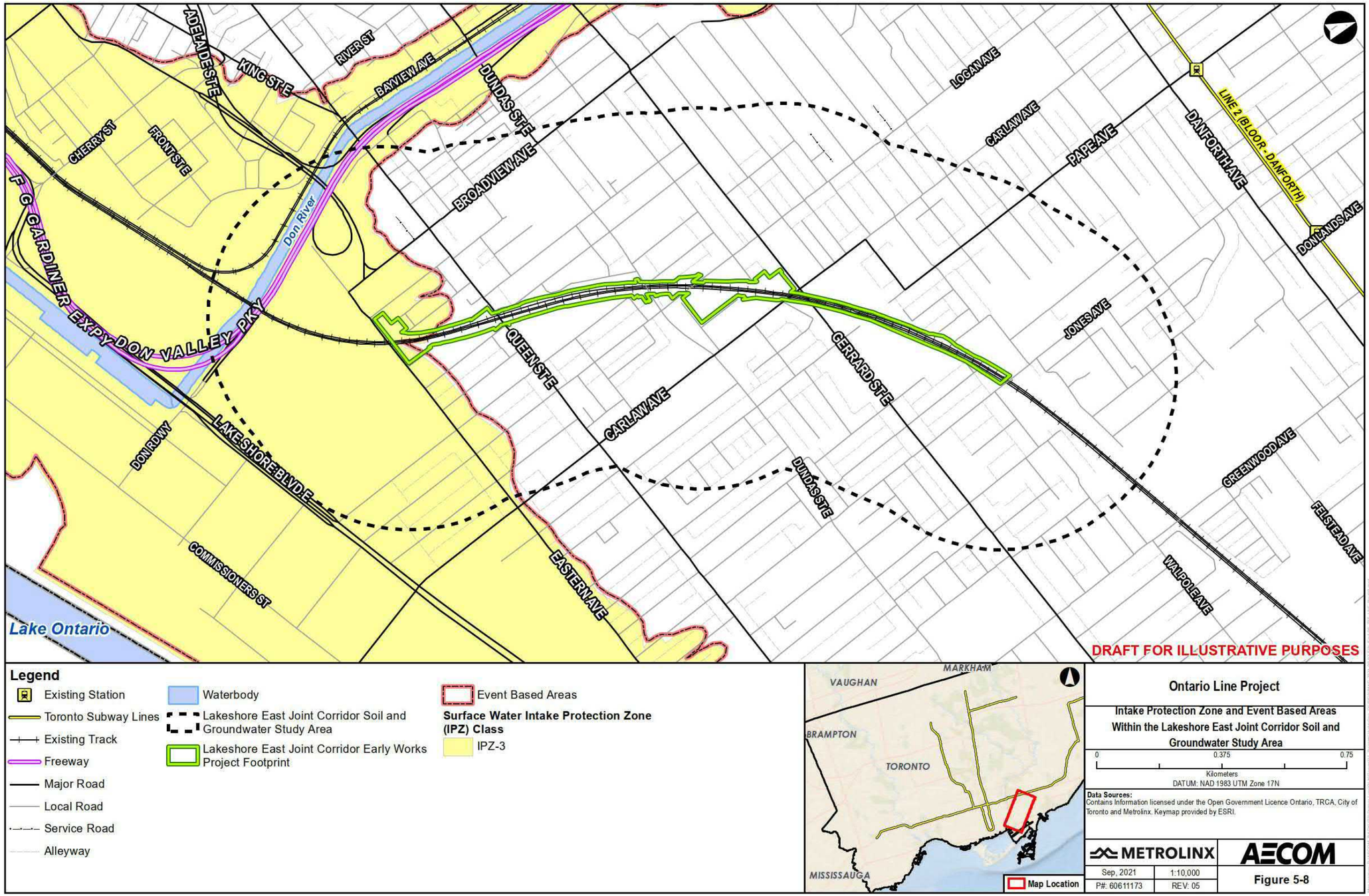


Figure 5-9: Highly Vulnerable Aquifer Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area

5.2.3.1.3 Event Based Area

An Event Based Area is an area within a watershed where a spill could pollute the surface water drinking supply. The southern portion of the Lakeshore East Joint Corridor Soil and Groundwater Study Area is located within an Event Based Area for Stored/Transported Fuel/Oil Spill; Pipeline Fuel/Oil Spill; Wastewater Treatment Plant/Sanitary Sewer.

5.2.3.2 Ministry of the Environment, Conservation and Parks Water Well Records

An inventory of local private water wells (i.e., domestic, commercial, industrial, etc.) was prepared within the Lakeshore East Joint Corridor Soil and Groundwater Study Area by searching the Ministry of the Environment, Conservation and Parks Well Water Information Systems database. Results are shown in **Figure 5-10**, along with the primary use of each well. A total of 514 water well records were found located within the Lakeshore East Joint Corridor Soil and Groundwater Study Area.

As shown in **Table 5-4**, available well records indicate that approximately 47% of the wells within the Lakeshore East Joint Corridor Soil and Groundwater Study Area are dewatering wells, monitoring wells and test holes. Fifty-four (54) abandonment records (approximately 11%) fall within the Lakeshore East Joint Corridor Soil and Groundwater Study Area, two wells (<1%) are identified in the 'Other' category, and one well (<1%) is identified as a domestic well. Approximately 2% (12 wells) of the Ministry of the Environment, Conservation and Parks water well records indicate that the well is not used, likely accounting for additional abandonment records and dry wells. Approximately 40% of Ministry of the Environment, Conservation and Parks water well records did not specify the well use and therefore are classified as 'Unknown'. Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area, water supply is obtained from both overburden and bedrock sources; however, there is insufficient data to determine the primary water supply aquifer.

Table 5-4: Summary of Ministry of the Environment, Conservation and Parks Water Well Record Information for the Lakeshore East Joint Corridor Soil and Groundwater Study Area

Primary Water Use	Number of Well Records	Well Depth (metres)	Primary Well Type
Dewatering/Monitoring and Test Hole	241	2 - 66	3 Overburden, 238 Unknown
Abandoned	54	-	54 Unknown
Domestic	1	0*	Unknown
Unknown	204	3 – 64	1 Overburden, 203 Unknown
Not Used	12	4 – 35	3 Bedrock, 5 Overburden, 4 Unknown
Other	2	7	Unknown

Notes: *Well depth not provided in water well database.

5.2.3.3 Ministry of the Environment Conservation and Parks Permit to Take-Water and Environmental Activity and Sector Registry Summary

A search of Ministry of the Environment, Conservation and Parks Permit to Take Water database returned 10 water taking source results within the Lakeshore East Joint Corridor Soil and Groundwater Study Area, all of which were expired with the exception of one active record for construction dewatering purposes.

A search of the Ministry of the Environment, Conservation and Parks Environmental Activity and Sector Registry database returned 13 results within the Lakeshore East Joint Corridor Soil and Groundwater Study Area. Seven Environmental Activity and Sector Registry records were identified for construction dewatering purposes.

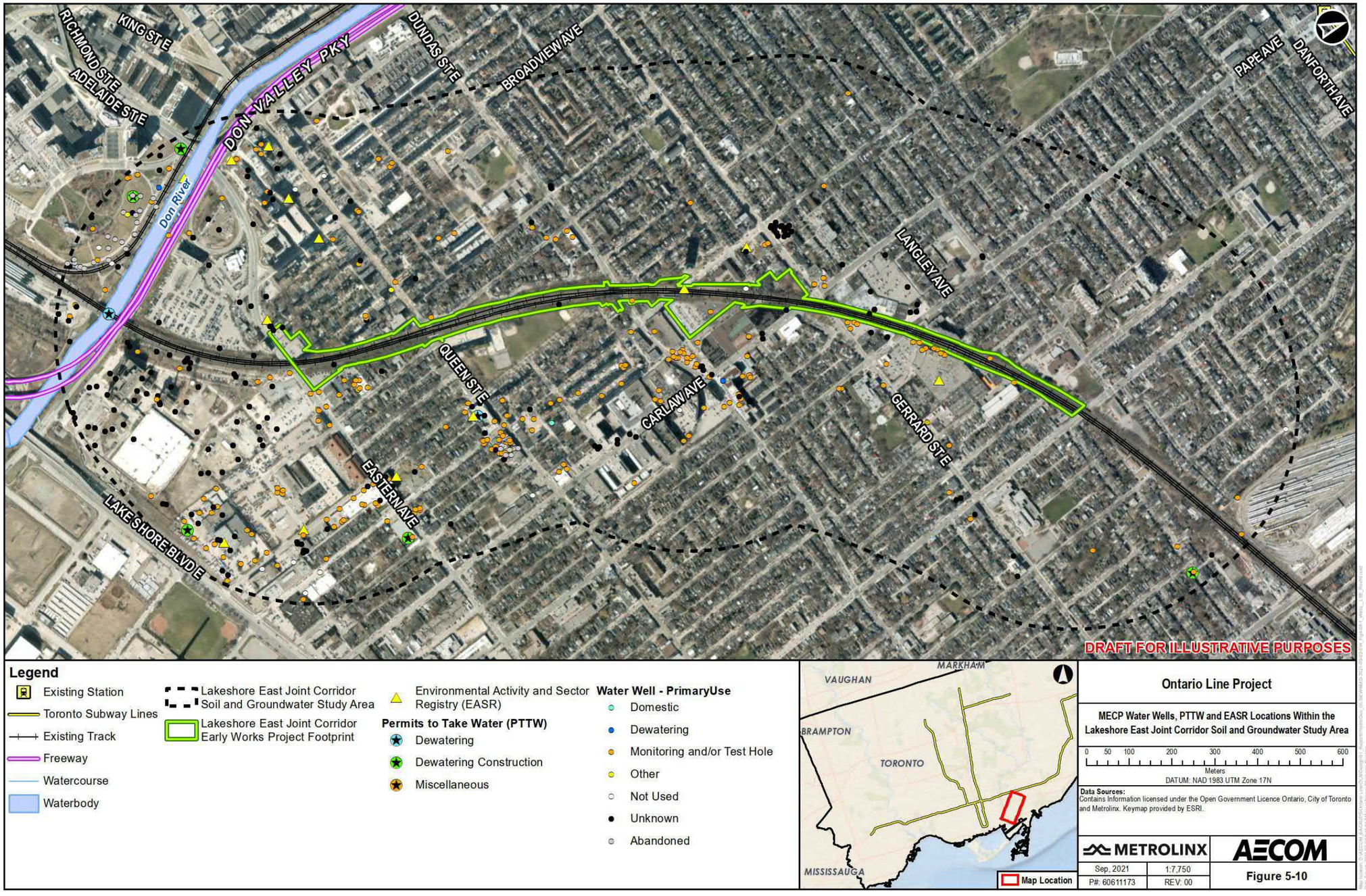
The location of each Permit to Take Water and Environmental Activity and Sector Registry is shown in **Figure 5-10**.

5.2.3.4 Water Level Data

The Ministry of the Environment, Conservation and Parks water well records included a static water level. These reported water levels represent either the water table position or the potentiometric surface depending on whether a given well is installed within an unconfined or confined aquifer. Ministry of the Environment Conservation and Parks water well records do not provide sufficient information to confirm aquifer conditions. The reported static water levels range between approximately 1.50 metres and 4.50 metres below ground surface.

Static water levels may fluctuate considerably in response to changes in precipitation patterns, seasonal fluctuations and temporal variability.

Figure 5-10: Ministry of the Environment Conservation and Parks Water Wells, Permit to Take Water and Environmental Activity and Sector Registry Locations Within the Lakeshore East Joint Corridor Soil and Groundwater Study Area



5.3 Hydrology and Surface Water

The Lakeshore East Joint Corridor Hydrology and Surface Water Study Area is within the Toronto and Region Conservation Authority's Regulation Area (62.27 hectares) (Toronto and Region Conservation Authority, 2020a), the Don River Floodplain (53.93 hectares) (Toronto and Region Conservation Authority, 2020b) and overlaps with the boundaries of the West Don Lands Flood Protection Landform (shown in **Figure 5-11**).

The West Don Lands Flood Protection Landform (shown in **Figure 5-11**), extending from Queen Street East in the north to the Lakeshore East/Stouffville rail corridor in the south, was constructed in 2012 to protect approximately 500 acres of eastern downtown Toronto, including the Financial District, from flooding in the event of a major storm (Waterfront Toronto, 2016). This flood protection landform was constructed following the approved Lower Don River West Remedial Flood Protection Project Class Environmental Assessment (described in **Section 2.2.3.3**).

Figure 5-11: Floodplain Within the Lakeshore East Joint Corridor Hydrology and Surface Water Study Area

5.4 Air Quality

5.4.1 Existing Ambient Air Quality

Representative data for all criteria air contaminants within the Lakeshore East Joint Corridor Air Quality Study Area were identified as follows for the averaging period combinations listed in **Table 5-5.**

- 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 quality monitoring stations (the average value was calculated from the available years). The 90th percentile of available background data was used following the methodology outlined in the Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (Ministry of Transportation, 2020); and
- Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative air quality monitoring station (the average value was calculated from the available years).

The averaged background concentrations for each contaminant were compared to the applicable federal and provincial standards for all of the applicable time averaging periods and percentile concentrations. The approach to calculating the overall 90th percentile for the data set was to calculate the individual year's 90th percentile data, provided in a 1-year format from the National Air Pollution Surveillance Monitoring online data portal, then to determine the average of a selection of the most recent and complete five years' 90th percentile data.

As shown in **Table 5-5** there are several air quality threshold exceedances within the monitored existing ambient air quality data. Benzene has elevated annual contributions which exceed the threshold guideline from the Ambient Air Quality Criteria. Benzo(a)pyrene, the representative polycyclic aromatic hydrocarbon, shows elevated levels of concentration for both annual and daily provincial air quality thresholds. This is due mainly to high presence of regional air quality contributions, high traffic volumes within the Greater Toronto Area, and industrial contributions from Toronto, the Greater Toronto Area, and Hamilton.

Table 5-5: Comparison of Existing Ambient Air Quality Data to Standards

Criteria Air Contaminant	Station ID	Averaging Period	Years	Average of Background Data ($\mu g/m^3$)[3]	Statistical Measure	Standard Threshold ($\mu g/m^3$)	Standard Source	% of Standard Threshold
NO_2	60433	One hour	2013 to 2017	49.50	90th Percentile	400	Ambient Air Quality Criteria	12%
NO_2	60433	One hour	2013 to 2017	49.50	90th Percentile	113	Canadian Ambient Air Quality Standards	44%
NO_2	60433	24 hours	2013 to 2017	41.75	90th Percentile	200	Ambient Air Quality Criteria	21%
NO_2	60433	Annual	2013 to 2017	26.68	Mean	32	Canadian Ambient Air Quality Standards	83%
CO	60430	One hour	2013 to 2017	446	90th Percentile	36,200	Ambient Air Quality Criteria	1%
CO	60430	8 hours	2013 to 2017	419	90th Percentile	15,700	Ambient Air Quality Criteria	3%
SO_2 (2)	60430	30-min.	2013 to 2017	6.70	90th Percentile	178	Ambient Air Quality Criteria	5%
SO_2	60430	One hour	2013 to 2017	5.51	90th Percentile	106	Ambient Air Quality Criteria	5%
SO_2	60430	Annual	2013 to 2017	1.84	Mean	11	Ambient Air Quality Criteria	17%
PM_{10} (3)	60433	24 hours	2013 to 2017	25.78	90th Percentile	50	Ambient Air Quality Criteria	51%
$PM_{2.5}$	60433	24 hours	2013 to 2017	13.89	90th Percentile	27	Canadian Ambient Air Quality Standards	51%
$PM_{2.5}$	60433	Annual	2013 to 2017	7.94	Mean	8.8	Canadian Ambient Air Quality Standards	90%
Acetaldehyde (4)	60439	30-min.	2014 to 2017	5.00	90th Percentile	500	Ambient Air Quality Criteria	1%
Acetaldehyde	60439	24 hours	2014 to 2017	1.69	90th Percentile	500	Ambient Air Quality Criteria	0%
Acrolein (5)	60439	One hour	2014 to 2017	0.17	90th Percentile	4.5	Ambient Air Quality Criteria	4%
Acrolein	60439	24 hours	2014 to 2017	0.07	90th Percentile	0.4	Ambient Air Quality Criteria	17%
Benzene	60435	24 hours	2011 to 2014	0.92	90th Percentile	2.3	Ambient Air Quality Criteria	40%
Benzene	**60435**	**Annual**	**2011 to 2014**	**0.61**	90th Percentile	**0.45**	**Ambient Air Quality Criteria**	**134%**
Benzo(a)-pyrene	**60427 60439**	**24 hours**	**2011 to 2015**	**1.21E-04**	90th Percentile	**0.00005**	**Ambient Air Quality Criteria**	**242%**
Benzo(a)-pyrene	**60427 60439**	**Annual**	**2011 to 2015**	**6.72E-05**	90th Percentile	**0.00001**	**Ambient Air Quality Criteria**	**672%**
1,3-Butadiene	60435	24 hours	2011 to 2014	0.10	90th Percentile	10	Ambient Air Quality Criteria	1%
1,3-Butadiene	60435	Annual	2011 to 2014	0.06	90th Percentile	2	Ambient Air Quality Criteria	3%
Formaldehyde	60439	24 hours	2014 to 2017	2.58	90th Percentile	65	Ambient Air Quality Criteria	5%

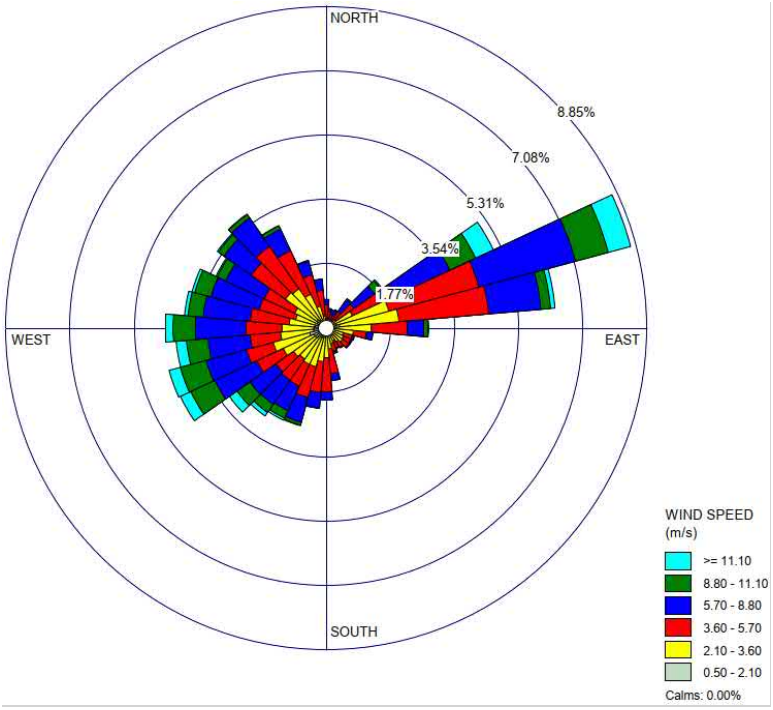
Notes:
(1) Exceedances of the Ambient Air Quality Criteria and Canadian Ambient Air Quality Standards are shown in red.
(2) Concentrations of sulphur dioxide (SO_2) are measured on an hourly basis, background concentrations for the 10-minute averaging period have been converted using the Ministry of the Environment, Conservation and Parks' conversion factor where $C_{10min.} = C_{1hr} \times (60 \text{ min.}/10 \text{ min.})^{0.28}$
(3) PM_{10} was not included in National Air Pollution Surveillance air quality monitoring station measurements, and therefore was estimated using PM2.5 measurements, assuming a ratio of 1 μg/m3 PM10 per 0.54 μg/m3 of PM2.5 as per Lall et al. publication in Atmospheric Environment, Estimation of historical annual $PM_{2.5}$ exposures for health effects assessment (Lall et al., 2004).
(4) Concentrations of acetaldehyde are measured on a 24 hour basis, background concentrations for the 30-minute averaging period have been converted using the Ministry of the Environment, Conservation and Parks' conversion factor where $C_{0.5hr} = C_{24hr} \times (24hr/0.5hr)^{0.28}$.
(5) Concentrations of acrolein are measured on a 24 hour basis, background concentrations for the hourly averaging period have been converted using the Ministry of the Environment, Conservation and Parks' conversion factor where $C_{1hr} = C_{24hr} \times (1hr/24hr)^{0.28}$.

5.4.2 Meteorological Conditions

The local air quality is influenced by both ambient conditions and contributions from traffic and construction activities and is affected by the local and regional meteorological conditions. Predominant wind speeds and wind directions within the Lakeshore East Joint Corridor Air Quality Study Area will determine the likely areas of most common impacts, and the potential areas of greatest impact. High impact conditions from construction and traffic emissions are created from low speed surface air movement towards a nearby receptor. High impact conditions may also form from high speed surface air movement which has a greater potential to disturb and disperse dust particles from unpaved surfaces, stockpiles, and material handling. Local surface station meteorological data was used to anticipate areas of high probability impact, downwind from predominant wind directions.

The closest representative meteorological station for the Lakeshore East Joint Corridor Air Quality Study Area was identified as the Toronto City Centre station located on Toronto Island (Station ID 71265). This station captures the meteorological effects from Lake Ontario which impact the air quality conditions of the Lakeshore East Joint Corridor Air Quality Study Area. The wind rose for the five-year meteorological period (2015 to 2019) showing the wind direction and wind speed is presented in **Figure 5-12**. The wind rose shows that the predominant wind direction is from the northeast towards the southwest. Secondary predominant winds blow from the west, northwest and southwest.

Figure 5-12: Wind Rose Representative of Meteorological Conditions in the Lakeshore East Joint Corridor Air Quality Study Area



5.4.3 Traffic Assessment

Major traffic sources within the Lakeshore East Joint Corridor Air Quality Study Area include the following:

- Don Valley Parkway;
- Eastern Avenue;
- Broadview Avenue;
- Queen Street East;
- Dundas Street East;
- Gerrard Street East;
- Carlaw Avenue, and
- Pape Avenue.

Table 5-6 shows the summary of annual averaged daily traffic for cars, trucks, and buses (where available) along the major roads within the Lakeshore East Joint Corridor Air Quality Study Area. Raw turning movement counts of traffic representative of the Lakeshore East Joint Corridor Air Quality Study Area are included in **Appendix A2**. The purpose of providing representative annual averaged daily traffic data is to demonstrate the relative contribution from each major roadway within the Lakeshore East Joint Corridor Air Quality Study Area. This data presented in **Table 5-6** indicates that the Don Valley Parkway is likely to have the greatest impact on the existing local air quality.

Table 5-6: Representative Traffic Data Within the Lakeshore East Joint Corridor Air Quality Study Area

Road Segment	2019 Annual Average Daily Traffic: Cars	2019 Annual Average Daily Traffic: Trucks	2019 Annual Average Daily Traffic: Bus
Don Valley Parkway	88,935	5,677	--
Eastern Avenue, east of Broadview Avenue	12,025	1,536	28
Broadview Avenue	7,432	120	--
Queen Street East	12,025	1,536	--
Dundas Street East	16,948	144	--
Gerrard Street East	17,587	9,049	104
Carlaw Avenue	11,474	104	72
Pape Avenue	10,593	120	--

5.4.4 Representative Receptors

There is a diverse range of land uses within the Lakeshore East Joint Corridor Air Quality Study Area. The majority of land use within the Lakeshore East Joint Corridor Air Quality Study Area corresponds to single and multi-unit residential dwellings. Portions of green space are distributed throughout the Lakeshore East Joint Corridor Air Quality Study Area, while a concentration of commercial facilities is located along Carlaw Avenue and near the Gerrard Street East and Carlaw Avenue intersection. Land use south of Eastern Avenue is dedicated to industrial use; there were no representative sensitive or critical receptors identified in this particular area.

In total, 17 critical receptors[25] were identified within the Lakeshore East Joint Corridor Air Quality Study Area, including ten (10) educational institutions, six (6) day-care facilities and one (1) retirement home. A total of 25 sensitive receptors[22] were identified, which are all current or proposed residences located closest to the proposed Lakeshore East Joint Corridor Early Works Project Footprint. Among these, one sensitive receptor, 77-79 East Don Roadway (SR1) is under development in the planning/construction stage. The surrounding area also includes several community and recreational centres such as Jimmie Simpson Recreational Centre and Ralph Thornton Community Centre which are not considered sensitive or critical receptors. However, impacts are assessed at other receptors in close proximity which can be considered as indicative of the potential impacts at Jimmie Simpson Recreational Centre (represented by SR10) and Ralph Thornton Community Centre (represented by SR9). The sensitive and critical receptors are defined in **Appendix A2**.

A list of critical and sensitive receptors within the Lakeshore East Joint Corridor Air Quality Study Area is provided in **Table 5-7** and shown in **Figure 5-13**.

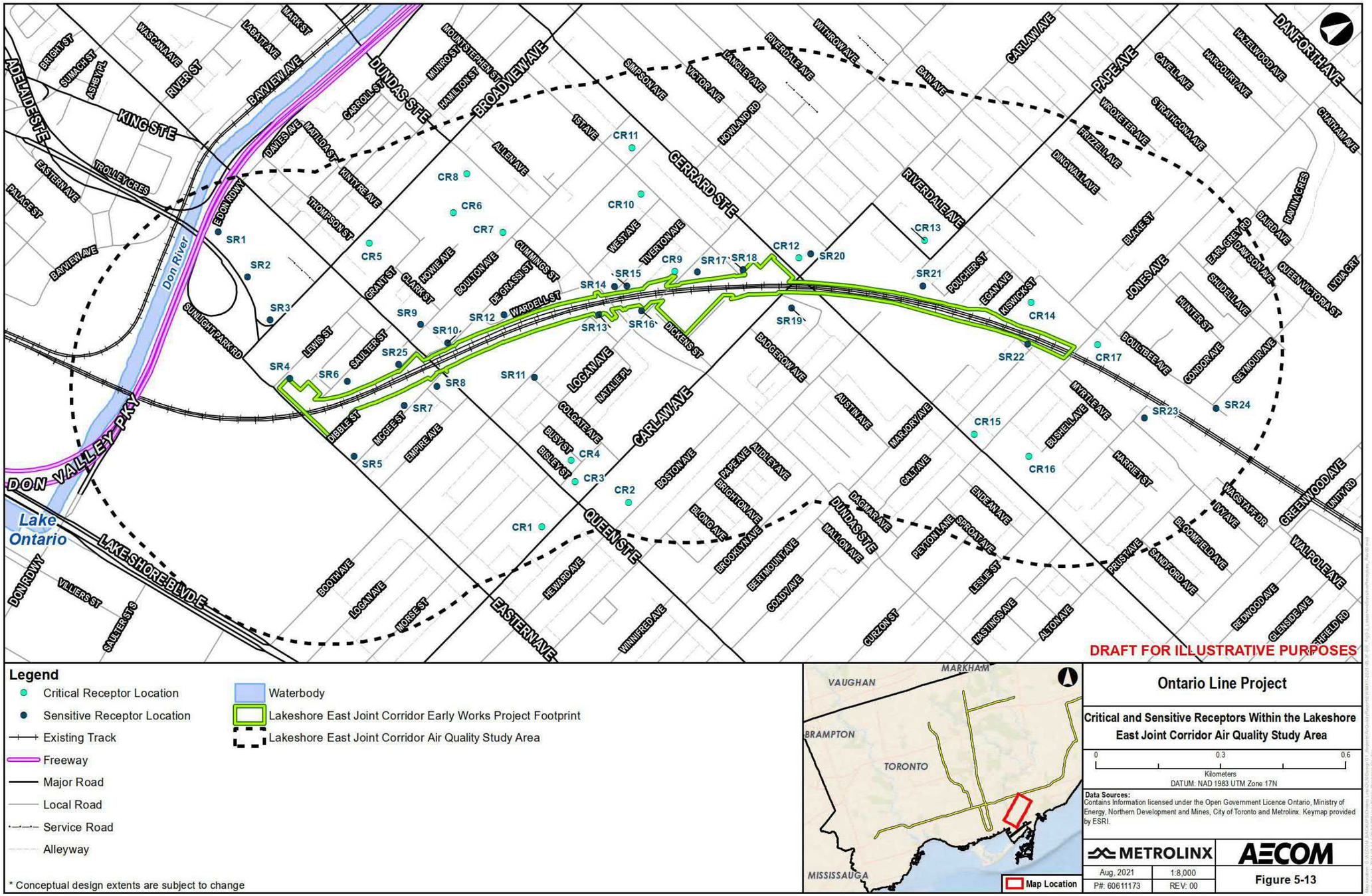
22. The Ministry of Transportation's Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects defines a sensitive receptor as a "residential dwelling" and a critical receptor as a "retirement home, hospital, childcare centre, school, or similar institutional building".

Table 5-7: Critical and Sensitive Receptors Within the Lakeshore East Joint Corridor Air Quality Study Area

Receptor Identification	Receptor Type	Address	Description	UTM Easting (m)	UTM Northing (m)
CR1	Critical	180 Carlaw Avenue	Morse Street Junior Public School	633847.55	4835461.64
CR2	Critical	24 Boston Avenue	Liberty Prep School	633893.92	4835674.03
CR3	Critical	970 Queen St East	BrightPath Leslieville	633789.82	4835583.22
CR4	Critical	14 Verral Avenue	Mighty Kids Daycare	633739.99	4835598.45
CR5	Critical	131 Broadview Avenue	Boulton Avenue Childcare	633051.48	4835414.95
CR6	Critical	181 Broadview Avenue	Queen Alexandra Middle School	633081.59	4835628.44
CR7	Critical	935 Dundas Street East	Dundas Junior Public School	633178.86	4835711.52
CR8	Critical	885 Dundas Street East	SEED Alternative School	633013.75	4835701.25
CR9	Critical	444 Logan Avenue	Ray McCleary Towers Retirement Home	633455.94	4836031.70
CR10	Critical	135 First Avenue	Matthew John Daycare	633253.60	4836047.95
CR11	Critical	701 Gerrard Street East	Eastdale Collegiate Institute	633145.40	4836081.57
CR12	Critical	842 Gerrard St East	Mighty Kids Daycare	633567.19	4836310.42
CR13	Critical	220 Langley Avenue	Pape Avenue Junior Public School	633671.63	4836597.39
CR14	Critical	21 Boultbee Avenue	Blake Street Junior Public School	633923.20	4836753.53
CR15	Critical	1055 Gerrard St. East	All About Kids Daycare	634138.77	4836483.97
CR16	Critical	1094 Gerrard St East	Riverdale Collegiate Institute	634247.50	4836575.92
CR17	Critical	343 Jones Avenue	École élémentaire catholique du Bon-Berger	634127.34	4836772.51
SR1	Sensitive	77-79 East Don Roadway	Apartment/condo building under development, window/balcony second floor	632856.98	4835107.7
SR2	Sensitive	130 Eastern Avenue	Apartment/condo building, window/balcony second floor	632984.98	4835118.88
SR3	Sensitive	68 Broadview Avenue	Apartment/condo building, window/balcony second floor	633102.00	4835118.57
SR4	Sensitive	9 Lewis Street	Semi-detached housing, window first floor	633248.92	4835094.11

Receptor Identification	Receptor Type	Address	Description	UTM Easting (m)	UTM Northing (m)
SR5	Sensitive	2 McGee Street	Semi-detached housing, window first floor	633486.45	4835143.07
SR6	Sensitive	33 Saulter Street	Semi-detached housing, window first floor	633318.86	4835213.05
SR7	Sensitive	66 McGee Street	Semi-detached housing, window first floor	633435.48	4835306.25
SR8	Sensitive	89 McGee Street	Semi-detached housing, window first floor	633431.47	4835397.8
SR9	Sensitive	8 Boulton Avenue	Semi-detached housing, window first floor	633280.88	4835432.64
SR10	Sensitive	12 Degrassi Street	Semi-detached housing, window first floor	633350.98	4835469.16
SR11	Sensitive	229 Booth Avenue	Semi-detached housing, window first floor	633522.07	4835615.12
SR12	Sensitive	16 Wardell Street	Semi-detached housing, window first floor	633355.21	4835620.55
SR13	Sensitive	2 Paisley Avenue	Semi-detached housing, window first floor	633461.67	4835821.99
SR14	Sensitive	1056 Dundas Street East	Semi-detached housing, window first floor	633420.17	4835887.06
SR15	Sensitive	15 Tiverton Avenue	Semi-detached housing, window first floor	633432.29	4835914.12
SR16	Sensitive	400 Logan Avenue	Semi-detached housing, window first floor	633501.80	4835916.83
SR17	Sensitive	445 Logan Avenue	Semi-detached housing, window first floor	633483.17	4836079.46
SR18	Sensitive	238 First Avenue	Semi-detached housing, window first floor	633529.48	4836179.50
SR19	Sensitive	881 Gerrard Street East	Semi-detached housing, window first floor	633664.60	4836238.71
SR20	Sensitive	456 Carlaw Avenue	Semi-detached housing, window first floor	633571.67	4836340.73
SR21	Sensitive	369 Pape Avenue	Apartment/condo building, window/balcony second floor	633766.21	4836541.95
SR22	Sensitive	162 Galt Avenue	Semi-detached housing, window first floor	634008.64	4836699.24
SR23	Sensitive	2 Ivy Avenue	Detached housing, window first floor	634296.72	4836864.13
SR24	Sensitive	151 Boultbee Avenue	Detached housing, window first floor	634255.98	4836848.64
SR25	Sensitive	791 Queen Street East	Apartment building, window/first floor	633341.86	4835341.44

Figure 5-13: Critical and Sensitive Receptors Within the Lakeshore East Joint Corridor Air Quality Study Area



5.5 Noise and Vibration

5.5.1 Noise

Baseline noise measurements were conducted as part of the Ontario Line Final Environmental Conditions Report (AECOM, 2020a) to characterize the existing noise levels throughout the Ontario Line Study Area. **Table 5-8** presents the baseline noise measurements relevant to the Lakeshore East Joint Corridor early works. The monitoring locations are shown in **Figure 5-14**.

5.5.2 Vibration

Baseline vibration measurements were not required, as the construction vibration assessment in this Report uses absolute limits that do not change based upon the existing vibration levels.

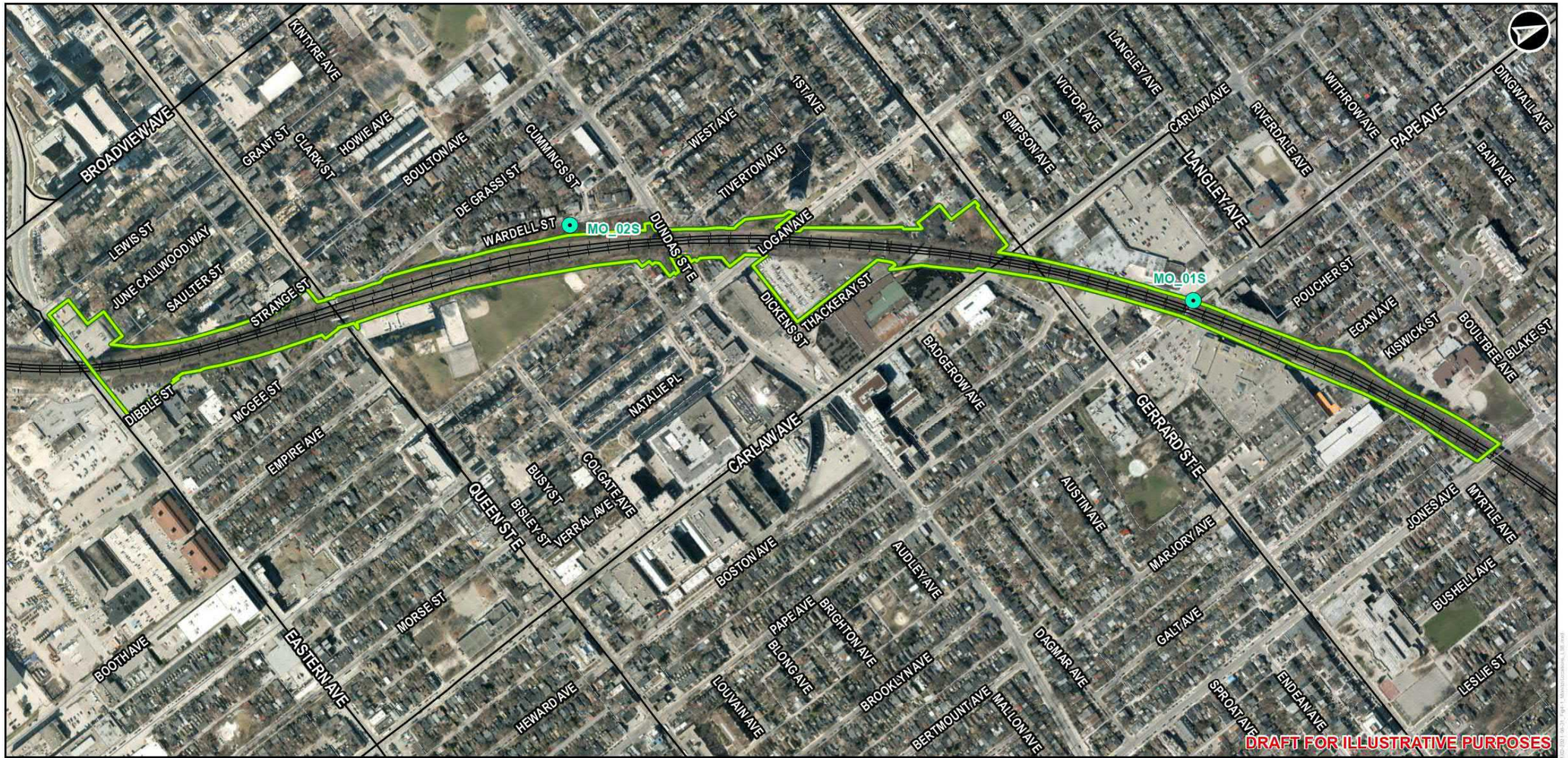
Table 5-8: Relevant Baseline Noise Measurements for the Lakeshore East Joint Corridor Noise and Vibration Study Area

Monitoring Location	Associated Study Area	Daytime (07:00-19:00) Average $L_{eq, 1hr}$ (dBA)	Daytime (07:00-19:00) Min $L_{eq, 1hr}$ (dBA)	Daytime (07:00-19:00) Max $L_{eq, 1hr}$ (dBA)	Evening (19:00-23:00) Average $L_{eq, 1hr}$ (dBA)	Evening (19:00-23:00) Min $L_{eq, 1hr}$ (dBA)	Evening (19:00-23:00) Max $L_{eq, 1hr}$ (dBA)	Night (23:00-07:00) Average $L_{eq, 1hr}$ (dBA)	Night (23:00-07:00) Min $L_{eq, 1hr}$ (dBA)	Night (23:00-07:00) Max $L_{eq, 1hr}$ (dBA)
MO_01S Pape Avenue	Lakeshore East Joint Corridor (north)	65	59	73	58	56	60	53	47	62
MO_02S Wardell Street	Lakeshore East Joint Corridor (south)	64	61	66	62	59	63	52	43	63

Note: 1. Leq is the value of a constant sound pressure level which would result in the same total sound energy as the measured time-varying sound pressure level over equivalent time duration. The Leq,1hr, for example, describes the equivalent continuous sound level over a 1-hour period.

dBA represents A-weighted decibels. The A-weighting Network is a frequency weighting network intended to represent the variation in the ear's ability to hear different frequencies. Overall sound levels calculated or measured using the A-weighting network are indicated by dBA rather than dB.

Figure 5-14: Noise Monitoring Locations Within the Lakeshore East Joint Corridor Noise and Vibration Study Area



5.6 Socio-Economic and Land Use Characteristics

5.6.1 Physical Neighbourhood Composition

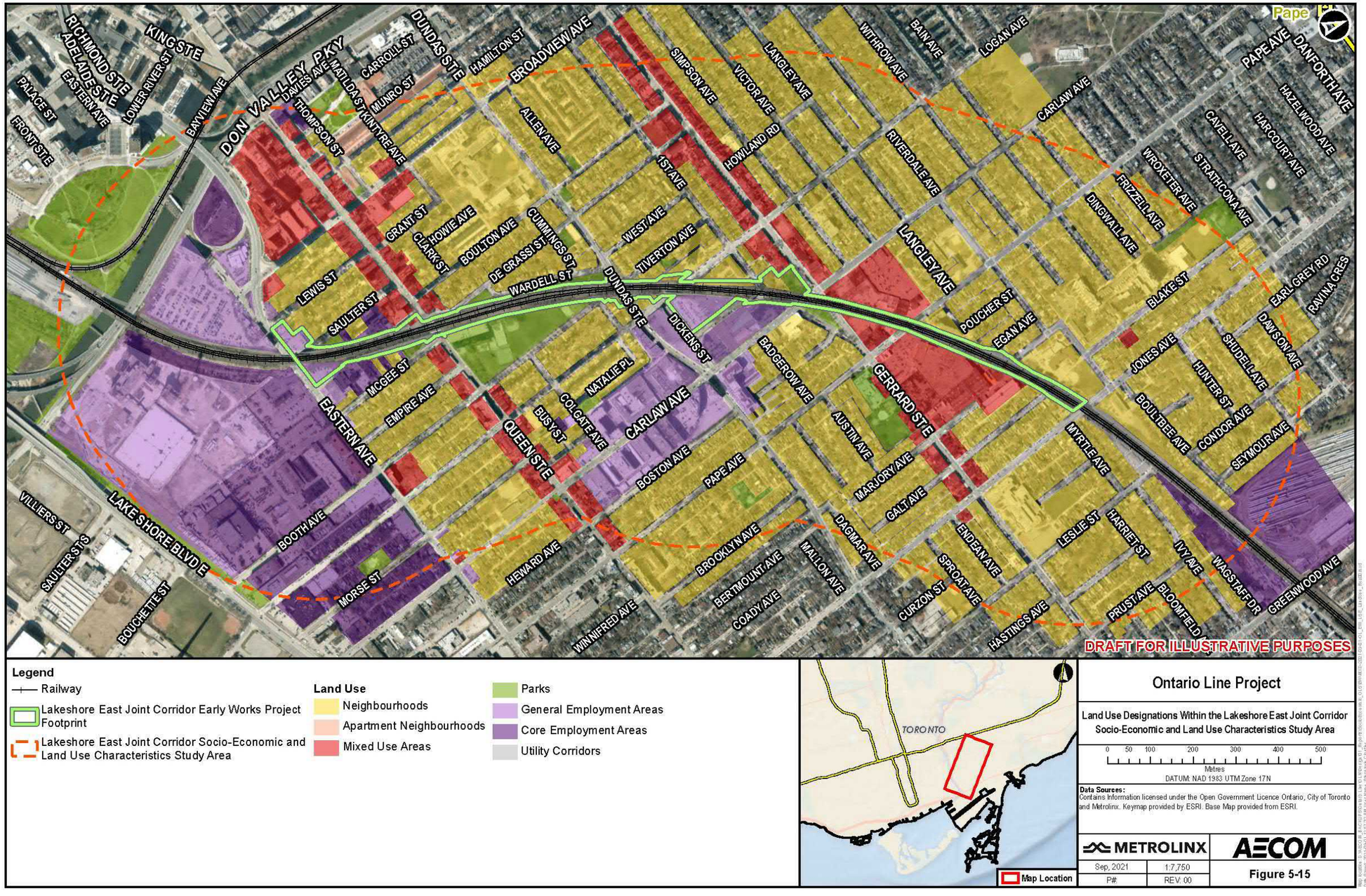
5.6.1.1 Land Use and Built Form Patterns

The lands within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area are designated as primarily Neighbourhoods, Mixed Use Areas, and General and Core Employment Areas in the Official Plan, with slivers of Parks and Apartment Neighbourhood designations (see **Figure 5-15**). Neighbourhoods are intended to support and maintain areas with low-scale (one to four storeys) residential uses. Neighbourhoods may also contain other uses such as parks, local institutions, cultural and recreational facilities and small-scale retail, service and office use (City of Toronto, 2019). Mixed Use Areas are intended to have 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 (City of Toronto, 2019). Development in Mixed-Use Areas should create a high-quality balance of uses that reduces automobile dependency; provide for new jobs and homes on underutilized lands; provide an attractive, comfortable and safe pedestrian environment and access to local amenities; and take advantage of nearby transit (City of Toronto, 2019). General and Core Employment Areas are places for business and economic activities. A wide variety of uses are permitted in both General and Core Employment Areas. including all types of manufacturing, processing, warehousing, wholesaling, distribution, storage, transportation facilities, vehicle and repair services, offices, research and development facilities, utilities, and waste management systems. Parks are elements of the City's green open space network. Development is generally prohibited in these areas except for recreational and cultural facilities, conservation projects, cemetery facilities, public transit and essential public works and some utilities (City of Toronto, 2019).

Existing built form within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area is characterized as mainly medium-density housing, such as townhouses, and main street retail stores primarily along Queen Street East and Gerrard Street East. Queen Street East is known for its quaint, small town aesthetic as a gateway into the Leslieville and the Beaches communities of old Toronto. The neighbourhoods generally maintain north-southeast-west grid pattern that Toronto was built on, with some irregularly shaped parcels surrounding the rail corridor.

The Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area is within the Downtown Plan and Unilever Precinct Secondary Plan development policy areas.

Figure 5-15: Land Use Designations Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area[23]



23. Source of land use designations: City of Toronto, 2019. Official Plan - Map 18 Land Use Plan. Available: http://www.toronto.ca/wp-content/uploads/2017/11/97fe-cp-official-plan-Map-18_LandUse_AODA.pdf

5.6.1.1.1 Downtown Plan

The Downtown Plan area is roughly bounded by Dupont Street, Bloor Street, and the Don River Valley to the north, the Don River to the east, the Bathurst Street to the west and the Toronto waterfront to the south.

The main objectives of the Downtown Plan include:

- Create a diverse community with easy access to local amenities;
- Enhance the strong employment base, and make Downtown Toronto an economic driver for the City, Region, Province and Country;
- Access to a varied and extensive network of parks and public spaces;
- Conserve heritage buildings, and creating new buildings that are built and scaled to fit within their setting;
- Provision of a range of housing options, including shelters, affordable housing and program and facilities to support the vulnerable population;
- A reliable surface transit network and an expanded subway system;
- Reliable and cost-effective networks of water, wastewater and stormwater infrastructure; and
- Varied streetscapes featuring iconic architecture, layered on centuries of development, that promote public life.

5.6.1.1.2 Unilever Precinct Secondary Plan

The Unilever Precinct Secondary Plan area is bounded by the Don River in the west, Lake Shore Boulevard East in the south, Booth Avenue in the east and Eastern Avenue and the Lakeshore East rail corridor in the north (City of Toronto, 2018b).

The main objectives of the Unilever Precinct Secondary Plan include:

- Offer an opportunity to contribute to the City’s long-term economic growth and cultural objectives;
- Create an attractive place for businesses to invest and create jobs; and
- Provide direct access to the City’s Downtown and Central Waterfront, while enhancing the vitality and vibrancy of Toronto.

This plan includes policies for minimum sidewalk widths, public realm improvements, connections to higher order transit, and complete streets.

5.6.1.2 Transit and Transportation Network

Refer to **Section 5.9** for a description of local environmental conditions related to transit and active transportation networks.

5.6.1.3 Public Realm Characteristics

Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area, the following notable public realm elements exist: Riverside and Leslieville communities; the Lower Don Trail; the West Don Lands neighbourhood; and Corktown Common.

As noted in **Section 2.2.2.2**, The City of Toronto initiated the Unilever Planning Framework to guide the transformation of the Unilever Precinct from former industrial lands to a thriving employment node supported by new transit, flood protection, open space, servicing and transportation infrastructure. The planned future development associated with the Unilever Precinct Plan Planning Framework (City of Toronto, 2018d) will include an all-season public realm network with plazas and parks, pedestrian pathways, public art, and bright lighting designed to create human-scaled spaces to support commercial density and animate the area beyond traditional office hours.

5.6.1.3.1 Riverside and Leslieville Communities

The public realm in this area is characterized as reminiscent of traditional urban retail main streets with a strong sense of place. The communities east of the Don River – Riverside and Leslieville – are known to Torontonians as towns within the city (See **Image 1** and **Image 2**). The Leslieville community is located east of the Don River, bound by the Canadian National Railway tracks in the north, Eastern Avenue in the south, Carlaw Avenue in the west, and Coxwell Avenue in the east (Leslieville, n.d.). The Riverside community is located directly west of Leslieville, from Carlaw Avenue to the Lower Don River (Leslieville, n.d.).

Image 1: Queen Street East Streetscape, looking West from Lewis Street[24]

Image 2: Row houses in Riverdale Neighbourhood, Lewis Street looking North[25]

24. Image source: AECOM 2021
25. Image source: AECOM 2021

5.6.1.3.2 Lower Don Trail

The Lower Don Trail (see **Image 3** below) is an important pedestrian and cyclist path within the city that rungs alongside the Lower Don River, connecting Toronto's urban neighbourhoods and their communities to valuable greenspace. A portion of the Lower Don Trail is located within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area and connects to Corktown Common and Martin Goodman Trail.

Image 3: Lower Don Trail under the Don Valley Parkway ramps[26]

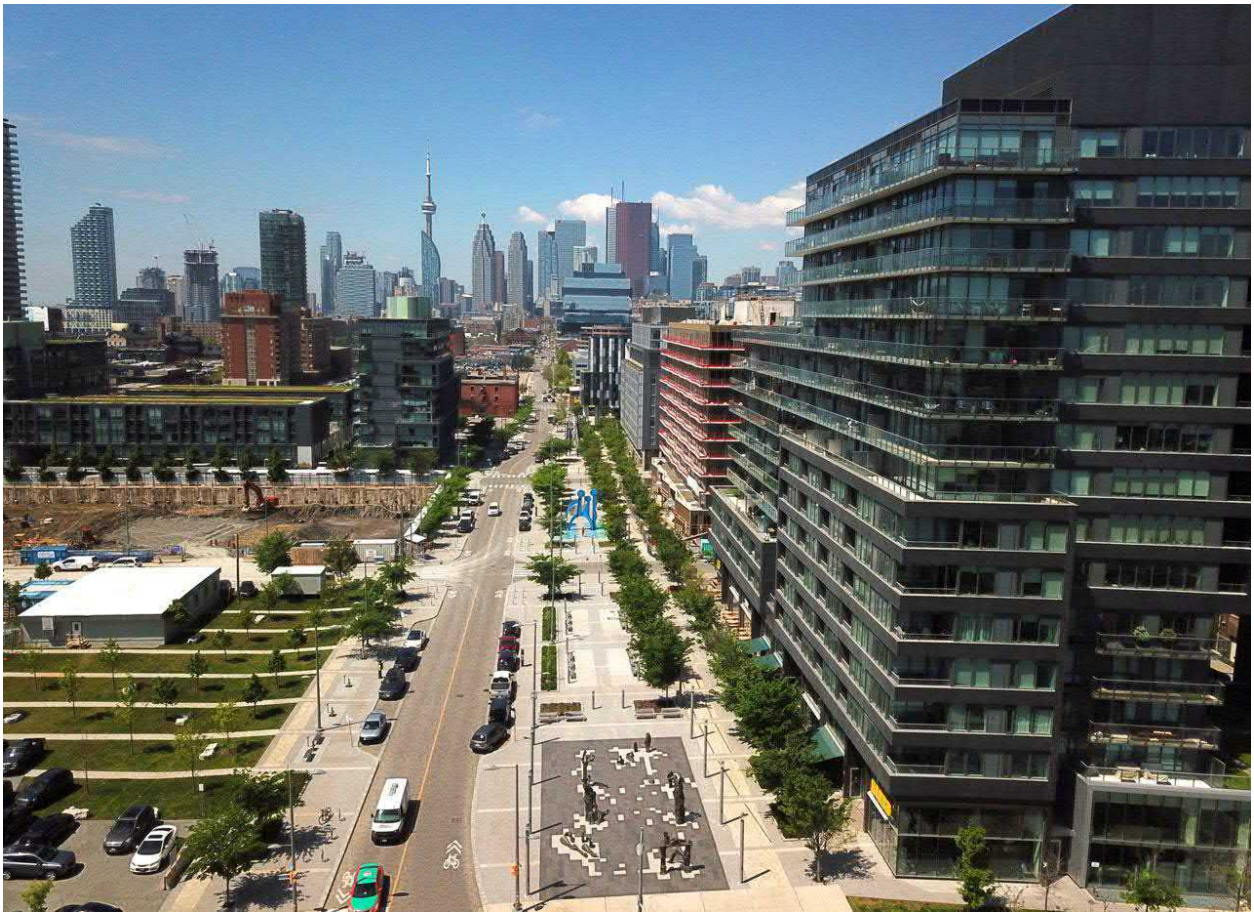
5.6.1.3.3 West Don Lands

The West Don Lands (see **Image 4** below) is a neighbourhood that has been undergoing a transformation from the former brownfield into a sustainable, mixed-use, pedestrian-friendly community surrounding Corktown Common following Waterfront Toronto's West Don Lands Precinct Plan. The first phase of redevelopment was focused on the main parks, Underpass Park and Corktown Common, which both

26. Image Source: Sumi, 2020. Pandemic walk: Lower Don River. NOW Toronto. Available: https://nowtoronto.com/lifestyle/health/pandemic-walk-lower-don-river

opened in 2015. The first phase of the redevelopment of this area was focused on Underpass Park and Corktown Common, which both opened in 2015. Development of the community was accelerated because a portion of the site was developed for use as the Athletes' Village for the Toronto 2015 Pan/Parapan American Games.

Image 4: View of the West Don Lands facing Front Street East[27]



5.6.1.3.4 Corktown Common

Corktown Common is an 18-acre park located at Lower River Street and Bayview Avenue (see **Image 5** below). Corktown Common was built on remediated industrial lands in 2013 and provides a community meeting space featuring playground areas, a splash pad, and specialized organic landscape. Corktown Common connects to the Lower Don Trail through the Bala Underpass.

27. Image Source: Landau, J., 2019. Pair of Mid-Rise Condos Rising in the West Don Lands. Available: https://urbantoronto.ca/news/2019/06/pair-mid-rise-condos-rising-west-don-lands

Image 5: View of Corktown Common within Toronto's downtown[28]

5.6.2 Community Amenities

5.6.2.1 Existing Services and Facilities

5.6.2.1.1 Institutional Uses

According to relevant datasets from the City of Toronto's Open Data Portal (City of Toronto, 2021), there are 12 institutional uses located within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area. These amenities are listed in **Table 5-9** and shown in **Figure 5-16**.

Table 5-9: Institutional Uses Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area

Map ID	Feature Name	Address
6	Queen/Saulter – Toronto Public Library Branch	765 Queen Street East
15	Blake Street Junior Public School/East Alternative School of Toronto	21 Boultbee Avenue
16	Pape Avenue Junior Public School	220 Langley Avenue
18	Morse Street Junior Public School	180 Carlaw Avenue

28. Image source: Blanthorn, 2016. Parks and Regeneration: Corktown Common Park and Pavilion, West Don Lands, Toronto, Ontario. Canadian Architect. Available: https://www.canadianarchitect.com/parks-and-regeneration/

Map ID	Feature Name	Address
19	SEED Alternative School	885 Dundas Street East
20	Queen Alexandra Middle School	181 Broadview Avenue
21	Eastdale Collegiate Institute	701 Gerrard Street East
22	Toronto Chinese Alliance Church	77 First Avenue
23	St. Ann Parish	120 First Avenue
24	Queen Street East Presbyterian Church	947 Queen Street East
34	Dundas Public Junior School	935 Dundas Street East

5.6.2.1.2 Recreational Uses, Parks and Open Space

According to relevant datasets from the City of Toronto's Open Data Portal (City of Toronto, 2021), there are 23 recreational uses, parks or open spaces within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area. These amenities are listed in **Table 5-10** and shown in **Figure 5-16**.

Table 5-10: Recreational Uses, Parks and Open Spaces Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area

Map ID	Feature Name	Address
1	Corktown Common	155 Bayview Avenue
2	Toronto and Region Conservation Authority Lands	No address
3	Open Space	No address
4	Booth Yard	No address
5	Saulter Street Parkette	25 Saulter Street
9	McCleary Playground	75 McGee Street
10	Jimmie Simpson Park	872 Queen Street East
11	Bruce Mackey Park	55 Wardell Street
12	Tiverton Avenue Parkette	45 Tiverton Avenue
13	Gerrard – Carlaw Parkette	855 Gerrard Street East
14	Open Space	No Address
18	Jones Avenue Cemetery	462 Jones Avenue
25	Thompson Street Parkette	120 Broadview Avenue
26	John Chang Neighbourhood Park	50 Colgate Avenue
27	Hideaway Park	23 Audley Avenue
28	Matty Eckler Playground	953 Gerrard Street East
29	Thorogood Gardens	53 Allen Avenue
30	Eastdale Playground	160 Boulton Avenue
31	Dundas Parkette	155 Boulton Avenue
32	Degrassi Street Park	125 De Grassi Street
37	Joel Weeks Park	10 Thompson Street
38	Jimmy Simpson Recreation Centre	870 Queen Street East
39	Matty Eckler Community Recreation Centre	953 Gerrard Street East
40	Dundas Junior Public School Park	935 Dundas Street East
41	Riverside Common Park	657 Queen Street East

Note: Data retrieved from City of Toronto Open Data Portal 2020c: Open Data Portal. Accessed in March 2021 from: https://open.toronto.ca/

5.6.2.1.3 Community Groups and Resources

According to relevant datasets from the City of Toronto's Open Data Portal (City of Toronto, 2021), there are six community groups and resources within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area. These amenities are listed in **Table 5-11** and shown in **Figure 5-16**.

Table 5-11: Community Groups and Resources Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area

Map ID	Feature Name	Address
7	Ralph Thornton Community Centre	765 Queen St East
8	Mustard Seed	791 Queen Street East
17	Eastview Neighbourhood Community Centre	86 Blake Street
33	Margaret's Housing and Community Support Services	221 Broadview Avenue
35	Debre Selam St. Michael Church	125 Broadview Avenue
36	WoodGreen Community Services	650 Queen Street East

Note: Data retrieved from City of Toronto Open Data Portal 2020c: Open Data Portal. Accessed in March 2021 from: https://open.toronto.ca/

5.6.2.2 Planned Services and Facilities

Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area there are plans for new or expanded public spaces, community service facilities and parks and open space as part of the Unilever Planning Framework, Don Mouth Naturalization and Port Lands Flood Protection Project, Improving the Esplanade and Mill Street Project, and the Broadview and Eastern Flood Protection Municipal Class Environmental Assessment; and improvements to existing public spaces through the Lower Don Trail Master Plan and Lower Don Trail Phase 2 Improvements (City of Toronto, et al., 2021). Refer to **Section 2.2.3** for further details on applicable environmental assessments and planning studies within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area.

5.6.3 Neighbourhood Demographics

The Lakeshore East Joint Corridor Early Works Project Footprint is located within Ward 14 Toronto-Danforth in the City of Toronto. See **Table 5-12** for an overview of population, immigration rate, and household size and income information. The City of Toronto is divided into 140 neighbourhood profiles. The Lakeshore East Joint Corridor

Early Works Project Footprint is located within Neighbourhood #70 – South Riverdale. The South Riverdale Neighbourhood, according to 2016 Census data (Statistics Canada, 2018), has a population density of 3,136 people per square kilometre. 66% of the population in this neighbourhood is working age (between 25 and 64), which is higher than the city overall (57% for this age group). Based on the Neighbourhood Profile compared to the city as a whole, the South Riverdale Neighbourhood has a higher median household income than the average for the rest of the city and a younger population with more Canadian-born residents.

Table 5-12: South Riverdale Neighbourhood Profile

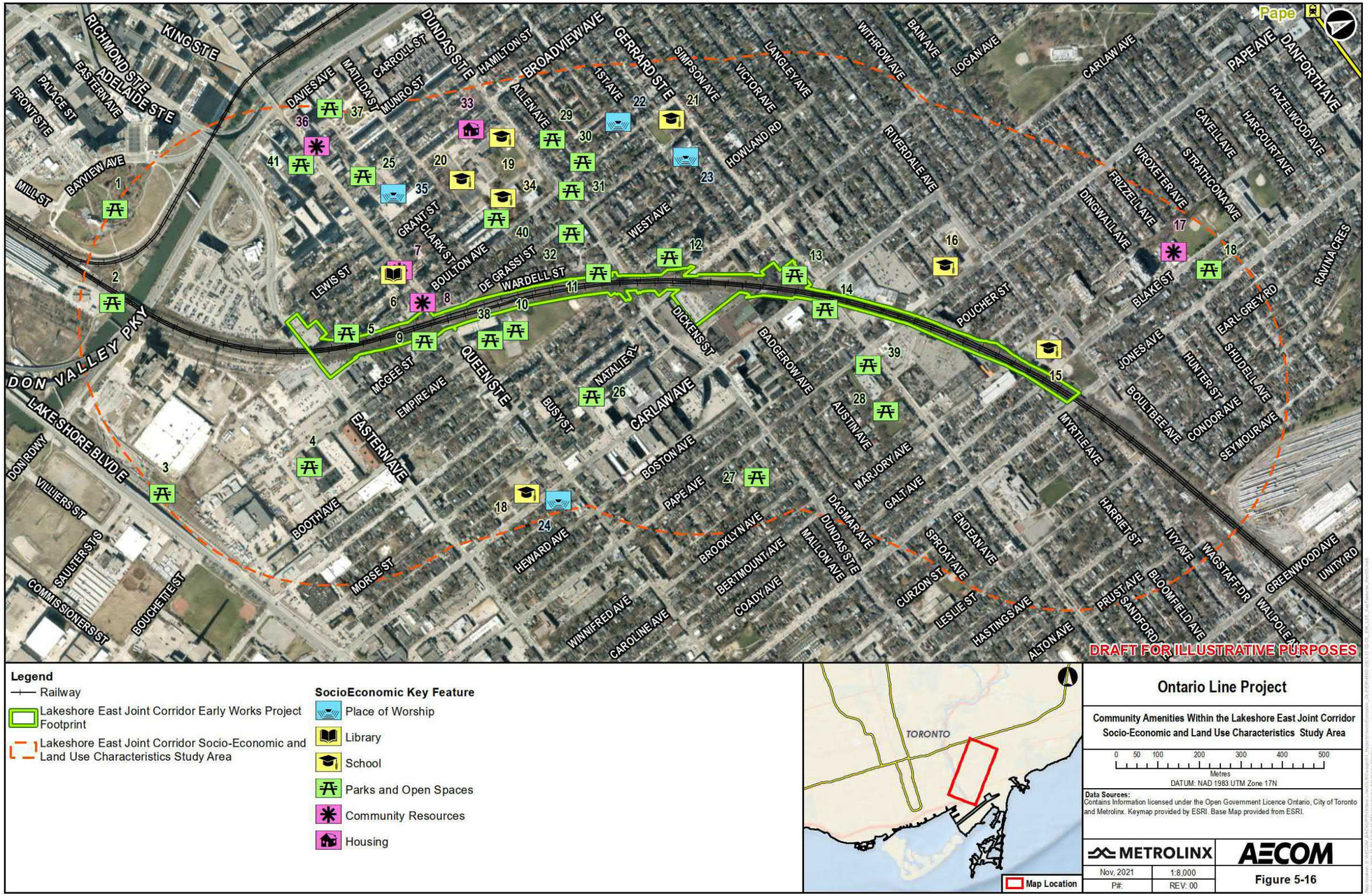
Profiles	South Riverdale Neighbourhood	Toronto
Population Change 2011-2016	+8.7%	+4.5%
Population Density	3,136	4,334
Children (Age 0-14)	14.4%	14.6%
Youth (Age 15-24)	8.9%	12.5%
Working (Age 25-64)	66.0%	57.3%
Seniors (Age 65+)	10.7%	15.6%
Immigrants	30.3%	51.2%
Household Size	2.24	2.42
Median Household Income	$79,172	$65,829

Note: Data retrieved from City of Toronto, 2018a: Statistics Canada, 2016 Census of Population. Available: https://www.toronto.ca/city-government/data-research-maps/neighbourhoods-communities/neighbourhood-profiles/

5.6.4 Future Development

The City of Toronto's online database for Development Applications (City of Toronto, 2021b) was reviewed and it was found that there were 16 properties with active development applications within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area, as of July 8, 2021. These properties are mapped in **Figure 5-17**. See **Table 5-13** for the status of each application.

Figure 5-16: Community Amenities Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area[29]



29. Source of community amenities: City of Toronto, 2021a: Open Data Portal. Accessed in January 2020 from: https://open.toronto.ca/

Figure 5-17: Active Development Applications Within the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area[30]

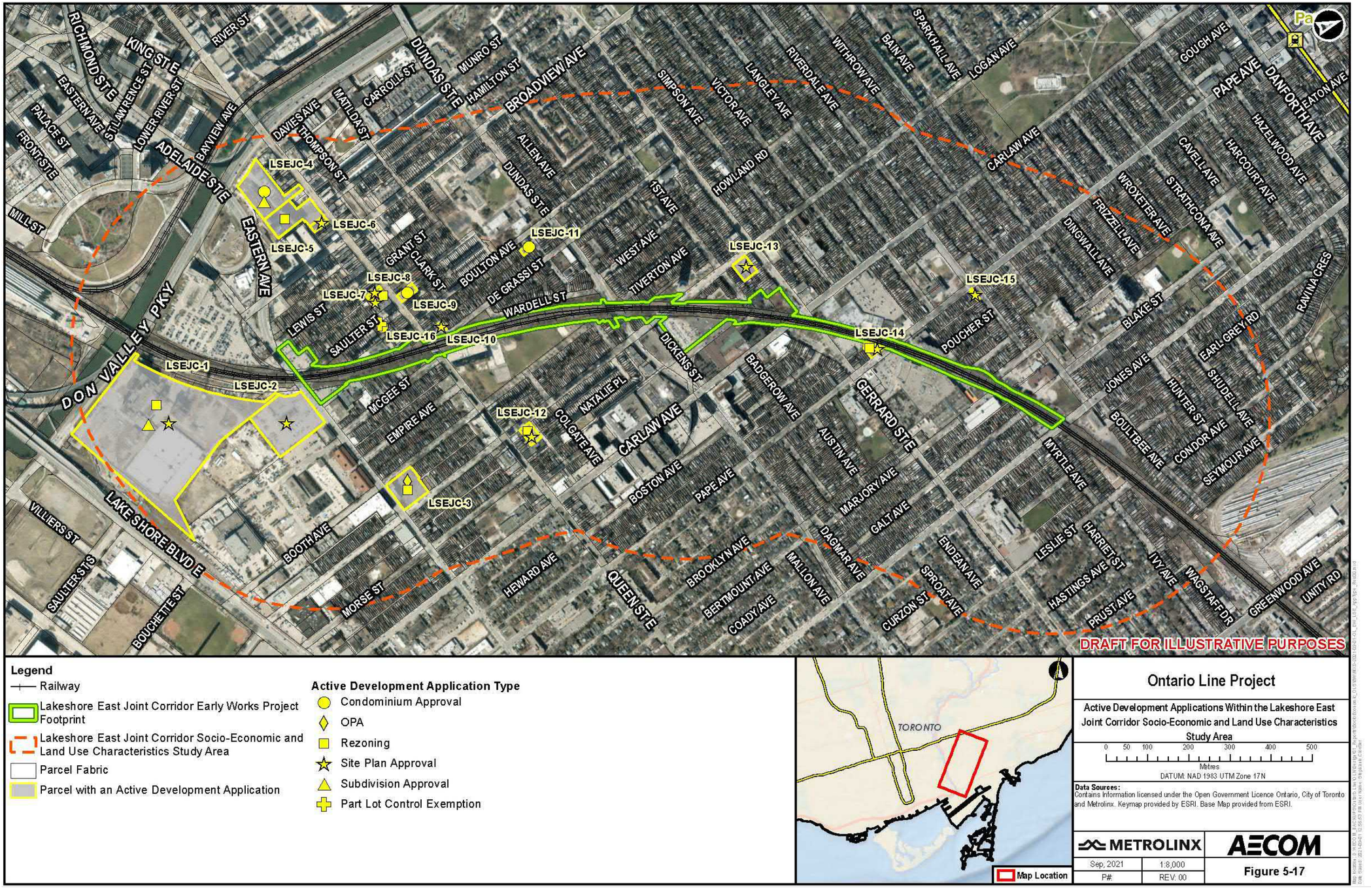


Table 5-13: Active Development Applications as of July 8, 2021 for the Lakeshore East Joint Corridor Socio-Economic and Land Use Characteristics Study Area

Map ID #	Address and File Number	Application Type	Application Details	Status
LSEJC-1	21 Don Valley Parkway 21 172637 STE 14 OZ 18 270302 STE 14 SA 16 270078 STE 30 SB	■ Rezoning ■ Site Plan Approval ■ Subdivision Approval	■ The East Harbour Transit Oriented Communities proposal requests land use permissions to develop 9 office towers ranging from 31-48 storeys in height, and 9 residential towers ranging from 23-65 storeys in height, adjacent to the future East Harbour transit hub. The addition of residential permissions is a change from the approved planning framework completed in 2018 which envisions an office employment hub, with no residential permissions. The proposal is now for 1,228,000 square metres of development, including 926,000 square metres of commercial development and 302,000 square metres of residential. This application is related to the subdivision application 16 270078 STE 30 SB which is currently under review by staff. ■ Site Plan Approval Application for the redevelopment and adaptive re-use of the Soap Factory Building at East Harbour. The Soap Factory Building is the first phase of a comprehensive, master planned commercial redevelopment in the Unilever Precinct, enabled by the Unilever Precinct Secondary Plan (Official Plan Amendment 411) and the East Harbour Zoning By-laws (By-laws No. 1280-2018 and 1281-2018), encompassing a broad variety of non-residential uses. ■ Plan of subdivision respecting the proposed East Harbour development.	■ Under Review ■ Under Review ■ Under Review
LSEJC-2	405 Eastern Avenue 19 262835 STE 14 SA	■ Site Plan Approval	■ Proposal to demolish the existing 670 m^2 Enbridge operations building and construct a new three-storey office space facility fronting onto Eastern Avenue. Below-grade parking is proposed, and accesses as well as the existing rear operations yard will be re-organized and re-paved. The natural gas gate station operations onsite will remain unchanged.	■ Under Review
LSEJC-3	462 Eastern Avenue 12 148473 STE 30 OZ	■ Official Plan Amendment and Rezoning	■ 9-storey mixed use building with 308 units proposed.	■ Under Review
LSEJC-4	79 East Don Roadway 19 239061 STE 14 CD 19 104850 STE 14 CD 16 106006 STE 30 SA	■ Condominium Approval ■ Condominium Approval ■ Subdivision Approval	■ Draft Plan of Condominium for 5 commercial condo units located within the south-west and north-west buildings located at 77-79 East Don Roadway (Riverside Square). ■ Proposal for site plan approval related to 5 new mixed use buildings which are connected via 4 levels of below grade parking, fronting Queen St E is a 6 storey mixed use building containing commercial space, on the east side of the laneway are 14 and 12 storey mixed use buildings, fronting onto the east Don Roadway are 14 and 20 storey mixed use buildings, each building will contain residential, having a combined GFA of 85.472 square metres.	■ Under Review ■ Final Approval Completed ■ Final Approval Completed February 15, 2020
LSEJC-5	677 Queen Street East 14 176212 STE 30 OZ	■ Rezoning	■ Zoning By-law Amendment application revised SEPT 2015. Phasing line has changed and as a result there are now fewer units in Phase 2 and more in Phase 1. This circulation for File No 14 176212 is Phase 2 of two phase project. Both phases are being reviewed together (For Phase 1 please see application File No: 14 176221). Zoning By-law Amendment to permit a mixed-use development with a 4 and 5 storey podium and a height that ranges from 7 storeys along Queen Street East to 13 storeys mid-block. A total of 216 residential units are proposed. The existing automotive building would be demolished.	■ Under Review
LSEJC-6	685 Queen Street East 20 232679 STE 14 SA	■ Site Plan Approval	■ Proposal for the renovation of an existing heritage building with a rear 5-storey addition. In total, the project would have a gross floor area of 2,638 square metres. and contain 26 affordable co-op rental units. There would be one basement level, 3 at-grade parking spaces, and 28 bicycle parking spaces provided. The development is targeting Tier 2 of the Toronto Green Standard.	■ Under Review
LSEJC-7	761 Queen Street East 14 223583 STE 30 OZ 14 223587 STE 30 SA	■ Rezoning ■ Site Plan Approval	■ Rezoning application for a 6-storey (19.5 metre) mixed-use building containing commercial uses on the ground floor and 29 residential units above. 11 parking spaces are proposed in a parking sorter system with access via June Callwood Way to the rear of the property. The proposal is also subject to Site Plan Application No. 14 223587 STE 30 SA, which is being processed concurrently with this application. ■ 6-storey (19.5 metre) mixed-use building containing commercial uses on the ground floor and 29 residential units above. 11 parking spaces are proposed in a parking sorter system with access via June Callwood Way to the rear of the property. The proposal is also subject to Zoning By-law Amendment Application No. 14 223583 STE 30 OZ, which is being processed concurrently with this application. Note: the site is now under new ownership and we anticipate changes to the application in the future.	■ Under Review ■ Under Review

Map ID #	Address and File Number	Application Type	Application Details	Status
LSEJC-8	751 Queen Street East 20 233021 STE 14 SA	■ Site Plan Approval	■ Proposal for a 5-storey mixed-use building having a residential gross floor area of 1171.30 square metres, and a non-residential gross floor area of 86 square metres. A total of 9 residential dwelling units are proposed.	■ Under Review
LSEJC-9	772 Queen Street East 19 151768 STE 14 CD	■ Condominium Approval	■ Draft Plan of Condominium which will be comprised of 11 residential units, there is a commercial component of the site which will not be a part of this submission.	■ Under Review
LSEJC-10	8 De Grassi Street 17 279888 STE 30 SA	■ Site Plan Approval	■ Stie Plan Control application for a proposed 5-storey rental apartment building (17 units, 5 storeys, purpose built rental, residential only, 650.0 square metres). Associated MV application file# 17 265780 STE 30 MV. Councillor requested bump-up of application. UPDATE: Committee of Adjustment date postponed, date to be determined.	■ Under Review
LSEJC-11	13-17 Cummings Street 17 118388 STE 30 CD	■ Condominium Approval	■ Draft Plan of Condominium for recently-constructed 4-unit apartment building.	■ Draft Plan Approved
LSEJC-12	263 Logan Avenue 18 104539 STE 30 OZ 18 104543 STE 30 SA	■ Rezoning ■ Site Plan Approval	■ Zoning By-law amendment to allow the redevelopment of a parking lot with a 6-unit townhouse block (1828.0 square metres). The future townhouse lots will be parcels of tied land to a common element drive aisle.	■ Council Approved July 18, 2019 ■ Under Review
LSEJC-13	485 Logan Avenue 17 279882 STE 30 SA	■ Site Plan Approval	■ Site plan application for a 4-storey residential building with 41 dwelling units. The proposal includes a parking stacker for underground parking.	■ Notice of Approval Conditions Issued August 1, 2019
LSEJC-14	354-358 Pape Avenue 14 147891 STE 30 OZ 14 147899 STE 30 SA	■ Rezoning ■ Site Plan Approval	■ 8-storey (27.56 metre) mixed use building adjacent to the GO railway. The building is proposed to contain non-residential uses on the ground and second floors and 27 residential units above. A total of 22 vehicular parking spaces are proposed (10 spaces at grade and 12 below grade), and a total of 30 bicycle parking spaces are proposed (6 spaces at grade and 24 spaces below grade). 60 square metres of indoor amenity space and 164.3 square metres of outdoor amenity space are proposed. ■ Combine application for rezoning and site plan approval to permit a proposed mixed use development. The proposed building will be 8 storeys (24.6 metres in height) and comprised of 30 residential units and non residential uses on the ground floor and second floors. The proposal will have a total gross floor area of 2, 926 square metres for a total density of 3.12 times the lot area.	■ Under Review ■ Under Review
LSEJC-15	433 Pape Avenue 19 203446 STE 14 SA	■ Site Plan Approval	■ Site Plan Approval Application proposal to convert the existing 2-storey residential building into a day nursery (41 licensed spaces). The proposed work entails interior alterations, a 19.8 square metres second-storey addition at the front, and a 1.2 square metres two-storey addition at the rear.	■ Under Review
LSEJC-16	73 Saulter Street 19 237491 STE 14 PL 15 115050 STE 30 CD	■ Part Lot Control Exemption ■ Condominium Approval	■ Site plan approval to construct five single family dwellings (townhouse) located on the lands of 71-73 Saulter Street.	■ Approved Oct 17, 2019 ■ Draft Plan Approved Feb 12, 2015

Note: Data retrieved from City of Toronto Development Applications, 2021b: Development Applications. Available: http://app.toronto.ca/DevelopmentApplications/mapSearchSetup.do?action=init

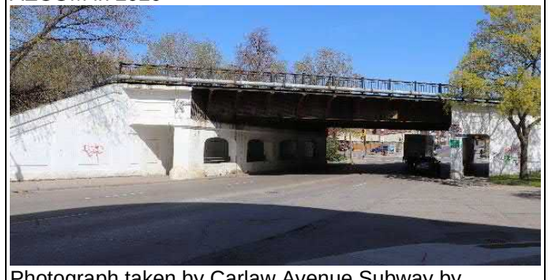
5.7 Built Heritage Resources and Cultural Heritage Landscapes

Based on data collection, including the review of the Ontario Line Cultural Heritage Report (AECOM, 2020b), the 40-year-old threshold, the Criteria Checklist (Ministry of Heritage, Sport, Tourism and Culture Industries, 2016), and the field reviews conducted for early works by a qualified cultural heritage professional on February 25, 2021, a list of known, previously identified and potential built heritage resources/cultural heritage landscapes in the Corktown Station Built Heritage Resources and Cultural Heritage Landscapes Study Area were compiled, as documented in **Table 5-14**. The built heritage resources/cultural heritage landscapes are mapped in **Figure 5-18**.

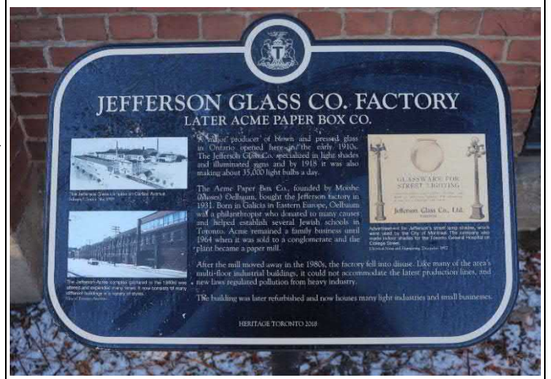
In summary, a total of 11 built heritage resources/cultural heritage landscapes are within the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area consisting of:

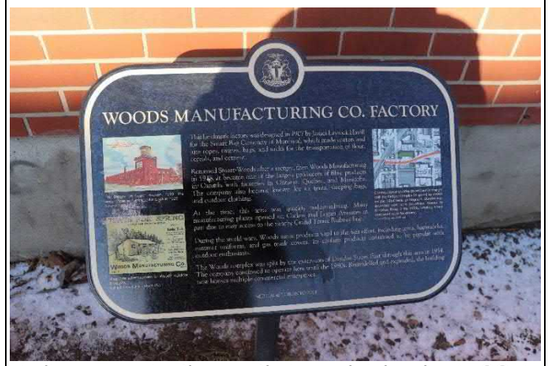
- One previously identified Metrolinx Provincial Heritage Property (OLS-014 – Carlaw Avenue Subway and Gerrard Street East Subway);
- One previously identified built heritage resource/cultural heritage landscape, which are also contributing properties in the Riverdale Heritage Conservation District, Designated Part V of the Ontario Heritage Act (OLS-123 – 15 and 17 Tiverton Avenue);
- Two previously identified built heritage resources/cultural heritage landscapes identified in previous heritage studies (OLS-122 – 6, 8 and 10 Paisley Avenue, OLS-124 – 60 and 62 McGee Street);
- Three potential built heritage resources/cultural heritage landscapes identified in the Ontario Line Cultural Heritage Report (OLS-015 – 400 Carlaw Avenue, OLS-016 – 1 Dickens Street, OLS-126 – De Grassi Street from Queen Street East to Wardell Street) (AECOM, 2020c);
- Two Listed properties on the City of Toronto’s Heritage Register; one that was included in the Ontario Line Cultural Heritage Report (OLS-013 – 840 Gerrard Street East) (AECOM, 2020c), and one that was identified in this Heritage Detailed Design Report (LSE-001 – 369 Carlaw Avenue);
- One Heritage Conservation District, Designated Part V of the Ontario Heritage Act (OLS-017 – Riverdale Heritage Conservation District); and
- One Heritage Conservation District currently under study (OLS-018 – Queen Street East – Riverside Heritage Conservation District).

Table 5-14: Description of Known, Previously Identified and Potential Built Heritage Resources/Cultural Heritage Landscapes Within the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area

Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
OLS-013	Civic	840 Gerrard Street East - Fire Station #324	■ Listed on the Municipal Heritage Register (April 1, 1982)	**Fire Station #324- 840 Gerrard Street East** **Design or Physical Value:** ■ Two storey buff brick firehall with Art Deco design features including decorative stone frontispiece with fire and lightning bolt detail **Historical or Associative Value:** ■ Built in 1931 (1934) ■ J.J. Woolnough, City architect; K.S. Gillies, assistant; S.T.J. Fryer, designer ■ Originally known as Station 12 ■ Only Toronto fire station built in the Art Deco style **Contextual Value:** ■ Located on the north side of Gerrard Street East ■ Important feature in Riverdale neighbourhood **Potential to Meet Ontario Regulation 10/06:** No **Heritage Attributes:** ■ Location on Gerard Street East Avenue ■ Art Deco design details, symmetrical with three bays, carved stone detail in stone frontispiece above central bay which shows a fire and lightning bolt, flat-headed eight-over-four sash windows on second storey, three vehicle entrance on ground floor, flat roof	 Photograph taken of OLS-013 by AECOM in 2021
OLS-014	Bridge	Carlaw Avenue and Gerard Street East Subway	■ Previously Identified built heritage resource/ cultural heritage landscape ■ Metrolinx Provincial Heritage Property	**Lakeshore East Railway Corridor - subways of Gerrard Street East and Carlaw Avenue** **Design or Physical Value:** ■ Designed as a linked three span subway structure that carries three tracks over Carlaw Avenue and Gerrard Street East. ■ Steel plate girder structures that forms the main spans of the subways, and railway embankment that carries the rail corridor with reinforced concrete abutments with pedestrian spans **Historical or Associative Value:** ■ Constructed 1930-1931 as a grade separation project in response to an increasing number of accidents at the former grade crossings ■ Constructed by the Canadian Bridge Company Limited (superstructure) ■ Constructed by Richardson Construction Company (substructure) **Contextual Value:** ■ Located at Gerrard Street East and Carlaw Avenue ■ The two main spans, the Carlaw Ave. subway and Gerrard Street East. subway were separated into two Cultural Heritage Evaluation Recommendations Reports (CHERRs) completed by AECOM, August 2016. Both spans were determined to meet Ontario Regulation 9/06 but not Ontario Regulation 10/06. **Potential to Meet Ontario Regulation 10/06:** No **Heritage Attributes:** ■ Scale and mass of the structures ■ Concrete abutments with pedestrian spans/walkways constructed into an earthen embankment ■ Concrete arcaded piers separating pedestrian traffic from vehicular traffic ■ Concrete panelling and decorative details that are represented in similar subway structures along the corridor ■ Steel plate girders ■ Community murals on bridge abutments and wind-walls ■ Aluminum sculpture installation: Blue Fire (1996) by Dereck Rivington	 Photograph of Gerrard Street East Subway, taken by AECOM in 2020  Photograph taken by Carlaw Avenue Subway by AECOM in 2020

31. For consistency and ease, the built heritage resources/cultural heritage landscape reference numbers were retained from those resources excerpted from the existing conditions tables in the Cultural Heritage Report (AECOM, 2020a)

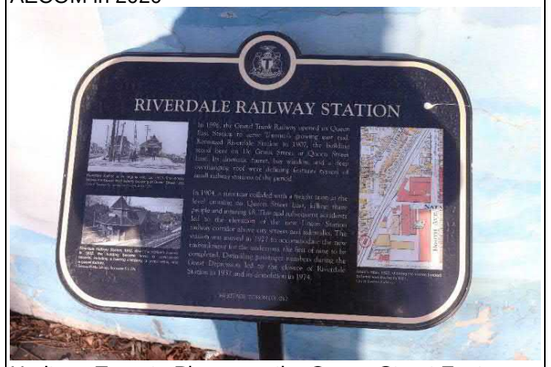
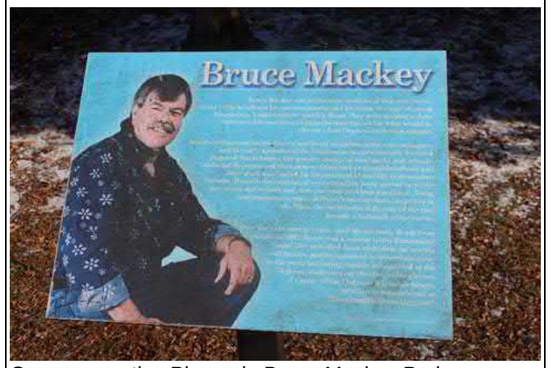
Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
OLS-015	Industrial	400 Carlaw Avenue – Jefferson Glass Co. Factory	■ Potential built heritage resource/cultural heritage landscape – identified in the Ontario Line Cultural Heritage Report (AECOM, 2020a)	**400 Carlaw Avenue – Jefferson Glass Co. Factory** **(Location of a commemorative installation a part of the Made in Toronto, A Digital Walking Tour)** **Design or Physical Value:** ■ Two and three-storey brick clad former industrial complex with a large industrial chimney at the rear. Central sections of building display have brick and stone detailing, north and south sections likely later additions **Historical or Associative Value:** ■ Earliest section of building illustrated on 1913 the Goad Fire Insurance Plan, City of Toronto ■ Jefferson Glass Co. in 1912, at peak made 35,000 bulbs a day at this site. ■ Purchased by Moishe Oelbaum of the Acme Paper Box Co. in 1931 ■ The 1932 and 1933 City Directories list the Glass Art Cut China Co. factory at 400 Carlaw Avenue ■ Central section of Carlaw Avenue building constructed between 1913 and 1924 ■ Associated with the Carlaw-Dundas factories established in the area with manufactured a diverse range of products **Historical plaque transcription:** ■ A major producer of Ontario blown and pressed glass opened here in the early 1910s. The Jefferson Glass Co. specialized in light shades and illuminated signs and by 1918 it was also making about 35, 000 light bulbs a day. The Acme Paper Box Co., founded by Moishe (Moses) Oelbaum, bought the Jefferson factory in 1931. Born in Galicia in Eastern Europe, Oelbaum was a philanthropist who donated to many causes and helped establish several Jewish schools in Toronto. Acme remained a family business until 1964 when it was sold to a conglomerate and the plant became a paper mill. After the mill moved away in the 1980s, the factory fell into disuse. The area's multi-floor industrial buildings could not accommodate the latest production lines and new laws regulated pollution from heavy industries. The building was later refurbished and now houses many light industries and small businesses. **Contextual Value:** ■ Property occupies the entire street frontage on the west side of Carlaw Avenue between Dickens Street and the railway ■ Building has a very shallow set-back with a small front lawn ■ Located in the Leslieville neighbourhood **Potential to Meet Ontario Regulation 10/06:** No **Potential Heritage Attributes:** ■ Two and three-storey brick clad commercial building constructed in phases during the 20th century. ■ Central section of Carlaw Avenue façade with paired, voussoir arched window separated by brick pilasters with chamfered stone capitals ■ Large industrial chimney at rear	 Photograph of 400 Carlaw Avenue, taken by AECOM in 2020  Heritage Toronto Plaque. Photograph taken by AECOM in 2020.

Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
OLS-016	Industrial	1 Dickens Street – Woods Manufacturing Company	■ Potential built heritage resource/cultural heritage landscape – identified in the Ontario Line Cultural Heritage Report (AECOM, 2020a)	**Woods Manufacturing Company - 1 Dickens Street (Location of Heritage Toronto Plaque)** **Design or Physical Value:** ■ Three-storey commercial building with a five-storey rectangular tower at northwest corner **Historical or Associative Value:** ■ Constructed 1907 ■ Designed by architect James Layrock Havill ■ Occupied by the Woods Manufacturing Co., makers of cotton-fibre products such as tents, bags, and canvas **Historical Plaque Transcription:** ■ WOODS MANUFACTURING CO. FACTORY – This landmark factory was designed in 1907 by James Layrock Havill for the Smart Bag Company of Montreal, which made cotton and jute ropes, twines, bags, and sacs, for the transportation of flour, cereals, and cement. – Renamed Smart-Woods after a merger, then Woods Manufacturing in 1918, it became one of the largest producers of fibre products in Canada, with factories in Ontario, Quebec, and Manitoba. The company also became known for its tents, sleeping bags, and outdoor clothing. – At the time this area was quickly industrializing. Many manufacturing plants opened on Carlaw and Logan Avenues in part due to the access to the nearby Grand Trunk Railway Line. – During the World Wars, Woods made products vital to the war effort, including tents, hammocks, summer uniforms, and gas mask covers. Its civilian products continued to be popular with outdoor enthusiasts. – The Woods complex was split by the extension of Dundas Street East through this area in 1954. The company continued to operate here until the 1980s. Remodelled and expanded, the building now houses multiple commercial enterprises. **Contextual Value:** ■ Located on north side of Dundas Street at the corner of Jones Avenue ■ Tower with “Woods Plant No. 2” painted signage is a local landmark **Potential to Meet Ontario Regulation 10/06:** No **Potential Heritage Attributes:** ■ Three-storey brick commercial/industrial building with flat roof. Dickens Street Façade with large voussoir arched window openings separated by brick pilasters with chamfered stone capitals. Recessed bays on Jones Avenue façade with brick pilasters and corbelled brickwork at top. Tower at northwest corner of building with crenellation along roofline, recessed panel details, and surviving Woods Company painted signage	 Photograph of OLS-016, taken by AECOM in 2020  Heritage Toronto Plaque. Photograph taken by AECOM in 2020.

Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
OLS-017	Cultural Heritage Landscape-Heritage Conservation District	Riverdale Heritage Conservation District	■ Designated Part V of the Ontario Heritage Act (By-law 951-2008)	**Riverdale Heritage Conservation District (Location of Heritage Toronto Plaque)** **Riverdale Heritage Conservation District boundary:** ■ The Heritage Conservation District boundaries are established to capture all properties east of De Grassi Street on First Avenue (except St. Ann's Roman Catholic Church and rectory (see below), and all properties fronting on Tiverton and West Avenues, which are part of two adjacent plans of subdivision, some of the first to occur after annexation of this area in 1884. Even though there are several non-contributing properties on the west side of West Avenue, it is important to include both sides of the street in order to allow for restoration of lost heritage attributes over time. **The history and identity of the Riverdale Heritage Conservation District result from:** ■ The large number of original buildings, with the majority of heritage attributes present or capable of being restored ■ Mixture of architectural styles including Bay-n-Gable, Second Empire, and scaled-down Edwardian Four Square ■ The relative completeness of the original fabric and its relatively early period of development **Heritage Character Statement:** ■ *The significance of these streets lies in the large number of original buildings, with the majority of their heritage attributes present or capable of being restored. The streets were some of the earliest developed on the east side of the Don River, and reflect the period of development which stretched from the mid 1880s to the First World War. The houses are a mixture of the "Bay-n-Gable" style, Second Empire Row houses, and examples of modest scaled Edwardian Four Square. The houses were built for working class residents and are generally modest in scale and detail. It is the relative completeness of the "sets," and the relatively early period of development in a generally later community, that warrants protection under Part V of the Ontario Heritage Act. It is the continuity of the heritage fabric that is most important to protect, preserve and restore.* **Potential to Meet Ontario Regulation 10/06:** No **Heritage Attribute Categories (Section 6 of the Heritage Conservation District Plan):** ■ Built form and current (unaltered) condition ■ Architectural styles ■ First Avenue ■ Tiverton Avenue ■ West Avenue ■ No contributing properties are within the Lakeshore East Joint Corridor early works. One non-contributing property at 242 First Avenue is within the Lakeshore East Joint Corridor Early Works Project Footprint – Dundas Street East. to Gerard Street East. (Section 8.3, page 43 of the Heritage Conservation District Plan)	 Heritage Conservation District Plan By-Law #951-2008: https://www.toronto.ca/legdocs/bylaws/2008/law0951.pdf Heritage Conservation District Plan: https://www.toronto.ca/legdocs/mmis/2008/te/bgrd/backgroundfile-14121.pdf  Photograph of house on Tiverton Avenue, taken by AECOM in 2020.
OLS-018	Cultural Heritage Landscape-Heritage Conservation District	Queen Street East Riverside Heritage Conservation District	■ Heritage Conservation District, under study	■ The Queen Street East – Riverside heritage conservation district is currently under study by the City of Toronto. At the time of this Report, little accessible information on the proposed heritage conservation district is available. The proposed heritage conservation district extends along Queen Street East from East Don Roadway to De Grassi Street. ■ Eight properties within the Queen Street East - Riverside heritage conservation district boundaries are designated under Part IV of the Ontario Heritage Act, 10 are listed on the City of Toronto's Heritage Inventory. Currently there is no Study or Plan for the heritage conservation district available online or map illustrating contributing properties within the proposed heritage conservation district boundaries.	Plan photo not available.

Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
OLS-122	Residential	6,8,10 Paisley Avenue	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017b)	**6, 8, 10 Paisley Avenue** **Design or Physical Value:** ■ The triplex consists of two-and-a-half storey brick veneer bay-and-gable houses. Includes stained glass, decorative brickwork in the form of fielded panels and a string course. The steep roof is influenced by Gothic Revival **Historical or Associative Value:** ■ Constructed between 1903 and 1908 ■ Part of the earliest streets developed in Toronto ■ Associated with working-class area **Contextual Value:** ■ West of the rail corridor on a railway embankment that extends eastwards from Union Station ■ East side of the Don River ■ Streetscape has remained relatively unchanged since the development in the early 20th century ■ A Cultural Heritage Evaluation Recommendations Report was completed by AECOM, Jan. 2017. The properties were determined in the Cultural Heritage Evaluation Recommendations Report to meet Ontario Regulation 9/06 but not Ontario Regulation 10/06. **Potential to Meet Ontario Regulation 10/06:** No **Heritage Attributes:** ■ Scale and mass of the structure; ■ The prominent projecting bay with a steeply pitched gable; ■ Unifying features, such as the continuous brick string courses across all three houses; ■ The field panels; ■ Stained glass, and; ■ Fenestration	 Photograph of OLS-122 taken by AECOM in 2020
OLS-123	Residential	15-17 Tiverton Avenue	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017c) ■ Contributing property in the Riverdale Heritage Conservation District, Designated Part V of the Ontario Heritage Act (By-law 951-2008)	**15 and 17 Tiverton Avenue** **Design or Physical Value:** ■ A pair of one-and-a-half storey worker's cottages constructed of brick **Historical or Associative Value:** ■ Built in 1905 ■ Designed by E.J. Lennox for lawyer and businessman David Fasken as income properties **Contextual Value:** ■ West of the Metrolinx Lakeshore East rail corridor ■ Contributing property within the Riverdale Heritage Conservation District ■ East side of the Don River ■ A Cultural Heritage Evaluations Recommendations Report (CHERR) was completed by AECOM, January 2017. The properties were determined in the Cultural Heritage Evaluation Recommendations Report to meet Ontario Regulation 9/06 but not Ontario Regulation 10/06. **Potential to Meet Ontario Regulation 10/06:** No **Heritage Attributes:** ■ Scale and mass of the structure as part of a cohesive cultural landscape of small workers' homes, particularly the similar duplex at 19-21 Tiverton, probably also by Lennox; ■ The location within the Riverdale Heritage Conservation District; ■ The symmetrical façade with polygonal dormers; ■ Original materials, including the brick and any other details that are extant	 Photograph of OLS-123 taken by AECOM in 2020

Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
OLS-124	Residential	60-62 McGee Street	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017d)	**60 and 62 McGee Street** **Design or Physical Value:** ■ A six-bay, two-storey double frame house with polychromatic brick veneer and a medium pitched side gable roof with end chimneys. The symmetrical main façade of the house features a central porch with a bellcast roof. The segmentally arched window openings have polychromatic brick hood mouldings incorporating decorative pressed brick. ■ Rare style of house within the City of Toronto **Historical or Associative Value:** ■ Constructed between 1875 and 1881 **Contextual Value:** ■ West side of McGee Street between Queen Street East and Eastern Avenue ■ Don River and Don Valley Parkway are located approximately 1.5 kilometers west of the McGee Street Houses ■ Located in a mixed area of commercial, residential, and recreational properties ■ Streetscape has remained relatively unchanged since the early 20th century ■ Developed into a working-class area ■ A Cultural Heritage Evaluations Recommendations Report (CHERR) was completed by AECOM, January 2017. The property was determined in the Cultural Heritage Evaluation Recommendations Report to meet Ontario Regulation 9/06 but not Ontario Regulation 10/06. **Potential to Meet Ontario Regulation 10/06:** No **Heritage Attributes:** ■ Scale and mass of the structure; ■ The symmetry of the street façade; ■ The polychromatic treatment of the veneer; ■ Extant window(s), door surrounds with transom lights; ■ Original materials, including the brick and any other details that are extant; and ■ Pitch of the roof	 Photograph of OLS-124 taken by AECOM in 2020

Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
OLS-126	Streetscape- Cultural Heritage Landscape	DeGrassi Street – Streetscape De Grassi Street from Queen Street East to Wardell Street	■ Potential built heritage resource/cultural heritage landscape – identified in the Ontario Line Cultural Heritage Report (AECOM, 2020a)	**De Grassi Street- streetscape** **(Location of Heritage Toronto Plaque)** **Design or Physical Value:** ■ Streetscape that includes adjacent row of houses that are distinctively tall, semi-detached houses with a gable centred over the two entrances, located on the west side of the street ■ Bruce Mackey Park on the east side of the street ■ Workers cottages- cottage style (i.e., 52 De Grassi Street) **Historical or Associative Value:** ■ A side street named after Captain Filippo “Philip” De Grassi, an Italian-born soldier who emigrated to Canada in 1831 ■ A number of residences on the west side of the street built between 1884 and 1890/Goad Insurance Plans ■ Street was the location of the early episodes for the world famous Degrassi TV series ■ Workers cottages built on De Grassi Street when manufacturing companies operated in the area- featured in Self-Guided Walking Tour of Riverside Architecture **Contextual Value:** ■ Located in south Riverdale neighbourhood, runs one-way northbound from Queen Street East to Gerrard Street **Potential to Meet Ontario Regulation 10/06:** No **Potential Heritage Attributes:** ■ Historical plaque for the Riverdale Railway Station affixed to the sidewalk, adjacent to the northwest wingwall of the Queen Street East subway ■ 19th century row of two storey semi-detached houses on the west side of the street, including workers cottages ■ Group of plaques in the Bruce Mackey Park, adjacent to the west side of the Lakeshore East railway tracks	 Photograph taken of De Grassi Street streetscape by AECOM in 2020  Heritage Toronto Plaque on the Queen Street East subway. Photograph taken by AECOM in 2020.  Commemorative Plaque in Bruce Mackey Park. Photograph taken by AECOM in 2020.

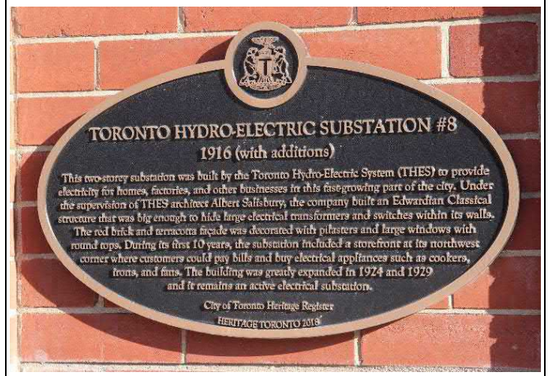
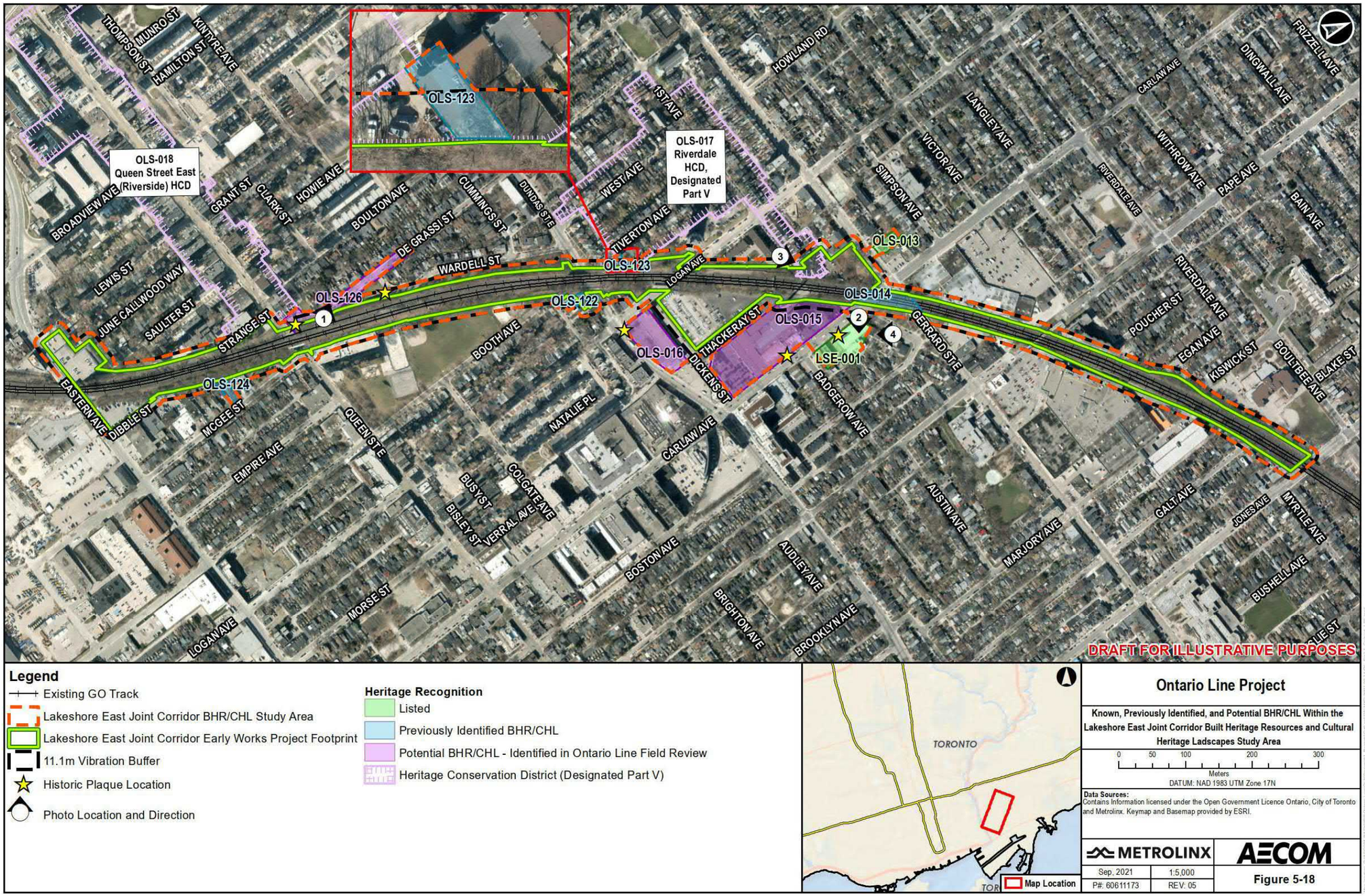
Cultural Heritage Report Ref. No.[31]	Type of Property	Location /Address	Heritage Recognition	Description of Known or Potential Cultural Heritage Value or Interest and Heritage Attributes	Photographs/Digital Image
LSE-001	Industrial	369 Carlaw Avenue – Toronto Hydroelectric Substation #8	■ Listed on City of Toronto Heritage Register (May 6 & 7, 1991) ■ (Identified in this Heritage Detailed Design Report)	**Toronto Hydroelectric Substation #8 – 369 Carlaw Avenue (Location of Heritage Toronto Plaque)** **Design or Physical Value:** ■ Designed as a two-story hydroelectric substation to provide electricity to local industry and residents ■ Edwardian-Classical design with nine-bay west façade, four bay north façade, and rounded northwest corner. ■ Size and scale of the structure was necessary to enclose early electrical transformer equipment which could not be used outside. ■ Formerly contained a storefront on the northwest corner, evidence of this is still visible in the brickwork and foundation wall. **Historical or Associative Value:** ■ Constructed in 1916 with a southern addition in 1924, and eastern addition in 1929 ■ Designed by Albert Salisbury (1887-1955), staff architect with the Toronto Hydro Electric System who oversaw the design of more than twenty transformer stations in the City of Toronto between 1912 and 1950. **Historical Plaque Transcription** ■ TORONTO HYDROELECTRIC SUBSTATION #8, 1916 (with additions) – This two-storey substation was built by the Toronto Hydro-Electric System (THES) to provide electricity for homes, factories, and other businesses in this fast-growing part of the city. Under the supervision of THES architect Albert Salisbury, the company built an Edwardian Classical structure that was big enough to hide large electrical transformers and switches within its walls. The red brick and Terra Cotta façade is decorated with pilasters and large windows with round tops. During its first 10 years, the substation included a storefront at its northwest corner where customers could pay bills, and buy electrical appliances such as cookers, irons, and fans. The building was greatly expanded in 1924 and 1929 and remains an active substation. **Contextual Value:** ■ Located on the east side of Carlaw Avenue, south of the railway subway at Gerrard Street East **Potential to Meet Ontario Regulation 10/06:** No **Heritage Attributes:** ■ Two-storey massing of structure ■ Edwardian-Classical Design ■ Red brick façade with pilasters ■ Arched window openings with concrete keystone details ■ Decorative Terra-Cotta cornice with bracket course ■ Carlaw Avenue entranceway with Terra-Cotta cladding, decorative brackets and cornice.	 Photograph of LSE-001 taken by AECOM in 2020.  Heritage Toronto Plaque. Photograph taken by AECOM in 2020.

Figure 5-18: Known, Previously Identified and Potential Built Heritage Resources/Cultural Heritage Landscapes Within the Lakeshore East Joint Corridor Built Heritage Resources and Cultural Heritage Landscapes Study Area



5.8 Archaeological Resources

As per the results of the Stage 1 archaeological assessment developed for the Project, the majority of the Lakeshore East Joint Corridor Early Works Project Footprint has been cleared of archaeological concerns by previous archaeological assessments completed by multiple consultants, including AECOM (2016; 2020b) and ASI (2017). However, there are several areas retaining high to moderate archaeological potential within the Lakeshore East Joint Corridor Early Works Project Footprint. In addition to the possibility of uncovering Indigenous artifacts, these areas have higher potential to uncover various 19th century sites related to the City of Toronto expansion.

The archaeological resources present within the Lakeshore East Joint Corridor Early Works Project Footprint are shown in **Figure 5-19**.

Figure 5-19: Archaeological Resources Within the Lakeshore East Joint Corridor Early Works Project Footprint

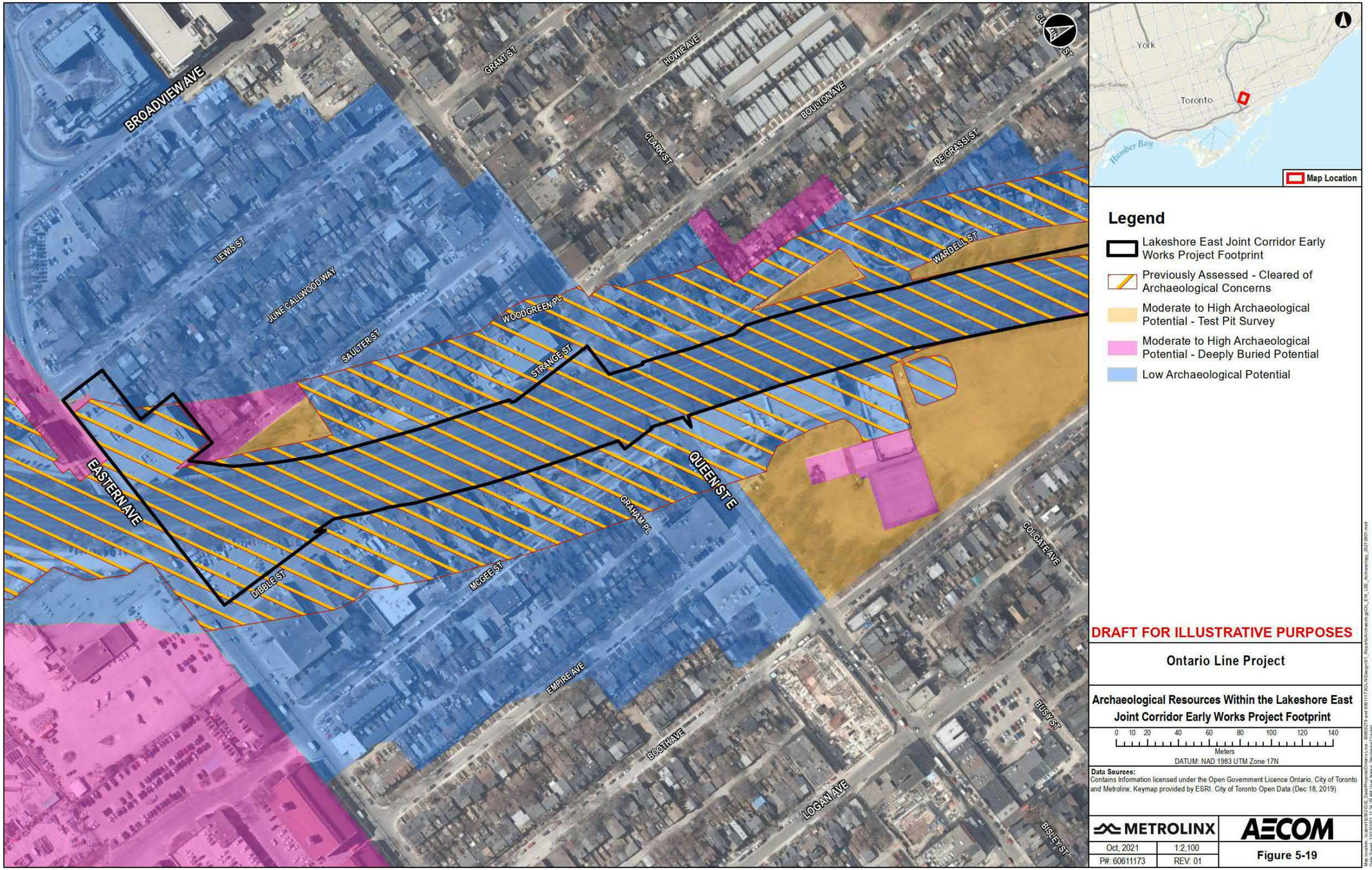


Figure 5-19: Archaeological Resources Within the Lakeshore East Joint Corridor Early Works Project Footprint

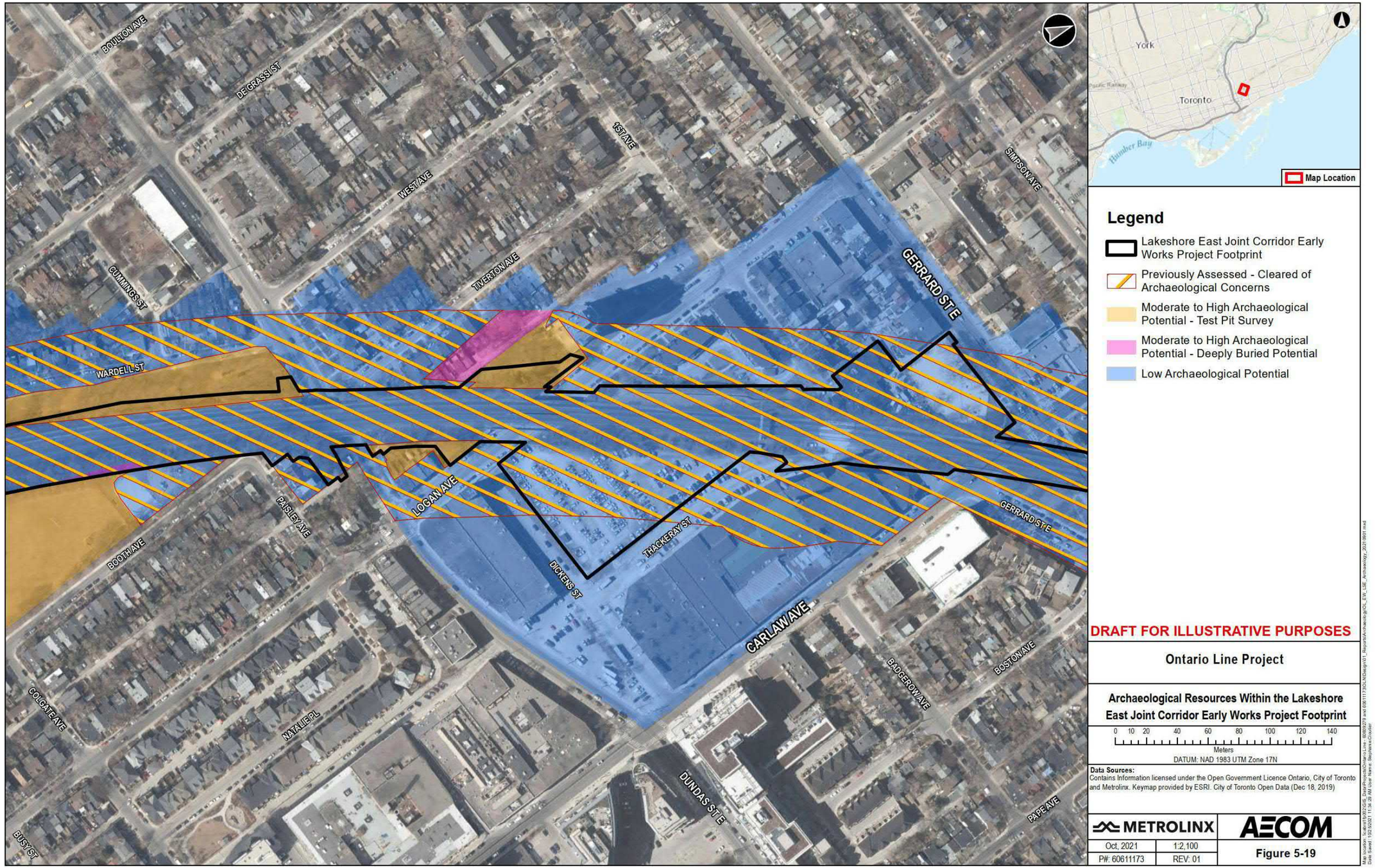
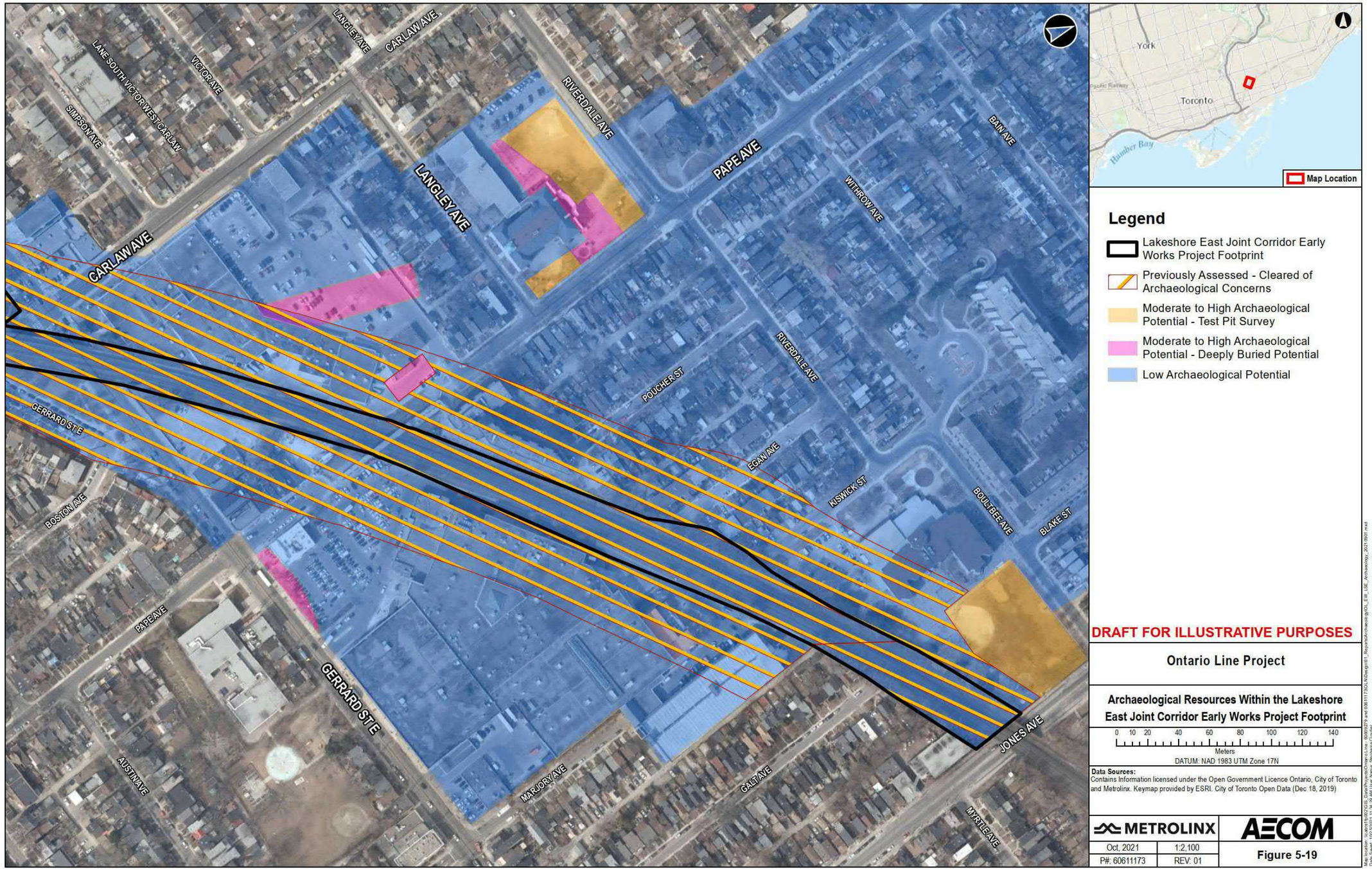


Figure 5-19: Archaeological Resources Within the Lakeshore East Joint Corridor Early Works Project Footprint



5.9 Traffic and Transportation

5.9.1 Road Network and Intersection Operations

As outlined in **Section 4.9** above, the Ontario Line Final Environmental Conditions Report (AECOM, 2020)[32] notes that turning movement counts and signal timing plans were not available at some intersections within the Ontario Line Study Area, and were not collected through new traffic surveys considering the uncharacteristic traffic conditions as a result of the COVID-19 pandemic. As a result of the data limitations related to the identified road network within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, a quantitative traffic assessment of some intersections could not be undertaken.

5.9.1.1 Road Network

An overview of the roads located within the Lakeshore East Joint Corridor Traffic and Transportation Study Area is described below. All the described roads are under the jurisdiction of the City of Toronto and are classified according to the City of Toronto's Road Classification System Update (City of Toronto, 2018b). As part of the City of Toronto's Vision Zero strategy, the City has been implementing speed reductions for several streets within the City (City of Toronto, 2020b). Posted speed reductions that have already been implemented on the roads located within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, if any, are reflected in the description below.

Eastern Avenue is a major east-west arterial road with a four-lane cross-section and a posted speed of 30 kilometres per hour.

Queen Street East and **Gerrard Street East** are minor east-west arterial roads with four-lane cross-sections and posted speeds of 40 kilometres per hour. The median lane in each direction is shared by general vehicles and streetcars.

Dundas Street East is a minor east-west arterial road with a two-lane cross-section and a posted speed of 40 kilometres per hour.

Jones Avenue is a minor north-south arterial road with a two-lane cross-section and a posted speed of 40 kilometres per hour.

32. The Ontario Line Final Environmental Conditions Report (AECOM, 2020) was published on November 30, 2020 in accordance with Ontario Regulation 341/20: Ontario Line Project.

Carlaw Avenue is a minor north-south arterial road with a four-lane cross-section. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, the section of Carlaw Avenue between Eastern Avenue and Queen Street has a posted speed of 40 kilometres per hour and the section between Queen Street and Gerrard Street is assumed to have a statutory speed limit of 50 kilometres per hour, with the absence of posted speed signs.

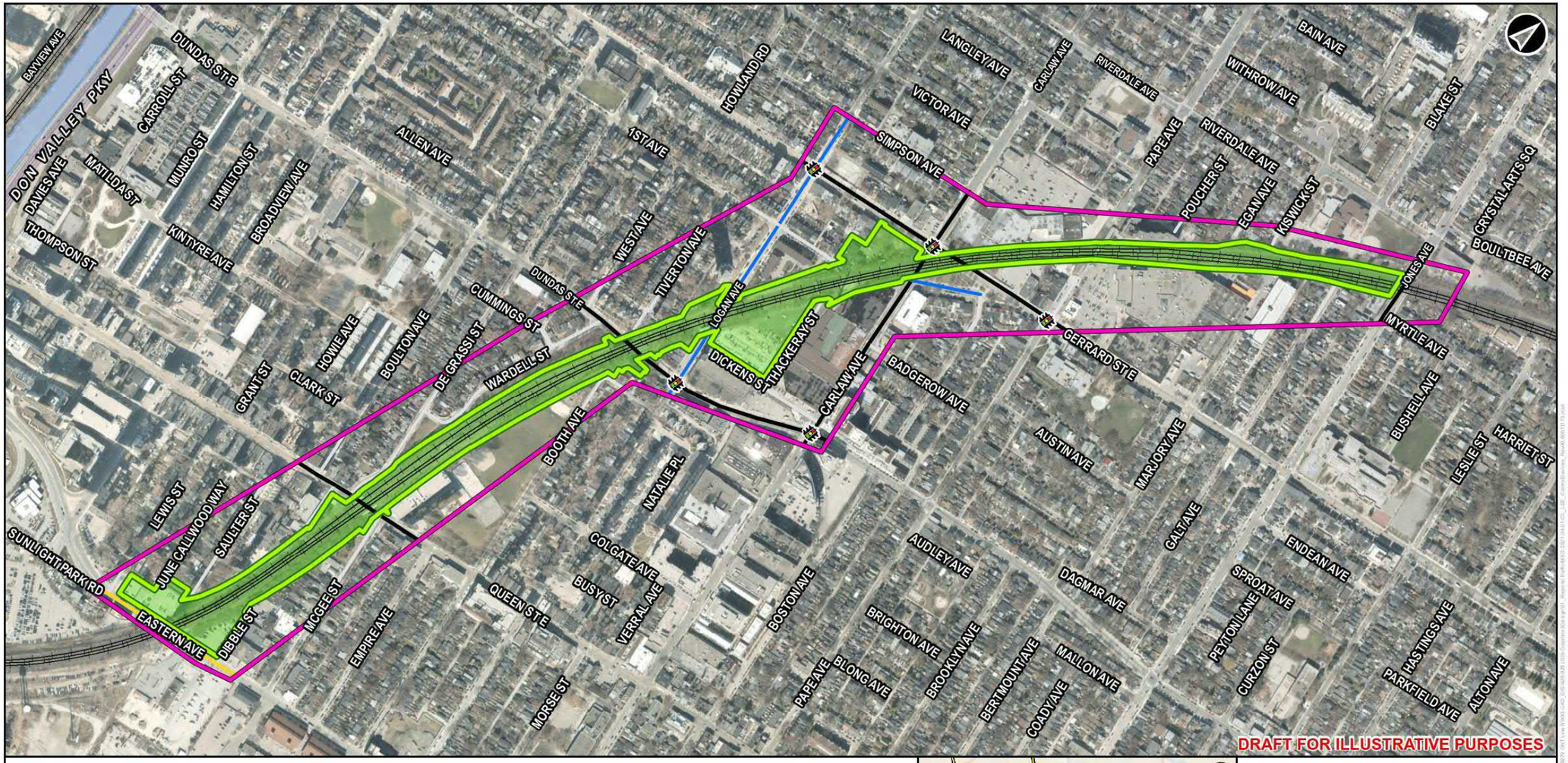
Logan Avenue is a north-south collector road with a two-lane cross-section. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, the section of Logan Avenue between Gerrard Street and Dundas Street has a posted speed of 40 kilometres per hour and the section between Dundas Street and Eastern Avenue has a posted speed of 30 kilometres per hour.

Pape Avenue is a north-south local road with a two-lane cross-section and a posted speed of 30 kilometres per hour.

Booth Avenue and **McGee Street** are local roads that run one-way in the southbound direction. Both roads have a posted speed of 30 kilometres per hour.

Figure 5-20 presents the existing road network, road classification, and the traffic control devices of the intersections within the Lakeshore East Joint Corridor Traffic and Transportation Study Area.

Figure 5-20: Existing Road Network Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area



5.9.1.2 Intersection Operations

The analysis findings on traffic operations at the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections in the Existing Conditions (2020) are summarized in **Table 5-15**. The detailed Highway Capacity Manual (Transportation Research Board, 2000) reports from Synchro pertaining to the existing conditions analysis are presented in **Appendix A5**.

As shown in **Table 5-15**, all the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections operate at acceptable level of service 'C' or better and within capacity in both the AM and PM peak hours. In addition, all individual movements at the studied intersections operate at acceptable level of service 'C' or better.

5.9.2 Pedestrian Network and Operations

5.9.2.1 Pedestrian Network

Pedestrians are accommodated through sidewalks provided along both sides of the following streets located within the Lakeshore East Joint Corridor Traffic and Transportation Study Area:

- Eastern Avenue;
- Queen Street East;
- Dundas Street East;
- Gerrard Street East;
- Logan Avenue;
- Carlaw Avenue;
- Pape Avenue;
- Jones Avenue;
- Booth Avenue; and,
- McGee Street.

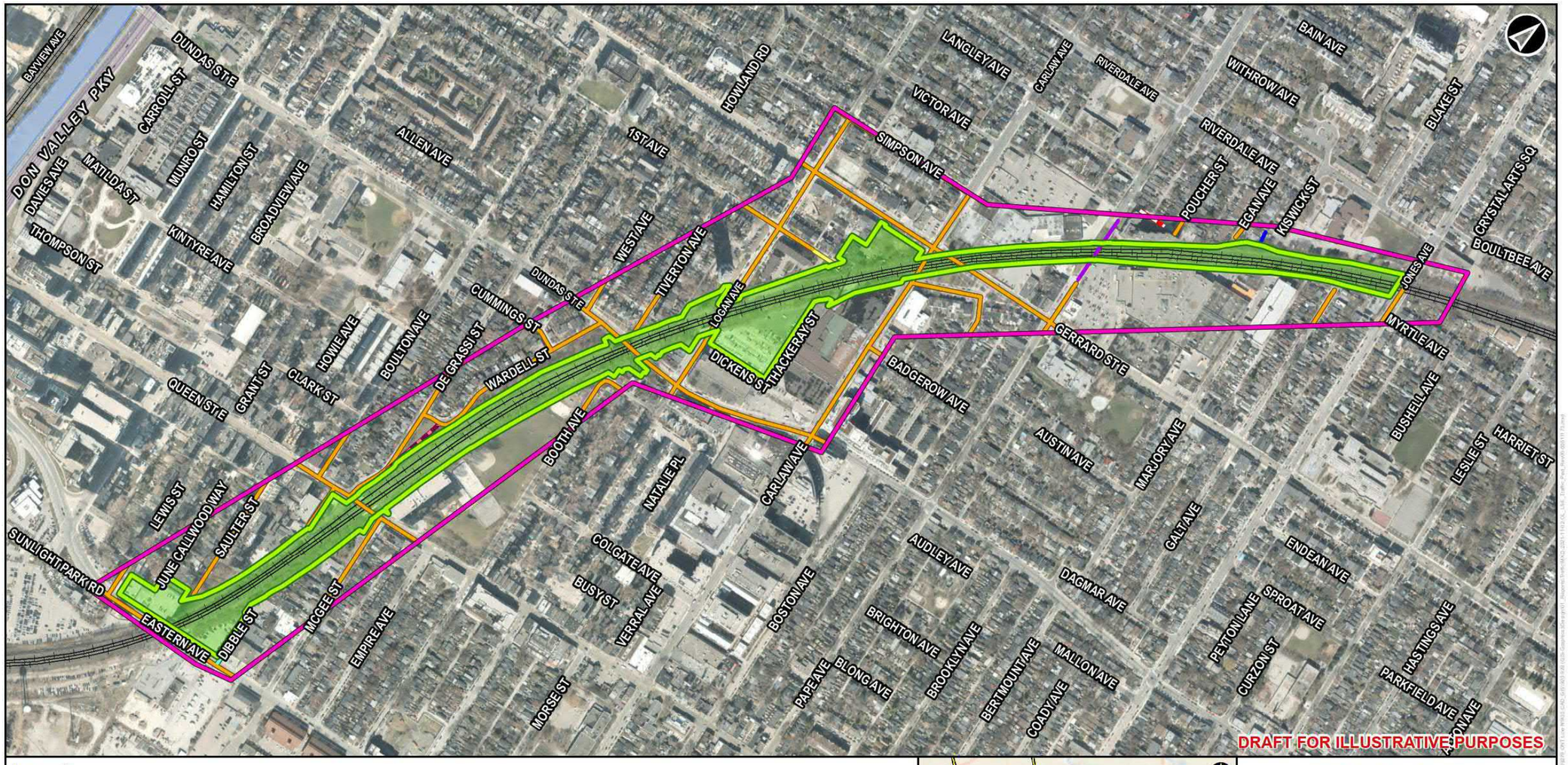
In addition, painted crosswalks are provided across all legs of the signalized intersections located within the Lakeshore East Joint Corridor Traffic and Transportation Study Area. **Figure 5-21** illustrates the location and type of pedestrian facilities provided within the Lakeshore East Joint Corridor Traffic and Transportation Study Area. **Figure 5-21** illustrates the location and type of pedestrian facilities provided within the Lakeshore East Joint Corridor Traffic and Transportation Study Area.

Table 5-15: Traffic Operations at the Lakeshore East Joint Corridor Traffic and Transportation Study Area Intersections under Existing Conditions (2020) during the AM and PM Peak Hours

Synchro ID: Intersection	Movement	AM Peak Hour Volume to Capacity Ratio	AM Peak Hour Delay (sec)	AM Peak Hour Level of Service	AM Peak Hour 95th Percentile Queue (metres)	PM Peak Hour Volume to Capacity Ratio	PM Peak Hour Delay (sec)	PM Peak Hour Level of Service	PM Peak Hour 95th Percentile Queue (metres)
320: Gerrard Street and Logan Avenue (Signalized)	EBLTR	0.21	6.1	A	15.6	0.51	9.5	A	48.5
320: Gerrard Street and Logan Avenue (Signalized)	WBLTR	0.51	3.3	A	13.3	0.26	14.1	B	30.3
320: Gerrard Street and Logan Avenue (Signalized)	NBLT	0.37	23.0	C	29.5	0.38	21.5	C	32.3
320: Gerrard Street and Logan Avenue (Signalized)	NBR	0.04	20.7	C	6.7	0.35	21.4	C	27.7
320: Gerrard Street and Logan Avenue (Signalized)	**Overall**	**0.47**	**6.8**	**A**	**-**	**0.47**	**13.2**	**B**	**-**
321: Gerrard Street and Carlaw Avenue (Signalized)	EBLTR	0.20	20.8	C	24.7	0.77	19.1	B	49.6
321: Gerrard Street and Carlaw Avenue (Signalized)	WBLTR	0.77	14.8	B	80.1	0.57	32.1	C	49.6
321: Gerrard Street and Carlaw Avenue (Signalized)	NBLTR	0.25	15.2	B	18.5	0.38	11.6	B	28.9
321: Gerrard Street and Carlaw Avenue (Signalized)	SBLTR	0.53	18.3	B	43.7	0.62	22.7	C	42.6
321: Gerrard Street and Carlaw Avenue (Signalized)	**Overall**	**0.66**	**16.6**	**B**	**-**	**0.65**	**21.0**	**C**	**-**
322: Gerrard Street and Pape Avenue (Signalized)	EBLTR	0.27	14.7	B	23.1	0.47	5.7	A	15.4
322: Gerrard Street and Pape Avenue (Signalized)	WBLTR	0.35	4.9	A	4.4	0.35	16.6	B	44.2
322: Gerrard Street and Pape Avenue (Signalized)	NBLTR	0.10	16.0	B	12.7	0.16	16.5	B	17.1
322: Gerrard Street and Pape Avenue (Signalized)	SBLTR	0.07	15.7	B	9.0	0.23	17.3	B	21.7
322: Gerrard Street and Pape Avenue (Signalized)	**Overall**	**0.25**	**9.7**	**A**	**-**	**0.37**	**11.7**	**B**	**-**
323: Dundas Street and Logan Avenue (Signalized)	EBL	0.14	9.2	A	7.1	0.15	7.6	A	10.9
323: Dundas Street and Logan Avenue (Signalized)	EBTR	0.31	10.0	A	36.3	0.57	11.7	B	86.7
323: Dundas Street and Logan Avenue (Signalized)	WBL	0.15	3.9	A	m3.4	0.18	13.9	B	m14.1
323: Dundas Street and Logan Avenue (Signalized)	WBTR	0.63	6.3	A	22.4	0.41	16.0	B	70.0
323: Dundas Street and Logan Avenue (Signalized)	NBLTR	0.45	23.8	C	43.6	0.79	34.3	C	72.1
323: Dundas Street and Logan Avenue (Signalized)	SBL	0.07	18.6	B	7.1	0.21	21.8	C	10.7
323: Dundas Street and Logan Avenue (Signalized)	SBTR	0.40	22.3	C	43.6	0.28	21.8	C	26.7
323: Dundas Street and Logan Avenue (Signalized)	**Overall**	**0.56**	**12.1**	**B**	**-**	**0.64**	**18.5**	**B**	**-**
324: Dundas Street and Carlaw Avenue (Signalized)	EBL	0.18	16.3	B	m9.9	0.17	6.9	A	m5.2
324: Dundas Street and Carlaw Avenue (Signalized)	EBTR	0.26	14.7	B	38.5	0.83	20.2	B	#162.2
324: Dundas Street and Carlaw Avenue (Signalized)	WBL	0.29	12.0	B	23.7	0.59	30.4	C	#28.3
324: Dundas Street and Carlaw Avenue (Signalized)	WBTR	0.70	18.3	B	106.9	0.40	12.6	B	50.0
324: Dundas Street and Carlaw Avenue (Signalized)	NBLTR	0.30	18.5	B	21.9	0.49	20.8	C	40.8
324: Dundas Street and Carlaw Avenue (Signalized)	SBLTR	0.59	22.3	C	53.6	0.46	20.7	C	35.2
324: Dundas Street and Carlaw Avenue (Signalized)	**Overall**	**0.65**	**18.6**	**B**	**-**	**0.69**	**19.0**	**B**	**-**

Notes: #: 95th percentile cycle volume exceeds capacity; queue may be longer
m: Volume for the 95th percentile queue is metered by an upstream signal

Figure 5-21: Existing Pedestrian Network Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area



5.9.2.2 Pedestrian Operations

The findings of the Pedestrian Level of Service analysis at the signalized intersections and road segments within the Lakeshore East Joint Corridor Traffic and Transportation Study Area in the Existing Conditions (2020) are summarized in **Table 5-16** and **Table 5-17**, respectively, and illustrated in **Figure 5-22**. The detailed Pedestrian Level of Service analysis results at the individual intersection approach level under the Existing Conditions (2020) are presented in **Appendix A5**.

As shown in **Table 5-16**, pedestrians experience critical Pedestrian Level of Service 'D' at all the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections except at the intersection of Gerrard Street and Logan Avenue where pedestrians experience acceptable Pedestrian Level of Service 'C'. This is mainly attributed to the long average delays/waiting times that pedestrians experience before they receive Walk Time and start crossing the arterial roads within the Lakeshore East Joint Corridor Study Area such as Gerrard Street, Dundas Street, and Carlaw Avenue. In addition, as they start crossing at the signalized intersections, they experience significant "exposure to traffic" due to the generally wide crossing distances (i.e., number of lanes to be crossed, the potential conflicts with left-turning and right-turning vehicular traffic, and the absence of right-turn-on-red restrictions or pedestrian signal leading intervals at the majority of the intersections).

As shown in **Table 5-17**, the pedestrian facilities along the studied sections of Gerrard Street, Dundas Street, Eastern Avenue, Logan Avenue, and Carlaw Avenue operate at critical Pedestrian Level of Service 'D' or 'E'. This is mainly attributed to the narrow sidewalks along the noted sections. The studied section of Queen Street generally provides wider sidewalk and boulevard widths and hence pedestrians experience acceptable Pedestrian Level of Service 'B'.

Table 5-16: Pedestrian Level of Service at the Lakeshore East Joint Corridor Traffic and Transportation Study Area Intersections under Existing Conditions (2020)

Signalized Intersections	Pedestrian Level of Service
Gerrard Street and Logan Avenue	C
Gerrard Street and Carlaw Avenue	D
Gerrard Street and Pape Avenue	D
Dundas Street and Logan Avenue	D
Dundas Street and Carlaw Avenue	D

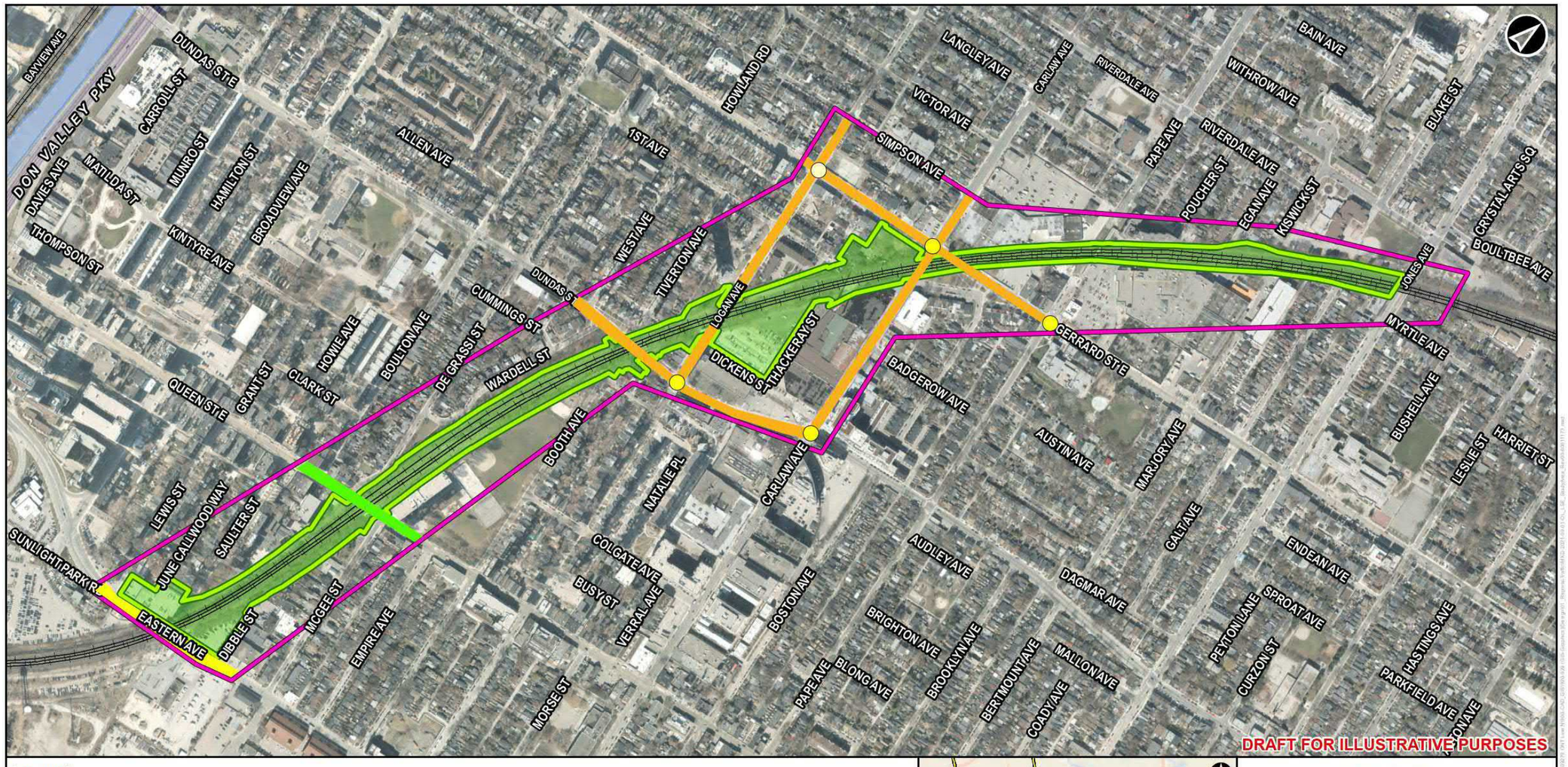
Note: The intersections that operate below the Pedestrian Level of Service target 'C' are highlighted in grey.

Table 5-17: Pedestrian Level of Service at the Lakeshore East Joint Corridor Traffic and Transportation Study Area Road Segments under Existing Conditions (2020)

Road Segments	Pedestrian Level of Service
Gerrard Street between Logan Avenue and Pape Avenue	E
Dundas Street between Logan Avenue and Carlaw Avenue	E
Queen Street between Boulton Avenue and Empire Avenue	B
Eastern Avenue between Lewis Street and Dibble Street	D
Logan Avenue between Gerrard Street and Dundas Street	E
Carlaw Avenue between Gerrard Street and Dundas Street	E

Note: The road segments that operate below the Pedestrian Level of Service target ‘C’ are highlighted in grey.

Figure 5-22: Pedestrian Level of Service Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area



5.9.3 Cycling Network and Operations

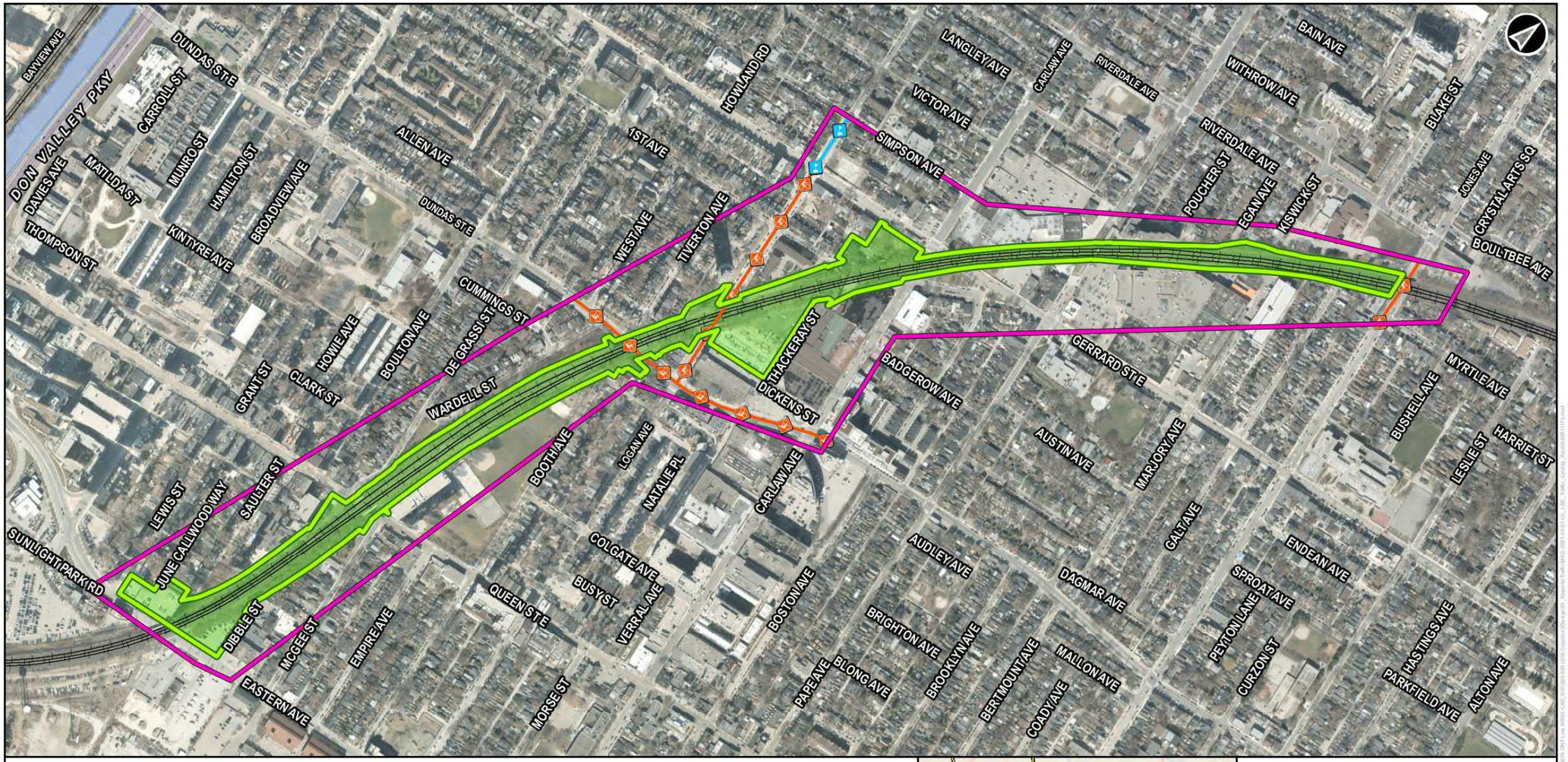
5.9.3.1 Cycling Network

Cyclists are accommodated through on-street bike lanes provided along both sides of Dundas Street East, Logan Avenue, and Jones Avenue sections within the Lakeshore East Joint Corridor Traffic and Transportation Study Area. In addition, crossrides[33] are provided across the north and south legs of the intersection of Dundas Street East and Logan Avenue and bike boxes are provided at the eastbound approach to the noted intersection.

Figure 5-23 illustrate the location and type of cycling facilities provided within the Lakeshore East Joint Corridor Traffic and Transportation Study Area.

33. A crossride is part of the roadway where cyclists are permitted to ride within the crossing, rather than dismounting and crossing as pedestrians. A crossride is indicated by signs, pavement markings, and a traffic signal if the crossing is signalized.

Figure 5-23: Existing Cycling Network Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area



5.9.3.2 Cycling Operations

The findings of the Bicycle Level of Service analysis at the Lakeshore East Joint Corridor Traffic and Transportation Study Area signalized intersections and road segments under Existing Conditions (2020) are summarized in **Table 5-18** and **Table 5-19**, respectively, and illustrated in **Figure 5-24**. The detailed Bicycle Level of Service analysis results for the Existing Conditions (2020) are presented in **Appendix A5**.

As shown in **Table 5-18**, all the Lakeshore East Joint Corridor Traffic and Transportation Study Area signalized intersections operate at acceptable Bicycle Level of Service 'B' overall. This is mainly attributed to the presence of designated cycling facilities on some of the individual approaches to the studied intersections (e.g., bicycle left-turn box, pocket bike lanes, cross-rides, etc.) which facilitate the movement of left-turning cyclists without the need to weave through and cross general-purpose traffic lane(s) before making a left turn. In addition, cyclists travelling with mixed traffic and approaching the studied intersections from individual approaches that lack similar cycling facilities would have to change lanes to be able to make a left-turn movement, instead of crossing general-purpose traffic lanes.

As shown in **Table 5-19**, cyclists accommodated through the on-street bike lanes along Dundas Street and Logan Avenue experience acceptable Bicycle Level of Service 'B'. Along Gerrard Street, Queen Street, Eastern Avenue, and Carlaw Avenue, cyclists travel with a total of four mixed traffic lanes and hence experience critical Bicycle Level of Service 'D' or 'E' along the studied road segments of the noted roads.

Table 5-18: Bicycle Level of Service at the Lakeshore East Joint Corridor Traffic and Transportation Study Area under Existing Conditions (2020)

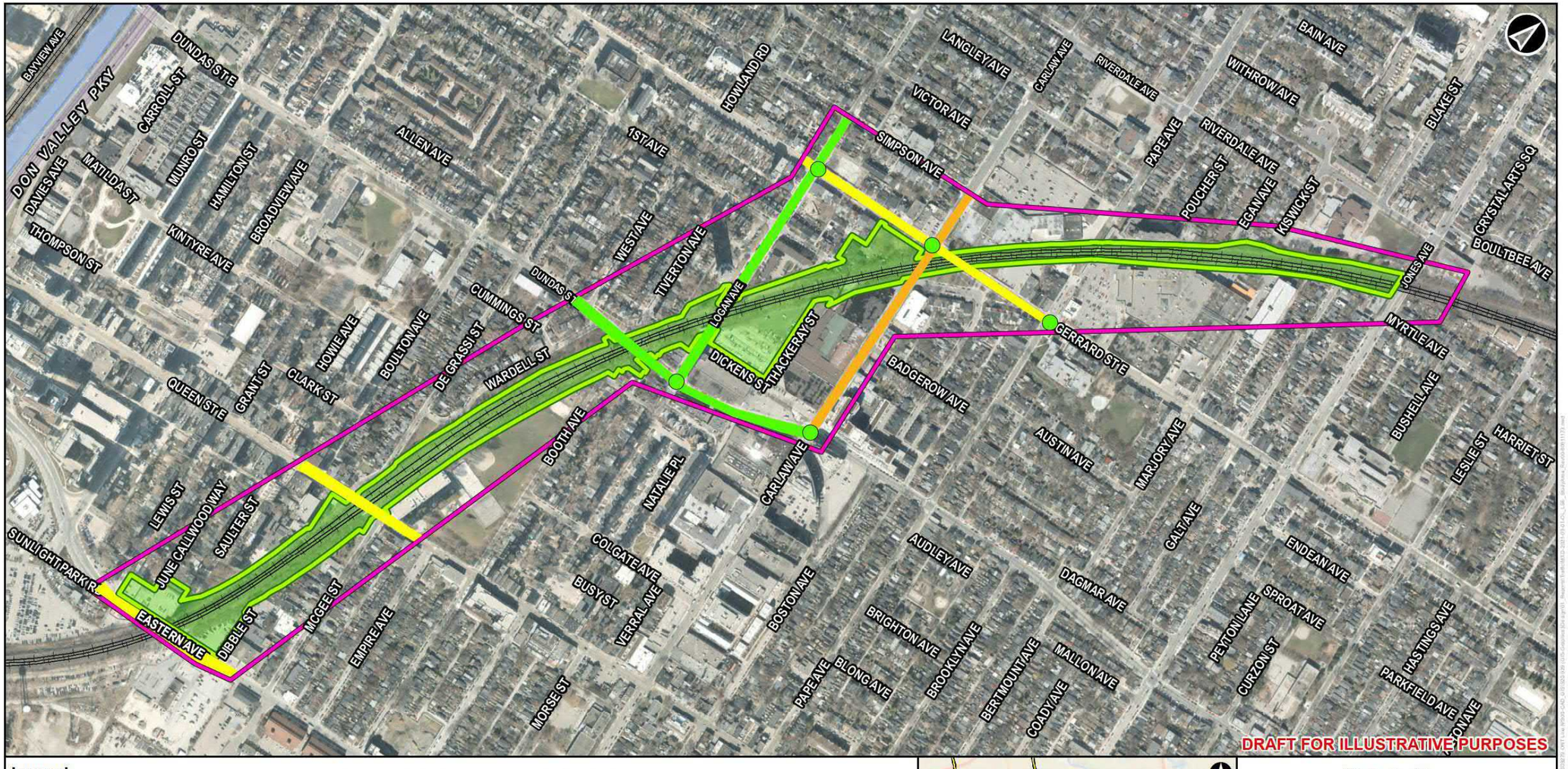
Signalized Intersections	Bicycle Level of Service
Gerrard Street and Logan Avenue	B
Gerrard Street and Carlaw Avenue	B
Gerrard Street and Pape Avenue	B
Dundas Street and Logan Avenue	B
Dundas Street and Carlaw Avenue	B

Table 5-19: Bicycle Level of Service at the Lakeshore East Joint Corridor Traffic and Transportation Study Area Road Segments under Existing Conditions (2020)

Road Segments	Bicycle Level of Service
Gerrard Street between Logan Avenue and Pape Avenue	D
Dundas Street between Logan Avenue and Carlaw Avenue	B
Queen Street between Boulton Avenue and Empire Avenue	D
Eastern Avenue between Lewis Street and Dibble Street	D
Logan Avenue between Gerrard Street and Dundas Street	B
Carlaw Avenue between Gerrard Street and Dundas Street	E

Note: The road segments that operate below the Cyclist Level of Service target 'C' are highlighted in grey.

Figure 5-24: Bicycle Level of Service Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area



Legend

- Existing Track
- Waterbody
- Lakeshore East Joint Corridor Early Works Project Footprint
- Lakeshore East Joint Corridor Traffic and Transportation Study Area

Intersection LOS

- B

Segment LOS

- B
- D
- E

Ontario Line

Bicycle Level of Service Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area

0 50 100 200 300 400
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap and Basemap provided by ESRI.

METROLINX	AECOM
Nov, 2021	1:5,500
P#: 60611173	REV: 00

Figure 5-24

5.9.4 Rail Network

There are three existing rail tracks within the Lakeshore East Joint Corridor Traffic and Transportation Study Area. These rail tracks are owned by Metrolinx and currently service the following commuter train lines:

- Lakeshore East and Stouffville GO lines; and
- VIA Rail Toronto-Ottawa and Toronto-Montreal lines.

The identified commuter train routes are further described in **Section 5.9.5**. Canadian National Railway and Canadian Pacific Railway freight trains also operate on these rail tracks.

5.9.5 Transit Network and Operations

5.9.5.1 Transit Network

The existing transit routes that operate within the Lakeshore East Joint Corridor Traffic and Transportation Study Area are summarized in **Table 5-20** and illustrated in **Figure 5-25**. All transit routes described in **Table 5-20** are operated by the Toronto Transit Commission, with the exception of the Lakeshore East and Stouffville GO lines operated by Metrolinx and the Toronto-Ottawa and Toronto-Montreal lines operated by VIA Rail.

The service headways provided in **Table 5-20** represent the hours of peak transit service within the AM peak period (6:00 AM to 9:00 AM) and PM peak period (4:00 AM to 7:00 PM). Off-peak transit services are generally less frequent than AM and PM peak period services; therefore, only AM and PM peak period service headways are provided in **Table 5-20** to represent the maximum transit service that could be impacted by construction to form the transit impact assessment.

Table 5-20: Existing Transit Routes Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area

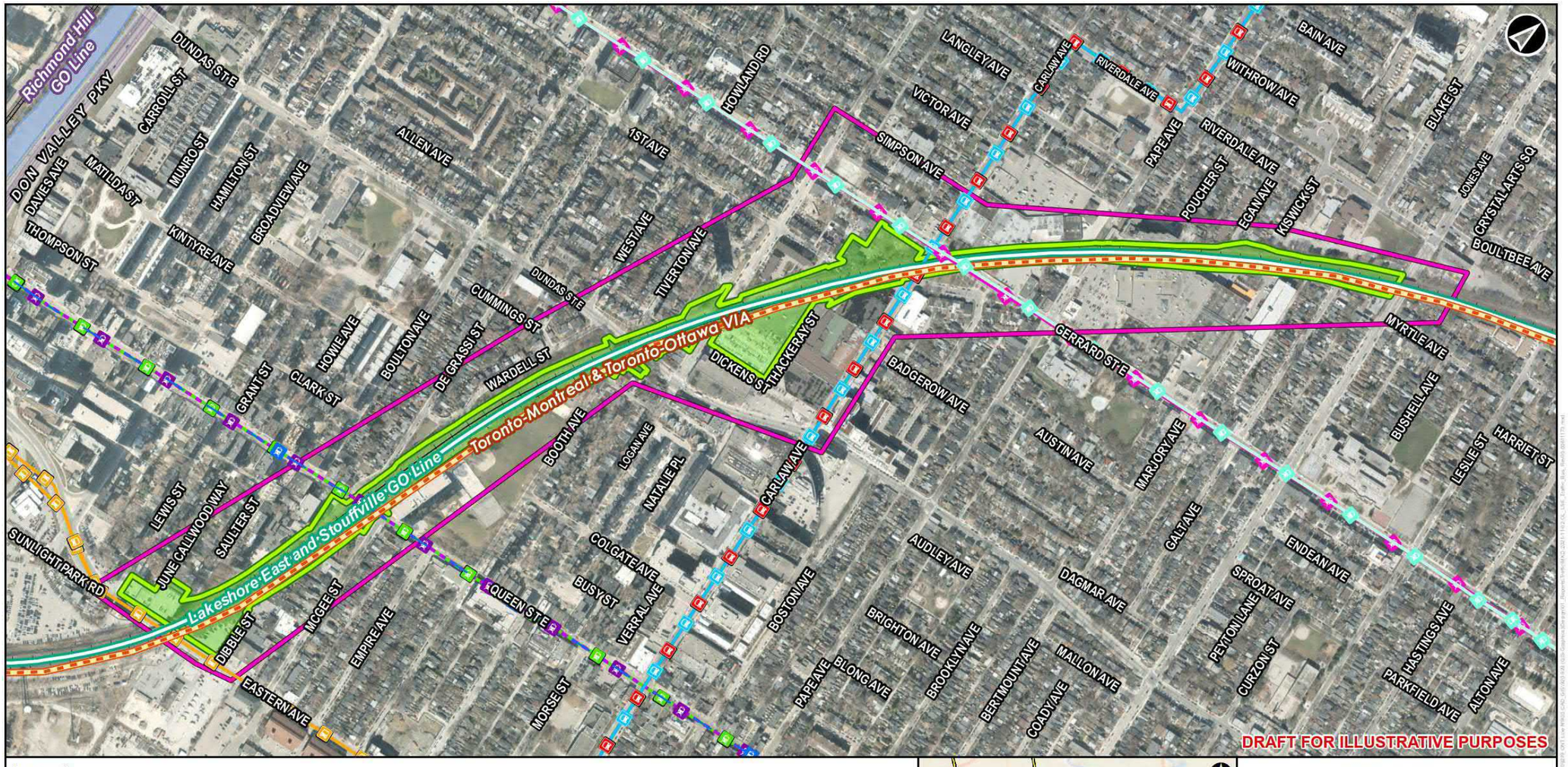
Route Number – Name and Description	Service Headway during Peak Periods
Lakeshore East GO line operates between Union Station in Toronto and Oshawa GO Station in Oshawa, generally in an east-west direction. The train service operates seven days a week between 5 AM and 2 AM. The line does not have any designated stops at the rail tracks section within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, but the eastbound and westbound trains pass through the noted rail tracks section shortly after each scheduled departure from Union Station and shortly before each scheduled arrival at Union Station.	15-minute for the peak direction (i.e., westbound in the AM peak hour and eastbound in the PM peak hour) 30-minute for the non-peak direction
Stouffville GO line operates between Union Station in Toronto and Lincolnville GO Station in Whitchurch-Stouffville, generally in a north-south direction. The train service operates seven days a week between 9 AM and 7 PM. A bus service complements the train service by operating from 5 AM to 9 AM and from 7 PM to 2 AM. The Line does not have any designated stops at the rail tracks section within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, but the eastbound and westbound trains pass through the noted rail tracks section shortly after each scheduled departure from Union Station and shortly before each scheduled arrival at Union Station.	30-minute for the peak direction (i.e., southbound in the AM peak hour and northbound in the PM peak hour) 60-minute for the non-peak direction
Toronto-Ottawa VIA Rail line operates between Union Station in Toronto and Ottawa Station in Ottawa, generally in an east-west direction. The train service operates seven days a week. The line does not have any designated stops at the rail tracks section within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, but the eastbound and westbound trains pass through the noted rail tracks section shortly after each scheduled departure from Union Station and shortly before each scheduled arrival at Union Station.	60-minute for the peak direction (i.e., westbound in the AM and PM peak periods and eastbound in the PM peak period) 180-minute for the non-peak direction
Toronto-Montreal VIA Rail line operates between Union Station in Toronto and Gare Centrale in Montreal, generally in an east-west direction. The train service operates seven days a week. The line does not have any designated stops at the rail tracks section within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, but the eastbound and westbound trains pass through the noted rail tracks section shortly after each scheduled departure from Union Station and shortly before each scheduled arrival at Union Station.	60-minute for the peak direction (i.e., westbound in the AM and PM peak periods and eastbound in the PM peak period) 180-minute for the non-peak direction

Route Number – Name and Description	Service Headway during Peak Periods
#72 – Pape bus route operates between Pape Station on Line 2 Bloor-Danforth and Commissioners Street, and between Pape Station and Union Station on Line 1, generally in a north-south direction. Three services are operated: The 72A (Pape Station-Eastern) operates at all times except the morning and afternoon peak periods from Monday to Friday. The 72B (Pape Station-Union Station via Queens Quay) operates all day, every day. The 72C (Pape Station - Commissioners) operates during the morning and afternoon peak periods from Monday to Friday. Service between Pape Station and Eastern Avenue is part of the 10-minute network and operates at 10-minute or better headways, all day, every day. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area, the bus route operates along Carlaw Avenue. The closest northbound stop to the Lakeshore East Joint Corridor Early Works Project Footprint is located far side at the intersection of Carlaw Avenue and Gerrard Street East. The closest southbound stop is located nearside at the intersection of Carlaw Avenue and Gerrard Street East.	6-minute in the AM peak period 7-minute in the PM peak period
#143 – Downtown/Beach Express bus route operates between the intersection of Charlotte Street and King Street and the Neville Park Loop, generally in an east-west direction. Within the Lakeshore East Joint Corridor Traffic and Transportatio**n** Study Area, the bus route operates along Eastern Avenue. The closest eastbound and westbound stops to the Lakeshore East Joint Corridor Early Works Project Footprint are located nearside at the intersection of Eastern Avenue and Carlaw Avenue.	15-minute in the AM peak hour 25-minute in the PM peak hour
#301 – Queen Blue Night streetcar route operates between Neville Park Loop and Long Branch Loop, generally in an east-west direction. Two services are operated: the **301 (Neville Park-South Kingsway)** and the **301L (South Kingsway-Long Branch)** which is temporarily operated by buses. Both branches operate during the overnight period, seven days a week. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area**,** the streetcar route operates along Queen Street East with designated eastbound and westbound stops located at Empire Avenue, Boulton Avenue, and Saulter Street.	30-minute
#306 – Carlton Blue Night streetcar route operates between Main Street Station and Dundas West Station on Line 2 Bloor-Danforth, generally in an east-west direction. A single service is operated: the **306 (Main Street Station-Dundas West Station)**, which operates during the overnight period, seven days a week. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area**,** the streetcar route operates along Gerrard Street with designated eastbound and westbound stops located at Logan Avenue, Carlaw Avenue, and Pape Avenue.	30-minute

Route Number – Name and Description	Service Headway during Peak Periods
#325 – Don Mills Blue Night bus route operates between the area of Steeles Avenue East and Don Mills Road and the area of Eastern Avenue and Carlaw Avenue, generally in a north-south direction. One single service is operated: The **325 (Steeles-Eastern via Pape)**, which operates during the overnight period, seven days a week. Within the Lakeshore East Joint Corridor Study Area**,** the bus route operates along Carlaw Avenue with designated northbound and southbound stops located at the intersection of Carlaw Avenue and Gerrard Street and the intersection of Carlaw Avenue and Dundas Street.	30-minute
#501 – Queen streetcar route operates between Neville Park Loop and Long Branch Loop, generally in an east-west direction. It serves Queen and Osgoode Station on Line 1 (Yonge-University). The route is part of the 10-minute network, and operates at 10-minute or better headways, all day, every day. During the daytime and early evening, seven days a week, two services are operated: **501 (Humber-Neville Park)** and **501 (Long Branch-Humber)**. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area**,** the streetcar route operates along Queen Street with designated eastbound and westbound stops located at Empire Avenue, Boulton Avenue, and Saulter Street.	4-minute in the AM peak hour 5-minute in the PM peak hour
#503 – Kingston streetcar route operates between the area of Kingston Road and Victoria Park Avenue, and the area of King Street West and York Street, generally in an east-west direction. It serves the King Station on Line 1 (Yonge-University), and it also passes within one block of the Union and St. Andrew Station on Line 1. One single service is operated: The **503 (Victoria Park-York)**, which operates during the peak periods, from Monday to Friday only. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area**,** the streetcar route operates along Queen Street with designated stops located at Empire Avenue, Boulton Avenue, and Saulter Street.	12-minute in the AM and PM peak hours
#506 – Carlton streetcar route operates between Main Street Station on the Bloor-Danforth Subway and High Park Loop, generally in an east-west direction. It also serves the College and Queen's Park Stations on the Yonge-University-Spadina Subway. A single service is operated: the **506 (Main Street Station-High Park),** which operates at all times, seven days a week. The route is part of the 10-minute network, and operates at 10-minute or better headways, all day, every day. Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area**,** the streetcar route operates along Gerrard Street with designated stops located at Logan Avenue, Carlaw Avenue, and Pape Avenue.	5-minute in the AM and PM peak hours

Sources: GO Transit, 2020; VIA Rail, 2020; and Toronto Transit Commission, 2019. Accessed in July 2021.

Figure 5-25: Existing Transit Network Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area



5.9.6 Transit Operations

The findings of the Transit Level of Service analysis at the Lakeshore East Joint Corridor Traffic and Transportation Study Area signalized intersections, and road segments under Existing Conditions (2020) are summarized in **Table 5-21** and **Table 5-22**, respectively, and illustrated in **Figure 5-26**. The detailed Transit Level of Service analysis results are presented in **Appendix A5**.

As shown in **Table 5-21**, all the signalized intersections within the Lakeshore East Joint Corridor Traffic and Transportation Study Area operate at acceptable Transit Level of Service 'C' or 'D', except for the intersection of Gerrard Street and Carlaw Avenue which operates at critical Transit Level of Service 'E' in the PM peak hour but acceptable Transit Level of Service 'C' in the AM peak hour. This is mainly attributed to the long average delays that streetcars along route #506 experience in the PM peak hour when going through the noted intersection in the westbound direction.

As shown in **Table 5-22**, all transit vehicles travelling along the road segments within the Lakeshore East Joint Corridor Traffic and Transportation Study Area experience an acceptable Transit Level of Service 'D', meeting the minimum desirable Transit Level of Service for the studied sections.

Table 5-21: Transit Level of Service at the Lakeshore East Joint Corridor Traffic and Transportation Study Area Intersections under Existing Conditions (2020)

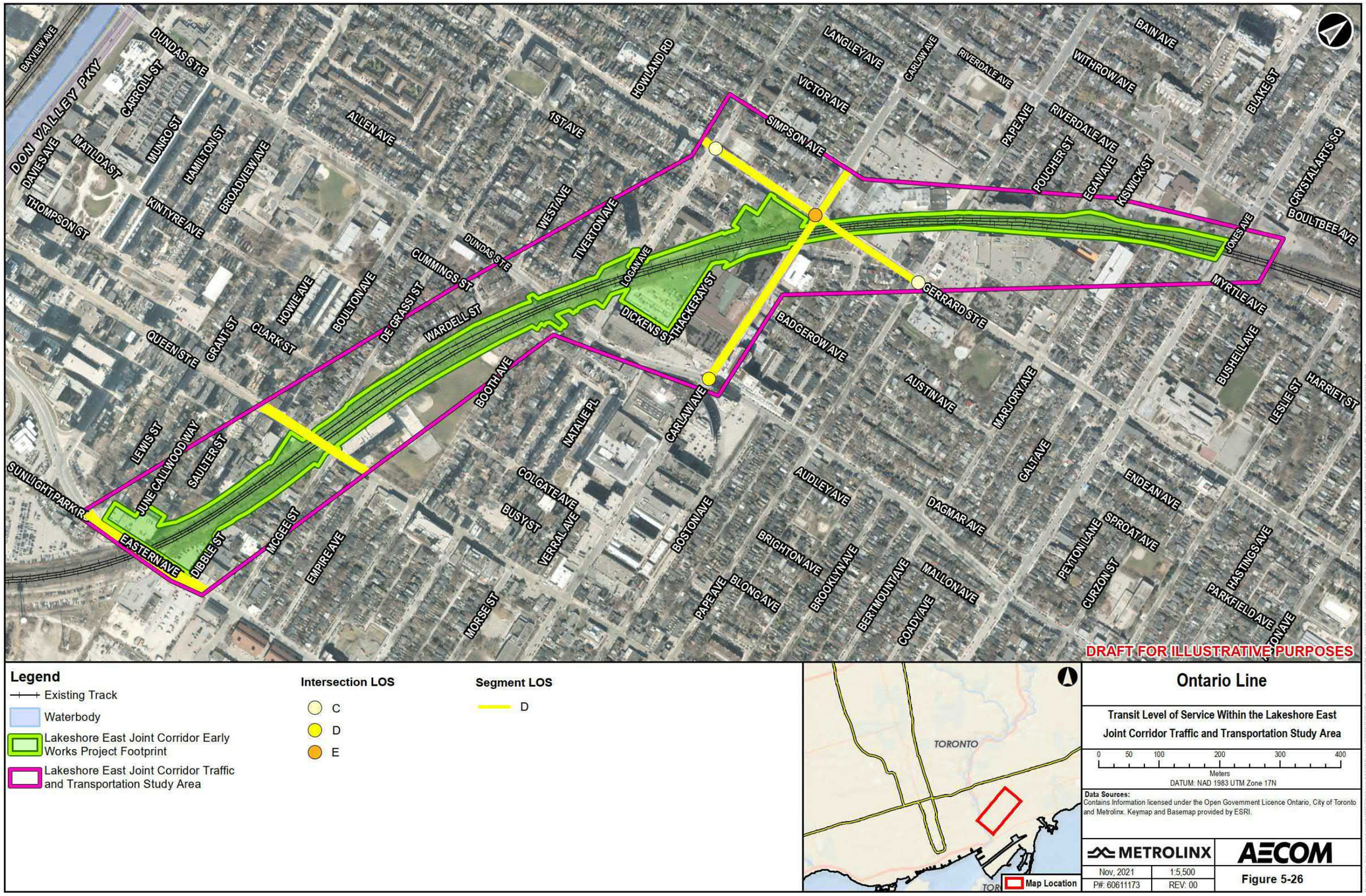
Signalized Intersections	Transit Level of Service
Gerrard Street and Logan Avenue	C
Gerrard Street and Carlaw Avenue	E
Gerrard Street and Pape Avenue	C
Dundas Street and Logan Avenue	Not applicable
Dundas Street and Carlaw Avenue	D

Note: The intersection that operates below the Transit Level of Service target 'D' is highlighted in grey.

Table 5-22: Transit Level of Service at the Lakeshore East Joint Corridor Study Area Road Segments under Existing Conditions (2020)

Road Segments	Transit Level of Service
Gerrard Street between Logan Avenue and Pape Avenue	D
Dundas Street between Logan Avenue and Carlaw Avenue	-
Queen Street between Boulton Avenue and Empire Avenue	D
Eastern Avenue between Lewis Street and Dibble Street	D
Logan Avenue between Gerrard Street and Dundas Street	-
Carlaw Avenue between Gerrard Street and Dundas Street	D

Figure 5-26: Transit Level of Service Within the Lakeshore East Joint Corridor Traffic and Transportation Study Area



5.10 Utilities

5.10.1 Private Utilities

Table 5-23 lists the privately-owned utility providers with infrastructure within the Lakeshore East Joint Corridor Early Works Project Footprint. A refined list will be confirmed as planning progresses.

Table 5-23: Private Utilities Within the Lakeshore East Joint Corridor Early Works Project Footprint

Utility Provider	Utility Category
Aptum	Telecommunications
Bell Canada	Telecommunications
Bell 360	Telecommunications
Rogers Communications Partnership	Telecommunications
Cogeco Data Services	Telecommunications
Zayo Group	Telecommunications
Telus Communications Company	Telecommunications
Enbridge	Energy transportation/pipeline
EnWave	Energy services provider
Hydro One Networks Incorporated (HONI)	Electricity
CN Fiber	Fiber Optics
B-A Oil Company	Energy transportation/pipeline
Sunoco	Energy transportation/pipeline
Trans Northern	Energy transportation/pipeline
Group Telecom	Telecommunications
Imperial Oil	Energy transportation/pipeline

5.10.2 Public Utilities and Municipal Servicing

Table 5-24 lists the public utility providers with infrastructure within the Lakeshore East Joint Corridor Early Works Project Footprint.

Table 5-24: Public Utilities Within the Lakeshore East Joint Corridor Early Works Project Footprint

Utility Provider	Utility Category
Toronto Hydro	Electricity
Toronto Water	Water and wastewater treatment

6. Potential Impacts, Mitigation Measures and Monitoring Activities

In accordance with Sections 8(2)6, 8(2)7 and 8(2)8 of Ontario Regulation 341/20: Ontario Line Project, this section describes the potential impacts, mitigation measures, and monitoring activities to verify the effectiveness of mitigation measures associated with the Lakeshore East Joint Corridor early works.

6.1 Natural Environment

Table 6-1 outlines mitigation measures and monitoring activities to address the potential natural environment impacts that may result from the Lakeshore East Joint Corridor early works.

Table 6-1: Potential Impacts, Mitigation Measures and Monitoring Activities – Natural Environment

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Designated Natural Areas	■ No potential impacts as there are no Designated Natural Areas within 120 metres of the Lakeshore East Joint Corridor Early Works Project Footprint	■ None Required	■ None Required
Policy Area – City of Toronto Natural Heritage System	■ No potential impacts as the City of Toronto Natural Heritage System is outside of the Lakeshore East Joint Corridor Early Works Project Footprint	■ None Required	■ None Required
Policy Area – City of Toronto Ravine and Natural Feature Protection	■ No potential impacts as the City of Toronto Ravine and Natural Feature Protection area is outside of the Lakeshore East Joint Corridor Early Works Project Footprint	■ None Required	■ None Required
Policy Area – Toronto and Region Conservation Authority Regulation Areas	■ Vegetation removal within Toronto and Region Conservation Authority Regulated Areas	■ Refer below to mitigation measures described for Tree Removal under Vegetation Communities. ■ Further consideration to minimize potential effects within regulated areas to the extent possible will be undertaken during detailed design.	■ Refer below to monitoring described for Vegetation Communities. ■ Recommendations for additional monitoring related to vegetation removal within regulated areas may be determined through consultation with Toronto and Region Conservation Authority.
Vegetation Communities	■ Removal of vegetation communities ■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion	■ Vegetation removal will be reduced and limited to within the Lakeshore East Joint Corridor early works construction areas. ■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the Lakeshore East Joint Corridor early works construction areas and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ■ Provide compensation for the removal of vegetation in accordance with Metrolinx's Vegetation Guideline (2020). ■ Temporarily disturbed areas will be re-vegetated using non-invasive, preferably 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 will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds) and features (e.g., Significant Wildlife Habitat). Refer to the wildlife and wildlife habitat and Species at Risk mitigation measures described below.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Monitoring will include inspection of construction fencing/silt fencing to confirm appropriate installation, maintenance and rehabilitation to prevent accidental damage to vegetation or Ecological Land Classification communities outside of the work construction area. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx's Vegetation Guideline (2020).

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Vegetation Communities	■ City and private tree removal	■ An Arborist Report by an International Society of Arboriculture Certified Arborist will be prepared in accordance with the Ontario Forestry Act R.S.O. 1990, and other regulations and best management practices as applicable. ■ The Arborist Report will include, but not be limited to the individual identification of all trees within the Lakeshore East Joint Corridor early works construction areas including those that require removal or preservation, or trees that may be injured. Trees to be identified may include those on Metrolinx property, trees on public and private lands, and boundary trees. City of Toronto by-laws dictate the minimum area buffers to be inventoried and Diameter at Breast Height which requires inventory. ■ Prior to the undertaking of tree removals, a Tree Removal Strategy/Tree Preservation Plan will be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees Guidelines (2016a) and adherence with best practices, standards and regulations on safety, environmental and wildlife protections. ■ Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020). ■ Pruning of branches will be conducted through the implementation of proper arboricultural techniques by an International Society of Arborists certified Arborist. ■ Tree Protection Zone fencing will 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.	■ Regular inspection in areas of vegetation removal will be undertaken as required during construction to ensure that fencing is intact, only specified trees are removed and no damage is caused to the remaining trees and adjacent vegetation communities. ■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx's Vegetation Guideline (2020).
Vegetation Communities	■ Potential for the spread of emerald ash borer, associated with removal, handing and transport of ash trees	■ Removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive 'D-03-08: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the emerald ash borer. To comply with this directive, all Ash trees requiring removal, including any wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.
Vegetation Communities	■ Increased soil erosion and sedimentation	■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the Lakeshore East Joint Corridor early works construction areas 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 Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), will be prepared prior to and implemented during construction to reduce the risk of sedimentation to the vegetation communities. ■ Stockpiled materials or equipment will be stored within the Lakeshore East Joint Corridor early works construction areas.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt. ■ All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.
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 will 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. ■ 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).	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Wildlife and Wildlife Habitat – General	■ Disturbance, displacement or mortality of wildlife	■ Prior to construction, investigation of the Lakeshore East Joint Corridor early works construction areas for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate. ■ If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease or be reduced, and wildlife will be encouraged to move off-site and away from the construction area on its own.	■ Regular on-site inspection by on-site environmental workers or construction staff should occur within the construction area to ensure that no wildlife is trapped within the construction area. ■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.
Significant Wildlife Habitat: Eastern Wood-pewee	■ Removal of up to 2.06 hectares of candidate habitat for Eastern Wood-pewee	■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests.	■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Significant Wildlife Habitat: Monarch	■ Removal of up to 0.53 hectares of candidate habitat for Monarchs	■ Identify opportunities to promote pollinator species and habitat in accordance with the Metrolinx Vegetation Guideline (2020). This may include planting or seeding native flowering plants in temporarily disturbed areas.	■ Regular monitoring (site inspections) will be undertaken during construction to prevent unauthorized impacts to habitat used by Monarch.
Significant Wildlife Habitat: Common Nighthawk	■ Removal of candidate nesting habitat for Common Nighthawk	■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests. ■ Demolition of buildings should be scheduled outside of the breeding bird season of April 1 to August 31. If this is not possible and buildings must be demolished during this period, the following will be completed: - The roofs will be checked for presence of gravel. If gravel is not present, then the building is unlikely to provide suitable nesting habitat for Common Nighthawk. If gravel is present, a search for eggs and nesting activity for Common Nighthawk on the roof will be conducted. If nests or nesting activity of Common Nighthawk are confirmed, the building cannot be demolished until it is confirmed by a Qualified Biologist that young have fully fledged and left the nest.	■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Migratory Breeding Birds and Nests	■ Disturbance or destruction of migratory bird nests	■ All works must comply with the Migratory Birds Convention Act, including timing windows for the nesting period (April 1 to August 31 in Ontario). ■ If activities (i.e., vegetation clearing and building demolition) are proposed to occur during the general nesting period, a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ■ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection.	■ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
Wildlife Habitat Connectivity	■ Decrease of habitat connectivity for wildlife	■ During detailed design, opportunities to enhance the natural environment and provide a connection to the surrounding natural areas will be explored to the extent feasible.	■ Refer to monitoring described for Vegetation Communities.
Species at Risk – General	■ Habitat loss, disturbance and/or mortality to Species at Risk	■ All requirements of the Endangered Species Act will be met. Species-specific mitigation measures will be implemented, as required, in consultation with Ministry of the Environment, Conservation and Parks.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ Species-specific monitoring activities will be developed in accordance with any registration and/or permitting requirements under the Endangered Species Act.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Species at Risk – Barn Swallow	■ Habitat loss, disturbance and/or mortality to Barn Swallow	■ Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active. ■ Where loss or disturbance cannot be avoided (e.g., due to work on bridges), all requirements under the Endangered Species Act will be met, including any registration, compensation, replacement structures and/or permitting requirements. ■ If disturbance to structures confirmed to provide Barn Swallow habitat is scheduled during the nesting season for Barn Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn Swallow are nesting on structures that may be affected by construction activities on or near these areas. Exclusion measures will be implemented prior to nesting season to dissuade use of these areas for nesting.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required.
Species at Risk – Bats	■ Habitat loss, disturbance and/or mortality to Species at Risk Bats	■ All requirements of the Endangered Species Act will be met. Additional monitoring, mitigation and compensation for removal of suitable treed or anthropogenic roosting habitat may be required based on the results of additional surveys and consultation with the Ministry of the Environment, Conservation and Parks.	■ If mitigation is required, on-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. Additional monitoring measures will be developed in consultation with Ministry of the Environment, Conservation and Parks, if required.
Aquatic Environment – ■ **Wetlands and Waterbodies** ■ **Fish and Fish Habitat**	■ There are no wetlands or watercourses within the Lakeshore East Joint Corridor Natural Environment Study Area and therefore no potential effects on these features or fish and fish habitat are anticipated.	■ None Required	■ None Required

Notes: Regulations, standards and guidance documents referenced herein are current as of the time of writing and may be amended from time to time.
If clarification is required regarding regulatory requirements, the appropriate regulatory agencies will be consulted.

6.2 Soil and Groundwater

Table 6-2 outlines mitigation measures and monitoring activities to address the potential soil and groundwater impacts that may result from the Lakeshore East Joint Corridor early works.

Table 6-2: Potential Impacts, Mitigation Measures and Monitoring Activities – Soil and Groundwater

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Soil Stability and Quality	■ Construction activities will cause displacement of the soils and potentially bedrock. This may result in ground movement and settlement (e.g., through excavation/grading and/or dewatering activities). ■ Dewatering activities can cause soil subsidence/settlement and impacts on surface/subsurface structures within the zone of influence. ■ Potential heaving of the excavation base caused by groundwater pressures below the depth of excavation. ■ If required, use of pressurized fluids subsurface could result in fluid migration to surface. ■ Construction activities (e.g., excavation) could expose contaminated materials and/or result in the spreading of contaminated materials.	■ Complete detailed soil investigations, as project planning progresses; ■ Complete pre-construction inspections of structures within the dewatering zone of influence, as required; ■ Potential heave of an excavation base is mitigated through a groundwater depressurization program completed in advance of excavation that sufficiently lowers the potentiometric head in the confined groundwater system and stabilizes the soils being excavated; ■ Excavation support systems will be employed, as required; ■ Conduct dewatering such that ground loss is controlled/minimized; ■ Use excavation/grading equipment designed to reduce the potential for ground loss and the associated potential for ground settlement; ■ If required, conduct ground treatment such as jet grouting to reduce the risk of ground loss; ■ Develop management plan(s) for the handling, management and disposal of all excavated material (i.e., soil, rock and waste) that is generated or encountered during the work; ■ Development and implementation of remedial action plans, risk assessment and risk mitigation plans for encountering contamination, as necessary; ■ Requirements of Ontario Regulation 406/19: On-Site and Excess Soil Management will be met. ■ Geotechnical studies will be completed, as required, during detailed design.	■ If required, develop and conduct a settlement monitoring program that includes all infrastructure and structures within the dewatering zone of influence to identify construction effects, adverse trends and the need for additional mitigation measures; ■ Soil sampling and monitoring plans shall be implemented as required prior to, during, and post construction. Soil will be tracked in the registry, as required by Ontario Regulation 406/19.
Groundwater Quantity	■ Construction dewatering may include impacts to groundwater-dependent natural features (i.e., Lower Don River) as a result of decreases in groundwater discharge to these features and impacts to private groundwater supply wells (if present) caused by a reduction in local groundwater levels. ■ In the case of discharge to the natural environment, the discharge rate and total volume must be considered within the context of the capacity of the conveyance route (e.g., drainage ditch, etc.) and receiving waterbody. Introducing a quantity of effluent above the capacity of these features can result in impacts such as erosion, scour, and flooding.	■ Potential impacts to groundwater-dependent natural features and/or private groundwater supply wells (if present) can be mitigated with measures such as avoidance of dewatering requirements, minimizing dewatering, and/or utilizing groundwater cut-off techniques to physically exclude groundwater from flowing into excavations advanced for construction. ■ Example contingency measures for impacts to groundwater-dependent natural features and/or private groundwater supply wells (if present) include supplementation of flow within the natural features, minimizing dewatering volume requirements, avoidance of dewatering during low-flow conditions, and provision of temporary water supply during the period of supply well impact. ■ Determination of water taking quantities, quality, and resultant dewatering zone of influence will be completed as project planning progresses, for example through completion of a site-specific hydrogeological investigation, construction dewatering assessment and a plan to manage groundwater. ■ The construction dewatering assessment will be completed as required to: – Provide an estimate of groundwater and/or surface water taking rates and quantities; – Estimate a zone of influence for each dewatering area; – Characterize groundwater and/or surface water quality; – Recommend appropriate dewatering methodologies; and – Provide an assessment of potential impacts related to the dewatering. ■ Dewatering should be assessed in accordance with the Toronto and Region Conservation Authority Technical Guidelines for the Development and Environmental Management Plans for Dewatering (Toronto and	■ Regular site inspections and monitoring activities such as monitoring of water levels in adjacent groundwater and/or surface water features, if required, will be completed by qualified members of the construction team to ensure that mitigation measures are fulfilled and that all regulatory requirements are met.

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		Region Conservation Authority, 2013b). Ontario Regulations 64/16 and 387/04, as amended under the Ontario Water Resources Act, as required. ■ The plan to manage groundwater and dewatering will be completed as required to: – Evaluate potential groundwater discharge options (i.e., sanitary and/or storm sewer, natural environment, off-site disposal, etc.); – Identify effluent treatment requirements; – Outline monitoring, mitigation, and contingency program (if required); – Determine the potential need for regulatory approvals; and – Identify notification and reporting requirements. ■ Identification of site-specific mitigation measures inclusive of monitoring programs relating to groundwater-dependent natural features, private supply wells (if present), and geotechnical heave/settlement within the anticipated dewatering zone of influence will be determined prior to works commencement.	
Groundwater Quality	■ Previous land use may have resulted in local contamination of groundwater which may be encountered during construction excavation and/or dewatering activities. ■ General construction activities such as vehicle and machinery operation have the potential to affect groundwater and/or surface water quality through minor contaminant releases. Spills may affect the surrounding groundwater quality and nearby supply wells (if present). ■ Improperly managed construction dewatering activities can result in accidental releases of contaminated groundwater to the environment and/or result in the migration of existing impacted groundwater. ■ The following materials may impact groundwater quality within the highly vulnerable aquifer and Event Based Area: – Application of road salt; – Storage/use of organic solvents and/or dense non-aqueous phase liquids; and, – Storage and handling of fuel.	■ The existing groundwater within each potential construction dewatering area will be characterized prior to construction activities, during a site-specific hydrogeological investigation, as required. ■ On-site treatment of dewatering effluent, if required, such that parameters in excess of the established discharge criteria are removed/reduced and discharge can proceed. ■ Dewatering should be assessed in accordance with the Toronto and Region Conservation Authority Technical Guidelines for the Development and Environmental Management Plans for Dewatering (Toronto and Region Conservation Authority, 2013b). ■ Measures such as avoidance of dewatering requirements, minimizing dewatering, and/or utilizing groundwater cut-off techniques to physically exclude groundwater from flowing into excavations advanced for construction could be considered, when on-site treatment is not technically and/or financially feasible. The removal of water to an off-site disposal facility could also be considered. ■ A Spill Prevention and Response Plan, outlining the steps required to prevent and contain any contaminant releases and/or to avoid impacts to groundwater/surface water is required to be developed prior to initiation of construction activities. This Spill Prevention and Response Plan should include a requirement for spill kits to be maintained on-site at all times during construction. ■ Pre-construction (baseline) groundwater quality testing should be performed at all construction dewatering locations before the outset of any discharge activities and compared to appropriate regulatory guidelines (i.e., Provincial Water Quality Objectives for discharge to the natural environment, storm and sanitary by-laws for discharge to municipal sewers). Appropriate water quality management (i.e., filtration systems and/or water treatment systems) will be required to be designed and implemented in the event that exceedances of regulatory guidelines or limits are detected in the influent groundwater quality. Discharge of dewatering effluent will be governed by the discharge approval(s) obtained for the project, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval, and/or Ministry of the Environment, Conservation and Parks Environmental Compliance Approval.	■ Monitoring activities such as groundwater and dewatering effluent sample collection and measurement of groundwater parameters (e.g., pH) in the field will be completed as required by qualified members of the construction contractor, and in accordance with the discharge requirements of the approval and/or permit, as applicable. ■ Regular inspections of equipment for fuel/fluid leaks, dewatering equipment and containment tanks for leakage, and installed erosion and sediment control measures.

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		■ Ensuring that machinery is maintained and free of leaks to reduce the possibility of fluid release and storing any potential contaminants (e.g., oils, fuels, and chemicals) in designated areas using appropriate secondary containment, where necessary. ■ Education of workers regarding appropriate chemical use, handling, storage and transportation procedures, including spill response and reporting requirements. ■ Conduct a review of Source Protection Plan (SPP) policies and implement the following measures: – A Salt Management Plan that incorporates best management practices where the storage and application of road salt is required; – Best management practices if the handling and storage of dense non-aqueous phase liquids is required; – Best management practices if the storage of organic solvent is required; and, – Best management practices if the storage and handling of fuel is required in an Event Based Area.	

6.3 Hydrology and Surface Water

Table 6-3 outlines mitigation measures and monitoring activities to address the potential hydrology and surface water impacts that may result from the Lakeshore East Joint Corridor early works.

Table 6-3: Potential Impacts, Mitigation Measures and Monitoring Activities – Hydrology and Surface Water

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Floodplain	■ Potential to impact flooding conditions within the Don River Floodplain	■ Floodplain impact assessment will be conducted during detailed design following Toronto and Region Conservation Authority guidelines once details on the retaining wall locations and other relevant design information are available. ■ Toronto and Region Conservation Authority staff will be consulted during detailed design to avoid potential infrastructure conflicts and impacts to adjacent flood protection measures/initiatives within the Lakeshore East Joint Corridor Hydrology and Surface Water Study Area with consideration of, but not limited to, the following: – West Don Lands Flood Protection Landform (Toronto and Region Conservation Authority, 2005); – Broadview and Eastern Flood Protection Municipal Class Environmental Assessment (Toronto and Region Conservation Authority, 2021b); – Flood protection measures and tie-in with the existing railway embankment at Don Roadway and Eastern Avenue underpass as identified in the Don Mouth Naturalization and Port Lands Flood Protection Project Environmental Assessment (Toronto and Region Conservation Authority, 2014a); – New Broadview underpass with expanded flood protection tie-ins and drainage with the railway embankment as identified in the Port Lands and South of Eastern Transportation and Servicing Master Plan Class Environmental Assessment (City of Toronto and Waterfront Toronto, 2017a); and, – Opening of bridge crossing on east side of Don River through railway embankment to accommodate Hybrid 3 as identified in the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment (City of Toronto and Waterfront Toronto, 2017b).	■ None identified.
Floodplain	■ Potential for flooding impacts on-site during construction within the Don River Floodplain.	■ Minimize using the areas that are located within the Don River Floodplain for proposed works or temporary laydown or staging areas to the extent feasible. If not feasible, the following measures shall be undertaken: – Prior to construction, develop a Flood Contingency Plan with specific mitigation measures for any proposed works or temporary laydown and staging areas that are located within the Don River Floodplain. The Flood Contingency Plan may include risk mapping, monitoring strategy. – Include construction site on Toronto and Region Conservation Authority flood warning system to prepare site in advance of possible flood events	■ Include a monitoring strategy in the Flood Contingency Plan to monitor surface water levels during construction activities for proposed works or temporary laydown or staging areas that are located within the Don River Floodplain
Surface Water/ Stormwater and Drainage	■ Change in stormwater quality and quantity, including: – Erosion of exposed soil and increased sediment loading which may impact receiving waterbodies and/or municipal stormwater drainage system; and, – Increased surface water/stormwater runoff.	■ The overall stormwater quality and quantity control strategy will be developed in accordance with all relevant municipal, provincial, and federal requirements, as amended, and outlined in a Stormwater Management Report. Stormwater management design will consider guidance provided by the Ministry of the Environment, Conservation and Parks, formerly the Ministry of the Environment and Climate Change Stormwater Management Planning and Design Manual (2003) and Ontario Ministry of Transportation Drainage Management Manual (2008), Toronto and Region Conservation Authority Stormwater Management Criteria (2012), and the Low Impact Development Stormwater Management Planning and Design Guide (Toronto and Region Conservation Authority/Credit Valley Conservation, 2010), as required. ■ The following stormwater management best management practices will be considered and implemented, as required: – Minimize clearing and amount of exposed soil; – Install key sediment control before grading/land alterations begin; – Sequence construction activities so that the soil is not exposed for long periods of times; – Protect storm drain inlets to filter out debris; and, – Stabilize all exposed soil areas as soon as land alterations have been completed. ■ Prior to construction, a Stormwater Management Plan that will outline stormwater discharge management associated with construction activities, and an Erosion and Sediment Control plan will be developed. ■ The applicable Toronto and Region Conservation Authority's Living City Policies (Toronto and Region Conservation Authority, 2014b) will be followed during detailed design. ■ If required, obtain a Municipal Discharge Permit (City of Toronto Private Water Discharge Permit/Agreement) to manage excess surface water/stormwater. ■ Hydrogeological studies will be completed, as required.	■ Monitoring activities will be implemented as outlined in the Stormwater Management Plan and/or Erosion and Sediment Control Plan and may include regular inspections and reporting on the performance of implemented erosion and sediment control measures, best management practices, and other monitoring activities, as required. ■ All monitoring procedures should stay in place throughout Lakeshore East Joint Corridor early works construction.

6.4 Air Quality

Table 6-4 outlines mitigation measures and monitoring activities to address the potential air quality impacts that may result from the Lakeshore East Joint Corridor early works.

The following federal and provincial guidelines for construction mitigation were utilized in the development of mitigation measures:

- Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005);
- Ministry of the Environment, Conservation and Parks' Management Approaches for Industrial Fugitive Dust Sources Technical Bulletin (Ministry of the Environment, Conservation and Parks, 2017);
- Ontario Hot Mix Producers Association's Environmental Practices Guide: Ontario Hot Mix Asphalt Plants, Fifth Edition (Ontario Hot Mix Producers Association, 2015); and
- Operations Manual for Air Quality Monitoring in Ontario (Ministry of the Environment, 2018).

Table 6-4: Potential Impacts, Mitigation Measures and Monitoring Activities – Air Quality

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Construction Air Quality	■ Potential air quality impacts could include effects from diesel combustion and particulate emissions. Odour and visible dust may also cause public annoyance. ■ Exhaust emissions from construction vehicles may contribute to increased levels of nitrogen oxides, and volatiles such as benzene and benzo(a)pyrene, which given their existing background concentrations can contribute to existing levels of provincial criteria exceedance. ■ Certain construction activities are likely to emit particulates in higher quantities, which include site preparation and earth works activities, demolition activities, unpaved surfaces with heavy equipment travel, and uncovered soil storage piles. ■ Disruption of contaminated soils may release contaminants.	■ On-site construction vehicle activity shall be managed to control emissions of odourous contaminants and diesel exhaust, including benzene and benzo(a)pyrene emissions from exhaust. A plan to manage air quality will be developed to ensure consistent attention to mitigation of dust and particulates, including silica, from the construction site. The following mitigation measures should be considered in the plan to manage air quality: – All equipment complies with Canadian engine emissions standards. – All equipment visually inspected prior to use and properly maintained. – Implement a no idling policy on site (unless necessary for equipment operation). – Use of electricity from the grid over diesel generators wherever possible. – Retrofitting of combustion engines with specific exhaust emission control measures such as particulate traps. – If applicable, follow guidelines on hot mix asphalt outlined in the Ontario Hot Mix Producers Association's Environmental Practices Guide: Ontario Hot Mix Asphalt Plants, Fifth Edition (Ontario Hot Mix Producers Association, 2015). ■ Applicable mitigation measures from Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005), the Ministry of the Environment, Conservation and Parks' Technical Bulletin Management Approaches for Industrial Fugitive Dust Sources, shall be followed. The following mitigation measures should be considered in the plan to manage air quality: – Complete earthwork grading within 10 days of ceased active construction. – Temporary seeding or mulching of bare soil and storage piles. – Compression or clodding of soil surfaces and storage piles to reduce erosion. – Confine storage pile activity to downwind side of piles. – Reduction of activities during high wind conditions. – Full or partial enclosure of demolition activities. – Wind screens or barriers where possible or necessary. – Off-site construction of certain structures or parts of structures to minimize air emission due to interference with the normal flow of traffic. – Scheduling certain construction activities (i.e., site preparation and earth works activities, demolition activities, unpaved surfaces with heavy equipment travel, and uncovered soil storage piles) to periods of time when exposure to dust is expected to be limited (e.g., avoid scheduling activities during dry, windy weather conditions). – Landscaping materials ordered close to time of use to reduce on-site storage. – Application of non-chloride soil stabilizers or dust control polymers where feasible. – Daily removal of accumulated mud, dirt and debris deposits on-site, and regular truck washing – Paved and unpaved roadway cleaning, watering or application of a non-chloride dust suppressant. – Minimize drop height of materials on-site. – Covering surface area of hauled bulk material. – Methods and equipment for cleanup of accidental spill of dusty materials. – Limit travel speeds on-site to a maximum of 16 to 24 kilometres per hour. ■ If disruption of contaminated soils is anticipated at any time, **Section 6.2** of this Report includes remedial action plans, risk assessment and risk mitigation plans for encountering contamination and minimizing the release of contaminants. ■ Develop a communications protocol which includes timely resolution of complaints.	■ The following monitoring activities should be considered in the development of the plan to manage air quality: – Baseline conditions should be established prior to construction for longer than one week to capture representative concentrations under varying meteorological conditions. – On-site monitoring that includes real-time particulate monitoring representative of receptor impacts. – Place monitors both upwind and downwind of construction activities, where possible. – Application of threshold "Action Level" triggers for implementation of specific and increasing intensity mitigation activities linked to specific construction activities. – Reporting detailing results of ongoing monitoring and mitigation activities. – Monitoring at locations where there are persistent complaints, as required. ■ In addition, relevant construction monitoring activities from the following recommended guidelines will 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).

6.5 Noise and Vibration

The Final Noise and Vibration Early Works Report, found in **Appendix B3**, documents the assessment of Lakeshore East Joint Corridor early works construction impacts related to noise and vibration. Impacts associated with Project operations will be addressed as part of the Environmental Impact Assessment Report, under separate cover and are not part of the Lakeshore East Joint Corridor early works. Note that the assessment of the Lakeshore East Joint Corridor operational noise and vibration impacts is documented in the Lakeshore East Joint Corridor Noise and Vibration Operations Report found in **Appendix C** of this report. As the Lakeshore East Joint Corridor early works include installation of noise barriers and vibration mitigation technologies to address noise and vibration impacts associated with Joint Corridor operation, the Lakeshore East Joint Corridor Noise and Vibration Operations Report is included in this Early Works Report to provide the details of the operational noise and vibration assessment and identification of mitigation measures. Noise and vibration impacts due to the construction of the early works are temporary and will cease once construction has been completed.

Table 6-5 outlines mitigation measures and monitoring activities to address the potential noise and vibration impacts that may result from the Lakeshore East Joint Corridor early works.

Table 6-5: Potential Impacts, Mitigation Measures and Monitoring Activities – Noise and Vibration

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities

Construction Noise
 	
Note: Details of the operational noise impacts and planned mitigation are included in the Lakeshore East Joint Corridor Noise and Vibration Operations Report, found in Appendix C.
	– Environmental noise may cause annoyance and disturb sleep and other activities.
	– The severity of the noise effects resulting from construction projects varies, depending on:
	  – Scale, location and complexity of the project
	  – Construction methods, processes and equipment deployed
	  – Total duration of construction near sensitive noise receivers
	  – Construction activity periods (days, hours, time period)
	  – Number and proximity of noise-sensitive sites to construction area(s)
		■ Establish and apply project specific noise criteria/limits. Construction noise impact mitigation measures to be considered to meet project specific noise criteria/exposure limits include but are not limited to the following:
		– Siting construction staging and laydown areas to avoid/reduce adverse impacts to sensitive receivers where feasible.
		– Use construction equipment compliant with noise level specifications in Ministry of Environment, Conservation, and Parks guidelines NPC-115 and NPC-118.
		– Keep equipment in good working order and operate with effective muffling devices.
		– Equipment enclosures for equipment such as generators and compressors.
		– Additional equipment silencers/mufflers.
		– Use of upgraded construction hoarding (considering requirements from Canadian Standards Association Z107.9 for noise barriers) between construction equipment and noise sensitive receivers.
		– Use of localized movable noise barriers/screens for specific equipment and operations.
		– Minimize simultaneous operation of equipment where feasible.
		– Implement a no idling policy on site (unless necessary for equipment operation).
		– Restrict construction hours where feasible:
		• Perform construction during daytime hours where feasible. If night time construction is necessary, the activities with the highest noise levels should be conducted during day time periods where feasible.
		• If construction will occur outside of normal daytime hours, inform local residents before construction of type of construction and expected duration outside of daytime hours.
		• Consider construction duration limits for construction with adjacent noise sensitive locations such as: 9 Lewis Street, 18 Saulter Street, 2 Paisley Avenue, 15 Tiverton Avenue, 400 Carlaw Avenue, 138 First Street, 369 Pape Avenue, 2 Egan Avenue, and 165 Galt Avenue.
		– Limit the number of heavy trucks on site to the minimum required.
		– Stage construction vehicles away from noise sensitive locations, if feasible.
		– Undertake noise monitoring and regular reporting throughout the construction phase. Where noise level limits are exceeded, additional noise mitigation measures shall be implemented.
		– Develop a communications protocol which includes timely resolution of complaints.
		■ Additional mitigation measures not listed above may be considered.
			■ Noise levels will be monitored where the impact assessment indicates that noise limits may be exceeded, to identify if any additional mitigation is required and verify mitigation measures(s) effectiveness.
			■ Continuous noise monitoring should be completed at each geographically distinct active construction site associated with the Project with monitor(s) located strategically to capture the worst-case construction related noise levels at receiver locations based on planned construction activities, their locations, and the number, geographic distribution and proximity of noise sensitive receivers.
			■ Monitoring at locations where there are persistent complaints, as required.

Construction Vibration Note: Details of the operational vibration impacts and planned mitigation are included in the Lakeshore East Joint Corridor Noise and Vibration Operations Report, found in Appendix C.	– Exposure to vibration may result in public annoyance and complaints. Vibration may also cause damage to buildings and other structures.	■ Project-specific construction vibration criteria limits will be established and applied, where appropriate. Vibration limits for the structures in the Riverdale Heritage District (near Tiverton Street and Dundas Street East) will be reviewed and design vibration limits should be confirmed by a qualified specialist during the next phases of design. Construction vibration impact mitigation measures to be considered include but are not limited to the following to meet applicable vibration criteria: – Siting construction staging and laydown areas to avoid/reduce adverse impacts to sensitive receivers where possible. – Utilize equipment with low vibration emissions where possible. – Off-site construction of components away from sensitive areas. – Restrict construction hours where feasible: • Perform construction during daytime hours where feasible. If night time construction is necessary, the activities with the highest vibration levels should be conducted during the daytime periods where feasible. – Review vibration assessment based upon refined site staging, construction areas/equipment, and building locations prior to the commencement of construction, and update if necessary. – Review and refine the construction activities to avoid potential impacts to vibration sensitive receivers (within the City of Toronto By-law 514-2008 Zone of Influence). Conduct monitoring and pre-construction inspections in accordance with the City of Toronto By-law 514-2008. Monitoring and preconstruction requirements can be determined by calculation of Zone of Influence of construction equipment. The vibration sensitive locations within the Zone of Influence, to be reviewed as project planning progresses, are initially identified as: • 9/11 Lewis Street (Residential),	■ Monitoring will be undertaken at locations within the Zone of Influence to ensure compliance with the City of Toronto By-law 514-2008 and to identify the need for additional mitigation if required. ■ Monitoring will be undertaken to ensure compliance with other applicable vibration level limits identified, as required. ■ Monitoring will be undertaken to verify mitigation measure(s) effectiveness. ■ Pre-construction building inspection of the potentially impacted buildings adjacent to the early works construction sites are to be undertaken in accordance with City of Toronto By-law 514-2008. Continuous vibration monitoring along the construction site

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
		• 20 Saulter Street (Residential), • 33 Saulter Street (Residential), • 1 Strange Street (Commercial), • 791 Queen Street East (Mixed-use Residential), • 400 Eastern Avenue (Commercial), • 7/9 Dibble Street (Commercial), • 38/46 McGee Street (Commercial), • 56 McGee Street (Commercial), • 70 McGee Street (Commercial), • Structure in 80 McGee Street (Park), • 870 Queen Street East (Institutional), • 2 to 14 Paisley Avenue (Residential), • 15/17/17A/17B Tiverton Avenue (Residential), • Backyard structures in 25 and 27 Tiverton Avenue (Residential), • 444 Logan Avenue (Residential), • 388 to 400 Logan Avenue (Residential), • 400 Carlaw Avenue (Commercial), • 445 Logan Avenue (Residential), • 231 First Avenue (Residential), • 234 to 238 First Avenue (Residential), • 843 Gerrard Street East (Commercial), • Riverdale Shopping Centre (425 to 471 Carlaw Avenue – Commercial); • 369 Pape Avenue (Residential), • 1 Egan Avenue (Residential), • 2 Egan Avenue (Residential), • 302/304 Jones Avenue (Commercial – Residential), • 165 Galt Avenue (Residential), • 162 Galt Avenue (Residential), and • 1000 Gerrard Street East (Commercial). – Provide smooth surfaces for trucks to travel and route heavily loaded trucks away from vibration sensitives sites where possible. – Operate construction equipment on lower vibration settings where available. – Maximize distance between equipment and sensitive receivers while receivers where feasible. – Do not operate equipment where the City of Toronto By-law 514-2008 prohibited limits are predicted to be exceeded. Alternative construction methods and/or equipment with lower vibration emissions or power settings can be used if they do not exceed the City of Toronto's prohibited vibration limits. – As Project planning and design progress, conduct a review to identify any sensitive structures/operations that require more stringent vibration limits than the limits in City of Toronto By-law 514-2008; assess requirements, review/revise vibration limits for these locations and, if necessary, develop mitigation measures. US Federal Transit Administration Report No. 0123, Transit Noise and Vibration Impact Assessment Manual (2018) could be used as a source of additional criteria. – Review other applicable vibration limits that may apply, such as the City of Toronto Specification GN117SS. – Develop communications protocol which includes timely resolution of complaints. ■ Additional mitigation measures not listed above may be considered.	property lines closest to these structures will be initiated as warranted. ■ Monitoring at locations where there are persistent complaints, if required.

6.6 Socio-Economic and Land Use Characteristics

Table 6-6 outlines mitigation measures and monitoring activities to address the potential socio-economic and land use impacts that may result from the Lakeshore East Joint Corridor early works.

Table 6-6: Potential Impacts, Mitigation Measures and Monitoring Activities – Socio-Economic and Land Use Characteristics

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Property	■ Property acquisition – permanent and temporary	■ Specific permanent property requirements associated with the early works infrastructure components, and temporary property requirements, such as those associated with construction staging and access, will be minimized to the extent feasible as planning progresses.	■ None identified.
All Land Uses and Adjacent Lands	■ Nuisance effects from construction activities	■ Mitigation measures related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration potential impacts, mitigation measures, and monitoring activities tables; ■ An Erosion and Sediment Control Plan will be developed in accordance with the Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), as amended from time to time, that addresses sediment release to adjacent properties and roadways.	■ Monitoring activities related to potential nuisance effects are outlined in the Air Quality and Noise and Vibration potential impacts, mitigation measures, and monitoring activities tables; and ■ Erosion and sediment control monitoring to be conducted (e.g., on-site inspection of erosion and sediment control measures).
All Land Uses and Adjacent Lands	■ Land use and access disruption	■ Provide well connected, clearly delineated, and appropriately signed temporary walkways and cycling route options, with clearly marked detours where required; ■ Provide temporary walkways with a pedestrian clearway of 2.1 metres, where possible. Temporary walkways required during construction will also meet Accessibility for Ontarians with Disabilities Act requirements for universal accessibility; ■ Provide temporary lighting, as required, and wayfinding signs and cues for navigation around the construction site; ■ Regular (existing) access to businesses during working hours will be maintained, where feasible. Where regular access cannot be maintained, alternative access and signage will be provided; and ■ Continue to engage with the City of Toronto, local Business Improvement Areas, and local school board(s), as required, to confirm mitigation measures.	■ Regular monitoring (e.g., on-site inspection) of temporary access paths, walkways, cycling routes and fencing to ensure effectiveness.
Visual Characteristics	■ Visual effects from permanent public- facing structures and construction activities/areas	■ Consult with the City of Toronto as planning progresses; ■ Minimize the visual effects of bridges, retaining walls and noise barriers by selecting appropriate building materials and architectural design; and ■ A fence/screened enclosure for the construction area(s) will be provided, as required.	■ Regular monitoring (e.g., on-site inspection) of construction visual effects mitigation measures to ensure effectiveness.
Light Pollution	■ Light trespass, glare and light pollution effects	■ 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 ANSI/IES RP-8-18 – Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting. Obtrusive light with respect to adjoining residents, communities, and/or businesses will be limited; and ■ Perform the work in such a way that any adverse effects of construction lighting are controlled or mitigated to avoid unnecessary and obtrusive light with respect to adjoining residents, communities and/or businesses.	■ Regular monitoring (e.g., on-site inspection) of light pollution mitigation measures to ensure effectiveness.
Public Realm	■ Potential relocation or removal of streetscaping materials, furniture, and landscaping in the public realm	■ Relocation or removal of streetscaping materials, furniture, and landscaping in the public realm will be minimized to the extent feasible. Consultation with the City of Toronto on restoration plans for the impacted areas within public realm will be completed during detailed design. Wherever feasible, lands impacted by construction will be restored to the current City of Toronto standard following construction completion. ■ Consult with the City of Toronto regarding restoration of the public realm areas impacted by early works activities. ■ Consult with the City of Toronto and Business Improvement Areas, as necessary, regarding restoration of assets owned by the City or Toronto and local Business Improvement Areas.	■ There are no monitoring activities associated with the public realm

6.7 Built Heritage Resources and Cultural Heritage Landscapes

Table 6-7 outlines mitigation measures and monitoring activities to address the potential impacts to built heritage resources and cultural heritage landscapes that may result from the Lakeshore East Joint Corridor early works.

Table 6-7: Potential Impacts, Mitigation Measures and Monitoring Activities - Built Heritage Resources and Cultural Heritage Landscapes

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
OLS-013	■ 840 Gerrard Street East ■ Fire Station #324	■ Listed on the Municipal Heritage Register (April 1, 1982)	**No**	**1. No direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). OLS-013 can be considered adjacent to the Lakeshore East Joint Corridor Early Works Project Footprint. OLS-013 is approximately 29.4 metres north of the Lakeshore East Joint Corridor Early Works Project Footprint, separated by Gerrard Street East. Therefore, the property will not experience direct physical impacts based on the location of early works.	■ No mitigation measures required. Continue to avoid the property (OLS-013).	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
OLS-013	■ 840 Gerrard Street East ■ Fire Station #324	■ Listed on the Municipal Heritage Register (April 1, 1982)	**No**	**2. No indirect adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The building at OLS-013 is approximately 18 metres north of the Lakeshore East Joint Corridor Early Works Project Footprint, beyond the 11.1 metre vibration buffer. Therefore, vibration impacts to the building within OLS-013 will be avoided.	■ No mitigation measures required.	■ Lakeshore East Joint Corridor early works will have no indirect impacts that require monitoring prior, during or post-construction of early works.
OLS-014	■ Carlaw Avenue Subway and Gerrard Street East Subway	■ Previously identified built heritage resource/ cultural heritage landscape ■ Metrolinx Provincial Heritage Property	**No**	**1. No direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 2A – Introduction of new physical elements and/or alterations to the structure without impacting the heritage attributes identified in Appendix C, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). Both structures at OLS-014 are located entirely within the Lakeshore East Joint Corridor Project Footprint. The structures will be impacted by the addition of noise barriers as shown in **Figures 1-1.** As the noise barriers are proposed to be added along the outer edges of the Gerrard Street East and Carlaw Avenue Subways, the heritage attributes of the structures will not be adversely impacted as listed in **Table 3-1**.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measure for the alteration of the structures are required: – Consult with City of Toronto's Heritage Planning as planning and design progresses regarding any physical impact to the structures in order to determine and obtain any approval or permits required. – Recognizing that the Gerrard Street East and Carlaw Avenue Subways are over 80 years old, bridge condition and technical feasibility assessments will need to be carried out during early works detailed design as it relates to noise barrier design and installation. Should these assessments show that noise barrier installation is not possible without a physical impact to a heritage attribute, Metrolinx will consult with City of Toronto's Heritage Planning regarding any	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
					physical impacts to the bridges and complete detailed documentation of the structure that includes identification of salvageable materials and/or heritage attributes prior to alteration, in order to inform what structure components should be retained and conserved and/or restored.	
OLS-014	■ Carlaw Avenue Subway and Gerrard Street East Subway	■ Previously identified built heritage resource/cultural heritage landscape ■ Metrolinx Provincial Heritage Property	**No**	**2. No indirect adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific pacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The entire bridge is within the 11.1 metre vibration buffer, however, as a railway structure, OLS-014 was built to withstand vibration and therefore will not experience adverse vibration impact from early works. For this reason, vibration was not included as a potential impact in the Ontario Line Cultural Heritage Report.	■ No mitigation measures required.	■ Lakeshore East Joint Corridor early works will have no indirect impacts that require monitoring prior, during or post-construction of early works.
OLS-015	■ 400 Carlaw Avenue ■ Jefferson Glass Co. Factory	■ Potential built heritage resource/ cultural heritage landscape identified in the Ontario Line Cultural Heritage Report (AECOM, 2020c)	**No**	**1. No direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). OLS-015 is adjacent to the Lakeshore East Joint Corridor Early Works Project Footprint. Therefore, the property will not experience direct physical impacts based on the location of early works.	■ No mitigation measures required. Continue to avoid the property (OLS-015)	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
OLS-015	■ 400 Carlaw Avenue ■ Jefferson Glass Co. Factory	■ Potential built heritage resource/ cultural heritage landscape identified in the Ontario Line Cultural Heritage Report (AECOM, 2020c)	**No**	**2. Indirect adverse impact from Lakeshore East Joint Corridor early works** (Impact Type 3A – Vibration impacts to the building related to the Project on or adjacent to the property, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The 11.1 metre vibration buffer overlaps the building within OLS-015. As a result, the potential exists for vibration impacts on the building during construction of early works.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for vibration impacts are required: – Documentation (Review and establish) of the structural condition of the affected buildings to determine if they are vulnerable to vibration impacts from early works. – Establish vibration limits based on structural conditions, founding soil conditions and type of construction vibration. – Implement vibration mitigating measures on the construction site and/or at the building.	■ Lakeshore East Joint Corridor early works have the potential to incur vibration impacts on the building within OLS-015. The following monitoring activities are required for vibration impacts: – Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; and – Conduct regular condition surveys and reviews during construction to evaluate efficacy of protective measures. Implement additional mitigation as required.

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
OLS-016	■ 1 Dickens Street ■ Woods Manufacturing Company	■ Potential built heritage resource/ cultural heritage landscape identified in the Ontario Line Cultural Heritage Report (AECOM, 2020c)	**No**	**1. No direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The property of OLS-016 is adjacent to the Lakeshore East Joint Corridor Early Works Project Footprint. Therefore, the property will not experience direct physical impacts from early works based on the location of early works.	■ No mitigation measures required. Continue to avoid the property (OLS-016)	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
OLS-016	■ 1 Dickens Street ■ Woods Manufacturing Company	■ Potential built heritage resource/ cultural heritage landscape identified in the Ontario Line Cultural Heritage Report (AECOM, 2020c)	**No**	**2. No indirect adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The building at OLS-016 is approximately 19.9 metres south of the Lakeshore East Joint Corridor Early Works Project Footprint, and beyond the 11.1 metre vibration buffer. Therefore, vibration impacts to the building within OLS-016 will be avoided.	■ No mitigation measures required.	■ Lakeshore East Joint Corridor early works will have no indirect impacts that require monitoring prior, during or post-construction of early works.
OLS-017	■ Riverdale Heritage Conservation District	■ Designated Part V of the Ontario Heritage Act (By-law 951-2008)	**No**	**1. Direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 2A – Encroachment into the Heritage Conservation District causing a physical impact, including introduction of new elements to the Heritage Conservation District, alterations to a contributing property or diminishment in integrity of the Heritage Conservation District due to the introduction of new elements, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The boundaries of OLS-017, Riverdale Heritage Conservation District overlap with the Lakeshore East Joint Corridor Early Works Project Footprint. A portion of the Heritage Conservation District will accommodate the construction of retaining walls and noise barriers along the northern boundary of the Lakeshore East Rail Corridor as part of Early Works. There is potential to impact vegetation including trees that is located within portions of the early works Project Footprint that overlap with the Heritage Conservation District. Trees as features of the public realm are included in the Heritage Conservation District. In addition, a non-contributing property, a car repair shop at 240 and 242 First Avenue, is within the Lakeshore East Joint Corridor Early Works Project Footprint and will be demolished to facilitate early works construction. It is anticipated that this area at the eastern end of First Avenue will be used to accommodate retaining walls, noise barriers and the future Ontario Line Gerrard Station. Policy 9.6 of the Heritage Conservation District Plan states that demolition of a non-contributing property within the Heritage Conservation District is permitted with approval from the City of Toronto.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for direct impacts are required in accordance with the *Riverdale Heritage Conservation District Plan Phase 1*: – Consult with City of Toronto's Heritage Planning as planning progresses regarding any physical impact to the Heritage Conservation District, including, if required, the demolition of the non-contributing building of 240 and 242 First Avenue, in order to determine and obtain any approval or permits required, and collaborate with the City on the restoration of vegetative elements impacted by early works.	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
OLS-017	■ Riverdale Heritage Conservation District	■ Designated Part V of the Ontario Heritage Act (By-law 951-2008)	**No**	**2. Indirect adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 3A – Vibration impacts to the building related to the Project on or adjacent to the property, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). Contributing properties at 238 and 236 First Avenue and non-contributing properties at 240 and 242 First Avenue within the Heritage Conservation District are within the 11.1 metre vibration buffer. As a result, the potential exists for vibration impacts during construction of early works.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for vibration impacts are required: – Documentation (Review and establish) of the structural condition of the affected buildings to determine if they are vulnerable to vibration impacts from early works. – Establish vibration limits based on structural conditions, founding soil conditions and type of construction vibration. – Implement vibration mitigating measures on the construction site and/or at the building.	■ Lakeshore East Joint Corridor early works have the potential to incur vibration impacts on buildings within the Heritage Conservation District (OLS-017). The following monitoring activities are required for vibration impacts: – Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; and – Conduct regular condition surveys and reviews during construction to evaluate efficacy of protective measures. Implement additional mitigation as required.
OLS-018	■ Queen Street East – Riverside Heritage Conservation District	■ Heritage Conservation District, under study	**No**	**1. No Direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). OLS-018, the Queen Street East Riverside Heritage Conservation District, is adjacent to the Lakeshore East Joint Corridor Early Works Project Footprint. The Heritage Conservation District will not experience direct physical impacts based on the location of early works.	■ No mitigation measures required. Continue to avoid the Heritage Conservation District.	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
OLS-018	■ Queen Street East – Riverside Heritage Conservation District	■ Heritage Conservation District, under study	**No**	**2. Indirect adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 3A – Vibration impacts to the building related to the Project on or adjacent to the property, from Appendix H: Preliminary Potential Project-Specific pacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The only building within the Heritage Conservation District that is within the 11.1 metre vibration buffer is the Sisters of St. Joseph building (no legal address in Teranet data). The building is within 9.1 metres of the Lakeshore East Joint Corridor Early Works Project Footprint and therefore, there is potential for vibration impacts during construction of early works.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for vibration impacts are required: – Documentation (Review and establish) of the structural condition of the affected building to determine if they are vulnerable to vibration impacts from early works. – Establish vibration limits based on structural conditions, founding soil conditions and type of construction vibration. – Implement vibration mitigating measures on the construction site and/or at the building.	■ Lakeshore East Joint Corridor early works have the potential to incur vibration impacts on a building within the Heritage Conservation District (OLS-018). The following monitoring activities are required for vibration impacts: – Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; and – Conduct regular condition surveys and reviews during construction to evaluate efficacy of protective measures. Implement additional mitigation as required.

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
OLS-122	■ 6, 8 and 10 Paisley Avenue	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017b)	**No**	**1. Direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 2A – Encroachment onto a property causing a physical impact to a property, while avoiding physical impact to a building and/or the heritage attributes identified in Appendix C – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report). The buildings within 6, 8, and 10 Paisley Avenue are in close proximity (between 4 to 5 metres) to the Lakeshore East Joint Corridor Early Works Project Footprint. The rear yards of all the properties are within the Lakeshore East Joint Corridor Early Works Project Footprint and are proposed to be used to support construction access on a temporary basis. This temporary encroachment will result in a physical impact to the properties but will not cause a direct adverse impact to the buildings on the properties.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for direct impacts related to encroachment are required: – Consult with City of Toronto's Heritage Planning as planning progresses regarding any physical impact to the properties in order to determine and obtain any approval or permits required.	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
OLS-122	■ 6, 8 and 10 Paisley Avenue	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017b)	**No**	**2. Indirect adverse impact from Lakeshore East Joint Corridor early works** (Impact Type 3A – Vibration impacts to the building related to the Project on or adjacent to the property, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report) The residences within OLS-122, 6, 8 and 10 Paisley Avenue, are in close proximity (between 4 to 5 metres) to the Lakeshore East Joint Corridor Early Works Project Footprint and are located within the 11.1 metre vibration buffer. As a result, there is potential for vibration impacts during the construction of early works.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for vibration impacts are required: – Documentation (Review and establish) of the structural condition of the affected building to determine if they are vulnerable to vibration impacts from early works – Establish vibration limits based on structural conditions, founding soil conditions and type of construction vibration – Implement vibration mitigating measures on the construction site and/or at the building	■ Lakeshore East Joint Corridor early works have the potential to incur vibration impacts on the buildings within the property (OLS-122). The following monitoring activities are required for vibration impacts: – Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; and – Conduct regular condition surveys and reviews during construction to evaluate efficacy of protective measures. Implement additional mitigation as required
OLS-123	■ 15 and 17 Tiverton Avenue	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017c) ■ Contributing property in the Riverdale Heritage Conservation District, Designated Part V of the Ontario Heritage Act	**No**	**1. No direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report) OLS-123 is adjacent to the Lakeshore East Joint Corridor Early Works Project Footprint. The properties will not experience direct physical impacts based on the location of early works.	■ No mitigation measures required. Continue to avoid the properties (OLS-123).	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
OLS-123	■ 15 and 17 Tiverton Avenue	■ Previously identified built heritage resource/cultural heritage landscape (AECOM, 2017c) ■ Contributing property in the Riverdale Heritage Conservation District, Designated Part V of the Ontario Heritage Act	**No**	**2. Indirect adverse impact from Lakeshore East Joint Corridor early works** (Impact Type 3A – Vibration impacts to the building related to the Project on or adjacent to the property, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line West Study Area, in the Ontario Line Cultural Heritage Report) The two residences within OLS-123, 15 and 17 Tiverton Avenue, are located adjacent to the Lakeshore East Joint Corridor Early Works Project Footprint and the buildings are both located within the 11.1 metre vibration buffer. As a result, there is potential for vibration impacts during the construction of early works.	■ Mitigation measures documented in Appendix H of the Ontario Line Cultural Heritage Report have been refined based on the early works impact assessment. The following mitigation measures for vibration impacts are required: – Documentation (Review and establish) of the structural condition of the affected building to determine if they are vulnerable to vibration impacts from early works – Establish vibration limits based on structural conditions, founding soil conditions and type of construction vibration ▪ Implement vibration mitigating measures on the construction site and/or at the building	■ Lakeshore East Joint Corridor early works have the potential to incur vibration impacts on the building within the potential District (OLS-123). The following monitoring activities are required for vibration impacts: – Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; and – Conduct regular condition surveys and reviews during construction to evaluate efficacy of protective measures. Implement additional mitigation as required
OLS-124	■ 60 and 62 McGee Street	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017d)	**No**	**1. No direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report) Two residences within OLS-124, 60 and 62 McGee Street, are adjacent to the Lakeshore East Joint Corridor Early Works Project Footprint. The properties will not experience direct physical impacts based on the location of early works.	■ No mitigation measures required. Continue to avoid the properties (OLS-124).	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
OLS-124	■ 60 and 62 McGee Street	■ Previously identified built heritage resource/ cultural heritage landscape (AECOM, 2017d)	**No**	**1. No indirect adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report) The rear of portion of the properties at OLS-124 are within the 11.1 metre vibration buffer, however the buildings are approximately 4.6 metres beyond the 11.1 metre vibration buffer. As a result, there is no potential for vibration impacts to the buildings during construction of early works.	■ No mitigation measures required.	■ Lakeshore East Joint Corridor early works will have no indirect impacts that require monitoring prior, during or post-construction of early works.

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
OLS-126	■ De Grassi Street from Queen Street East to Wardell Street	■ Potential built heritage resource/ cultural heritage landscape identified in the Ontario Line Cultural Heritage Report (AECOM, 2020c)	**No**	**1. Direct adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 2C - Introduction of new elements and/or alterations that results in a physical impact to a heritage attribute identified in Appendix C, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report) OLS-126 is within the Lakeshore East Joint Corridor Early Works Project Footprint. Removal and replacement of the existing Queen Street East GO rail bridge may result in a direct impact to the Heritage Toronto Plaque located on the sidewalk on the north side of the as shown in **Figure 5-18**. Although the bridge itself does not retain cultural heritage value or interest, plaques, including the historical plaque near the bridge, are heritage attributes of the public realm of the De Grassi Street streetscape.	■ Based on the Lakeshore East Joint Corridor Early Works Project Footprint, the following mitigation measures were developed in this Heritage Detailed Design Report: – Consult with City of Toronto's Heritage Planning as planning progresses for any physical impact to the streetscape and its heritage attributes (i.e., the Heritage Toronto plaque) in order to determine and obtain any approval or permits required. ■ Apply the following steps if the Heritage Toronto Plaque within OLS-126 can remain *in-situ* during the early works construction: – Mark the plaque on Detailed Design drawings as "To be retained: Implement protection measures prior to construction" – Install protection measures such as box or fence hoarding, prior to construction. – Apply the following steps if avoidance of the Heritage Toronto Plaque within OLS-126 during early works construction is not feasible and removal/relocation is required: – Mark the plaque on the Detailed Design drawings as "Remove prior to construction, store, reinstate post-construction" – Prior to construction determine an appropriate removal plan and storage location – Remove plaque prior to construction – Reinstate plaque near the bridge post-construction, in relatively the same location as pre-removal.	■ Early works may impact this resource and construction and post-construction monitoring may be required. ■ If the Heritage Toronto Plaque is to remain in-situ during early works construction the following monitoring may be required: ■ During construction, monitor the protection of the plaque. – Regular monitoring of the plaque/plaque protective enclosure condition will be undertaken throughout construction to ensure integrity of the plaque/plaque protective enclosure. – Post construction, the enclosure will be removed and the condition of the plaque will be confirmed to ensure it meets pre-construction conditions. – Post construction, remove hoarding and confirm the condition of the plaque meets pre-construction conditions.
OLS-126	■ De Grassi Street from Queen Street East to Wardell Street	■ Potential built heritage resource/ cultural heritage landscape identified in the Ontario Line Cultural Heritage Report (AECOM, 2020c)	**No**	**2. No indirect adverse impacts from Lakeshore East Joint Corridor early works** (Impact Type 1 – no anticipated impact, from Appendix H: Preliminary Potential Project-Specific Impacts and Proposed Mitigation Measures – Ontario Line South Study Area, in the Ontario Line Cultural Heritage Report) There are no buildings associated with the streetscape of OLS-126 that are located within the 11.1 metres vibration buffer. As a result, no vibration impacts to buildings within the streetscape is anticipated during the construction of early works.	■ No mitigation measures required.	■ Lakeshore East Joint Corridor early works will have no indirect impacts that require monitoring prior, during or post-construction of early works.

Ontario Line Cultural Heritage Report Ref. No.	Location/Address and Property Name	Heritage Recognition	Known or Potential Provincial Heritage Property of Provincial Significance	Type and Description of Potential Impact	Mitigation Measures	Monitoring Activities
LSE-001	■ 369 Carlaw Avenue ■ Toronto Hydroelectric Substation #8	■ Listed on City of Toronto Heritage Register (May 6 & 7, 1991) ■ Identified in this Heritage Detailed Design Report	**No**	**1. No direct adverse impacts from Lakeshore East Joint Corridor early works** LSE-001 is approximately 18.2 metres east of the Lakeshore East Joint Corridor Early Works Project Footprint., separated from the footprint by Carlaw Avenue. Therefore, the property will not experience direct physical impacts based on the location of early works.	■ No mitigation measures required. Continue to avoid the property (LSE-001).	■ Lakeshore East Joint Corridor early works will have no direct impacts that require monitoring prior, during or post-construction of early works.
LSE-001	■ 369 Carlaw Avenue ■ Toronto Hydroelectric Substation #8	■ Listed on City of Toronto Heritage Register (May 6 & 7, 1991) ■ Identified in this Heritage Detailed Design Report	**No**	**2. No indirect adverse impacts from Lakeshore East Joint Corridor early works** Vibration Impacts: The building at LSE-001 is approximately 18.2 metres east of the Lakeshore East Joint Corridor Early Works Project Footprint, beyond the 11.1 metre vibration buffer. Therefore, vibration impacts to the building within LSE-001 will be avoided.	■ No mitigation measures required.	■ Lakeshore East Joint Corridor early works will have no indirect impacts that require monitoring prior, during or post-construction of early works.

6.8 Archaeological Resources

Early works are anticipated to result in a combination of surface/above grade and below grade impacts. Areas with determined impacts requiring further archaeological assessment will dictate the type of archaeological assessment strategy that should be employed. Further archaeological assessment that could be required for early works include standard surface level testing, a combination of mechanical and hand excavation for deeply buried contexts, and a requirement for archaeological monitoring during construction. The type of impact could also remove the requirement for certain types of archaeological assessment. Recommendations from the Stage 1 archaeological assessment reports and any subsequent archaeological assessments will be followed. Additionally, all archaeological assessment reports will be submitted to and reviewed by Ministry of Heritage, Sport, Tourism and Culture Industries and a letter will be issued confirming that the report(s) has been entered into the Ontario Public Register of Archaeological Reports, prior to any ground disturbing activities.

Table 6-8 outlines mitigation measures and monitoring activities to address the potential impacts to archaeological resources that may result from the Lakeshore East Joint Corridor early works.

It should be noted that the Lakeshore East Joint Corridor Early Works Project Footprint may include lands that will not require ground disturbing activities during early works construction. As planning progresses and specific areas of ground disturbing activities are confirmed, only those areas will require further archaeological assessment.

Table 6-8: Potential Impacts, Mitigation Measures and Monitoring Activities - Archaeological Resources

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Archaeological Potential	■ Potential for the disturbance of unassessed or documented archaeological resources.	■ Areas identified as retaining archaeological potential in the Lakeshore East Joint Corridor Early Works Project Footprint, as per the Ontario Line South Stage 1 Archaeological Assessment Report (AECOM, 20204), are shown on **Figure 5-19**. The following mitigation measures will be applied for areas with archaeological potential: – Should ground disturbing activities be planned within these areas, further archaeological assessment must be completed prior to any ground disturbing activities. – Any additional Archaeological Assessments (e.g., Stage 2, Stage 3 if recommended by the Stage 2) shall be completed as early as possible, and prior to the ground disturbing activities. This work shall be done in accordance with the Ministry of Heritage, Sport, Tourism and Culture Industries' Standards and Guidelines for Consultant Archaeologists (2011) to identify any archaeological resources that may be present. ■ Recommendations from the Stage 1 archaeological assessment reports and any subsequent archaeological assessments will be followed. The report will be submitted to and reviewed by MHSTCI and a letter will be issued confirming that the report(s) has been entered into the Ontario Public Register of Archaeological Reports, prior to any ground disturbing activities. ■ Indigenous Nations will be invited to participate in any subsequent archaeological work. All future archaeological assessment findings will be shared with the Indigenous Nations that were engaged during the Stage 1 archaeological assessment.	■ None identified.
Archaeological Resources	■ Potential recovery of archaeological resources during construction.	■ Should previously unknown or unassessed deeply buried archaeological resources be uncovered during construction activities, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological field work, in compliance with Section 48 (1) of the Ontario Heritage Act. Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. In addition, consultation with relevant Indigenous Nations will be initiated in the event that archaeological resources or human remains are discovered.	■ None identified.

6.9 Traffic and Transportation

Table 6-9 outlines mitigation measures and monitoring activities to address the potential traffic and transportation impacts that may result from the Lakeshore East Joint Corridor early works.

Table 6-9: Potential Impacts, Mitigation Measures and Monitoring Activities - Traffic and Transportation

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Transportation Network – Roads	■ If required, temporary lane closures along some of the Lakeshore East Joint Corridor Traffic and Transportation Study Area roads (i.e., Queen Street East, Dundas Street East, and Logan Avenue) may result in impeding traffic flow and increased average delay of vehicles, including emergency vehicles. ■ Construction vehicle traffic may impact traffic operations resulting in increased vehicular delays and queue lengths, especially at intersections where construction traffic is required to make left-turning movements. ■ Potential overlapping construction timelines with other planned projects (e.g., capital projects and local developments) nearby may result in impacts to the transportation network and its road users.	■ A quantitative traffic impact assessment will be completed, as project planning progresses to consider vehicular traffic impacts as a result of the Lakeshore East Joint Corridor early works. The assessment will also consider the impacts of adjacent construction projects and will be completed in coordination with the City of Toronto. ■ Develop and implement a transit and traffic management plan(s), which could include temporary changes to intersection lane configurations, traffic signal timing optimization, modifications to existing signal timing plans, etc. The transit and traffic management plan(s) will also address specific emergency services requirements in consultation with the City of Toronto. ■ Traffic signal timing optimization may be assessed/implemented to increase capacity of affected intersections and to aid in the movement of traffic. Traffic signal timing adjustments would require coordination between Metrolinx and City of Toronto, and will be undertaken if required, to determine appropriate changes to traffic signal timings. ■ Consider scheduling construction activities during off-peak periods and weekends to minimize disruptions to road users during the critical peak periods. ■ Co-ordinate with the City of Toronto regarding other ongoing construction projects when scheduling the early works activities to maintain the mobility of road users. ■ Metrolinx will work with the City of Toronto and corresponding Business Improvement Areas to maintain access to businesses and minimize the potential impacts of the early works.	■ The effectiveness of the transit and traffic management plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.
Transportation Network – Active Transportation	■ Potential traffic congestion along the Lakeshore East Joint Corridor Traffic and Transportation Study Area roads, as a result of the increase in heavy vehicle traffic, could increase pedestrians' and cyclists' exposure to traffic. ■ If required, temporary realignment of the existing sidewalks along some of the Lakeshore East Joint Corridor Traffic and Transportation Study Area roads (i.e., Queen Street, Dundas Street, and Logan Avenue) may increase walking distances and impact the convenience of pedestrians.	■ Reduce interference with pedestrians and cyclists. This may include fencing, hoarding (minimum 2 meters high, solid, and secured), shared-lane markings, signals, wayfinding signs, and lighting as required to provide pedestrians and cyclists with safe, accessible, and continuous routes. ■ If required, co-ordinate with the City of Toronto to ensure any modifications to pedestrian crossing distances at signalized intersections are reflected in revised pedestrian clearance timings. ■ Any temporary pedestrian facilities including temporary or relocated Toronto Transit Commission transit stops will be designed to meet Toronto Transit Commission accessibility standards. ■ Implement flagging where construction vehicles are present to ensure construction vehicle operators are aware of pedestrian and vehicular traffic within the construction area.	■ The effectiveness of the transit and traffic management plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.
Transportation Network – Rail	■ Early works construction may require temporary full or partial closure of existing rail tracks, which may disrupt existing commuter and freight rail operations. The extent of track closures is dependent on the type of equipment used and construction sequencing.	■ Consult with rail operators with current service along the rail corridor (i.e., VIA Rail, Canadian National Railway, and Canadian Pacific Railway) to assess how track closures would impact their service and co-ordinate temporary schedules to accommodate all rail services on the open tracks.	■ The effectiveness of the transit and traffic management plan(s) will be monitored throughout the construction period. Adjustments to the construction staging plans and transit and traffic management plan(s) will be made based on actual field observations, as needed.
Transit Network	■ Potential increase of construction vehicles traffic could result in travel time delays to existing surface transit routes (i.e., streetcar routes #301 Queen Blue Night, #306 Carlton Blue Night, #501 Queen, #503 Kingston, and #506 Carlton, and bus routes #72 Pape, #143 Downtown/Beach Express, and #325 Don Mills Blue Night) that pass through the Lakeshore East Joint Corridor Traffic and Transportation Study Area intersections.	■ Co-ordinate with the Toronto Transit Commission and notify transit users regarding travel delays to the bus/streetcar services in advance. ■ Consider scheduling some construction activities during off-peak periods and weekends to minimize delays to bus services during the critical peak periods.	■ Transit services will be monitored through actual field observations throughout the construction period and additional mitigation measures will be considered, as needed.

6.10 Utilities

Table 6-10 outlines mitigation measures and monitoring activities to address the potential utilities impacts that may result from the Lakeshore East Joint Corridor early works.

Table 6-10: Potential Impacts, Mitigation Measures and Monitoring Activities - Utilities

Environmental Component	Potential Impact	Mitigation Measure(s)	Monitoring Activities
Private Utilities	■ Utilities modification and relocation. ■ It is anticipated that there will be temporary impacts to existing utilities during the construction of early works, with potential relocations and associated disruptions to be determined. ■ Potential impacts to utilities are under review and will be confirmed as project planning progresses.	■ In-depth utility investigations will be undertaken during detailed design to confirm impacts. Any potential conflicts and association relocation requirements or mitigation measures will be identified in consultation with utility providers. ■ During detailed design, the potential impacts to utilities, relocations and mitigation measures will be further refined and confirmed through a subsurface utility engineering investigation. ■ Appropriate mitigation measures including next steps related to consultation with utility companies and stakeholders, and phasing plans will be determined once the impacts are confirmed. Utility relocations will consider potential impacts to the natural environment and comply with mitigation measures outlined in **Table 6-1**.	■ None identified.
Public Utilities and Municipal Servicing	■ Utilities modification and relocation. ■ It is anticipated that there will be temporary impacts to existing utilities during the construction of early works, with potential relocations to be determined. ■ Potential impacts to utilities are under review and will be confirmed as project planning progresses.	■ In-depth utility-related investigations such as subsurface utility engineering investigation will be completed during detailed design. Metrolinx will consult with the City of Toronto during the development of these studies to ensure concerns are addressed. ■ Metrolinx will also consult with the City of Toronto and Toronto Hydro, as required, during detailed design regarding potential impacts to municipal infrastructure and servicing and ensure that applicable City standards, guidelines, and criteria are met. ■ Utility relocations will consider potential impacts to the natural environment and comply with mitigation measures outlined in **Table 6-1**.	■ None identified.

7. Permits and Approvals

The following sections provide a description of the federal, provincial, conservation authority and/or municipal permits that may be required for the Lakeshore East Joint Corridor early works. Permit and approval requirements will be confirmed as early works detailed design progresses.

7.1 Federal

No federal permits are anticipated to be required for the Lakeshore East Joint Corridor early works.

7.2 Provincial

7.2.1 Ontario Water Resources Act, 1990

As prescribed under Ontario Regulation 63/16, water taking for construction or for highways and transit projects may fall within low-risk short-term water taking activities if they meet the following criteria:

- Surface water takings that are more than 50,000 L/day and are for highway projects and/or transit projects;
- Construction site dewatering that takes more than 50,000 L/day and less than or equal to 400,000 L/day of groundwater, where the daily taking limits are applicable to:
  - Each area of influence in the construction site if the area of influences do not overlap with each other; and
  - The combined area of influence in the construction site if the area of influences overlaps with each other.

The above water taking limits are subject to registration through the Environmental Activity and Sector Registry (Ministry of the Environment, Conservation and Parks, 2021).

Approvals for the discharge of pumped water may also be required, and could be a combination of Municipal Discharge Permits (City of Toronto Private Water Discharge Permit/Agreement) and/or Ministry of the Environment, Conservation and Parks Environmental Compliance Approvals in accordance with Section 53 of the Ontario

Water Resources Act. Any discharge of water would be subject to the terms and conditions of required permits and approvals based on the expected site conditions. Permitting requirements shall be confirmed during detailed design, when specific details such as construction timing and methods are known.

7.2.2 Environmental Protection Act, 1990

Individual permits and approvals for construction activities are not required specifically for air quality prior to early works construction, with the exception of Environmental Compliance Approval(s) for equipment held by contractors, owners and operators of that equipment, which will be obtained in advance of construction, as necessary.

7.2.3 Endangered Species Act, 2007

Metrolinx will comply with the conditions of the Permit CR-D-002-19 issued on August 7, 2020 under Section 17 (1) in accordance with clause 17(2)(d) of the Endangered Species Act, 2007 for Species at Risk that may be affected by the Lakeshore East Joint Corridor early works including Barn Swallow and bat Species at Risk.

7.3 Conservation Authority

Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas for the Lakeshore East Joint Corridor early works in relation to Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

7.4 Municipal

A range of municipal permits and approvals (e.g., Permit to Injure or Remove Trees and/or Street Occupation Permit) may be required for Lakeshore East Joint Corridor early works, particularly as pertaining to municipally owned lands and infrastructure.

Water, sanitary, and storm servicing will be reviewed during detailed design. Metrolinx will consult with the City of Toronto during detailed design to address impacts to municipal water, sanitary, and storm sewer systems.

Metrolinx will co-ordinate with the City of Toronto and Toronto Parking Authority for transportation-related permits and approvals (e.g., street occupation permit) prior to construction, as required.

Metrolinx will consult with City of Toronto Heritage Planning regarding any physical impact to the one potential built heritage resources/cultural heritage landscape (the De Grassi Street streetscape from Queen Street East to Wardell Avenue (OLS-126)), the two previously identified build heritage resources/cultural heritage landscapes (the Carlaw Avenue Subway and Gerrard Street East Subway (OLS-014), and 6, 8 and 10 Paisley Avenue (OLS-122)) and to the Heritage Conservation District (the Riverdale Heritage Conservation District, designated Part V of the Ontario Heritage Act (OLS-017)) as planning progresses for early works.

Metrolinx, as a Crown Agency of the Province of Ontario, is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the City of Toronto to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals.

Metrolinx shall continue to communicate and engage with the City of Toronto during detailed design and construction planning to address municipal concerns.

8. Consultation Process

8.1 Overview of the Consultation Process

In accordance with Section 11 of Ontario Regulation 341/20: Ontario Line Project, this section summarizes the Lakeshore East Joint Corridor early works consultation activities carried out with members of the public, technical stakeholders, community stakeholders and groups, Elected Officials, Indigenous Nations, and other interested parties, including a summary of feedback and comments received. The overall Project record of consultation and summary of correspondence with the public, community stakeholders and groups, government review agencies and other technical stakeholders, Elected Officials and Indigenous Nations between November 2019 and October 17, 2020 is provided in Section 7 and Appendix C of the Ontario Line Final Environmental Conditions Report.

On September 23, 2021, the Notice of Publication of the Draft Lakeshore East Joint Corridor Early Works Report was issued to commence the review period, effective until October 24, 2021. The Notice was published on the Engagement webpage of the Project website (www.metrolinx.com/ontarioline) and distributed to:

- The individuals on the Project Distribution List, including community stakeholders and groups, government review agencies and other technical stakeholders, Elected Officials and Indigenous Nations;
- Approximately 17,888[34] properties (i.e., apartments, houses and businesses) within and surrounding the Lakeshore East Joint Corridor Study Area; and
- 365 property owners within 30 metres of the Lakeshore East Joint Corridor Early Works Project Footprint.

The Notice was advertised in three major newspapers (Toronto Star, Le Metropolitan, Toronto L'Express) and three community newspapers (Beach Metro, The Greek Press and Ming Pao) in English, French, Greek and Traditional Chinese.

On November 17, 2021, the Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report was issued. The Notice was published in the same major and community newspapers that the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report was advertised in. The Notice was also distributed to all

34. The property list has been updated since publishing the Draft East Harbour Station Early Works Report from 17,915 to 17,888 to accommodate the most recent Canada Post mail routes, which are updated on a monthly basis.

individuals, 17,888[35] properties within and surrounding the study area, 365 property owners within 30 meters of the Lakeshore East Joint Corridor Early Works Project Footprint, community stakeholders and groups, government review agencies and other technical stakeholders, Elected Officials and Indigenous Nations that received the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report. The Final Lakeshore East Joint Corridor Early Works Report (this Report) includes updates based on feedback received during the review period of the Draft Lakeshore East Joint Corridor Early Works Report, summarized in **Section 8.2.2**.

Consultation records related specifically to Lakeshore East Joint Corridor early works are documented in **Appendix B3** of this Report. **Appendix B3** has been updated as part of this Final Lakeshore East Joint Corridor Early Works Report to include all correspondence with the public, community stakeholders and groups, government review agencies and other technical stakeholders, Elected Officials and Indigenous Nations.

8.1.1 Approach to Consultation

The overall approach to consultation for the Project is outlined in Section 7.1.1 of the Ontario Line Final Environmental Conditions Report (AECOM, 2020a)[36], with further details provided in Appendices C1 to C6 of that report.

To share information and collect feedback related to Lakeshore East Joint Corridor early works, Metrolinx has undertaken the following communication and engagement activities prior to and following the publication of the Draft Lakeshore East Joint Corridor Early Works Report and during the 31-day public review period:

- Early works specific updates on the Engagement webpage (Project website) (www.metrolinx.com/ontarioline) including:
  - East segment neighbourhood updates (Lakeshore East Joint Corridor is within the East segment) – published on September 17, 2020 and updated on November 30, 2020, April 6, 2021, April 23, 2021 and September 23, 2021;
  - East segment virtual presentation and live question and answer sessions hosted on April 22, 2021 (https://www.metrolinxengage.com/en/OLliveApril22), June 24, 2021 (https://www.metrolinxengage.com/en/OLLiveEJune24), September 23,

35. The property list has been updated since publishing the Draft Lakeshore East Joint Corridor Early Works Report from 17, 915 to 17,888 to accommodate the most recent Canada Post mail routes, which are updated on a monthly basis.
36. The Ontario Line Final Environmental Conditions Report (AECOM, 2020) was posted on the Engagement webpage (Project website) on November 30, 2020 in accordance with Ontario Regulation 341/20: Ontario Line Project.

2021 (https://www.metrolinxengage.com/en/olLIVEsept23) and October 5, 2021 (https://www.metrolinxengage.com/en/OLLIVEOct5); and

- The Ontario Line - Environment webpage (https://www.metrolinxengage.com/en/content/ontario-line-environment) that includes the Ontario Line environmental reporting timeline, early works scope overview and locations and provides an option to learn more about each early works location – published on September 17, 2020 and updated on November 30, 2020, March 9, 2021, May 27, 2021, June 17, 2021, August 9, 2021, September 23, 2021 and November 17, 2021.

- Outreach to Leslieville and Riverside area residents via *The Ontario Line: Your Network Questions, Answered* flyer on June 1, 2021 and *The Ontario Line: Facts and Fiction* flyer on July 1, 2021 to provide residents with up-to-date project facts, address misinformation and encourage residents to reach out to Metrolinx to verify information they have heard regarding the Ontario Line Project;
- Online engagement via an online survey (https://metrolinx-ontario-line-engagement.ethelo.net/page/your-neighbourhood-identity) made available to the public between September 23 and October 24, 2021 about specific elements of the design process (e.g., design objectives and components, noise walls, retaining walls, landscaping, underpass design, and neighbourhood identity) for the East Segment of the Ontario Line that runs through Leslieville and Riverside;
- Online engagement via the Ontario Line Immersive Sound Studio for Lakeshore East Joint Corridor (where East segment of the Ontario Line runs through Leslieville and Riverside) (https://www.ontariolinesoundstudio.ca/), made available to the public as of September 23, 2021, where individuals could view audio and video demonstrations of the future Ontario Line and existing GO vehicles from key locations including Queen and Degrassi Street, Jimmie Simpson Park, Bruce Mackey Park, Tiverton Parkette, First Avenue and Booth and Paisley Avenue and provide feedback;
- Mailings/notifications;
- Emails via the Project email address (ontarioline@metrolinx.com);
- E-newsletters to the Project Distribution List (see **Section 8.1.3** for more details);
- Newspaper advertisements;
- Elected Officials Briefings (see **Section 8.5** for list of Elected Officials and associated electoral districts and Ward numbers);

- Outreach to Indigenous Nations, and government review agencies and other technical stakeholders;
- Online engagement via the Engagement webpage (Project website); and
- Meetings with community stakeholders and groups.

Further details regarding the consultation process are included in the subsection below and **Appendix B1** to **B3**.

8.1.2 Record of Consultation

A record of consultation related to Lakeshore East Joint Corridor early works through October 24, 2021 has been included in this report. The record of consultation has been divided into three separate appendices:

- **Appendix B1** provides the Project Distribution List used to facilitate notifications to stakeholders and interested parties.
- **Appendix B2** provides a record of all Lakeshore East Joint Corridor early works consultation materials made available through the Engagement webpage (Project website).
- **Appendix B3** contains a record of consultation and correspondence, including newspaper advertisements and notices, and meetings with the public, community stakeholders and groups, government review agencies and other technical stakeholders, Elected Officials and Indigenous Nations through October 24, 2021.

All comments received from the public have been redacted to protect personal information.

8.1.3 Identification of Interested Parties

At the outset of the Project, an initial Project Distribution List was developed to facilitate notifications to stakeholders and interested parties. Additional email contacts were collected through the Engagement webpage (Project website) (where individuals could submit their email addresses and select “subscribe”), and through in-person and online consultation activities that took place through November 2021. Individuals have the opportunity to subscribe or unsubscribe to the Project Distribution List at any time.

The Project Distribution List is a live document that is continuously updated in response to Project feedback (e.g., requests to be added) and is used to inform stakeholders and the public of Project milestones (e.g., Notice of Publication of Draft Lakeshore East Joint

Corridor Early Works Report and Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report).

The Project Distribution List is available in **Appendix B1** of this Report. To protect personal information, individuals and members of the public are not included on the Project Distribution List.

All parties on the Project Distribution List have been notified of the publication of the Draft Lakeshore East Joint Corridor Early Works Report, including opportunities to review and provide comments, and have been notified of the Final Lakeshore East Joint Corridor Early Works Report.

8.2 Public Engagement and Feedback

8.2.1 Public Engagement Opportunities

Through October 24, 2021, early works-specific public engagement efforts included posting early works updates to the Engagement webpage (Project website) and providing online engagement opportunities for interested persons (as mentioned in **Section 8.1.1** and described in detail in **Section 8.2.1.1** below).

8.2.1.1 Engagement Website

On September 17, 2020, November 30, 2020 and September 23, 2021 information related to Lakeshore East Joint Corridor early works was published on the Engagement webpage (Project website) (www.metrolinx.com/ontarioline). This information is presented in **Appendix B2** of this Report. Information posted on September 23, 2021 included: the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report; the Draft Lakeshore East Joint Corridor Early Works Report and associated appendices; details regarding Lakeshore East Joint Corridor early works components; updates on the Environmental Assessment process; and key findings, potential effects and proposed mitigation measures for each of the environmental study reports.

Between September 23, 2021 and October 24, 2021, individuals had the opportunity to review the Draft Lakeshore East Joint Corridor Early Works Report and associated discipline-specific environmental study reports outlining key study findings and provide feedback.

Through October 24, 2021, individuals have been able to provide feedback related to Lakeshore East Joint Corridor early works using two different formats, ‘Contact Us’ and ‘Ask-A-Question’ (in addition to writing directly to the Ontario Line email address). ‘Contact Us’ is a fillable form where participants provide their name, e-mail address,

subject and message. The messages submitted using this form are sent to the Ontario Line email address. ‘Ask-A-Question’ is a public forum where participants provide their name, topic and question in a fillable form. The questions submitted by participants and the responses from Metrolinx are shared publicly on the Metrolinx Engage website. Participants also have the option to vote for their favourite questions or responses.

From September 23, 2021 to October 24, 2021, individuals have also been able to provide feedback related to Lakeshore East Joint Corridor early works through the ‘Provide Your Feedback’ function on the Engagement webpage (Project website). ‘Provide Your Feedback’ is a fillable anonymous form where participants can provide their feedback on the Draft Lakeshore East Joint Corridor Early Works Report by answering the following questions:

- What are your thoughts on the results of the Lakeshore East Joint Corridor early works environmental studies?
- Which Lakeshore East Joint Corridor early works environmental study is most important to you and why?
- Is there anything else we missed? Please let us know if you have any additional thoughts or concerns about the Draft Lakeshore East Joint Corridor Early Works Report.

To provide feedback on individual environmental studies, fillable anonymous environmental discipline-specific feedback forms with the following questions were located at the end of each environmental discipline webpage:

- What are your thoughts on the Air Quality study key findings and identified potential impacts and mitigation measures?
- What are your thoughts on the Archaeological Resources study key findings and identified potential impacts and mitigation measures?
- What are your thoughts on the Built Heritage Resources and Cultural Heritage Landscapes study key findings and identified potential impacts and mitigation measures?
- What are your thoughts on the Hydrology and Surface Water study key findings and identified potential impacts and mitigation measures?
- What are your thoughts on the Natural Environment study key findings and identified potential impacts and mitigation measures?
- What are your thoughts on the Noise and Vibration study key findings and identified potential impacts and mitigation measures?

- What are your thoughts on the Socio-Economic and Land Use Characteristics study key findings and identified potential impacts and mitigation measures?
- What are your thoughts on the Soil and Groundwater study key findings and identified potential impacts and mitigation measures?
- What are your thoughts on the Traffic and Transportation study key findings and identified potential impacts and mitigation measures?

All ‘Provide Your Feedback’, environmental discipline-specific feedback form submissions, ‘Contact Us’ and ‘Ask-A-Question’ submissions related to Lakeshore East Joint Corridor early works received through to October 24, 2021 are available in **Appendix B3**. This appendix includes a summary of public email correspondence and a detailed correspondence record captured through to October 24, 2021.

The following online statistics were collected during the public engagement period for the Draft Lakeshore East Joint Corridor Early Works Report from September 23, 2021 to October 24, 2021:

- Approximately 787 people visited the early works engagement webpages on the Project website to learn more about early works planned for Lakeshore East Joint Corridor and share feedback;
- Seven comments related to Lakeshore East Joint Corridor early works were received by email;
- Three comments or questions related to Lakeshore East Joint Corridor early works were received through the ‘Contact Us’ and ‘Ask-A-Question’ features; and
- 21 feedback form submissions were received in response to the Draft Lakeshore East Joint Corridor Early Works Report.

8.2.2 Public Feedback

Public feedback received by Metrolinx prior to and during the review period for the Draft Lakeshore East Joint Corridor Early Works Report between September 23, 2021 and October 24, 2021 is included in **Appendix B3**. All comments received from the public have been redacted to protect personal information.

A detailed summary of public feedback received up to October 24, 2021 is provided below.

8.2.2.1 Summary of Public Feedback – Email and Contact Us

The following section highlights the key findings identified through public feedback gathered prior to and during the review period for the Draft Lakeshore East Joint Corridor Early Works Report (September 23, 2021 to October 24, 2021). Complete correspondence records related to this feedback can be found in **Appendix B3**.

Input received via email submissions and the Contact Us and Ask-A-Question features on the Engagement webpage (Project website) fell into the following general themes:

- Project alignment, cost, operations and operational impacts;
- Scope of early works and interface with GO Expansion;
- Potential impact to parks and green spaces;
- Public engagement process;
- Potential construction impacts and construction timelines; and
- Property impacts and compensation.

Project Alignment, Cost, Operations and Operational Impacts

- Several individuals expressed concern about the at-grade alignment through the Leslieville and Riverside neighbourhoods, specifically related to potential impacts to the neighbourhood, residents, trees and parks.
- Several individuals noted that the increased construction time and increased cost of an underground alignment were not significant issues for them when considering the reduced impacts to the community.
- Several individuals requested an underground Ontario Line alignment in the Leslieville and Riverside neighbourhoods.
- Several individuals provided suggested tunnel alignment options.
- Several individuals requested information regarding widening of the corridor, and information on noise walls and other noise mitigation measures.
- Several individuals expressed concerns about lack of modelling, research and cost information regarding underground and at-grade alignments.
- Several individuals expressed interest in moving the entire Ontario Line Project underground and noted concern for potential impacts to health and safety and the limited existing green space as a result of the at-grade alignment.
- Several individuals expressed concern about the potential disruption associated with at-grade trains, and noise and vibration impacts through the Riverside and Leslieville

neighbourhoods. One individual requested a community meeting to take place to discuss potential vibration impacts of an at-grade alignment. Another individual asked how many seconds per minute on average will not have train noise.

- Several individuals expressed concern about the lack of vibration studies as well as noise and vibration measurements in the Leslieville and Riverside neighbourhoods.
- Several individuals requested information on noise mitigation for the Lakeshore East rail corridor.
- Several individuals asked for clarification on the location of Riverside/Leslieville Station.
- Two individuals requested information about fares for the Ontario Line.
- One individual expressed concern about impacts to Wardell Street and Dundas Street East due to their proximity to the Ontario Line at-grade alignment. They also expressed concern about potential noise impacts.
- One individual requested to know why the Ontario Line Gerrard portal will be located in a residential area next to a school as opposed to in a city-owned works yard (e.g., operations and maintenance facility), and which other aspects of the Ontario Line will not follow the plan presented for the Relief Line.
- One individual expressed concern regarding the increase in train frequency which would increase the noise in the area.
- One individual requested to know more about how the Ontario Line tracks will be configured within the existing rail corridor.
- One individual expressed support for the Ontario Line project and suggested incorporating mid/high-rise buildings into the new stations. They also expressed interest in development at Danforth Avenue near Pape Avenue as this area becomes a transit node.
- One individual suggested creating useable green space above and around the above ground alignment instead of building noise walls.
- One individual noted that drawings do not include crash barrier walls between the rail corridor and Ontario Line corridor, and stated that it is required by regulations for the corridors to be separated by crash walls.
- One individual inquired about track and platform design and boarding at East Harbour Station. They also requested to know if the present embankment west of Gerrard Street can accommodate three additional tracks, if Ontario Line vehicles will meet all track standards and loading requirements, and if light rail vehicles share main line tracks on other projects in North America. They also inquired about Metrolinx's electrification system and noise modelling results.

- One individual requested to know what safety measures will be in place to safely run the Ontario Line adjacent to freight trains, residences and parks.
- One individual stated that the noise simulation at Bruce Mackey Park is inaccurate and expressed concern about noise and vibration in proximity to the rail corridor. The individual requested a combined assessment of Ontario Line, GO train and VIA Rail trains noise and vibration impacts, and information about the areas that were discounted during inclement weather conditions.
- One individual expressed that sound barrier walls are unsightly and ineffective.

Scope of Early Works and Interface with GO Expansion

- Four individuals requested information about GO electrification. One individual requested to know if the Ontario Line and GO electrification will be constructed concurrently and asked for more information on impacts to rail lines during construction.
- One individual requested to know if Metrolinx will be replacing six bridges from Eastern Avenue to Gerrard Street.

Potential Impact to Parks and Green Spaces

- Several individuals expressed concern about the Ontario Line Project's impact on surrounding parks (i.e., Jimmie Simpson Park, Bruce Mackey Park, and Saulter Street Parkette) and natural habitats. They also expressed concern about the lack of public engagement regarding park impacts in the area.
- Several individuals requested information about impacts to parks in the Leslieville and Riverside communities.
- One individual requested that Metrolinx use the development of the Ontario Line to create additional greenspace in the Leslieville neighbourhood and provided links to public correspondence and information regarding the request for additional greenspace.
- One individual requested to know how much park space Metrolinx will give back to the community in other areas and where these areas will be located.
- One individual requested to know if Metrolinx is referring to the community or park space when discussing restoration and who will be responsible for determining the level of restoration required.
- One individual suggested Metrolinx build a tunnel encased in green space to connect Jimmie Simpson Park and Bruce Mackey Park with pedestrian and bike paths.

- One individual expressed concern about how tree removals and habitat disruptions/ displacement are not included in the Draft Lakeshore East Joint Corridor Early Works Report.
- One individual noted that the Ontario Line provides an opportunity to connect Bruce Mackey Park and the Riverside community with the Jimmie Simpson Recreation Centre and the Leslieville community.

Public Engagement Process

- Several individuals expressed concern about the lack of meaningful community engagement regarding the at-grade portion of the Ontario Line through Leslieville and Riverside neighbourhoods.
- Several individuals requested more details regarding upcoming virtual open houses.
- Several individuals noted they attended previous virtual open houses and requested more information about noise walls or expressed support for an underground option.
- Several individuals requested clarification on information presented in *The Ontario Line: Facts and Fiction* flyer they had received.
- Several individuals requested to know why the Project is called Ontario Line and no longer Relief Line.
- Several individuals indicated a lack of meaningful public consultation activities regarding the Ontario Line at-grade portion of the alignment.
- Two individuals requested that Metrolinx provide Project information to counteract negative statements made within an Ontario Line opposition letter being shared within a local community group.
- One individual noted that technical drawings should be easily accessible and easy to understand by the public. The individual requested that the public have more time during virtual open houses to review and submit questions regarding the Ontario Line Project, including Lakeshore East Joint Corridor early works.
- One individual noted that they were unable to access the Early Works Reports and feedback form on the Engagement webpage.
- One individual requested to meet with a Metrolinx representative at the Logan Avenue bridge and Dundas Street bridge to discuss the locations of the Ontario Line bridges described in the Draft Lakeshore East Joint Corridor Early Works Report. They noted a potential error in the report regarding references to 445 Logan Avenue and 449 Logan Avenue.
- One individual inquired about registering for the October 5, 2021 virtual open house and noted they were unable to locate information regarding registration on the Engagement webpage.

- One individual expressed concern regarding community engagement activities, virtual open houses, opportunities to ask questions and receive information, the length of the Draft Lakeshore East Joint Corridor Early Works Report review period, and language regarding community concerns included in the Draft Lakeshore East Joint Corridor Early Works Report.

Potential Construction Impacts and Construction Timelines

- Several individuals requested to know when construction would begin, some specifically referring to the construction of noise walls and stations.
- Several individuals expressed concern about the impact of construction on local businesses and neighbourhood traffic.
- Several individuals expressed concerns regarding construction timelines and potential noise, vibration and dust impacts from the construction.
- One individual requested to know if Lakeshore East Joint Corridor early works activities will occur at nighttime.
- One individual expressed concern regarding construction and trucks near their residence on Saulter Street.
- Two individuals expressed concern regarding drilling work which took place between September 8, 2021 and September 10, 2021 underneath the Logan Avenue bridge between Gerrard Street and Dundas Street, and noted that no notice for the work was provided. They requested confirmation of Metrolinx's involvement with the drilling work. One individual requested confirmation of noise mitigation practices during overnight work.

Property Impacts and Compensation

- Several individuals requested information about the expropriation process and if the expropriation costs will be paid by the Ontario government.
- Several individuals requested information on whether their properties would be impacted by the Ontario Line Project.
- Several individuals expressed concern regarding the impact on property values in the community.
- Several individuals expressed concern for the proximity of homes to the alignment of the Ontario Line.
- Several individuals requested clarification regarding a letter received from Metrolinx about their property being located near the Ontario Line alignment.

- Several individuals expressed concern about the impact to homes near De Grassi Street and Wardell Street.
- Several individuals requested confirmation that the four additional tracks would not place the Ontario Line too close to homes on Tiverton Avenue.
- Two individuals inquired about which buildings on Booth Avenue will be impacted by the Ontario Line project.
- Two individuals requested more information on the compensation process, specifically for businesses that need to relocate and in case building foundations are destabilized as a result of Ontario Line construction activities.
- One individual requested to know if the Toronto Transit Commission's Leslie Barns streetcar storage facility will be included in any Ontario Line plans and inquired about impacts to residents of Woodfield Road as a result of the Ontario Line Project.
- One individual requested information on the Dundas Street bridge widening and asked how much of the parking lot at the south end of Tiverton Avenue will be affected by early works construction and Ontario Line operation.
- One individual requested confirmation on whether the Ontario Line tracks will be built near First Avenue and Logan Avenue and expressed concern regarding property impacts.
- One individual noted that a property on Booth Avenue, across from Jimmie Simpson Park, was to be put up for sale and requested information on potential construction impacts to the property. They noted that a property letter received from Metrolinx was vague when referring to property access requirements during construction.
- One individual inquired about obtaining a disclosure letter from Metrolinx, which other properties in the area have received, for the purpose of sharing with potential home buyers.

All public correspondence related to Lakeshore East Joint Corridor early works is provided in **Appendix B3**.

8.2.2.2 Summary of Public Feedback – 'Provide Your Feedback' and Draft Lakeshore East Joint Corridor Early Works Report Environmental Discipline-Specific Forms

The following themes emerged through the online 'Provide Your Feedback' and environmental discipline-specific feedback forms submitted through the Engagement webpage (Project website) from September 23, 2021 to October 24, 2021.

- Early Works Report content, including environmental study results;
- Public engagement process;

- Project alignment and operational impacts, including noise and vibration;
- Potential construction impacts and construction timelines; and
- Potential impacts to wildlife, parks and green spaces.

What are your thoughts on the results of the Lakeshore East Joint Corridor Early Works environmental studies?

- Early Works Report content, including environmental study results
  - One individual expressed concern about water and air quality, loss of green space and wildlife habitat, delays to emergency vehicles and traffic, and noise and vibration. The individual expressed concern regarding the language used in reports regarding mitigation and monitoring and whether Metrolinx will commit to the mitigation measures and monitoring activities proposed in the report. They stated that the frequency of monitoring activities is not addressed in the report.
  - One individual suggested that a more comprehensive environmental study be completed for the Ontario Line Project, instead of reusing the environmental assessment that was completed for the Downtown Relief Line.
  - One individual expressed concern that the Draft Lakeshore East Joint Corridor Early Works Report provides a large amount of information but lacks transparency regarding important Project details such as justification on why the Ontario Line will be above-ground through Leslieville, drawings of proposed bridges at Carlaw and Gerrard and cost estimates of bridge reconstruction along the Lakeshore East Joint Corridor segment.
- **Public engagement process**
  - One individual noted the Early Works Report does not include an outline for a public complaints process.
  - One individual expressed concern about the length of the Draft Lakeshore East Joint Corridor Early Works Report and Draft East Harbour Early Works Report public review period, noting that 31 days is not long enough to review both reports.
  - One individual noted that the Save Jimmie Simpson! community group has submitted their feedback on the Draft Lakeshore East Joint Corridor Early Works Report to the Ontario Line e-mail address.
  - One individual noted that **Appendix A5** – Traffic and Transportation Report was not accessible and requested a link to the report.

- One individual noted that they have received many flyers and booklets from Metrolinx in the mail and seen many Metrolinx billboard ads. The individual expressed concern about these communications promoting Metrolinx decisions but not providing evidence to justify the decisions made.

- **Project alignment and operational impacts, including noise and vibration**
  - Two individuals suggested the Ontario Line be buried underground along the Lakeshore East Joint Corridor segment.
  - One individual expressed concern that the ridership estimates do not reflect current ridership due to the COVID-19 pandemic, and questioned whether there is still a need for the Ontario Line and expanded GO service. They expressed concern that construction of the Ontario Line will be stopped or slowed because of this.

Which Lakeshore East Joint Corridor Early Works environmental study is most important to you and why?

- **Early Works Report content, including environmental study results**
  - One individual noted that the water, air quality, traffic, noise and vibration studies are most important to them because the area is already vulnerable to flooding, poor water and air quality and traffic congestion.
  - One individual noted that the Traffic and Transportation Report is most important as there is already little space for pedestrian, bike and vehicle mobility.
  - One individual noted that the Natural Environment Report shows a lack of park space in the Leslieville area.
- **Public engagement process**
  - One individual noted that the Save Jimmie Simpson! community group has submitted their feedback on the Lakeshore East Joint Corridor Early Works Report to the Ontario Line e-mail address.
  - One individual noted that **Appendix A5** – Traffic and Transportation Report was not accessible and requested a link to the report.
- **Project alignment and operational impacts, including noise and vibration**
  - One individual noted that the segment between East Harbour Station and Gerrard Station is most important to them.
  - One individual expressed concern about the number of Ontario Line trains that will run through the parks in the neighbourhood and cause noise disruptions.

- One individual expressed concern about noise levels in parks and construction vehicles on residential streets.
- Is there anything we missed? Please let us know if you have any additional thoughts or concerns about the Draft Lakeshore East Joint Corridor Early Works Report.

- **Early Works Report content, including environmental study results**
  - One individual expressed concern that no quality of life assessment was included in the Draft Lakeshore East Joint Corridor Early Works Report and that early works reports are being completed prior to sharing the full environmental assessment.
  - One individual felt that the wildlife review was inadequate and did not include many species of birds and other wildlife living within the community.
- **Public engagement process**
  - One individual noted that **Appendix A5** – Traffic and Transportation Report was not accessible and requested a link to the report.
  - One individual noted they were unable to download the Early Works Report online and requested Metrolinx to upload a version of the PDF that can be opened with older versions of Adobe Acrobat.
  - Three individuals expressed dissatisfaction with the public consultation process. Two of the individuals expressed concern that the consultation activities for the Project did not consider input from the community.
- **Project alignment and operational impacts, including noise and vibration**
  - One individual expressed concern about the Ontario Line alignment and suggested alternative route options. They noted that there was strong Project opposition from the community in the public meetings they attended.
  - One individual noted that the above-ground portion of the alignment and the widening of the existing track bed and bridges through Leslieville will negatively impact the pedestrian and public realm in the neighbourhood. They noted that half of the street intersection will be under a bridge and questioned whether this is safe.
  - One individual expressed concern about the noise and health impacts from constant train traffic on the rail corridor. They noted that Metrolinx has not completed a health impact study to document these impacts.

- **Potential construction impacts and construction timelines**
  - One individual expressed concern about Metrolinx proposing the timing of tree removals prior to the release of an arborist report.

What are your thoughts on the Natural Environment study key findings and identified potential impacts and mitigation measures?

- **Project alignment and operational impacts, including noise and vibration**
  - One individual expressed concern regarding the proposed noise walls and graffiti on the noise walls.
- **Potential construction impacts and construction timelines**
  - One individual requested information about the plans for 1000 Dundas Street East Boulevard.
- **Potential impacts to wildlife, parks and green spaces**
  - One individual expressed concern regarding loss of vegetated areas and park space along the rail corridor, including the demolition of the community garden by the rail tracks along Tiverton Avenue for the project. They noted that the existing wildlife habitats have many benefits for the community.
  - One individual expressed concern regarding impacts to the greenspace on Logan Avenue at the Roy McCleary Towers, noting that seniors use the greenspace for gardening and exercise. They suggested construction access be moved to the industrial area on the east side of the rail tracks off Thackeray Street.

What are your thoughts on the Socio-Economic & Land Use Characteristics study key findings and identified potential impacts and mitigation measures?

- **Early Works Report content, including environmental study results**
  - One individual asked why the socio-economic findings are not included in the Draft Lakeshore East Early Works Report.

What are your thoughts on the Traffic & Transportation study key findings and identified potential impacts and mitigation measures?

- **Early Works Report content, including environmental study results**
  - One individual stated that language used in the Draft Lakeshore East Joint Corridor Early Works Report is vague and misleading and provides minimal information.

- **Public engagement process**
  - One individual noted that **Appendix A5** – Traffic and Transportation Report was not accessible and requested a link to the report.
- **Project alignment and operational impacts**
  - One individual expressed opposition toward the Ontario Line Project.
- **Potential construction impacts and construction timelines**
  - One individual suggested staggering construction of the bridges to minimize traffic congestion. They requested Metrolinx to consider traffic routes and timing carefully.
  - One individual expressed concern for traffic impacts to the community, specifically on Eastern Avenue, Queen Street East and Dundas Street East.
  - One individual suggested maintaining pedestrian access and transit routes along Queen Street East.

What are your thoughts on the Noise & Vibration study key findings and identified potential impacts and mitigation measures?

- **Early Works Report content, including environmental study results**
  - One individual expressed appreciation for the studies completed and stated that mitigation measures in the report lack detail on what will actually be done to mitigate noise and vibration impacts.
- **Public engagement process**
  - One individual suggested expanding Project communications to outside immediate neighbourhoods and to a wider area.
- **Project alignment and operational impacts, including noise and vibration**
  - One individual expressed disappointment that efforts to minimize noise and vibration impacts are only during the drilling and testing stages of the Project. They suggested all current and future GO tracks receive updated track bedding and the latest vibration mitigation solutions when track bed building takes place. They requested noise walls to be installed along the bridges within the Lakeshore East Joint Corridor area.
- **Potential construction impacts and construction timelines**
  - One individual expressed concern regarding construction impacts and schedule, specifically power outages, noise and vibration, and accessibility issues on sidewalks and streets, based on the experiences of the community with the Eglinton LRT.

No public feedback was received regarding the key findings, potential impacts and mitigation measures for the Air Quality, Archaeological Resources, Built Heritage Resources and Cultural Heritage Landscapes, Hydrology and Surface Water, and Soil and Groundwater studies.

All public correspondence related to the Draft Lakeshore East Joint Corridor Early Works Report is provided in **Appendix B3**.

8.3 Engagement with Community Stakeholders and Groups

Ninety-four community stakeholders and groups have been engaged through October 24, 2021 as listed below. Each of these community stakeholders and groups were notified of the publication of the Draft Lakeshore East Joint Corridor Early Works Report via email on September 23, 2021 and were advised to provide feedback no later than October 24, 2021. GreekTown on the Danforth Business Improvement Area was provided notice via phone. They were also notified of the publication of the Final Lakeshore East Joint Corridor Early Works Report (this Report) via email on November 17, 2021.

- Aboriginal Labour Force Development Circle;
- Aboriginal Legal Services;
- Amazing Moss Park;
- Anishnawbe Health Toronto;
- Association for Native Development in the Performing and Visual Arts;
- Beaconsfield Village Residents Association;
- Building Roots;
- Campbell House Museum;
- Canadian Council for Aboriginal Business;
- CF Toronto Eaton Centre;
- Chinatown Business Improvement Area;
- CityPlace Fort York Business Improvement Area;
- CityPlace Residents' Association;
- Community Living Toronto;
- Corktown Residents and Business Association;
- Danforth Business Improvement Area;
- Danforth Residents Association;
- Distillery Historic District;
- Don Mills Residents Inc.;
- Don Valley Community Legal Services;
- Downtown Yonge Business Improvement Area;
- East End Transit Alliance;
- Flemingdon Health Centre;
- Fontbonne Ministries;
- Fort York Neighbourhood Association;
- Friends of Corktown Common;
- Friends of Flemingdon Park;
- Friends of Moss Park;

- Friends of Trinity Bellwoods Park;
- Gabriel Dumont Institute;
- Garden District Residents Association;
- Garment District Neighbourhood Association;
- Gooderham and Worts Neighbourhood Association;
- Grange Community Association;
- Green Communities Canada;
- GreekTown on the Danforth Business Improvement Area;
- Lakeshore East Community Advisory Committee;
- Leadership of Downtown Toronto Business Improvement Areas;
- Leaside Green and Leaside Park Terrace Condos;
- Leaside Residents Association;
- Leslieville Business Improvement Area;
- Leslieville Historical Society;
- Liberty Village Business Improvement Area;
- Liberty Village Residents Association;
- LUX 9 Inc.;
- March of Dimes Canada;
- Miziwe Biik Aboriginal Employment & Training;
- Native Canadian Centre of Toronto;
- Native Men's Residence;
- Native Women's Resource Centre;
- Nishnawbe Homes;
- Ontario Aboriginal HIV/AIDS Strategy;
- Pape Area Concerned Citizens for Transit;
- Pape Avenue Junior Public School Parent Council;
- Pape Village Business Improvement Area;
- Parkdale Residents Association;
- Parkdale Village Business Improvement Area;
- Queen Street West Business Improvement Area;
- Regent Park Neighbourhood Association;
- Riverside Business Improvement Area;
- Saulter Street Brewery;
- Save Jimmie Simpson!;
- Sisters of St. Joseph Toronto;
- St. Lawrence Market Neighbourhood Business Improvement Area;
- St. Lawrence Neighbourhood Association;
- Tabule Restaurant Group;
- The 519;
- The Bentway Conservancy;
- The Danny Business Improvement Area;
- The Friends of Fort York and Garrison Common;
- The Neighbourhood Organization;
- The Ontario Federation of Indigenous Friendship Centres;

- Thorncliffe Park Community Association;
- Thorncliffe Park Women's Committee;
- Thorncliffe Soccer Club;
- Toronto Aboriginal Support Services Council;
- Toronto Community Housing;
- Toronto Council Fire Native Cultural Centre;
- Toronto Entertainment District Business Improvement Area;
- Toronto Entertainment District Residents Association;
- Toronto Financial District Business Improvement Area;
- Toronto Inuit Association;
- Toronto and York Region Métis Council;
- Trinity Bellwoods Business Improvement Area;
- Two-Spirited People of the First Nations;
- United Way of Greater Toronto;
- Wandering Spirit School;
- Waterfront Business Improvement Area;
- West Don Lands Committee;
- West Queen West Business Improvement Area;
- Wigwamen;
- WoodGreen Community Services;
- Wynford-Concord Residents Association; and
- Young Men’s Christian Association (YMCA) of Greater Toronto.

The following 16 community stakeholders and groups were engaged with Metrolinx through meetings and phone calls through October 24, 2021, in which Lakeshore East Joint Corridor early works were discussed:

- CF Toronto Eaton Centre;
- Community Living Toronto;
- Fontbonne Ministries;
- Fort York Neighbourhood Association;
- Lakeshore East Community Advisory Committee;
- Liberty Village Business Improvement Area;
- March of Dimes Canada;
- Pape Area Concerned Citizens for Transit;
- Riverside Business Improvement Area;
- Save Jimmie Simpson!;
- St. Lawrence Neighbourhood Association;
- The Bentway Conservancy;
- The Neighbourhood Organization;
- Toronto Entertainment District Business Improvement Area;
- Toronto Financial District Business Improvement Area; and
- West Don Lands Committee.

On September 28, 2020, Metrolinx met with the West Don Lands Committee to provide updates on the Ontario Line Project and downtown segment. Items that were discussed included the procurement model, construction of stations and tunnels, station location and design, impacts to heritage buildings, flood impacts and mitigation, and operations of the Ontario Line.

Metrolinx met with the Lakeshore East Community Advisory Committee on May 13, 2020, October 13, 2020, March 25, 2021, June 11, 2021 and June 18, 2021.

Items that were discussed on May 13, 2020 with the Lakeshore East Community Advisory Committee included improvement of noise and vibration mitigation measures along the Lakeshore East joint corridor, environmental assessment process and timelines, impacts to the Jimmie Simpson Recreation Centre, plans for the bridges along the joint corridor, support for the Ontario Line being underground, impacts to nearby schools and impacts of COVID-19 on planning of the Ontario Line.

Items discussed during the meeting on October 13, 2020 with the Lakeshore East Community Advisory Committee included changes to community relations as a result of COVID-19, property impacts, noise mitigation plans such as noise walls and landscaping, cost comparison of having the Ontario Line underground, benefits of the Ontario Line for the community, air quality and noise and vibration assessment methodology and tree and park impacts. The Lakeshore East Community Advisory Committee also expressed their concerns with the Ontario Line being above ground in the Lakeshore East Joint Corridor segment and their support for an underground alignment in this segment.

Items that were discussed during the March 25, 2021 meeting with the Lakeshore East Community Advisory Committee included a status update on the Ontario Line Project with a focus on the Lakeshore East Joint Corridor, noise walls, alignment considerations, the north shift of the Ontario Line tracks in the corridor, construction timelines, noise and vibration assessment methodology and mitigation measures, community and train safety, property and surface transit impacts and staging areas. The Lakeshore East Community Advisory Committee also expressed their concerns with the Ontario Line being above ground in the Lakeshore East Joint Corridor segment and their support for an underground alignment in this segment.

During the June 11, 2021 with the Lakeshore East Community Advisory Committee, Metrolinx provided details about the June 24, 2021 virtual open house, clarified past answers to Save Jimmie Simpson!, and reviewed the Community Advisory Committee’s terms of reference and future frequency of meetings.

On the June 18, 2021 meeting with Lakeshore East Community Advisory Committee, items that were discussed included transit corridor lands, location and safety of the overhead catenary system poles, and raising of the track beds and rail bridges.

Metrolinx met with Save Jimmie Simpson! on May 7, 2021 to discuss Save Jimmie Simpson's concerns regarding the Ontario Line Project. Items that were discussed included evaluation criteria used for key project decisions, staging and laydown requirements, construction timelines, park impacts, cost of having the Ontario Line underground in the Lakeshore East Joint Corridor segment, decision making process for the Ontario Line alignment, increase in diesel trains, noise and vibration impacts, and potential safety impacts to nearby schools.

LURA Consulting, an independent third-party facilitator, met with the Lakeshore East Community Advisory Committee on September 15, 2021 on Metrolinx's behalf. LURA Consulting solicited feedback on the project, public engagement, and suggestions for future engagement. Feedback received included outstanding questions on project rationale and costing, timing of release of materials, meaningful engagement and noting that the CAC remains pro-transit.

LURA Consulting, an independent third-party facilitator, met with Riverside and Leslieville Business Improvement Areas on September 15, 2021 on Metrolinx's behalf. LURA Consulting solicited feedback on the project, public engagement, and suggestions for future engagement. Topics discussed included local business impacts, collaboration on mitigation options, the Queen Street East community office and the community consultation process. In addition, LURA Consulting held a community walk through with the Executive Director of the Riverside Business Improvement Area.

Metrolinx met with Fontbonne Ministries on September 24, 2021 to provide an update on the project, construction timelines and answer questions on proposed mitigation strategies during construction and beyond. Staff from Fontbonne Ministries conveyed to Metrolinx the specific needs of the residents who live in the building and community programming which takes place on site.

Metrolinx met with Lakeshore East Community Advisory Committee, Member of Provincial Parliament Tabuns and Councillor Fletcher to answer their questions about the Draft Lakeshore East Joint Corridor Report on October 14, 2021. Topics discussed included noise and vibration modelling, construction noise monitoring, noise barriers, vibration, natural environment, rail safety, heritage properties and air quality.

Metrolinx met with the Riverside Business Improvement Area on September 30, 2021 to answer their questions and discuss findings of the Draft Lakeshore East Joint Corridor Early Works Report. Topics discussed included consultation with the Business

Improvement Area, recognizing Riverside as a community and understanding traffic impacts associated with Early Works

Metrolinx met with the Riverside Business Improvement Area on October 14, 2021 to answer their questions and discuss findings of the Lakeshore East Joint Corridor Early Works Report. Riverside Business Improvement Area indicated they will formally send a submission based on issues they identified with the Draft Lakeshore East Joint Corridor Early Works Report.

Metrolinx met with the Leslieville Business Improvement Area on October 21, 2021 to answer their preliminary questions and provide clarification on the Lakeshore East Joint Corridor Early Works Report. Topics discussed included business compensation framework, look and feel of new infrastructure and understanding traffic impacts on Queen Street East. Metrolinx will continue to engage with community stakeholders and groups as Lakeshore East Joint Corridor early works planning progresses.

Correspondence records with community stakeholders and groups related to Lakeshore East Joint Corridor early works are provided in **Appendix B3** of this Report.

8.4 Engagement with Technical Stakeholders

Technical stakeholders engaged throughout the Project to-date, including federal, provincial and municipal agencies, conservation authorities and other technical stakeholders (e.g., utility companies) are listed below.

- **Federal Agencies**
  - Fisheries and Oceans Canada; and
  - Transport Canada.
- **Provincial Agencies**
  - Infrastructure Ontario;
  - Ministry of Economic Development, Job Creation and Trade;
  - Ministry of Education, Capital Programs Branch;
  - Ministry of the Environment, Conservation and Parks;
  - Ministry of Heritage, Sport, Tourism and Culture Industries;
  - Ministry of Municipal Affairs and Housing;
  - Ministry of Natural Resources and Forestry;
  - Ministry of the Solicitor General (formerly Ministry of Community Safety and Correctional Services);
  - Ministry of Transportation; and
  - Ontario Provincial Police.

- **Municipal Agencies**
  - City of Toronto;
  - Toronto Catholic District School Board; and
  - Toronto District School Board.
- **Conservation Authorities**
  - Toronto and Region Conservation Authority.
- **Other Technical Stakeholders**
  - Canadian National Rail;
  - Exhibition Place;
  - George Brown College;
  - Hydro One Networks Incorporated;
  - La Cité;
  - Law Society of Ontario;
  - Ontario Heritage Trust; and
  - Ontario College of Art & Design University.

Federal, provincial and municipal agencies, Toronto and Region Conservation Authority and other technical stakeholders, including Canadian National Rail, George Brown College, Hydro One Networks Incorporated, La Cité and Ontario College of Art & Design University were provided with the opportunity to review a draft of the Draft Early Works Report, which included Lakeshore East Joint Corridor early works, in June 2020. Exhibition Place, Law Society of Ontario and Ontario Heritage Trust did not conduct a review as they were added to the Project Distribution List at a later date. Technical stakeholders were provided with the opportunity to review the draft of the Draft Lakeshore East Joint Corridor Noise and Vibration Operations Report in June and July 2021.

All technical stakeholders listed above received a copy of the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report and the Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report and a link to review the report via email on September 23, 2021 and November 17, 2021 respectively.

Metrolinx will continue to engage with technical stakeholders as Lakeshore East Joint Corridor early works planning progresses.

Correspondence records with technical stakeholders related to Lakeshore East Joint Corridor early works are provided in **Appendix B3** of this Report.

8.5 Engagement with Elected Officials

Elected Officials who were informed of the release of the Draft Lakeshore East Joint Corridor Early Works Report and Final Lakeshore East Joint Corridor Early Works Report, and invited to respond or be briefed through October 24, 2021 are listed below.

- Councillor Brad Bradford – Ward 19, Beaches-East York;
- Councillor Denzil Minnan-Wong – Ward 16, Don Valley East;
- Councillor Jaye Robinson – Ward 15, Don Valley West;
- Councillor Joe Cressy – Ward 10, Spadina – Fort York;
- Councillor Kristyn Wong-Tam – Ward 13, Toronto Centre;
- Councillor Paula Fletcher – Ward 30, Toronto – Danforth;
- Member of Parliament Julie Dabrusin – Toronto – Danforth;
- Member of Provincial Parliament Chris Glover – Spadina – Fort York;
- Member of Provincial Parliament Kathleen Wynne – Don Valley West;
- Member of Provincial Parliament Michael Coteau – Don Valley East;
- Member of Provincial Parliament Peter Tabuns – Toronto – Danforth; and
- Member of Provincial Parliament Suze Morrison – Toronto Centre.

The following Elected Officials participated in meetings with Metrolinx between September 28 and October 14, 2021 in which Lakeshore East Joint Corridor early works were discussed:

- Member of Provincial Parliament Peter Tabuns – February 4, 2020, September 29, 2020, October 6, 2020, June 7, 2021, September 29, 2021 and October 14, 2021;
- Member of Provincial Parliament Chris Glover – September 28, 2020;
- Member of Provincial Parliament Kathleen Wynne – October 6, 2020;
- Member of Provincial Parliament Suze Morrison – October 8, 2020;
- Councillor Kristyn Wong-Tam – October 29, 2020;
- Councillor Paula Fletcher – November 1, 2020, February 12, 2020, March 25, 2021 and October 14, 2021; and
- Member of Parliament Julie Dabrusin – March 15, 2021, June 7, 2021, June 24, 2021 and July 7, 2021.

Metrolinx met with Member of Provincial Parliament Peter Tabuns on February 4, 2020, September 29, 2020, October 6, 2020, June 7, 2021 and September 29, 2021. On February 4, 2020, items that were discussed included alternative alignment options, property impacts, procurement and project details. On September 29, 2020 updates on the Ontario Line Project and the East segment alignment were provided. Items that were discussed included environmental reporting, early works, project timelines, community engagement activities, rail safety, property requirements, transit-oriented communities, project costs and ridership projections. On October 6, 2020, items that were discussed included environmental assessment process, procurement and property impacts. On June 7, 2021, the *Building Transit Faster Act*, Transit Corridor Lands and upcoming engagement opportunities were discussed. On September 29, 2021, Metrolinx discussed Ontario Line and GO Expansion plans with Member of Provincial Parliament Peter Tabuns by visiting each of the neighbourhood parks along the Lakeshore East Joint Corridor in Riverside and Leslieville.

Metrolinx met with Lakeshore East Community Advisory Committee, Member of Provincial Parliament Peter Tabuns and Councillor Paula Fletcher to answer their questions about the Draft Lakeshore East Joint Corridor Report on October 14, 2021. Topics discussed included noise and vibration modelling, construction noise monitoring, noise barriers, vibration, natural environment, rail safety, heritage properties, and air quality.

Metrolinx met with Member of Provincial Parliament Chris Glover on September 28, 2020 to provide updates on the Ontario Line Project. Items that were discussed included project timelines, the Ontario Line Don River crossings, train frequency, flooding impacts and tunneling.

Metrolinx met with Member of Provincial Parliament Kathleen Wynne on October 6, 2020 to provide updates on the Ontario Line and north segment. Items that were discussed included environmental assessment reporting, early works, procurement, staging along the Don Valley and public communications.

Metrolinx met with Member of Provincial Parliament Suze Morrison on October 8, 2020 to provide updates on the Ontario Line downtown segment, the environmental assessment process including early works reports, timelines for the Project and community engagement.

Metrolinx met with Councillor Kristyn Wong-Tam on October 29, 2020 to provide updates on the Ontario Line and downtown segment. Items that were discussed included community engagement, the plan for the use of the First Parliament site, community needs in the Moss Park area and potential impacts of a new bridge over the Don River.

Metrolinx met with Councillor Paula Fletcher on November 1, 2020, February 12, 2020, and March 25, 2021. On November 1, 2020, items that were discussed included alternative alignment options, noise and vibration impacts, safety, business impacts, property impacts and the environmental assessment process. On February 12, 2021, items that were discussed included alternative alignment options, noise and vibration impacts, safety, business impacts, property impacts and the environmental assessment process. On March 25, 2021, items that were discussed included alternative alignment options, noise and vibration impacts, safety, business impacts, property impacts and the environmental assessment process.

Metrolinx met with Member of Parliament Julie Dabrusin on March 15, 2021, June 7, 2021, June 24, 2021 and July 7, 2021. On March 15, 2021, items that were discussed included the environmental assessment process, public consultation process, project impacts to ravine system, alternative alignment options and rail safety information. On June 7, 2021 the environmental assessment process, Building Transit Faster Act, Transit Corridor Lands, Transit Oriented Communities, property impacts and cumulative impacts across projects were discussed. On June 24, 2021, items that were discussed include the environmental assessment process, impacts to trees, Building Transit Faster Act, Transit Corridor Lands, property impacts, cumulative impacts across projects and upcoming consultation opportunities. On July 7, 2021, the difference between Ontario Line and GO Expansion, impact to trees, environmental assessment process, noise and vibration impacts, Building Transit Faster Act, property impacts and upcoming engagement opportunities for the community were discussed.

Copies of the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report and the Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report, with a link to review the reports, were provided to Elected Officials via email on September 23, 2021 and November 17, 2021 respectively. Metrolinx will continue to engage with Elected Officials as Lakeshore East Joint Corridor early works planning progresses. Correspondence records with Elected Officials related to Lakeshore East Joint Corridor early works are provided in **Appendix B3** of this Report.

8.6 Engagement with Indigenous Nations

Indigenous Nations that have been provided information on the Ontario Line Project to-date are listed below.

- Haudenosaunee Confederacy Chiefs Council;
- Huron-Wendat Nation;
- Kawartha Nishnawbe First Nation;
- Métis Nation of Ontario;

- Mississaugas of the Credit First Nation;
- Six Nations of the Grand River;
- Williams Treaties First Nations:
  - Alderville First Nation;
  - Beausoleil First Nation;
  - Chippewas of Georgina Island;
  - Chippewas of Rama First Nation;
  - Curve Lake First Nation;
  - Hiawatha First Nation; and
  - Mississaugas of Scugog Island First Nation.

In March 2020, Kawartha Nishnawbe First Nation indicated that the Nation holds Aboriginal and Treaty rights within the Project's study area. They noted that they do not have the capacity to participate in reviewing reports and asked whether Metrolinx will be providing assistance. Metrolinx offered to meet to discuss possible opportunities to support the review process but a response from Kawartha Nishnawbe First Nation was not received. Metrolinx continues to welcome a conversation with Kawartha Nishnawbe First Nation in the future.

From April to June 2020, Metrolinx shared draft reports for environmental conditions and early works.

In June 2020, a meeting was held with the Mississaugas of the Credit First Nation and in July 2020, with Curve Lake First Nation to discuss the Subways Program, upcoming Metrolinx projects, ongoing needs and future plans for meaningful engagement with Indigenous Nations, and to review the Project and associated preliminary plans for early works.

In July 2020, Metrolinx provided Haudenosaunee Confederacy Chiefs Council and Six Nations of the Grand River with a letter that introduced the Project and invited participation in the study process.

In September 2020, Six Nations of the Grand River noted they did not have the resources or capacity to review large reports and meet requested deadlines, with the exception of archaeological assessment reports. Metrolinx held a meeting with the Nation on November 25, 2020 to better understand the issues and concerns of the Six Nations of the Grand River and identify opportunities to support meaningful engagement with Six Nations of the Grand River. It was noted during this meeting that the Nation identified that specific Aboriginal and Treaty rights information was not included in the

archaeological assessments that supports the Ontario Line[37]. The draft meeting minutes from the November 25, 2020 meeting reflecting this concern were submitted to the Six Nations of the Grand River in early January 2021 for further input. Recognizing that the ongoing COVID-19 pandemic may be impacting the operations of the Six Nations of the Grand River office, Metrolinx reached out to the Six Nations of the Grand River for further input from the Nation on how to best address this concern.

On December 4, 2020, Metrolinx met with Chippewas of Rama First Nation to provide an overview of the subway programs, with a focus on the Ontario Line Project. Items that were discussed included the Ontario Line regulation, anticipated environmental assessment milestones and archaeological assessments and natural environment studies for the Ontario Line Project. Chippewas of Rama First Nation indicated that they would like to continue receiving invitations from Metrolinx to participate in archaeological fieldwork and updates specific to archaeology. Metrolinx confirmed that they would continue to invite Indigenous Nations and provide updates.

On February 23, 2021, Metrolinx met with the Mississaugas of the Credit First Nation to discuss the Ontario Line and Eglinton Crosstown West Extension projects and to share the Early Works Report timelines, with a focus on works occurring in the Don and Humber River systems. Items such as in-water works, property ownership, soil impacts and tree removals and compensation were discussed as well. Mississaugas of the Credit First Nation indicated that they are interested in participating in archaeological and natural environment fieldwork for the Ontario Line Project. Metrolinx confirmed that the Nation will be invited to all archaeological and natural environment fieldwork for the Project.

On May 13, 2021, Metrolinx met with the Huron-Wendat Nation to provide an overview of the Ontario Line Project including a timeline of the Early Works Reports. The archaeological work associated with the Ontario Line crossings of the Don River system and the proposed plans relating to archaeology at the First Parliament site were also discussed. Metrolinx noted that the Huron-Wendat Nation will be invited to participate in archaeological fieldwork for the Ontario Line Project and to review all archaeological assessments.

On July 28, 2021, Metrolinx sent a letter to Indigenous Nations that provided an update on the Draft East Harbour Station and Draft Lakeshore East Joint Corridor Early Works Reports, including an overview of these early works as well as a summary of Early

37. From the perspective of Six Nations of the Grand River, information regarding Treaty 13, Nanfan Treaty, and the Fort Albany Treaty of 1701, which may be relevant to the Ontario Line Study Area, were not included in the Ontario Line Stage 1 Archaeological Assessment Reports as the reports were prepared early on in the Project and prior to engagement with Six Nations of the Grand River. Metrolinx continues to reach out to the Six Nations of the Grand River for further input on how to best address this concern, such as by including relevant treaty information in forthcoming archaeological assessment reports.

Works Reports that have been or will be shared with the Nations. The draft Lakeshore East Joint Corridor Noise and Vibration Operations Report was also shared with the Nations for review.

On October 4, 2021, Metrolinx met with the Mississaugas of the Credit First Nation to provide an update on the Lower Don Bridge early works and works in the Don River Valley, and provide an update on the Ontario Line environmental assessment milestones including the timelines of the Lakeshore East Joint Corridor and East Harbour Station Early Works Reports review period.

No comments related to Lakeshore East Joint Corridor early works have been received to-date from Indigenous Nations, though, as discussed above, Metrolinx did receive concerns related to capacity to review.

Consultation with Indigenous Nations will continue as Lakeshore East Joint Corridor early works progress. Correspondence records with Indigenous Nations related to Lakeshore East Joint Corridor early works are provided in **Appendix B3** of this Report. A copy of the Draft Lakeshore East Joint Corridor Early Works Report along with the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report were provided to Indigenous Nations on September 23, 2021. A copy of this Final Lakeshore East Joint Corridor Early Works Report along with the Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report was provided to Indigenous Nations via email on November 17, 2021.

8.7 Issues Resolution Process and Final Early Works Report

The Draft Lakeshore East Joint Corridor Early Works Report was made available to the public, technical stakeholders, Elected Officials, Indigenous Nations and other interested persons for review from September 23, 2021 to October 24, 2021. During this time, interested parties had the opportunity to submit written comments to Metrolinx. In accordance with Section 10 of Ontario Regulation 341/20: Ontario Line Project, Metrolinx established an issues resolution process to attempt to resolve any concerns raised by interested persons and Indigenous Nations, in a way that does not cause unreasonable delay to the implementation of Lakeshore East Joint Corridor early works. The issues resolution process involved review of comments, and engagement of subject matter experts to support the development of responses to comments, as required. Based on comments received, no further studies beyond what Metrolinx has already committed to complete have been identified as required.

In accordance with Section 11(1)(b) of Ontario Regulation 341/20: Ontario Line Project, **Section 8.7.1** of this Report includes:

- A description of the issues resolution process in respect of any concerns raised by Indigenous Nations and interested persons;
- A description of the concerns raised by Indigenous Nations and interested persons in the issues resolution process and of the outcome of the process, including what, if anything, Metrolinx did or will do in respect of the concerns raised; and
- A description of any impacts to the timeline for implementation of the Lakeshore East Joint Corridor early works.

As the Draft Lakeshore East Joint Corridor Early Works Report has been updated, Metrolinx has issued a Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report and posted the Report to the Engagement webpage (Project website) (www.metrolinx.com/ontarioline) within 65 days of the issuance of the Notice of Publication of Draft Lakeshore East Joint Corridor Early Works Report.

The Minister of the Environment, Conservation and Parks may issue a notice to Metrolinx imposing conditions related to the early works within 35 days after receipt of the Notice of Publication of Final Lakeshore East Joint Corridor Early Works Report. The Minister may also choose to inform Metrolinx that no notice will be issued.

In accordance with Ontario Regulation 341/20: Ontario Line Project, the Minister may issue a notice only if:

- The Minister is of the opinion that the way in which Metrolinx addressed a concern raised during the issues resolution process would cause unreasonable delay to the implementation of Lakeshore East Joint Corridor early works, and the conditions in the Minister's notice modify the way in which the concern is addressed in the Final Lakeshore East Joint Corridor Early Works Report without causing reasonable delay to the implementation of Lakeshore East Joint Corridor early works; or
- The Minister is of the opinion that the early works may have an adverse impact on the existing Aboriginal and Treaty rights of Aboriginal Peoples of Canada, and the conditions may prevent, mitigate or remedy the adverse impact.

The implementation of Lakeshore East Joint Corridor early works may proceed if no notice is received within the 35-day period, the Minister informs Metrolinx that no notice will be issued, or if the requirements of the Minister's notice have been satisfied.

8.7.1 Description of Metrolinx Response to Concerns Expressed by Indigenous Nations and Interested Persons

In accordance with Section 11(1)(b) of the Ontario Regulation 341/20: Ontario Line Project, the following section provides a description of what Metrolinx did to respond to concerns expressed by Indigenous Nations and interested persons, including government review agencies and other technical stakeholders.

Prior to publication of the Draft Lakeshore East Joint Corridor Early Works Report, Indigenous Nations, government review agencies and other technical stakeholders were provided with the opportunity to review the report draft. During this time, Metrolinx received comments from government agencies and other technical stakeholders which were addressed throughout the report prior to the Draft Lakeshore East Joint Corridor Early Works Report publication, and documented in **Appendix B3** of the Draft Lakeshore East Joint Corridor Early Works Report.

During the 31-day public review period for the Draft Lakeshore East Joint Corridor Early Works Report (September 23, 2021 to October 24, 2021), Metrolinx received 31 public comments (seven email, two Contact Us, 21 Provide Your Feedback and one Ask-A-Question submissions) and comments from five community stakeholders and groups (GreekTown on the Danforth Business Improvement Area, Lakeshore East Community Advisory Committee, Riverside Business Improvement Area, Save Jimmie Simpson!, and Tabule Restaurant Group) and five technical stakeholders (City of Toronto, Ministry of the Environment, Conservation and Parks, Ministry of Heritage, Sport, Tourism and Culture Industries, Infrastructure Ontario and Toronto and Region Conservation Authority).

A summary of key themes of comments, questions and concerns received during the review period, what Metrolinx has done in response to the feedback received, and any potential timeline implications is provided in **Table 8-1**. In response to feedback and concerns received by interested persons, Metrolinx revised the Draft Lakeshore East Joint Corridor Early Works Report as outlined in **Table 8-1** and captured in this Final Lakeshore East Joint Corridor Early Works Report. In addition, Metrolinx included a revised description of the potential impacts and proposed mitigation measures associated with installation of noise barriers along the Gerrard Street East and Carlaw Avenue rail bridges in **Table ES-2**, **Table 6-7** and **Appendix A4** of this Report. Responses to comments received did not result in impacts to the timeline for implementation of Lakeshore East Joint Corridor early works.

Table 8-1: Summary of Key Themes of Feedback Received, Metrolinx Actions in Response to the Feedback and Implications to the Lakeshore East Joint Corridor Early Works Timeline

Comment From	Key Themes of Feedback Received	Key Feedback	Metrolinx Actions in Response to Feedback	Lakeshore East Joint Corridor Station Early Works Timeline Implications
Public	■ Project Alignment, Cost, Operations and Operational Impacts, including Noise and Vibration	■ Inquiries about station location and Ontario Line alignment in the Leslieville neighbourhood. ■ Comments expressing concern about the at-grade portion of the Ontario Line, and requests for the Ontario Line to be built underground through the Leslieville and Riverside neighbourhoods. ■ Inquiry about alternative options considered for the Ontario Line alignment in Leslieville and Riverside. ■ Comment noting that the noise simulation at Bruce Mackey Park is inaccurate and expressed concern about noise and vibration in proximity to the rail corridor. ■ Request for a combined assessment of Ontario Line, GO train and VIA Rail noise and vibration impacts, and information about the areas that were discounted during inclement weather conditions. ■ Suggestions to cover the above-ground portion of the alignment with useable green space, and comment noting that sound barrier walls are unsightly and ineffective. ■ Concerns regarding noise and vibration impacts near Leslie Street and Gerrard Street intersection, and comment stating that information on noise walls east of Jones Avenue and north of Gerrard Street is not available. ■ Inquiry regarding the Ontario Line track and platform design and noise modelling results. ■ Comment noting that drawings do not include crash barrier walls between the rail corridor and Ontario Line corridor, and stated that it is required by regulations for the corridors to be separated by crash walls. ■ Concern about graffiti on noise walls.	■ Confirmation of the Ontario Line alignment and station locations. ■ Confirmation that the Ontario Line will run on a mix of elevated, at-grade and underground sections along the route that will serve more communities. ■ Confirmation that Metrolinx has explored alignment options through the Initial Business Case, and concluded that an underground alignment in this area would not be advantageous. ■ Confirmation that methods used in the noise simulation are included in **Appendix A3**, and that conservative estimates are defined as assuming maximum possible service levels based on the information available. New added walls at Bruce Mackey Park will be closer to the existing rail corridor than the existing fence. ■ Confirmation that a noise and vibration study of GO trains, Ontario Line trains, VIA Rail trains and freight trains was included in the Report and is detailed in the operational noise and vibration study (**Appendix C**). ■ Confirmation that Metrolinx is moving forward with the above-ground plans as construction can be streamlined with the already planned GO Expansion, will be less disruptive and result in fewer property impacts, and sharing of a link to submit feedback on the design questionnaire. ■ Provision of a link to the Lakeshore East Joint Corridor Early Works Report which outlines the planned extent of noise barriers through Riverside and Leslieville. Confirmation that noise walls are planned east of Jones Avenue. ■ Confirmation that Ontario Line track designs will consider alignments, curves, geometry and fleet parameters, will be located within the existing rail corridor right-of-way, and meet all applicable standards and regulations. Metrolinx confirmed that noise barriers will be installed on both sides of the Lakeshore East Joint Corridor, and sharing of a link to the Draft Lakeshore East Joint Corridor Noise and Vibration Operations Report and the Ontario Line sound demonstrations. ■ Confirmation that risk assessments will be carried out for the project and are based on the Canadian method for risk evaluation and assessment for railway systems, and will address a wide spectrum of potential risks. ■ Confirmation that Metrolinx is taking lessons learned from previous noise barrier installations and has developed numerous strategies to deter and remove graffiti from infrastructure and provision of examples of such strategies. ■ Development and provision of comment responses, including sharing of information (**Appendix B3**). ■ Inclusion of comments and concerns in the Consultation section of the Final Lakeshore East Joint Corridor Early Works Report and **Appendix B3** as part of the consultation record.	■ None

Comment From	Key Themes of Feedback Received	Key Feedback	Metrolinx Actions in Response to Feedback	Lakeshore East Joint Corridor Station Early Works Timeline Implications
Public	■ Potential Impacts to Wildlife, Parks and Green Spaces	■ Concerns about how tree removals and habitat disruptions/displacement are not included in the Draft Lakeshore East Joint Corridor Early Works Report. ■ Comment noting the Natural Environment Report shows a lack of park space in the Leslieville area and expressed concern that the Ontario Line will run through and cause noise disruption to the existing parks in the neighbourhood. ■ Concerns regarding loss of vegetated areas and park space along the rail corridor during construction, including along Logan Avenue and Tiverton Avenue.	■ Confirmation that tree removals from Eastern Avenue to Gerrard Avenue have been paused until 2022 when the Final Lakeshore East Joint Corridor Early Works Report is approved. ■ Confirmation that Metrolinx has minimized the impacts to neighbourhood parks, and protected for additional green space in specific parks once construction of Ontario Line and GO Expansion is complete. ■ Confirmation that vegetation removals will be reduced to the extent possible and limited to the Lakeshore East Joint Corridor early works construction areas. Confirmation that a temporary ramp is needed for the construction of Dundas Street and Logan Avenue bridges to reduce the overall duration of construction. ■ Development and provision of comment responses, including sharing of information (**Appendix B3**). ■ Inclusion of comments and concerns in the Consultation section of the Final Lakeshore East Joint Corridor Early Works Report and **Appendix B3** as part of the consultation record.	■ None
Public	■ Public Engagement Process	■ Concern that frequency of monitoring is not included in the Early Works Report, and comment stating that the Early Works Report does not include an outline for a complaints process. ■ Concern about the length of the public review period, noting 31 days is not long enough to review two reports. ■ Requests for more details on information covered in virtual open houses and registration details regarding upcoming public engagement events. ■ Comment noting that many flyers and booklets from Metrolinx have been received in the mail, and expressed concern about these communications promoting Metrolinx decisions but not providing evidence to justify the decisions made. ■ Comment noting that the Early Works Reports were not available on the project webpage and no online form was available. ■ Request to meet with a Metrolinx representative at the Logan Avenue bridge and Dundas Street bridge to discuss the locations of the Ontario Line bridges described in the Draft Lakeshore East Joint Corridor Early Works Report. ■ Concerns regarding lack of community engagement activities, virtual open houses, opportunities to ask questions and receive information, length of the Draft Lakeshore East Joint Corridor Early Works Report review period and language regarding community concerns, and expressing dissatisfaction with the public consultation process. ■ Concern that the consultation activities for the Project did not consider input from the community. ■ Suggestion to expand the Project communications to outside immediate neighbourhoods and to a wider area.	■ Confirmation that monitoring frequency is specific to the component monitored and will be determined by an appropriate specialist prior to construction. Confirmation that a complaints process is outside of the environmental assessment scope and therefore is not included in the Early Works Report, but residents are encouraged to reach out to the Ontario Line Community Relations team with feedback or questions. ■ Confirmation that the 31-day review period for the Draft Lakeshore East Joint Corridor Early Works Report and East Draft Harbour Station Early Works Report is consistent with the review period length for other Metrolinx projects. ■ Sharing of information and links to the Project webpage and virtual open houses to obtain public feedback. ■ Sharing of a link to review and provide feedback on the Draft Lakeshore East Joint Corridor Early Works Report and Draft East Harbour Station Early Works. ■ Sharing of the Lakeshore East Joint Corridor alignment map and confirmation of the Ontario Line location relative to the existing corridor at Dundas Street East and Logan Avenue. ■ Confirmation that during the review period for the Draft Lakeshore East Joint Corridor Early Works Report, Metrolinx published advertisements in six newspapers in four languages, sent mail notifications about the release of the Draft Early Works Reports, held two virtual open houses with live question and answer sessions in order to increase public participation, and met with local community groups, Business Improvement Areas and residents to explain the methodology behind the studies and findings in these reports. Confirmation that Metrolinx also held virtual presentation and live question and answer sessions prior to the review period and incorporated questions and comments from the public in the Draft Lakeshore East Joint Corridor Early Works Report. ■ Confirmation that based on community feedback, Metrolinx committed to noise barrier installation, ensuring that almost all parks will continue to operate during construction and some parks will gain green space, and that construction traffic will be kept off of local roads. Statement that Metrolinx has planned construction works so that much of the work is completed within the existing rail corridor. ■ Confirmation that Metrolinx continues to proactively provide notifications of upcoming work that has direct impacts or is taking place overnight, and publish	■ None

Comment From	Key Themes of Feedback Received	Key Feedback	Metrolinx Actions in Response to Feedback	Lakeshore East Joint Corridor Station Early Works Timeline Implications
			all community notices through e-newsletter, website, email to community groups for circulation to their mailing lists. ■ Development and provision of comment responses, including sharing of information (**Appendix B3**). ■ Inclusion of comments and concerns in the Consultation section of the Final Lakeshore East Joint Corridor Early Works Report and **Appendix B3** as part of the consultation record.	
Public	■ Potential Construction Impacts and Construction Timelines	■ Comment suggesting staggering construction of the bridges to minimize traffic congestion. They requested Metrolinx to consider traffic routes and timing carefully. ■ Comment expressing disappointment that the efforts to minimize noise and vibration impacts are only during drilling and testing stages of the Project, and suggested all GO tracks receive updated track bedding to minimize vibration. ■ Concerns regarding impacts to traffic, pedestrian access, and cyclist mobility within the community, specifically on Eastern Avenue, Queen Street East and Dundas Street East. ■ Concern about Metrolinx proposing the timing of tree removals prior to the release of an arborist report.	■ Confirmation that closure duration will be reduced to the extent feasible and closures of adjacent intersections will be staggered to avoid multiple disruptions to communities. Sharing of a video detailing the planned construction sequencing at Jimmie Simpson Park and Bruce Mackey Park. ■ Confirmation that proven mitigation measures will be installed to ensure vibration levels are within limits at all sensitive receptor locations along the corridor. ■ Confirmation that there will be potential traffic impacts to Eastern Avenue, Queen Street East and Dundas Street East. Confirmation that a transit and traffic management plan will be developed and implemented to mitigate traffic impacts associated with the Lakeshore East Joint Corridor early works. Confirmation that the Ontario Line Community Relations team will provide early notification and communication to residents and businesses. ■ Confirmation that an arborist report will be completed prior to removal of trees for Lakeshore East Joint Corridor early works. ■ Development and provision of comment responses, including sharing of information (**Appendix B3**). ■ Inclusion of comments and concerns in the Consultation section of the Final Lakeshore East Joint Corridor Early Works Report and **Appendix B3** as part of the consultation record.	■ None
Public	■ Early Works Report Content, including Environmental Study Results	■ Concerns about water and air quality, loss of green space and wildlife habitat, delays to emergency vehicles, traffic and noise and vibration because the area is already vulnerable to flooding, poor water and air quality and traffic congestion. ■ Suggestion that a more comprehensive environmental study be completed for the Ontario Line Project, instead of reusing the environmental assessment that was completed for the Downtown Relief Line. ■ Concern that the Draft Lakeshore East Joint Corridor Early Works Report provides a large amount of information but lacks transparency regarding important Project details. ■ Concern that the wildlife review was inadequate and does not include many bird species within the community. ■ Concern that no quality of life assessment was included in the Draft Lakeshore East Joint Corridor Early Works Report. ■ Concerns that ridership estimates do not reflect current ridership due to the COVID-19 pandemic. ■ Comments noting language used in the Draft Lakeshore East Joint Corridor Early Works Report is vague and misleading and provides minimal information.	■ Confirmation that impacts to surface water and ground water, air quality, vegetation communities, wildlife habitat, and transportation, as well as impacts associated with construction noise and vibration and Lakeshore East Joint Corridor operational noise and vibration have been assessed and outlined, along with mitigation measures, in the Draft Lakeshore East Joint Corridor Early Works Report. ■ Confirmation that the Draft Lakeshore East Joint Corridor Early Works Report was completed in accordance with Ontario Regulation 341/20 and was not based off the Downtown Relief Line environmental assessment. ■ Confirmation that the Lakeshore East Joint Corridor Early Works Report includes an assessment and evaluation of the impacts and proposed mitigation measures, in accordance with Ontario Regulation 341/20, and outlined the various environmental components assessed. Confirmation that project operations and construction of project components other than early works will be completed as part of the Environmental Impact Assessment Report. ■ Confirmation that a thorough background review of wildlife that may occur within the Lakeshore East Joint Corridor Study Area is included in Appendix A: Species Records from Wildlife Atlases of **Appendix A1**: Lakeshore East Joint Corridor Early Works – Natural Environment Early Works Report.	■ None

Comment From	Key Themes of Feedback Received	Key Feedback	Metrolinx Actions in Response to Feedback	Lakeshore East Joint Corridor Station Early Works Timeline Implications
			■ Sharing of information on the benefits of the Ontario Line, including quality of life, and sharing of a link to the Preliminary Design Business Case for further detail. ■ Confirmation that although the COVID-19 pandemic has made it difficult to make predictions about the future, City of Toronto is projected to be a growing city, and Metrolinx is moving forward based on the cost benefit analysis and projections found in the Ontario Line Initial Business Case and Ontario Line Preliminary Business Case. ■ Confirmation that impacts and mitigation measures are documented in a certain manner because they are often specific to a given environmental component and scope of work, which varies throughout the Lakeshore East Joint Corridor study area, and allows Metrolinx to refine and explore additional mitigation measures because not all mitigation measures may apply to a certain impact. ■ Development and provision of comment responses, including sharing of information (**Appendix B3**). ■ Inclusion of comments and concerns in the Consultation section of the Final Lakeshore East Joint Corridor Early Works Report and **Appendix B3** as part of the consultation record.	
Community Groups and Stakeholders	■ Local Environmental Conditions and Impact Assessment	■ The Lakeshore East Community Advisory Committee provided comments relating to noise and vibration data, modelling results, and impacts and mitigation measures; tree removals; habitat loss; built heritage resources and cultural heritage landscapes impacts and mitigation measures; design of retaining walls; rail safety, air quality data; Ontario Line alignment; consultation and community engagement activities; evaluation of alternatives; property expropriation; bridge design and construction; and human health impacts. ■ The Riverside Business Improvement Area provided comments relating to public realm; noise and vibration impacts; language used in reports referring to Leslieville and Riverside neighbourhoods; construction staging; consultation with the Riverside Business Improvement Area; and traffic impacts to businesses. ■ Save Jimmie Simpson! provided comments relating to noise and vibration study results, impacts and mitigation measures, and health impact assessment. ■ The GreekTown on the Danforth Business Improvement Area provided comments relating to air quality and noise and vibration mitigation measures, noise barriers, and graffiti removal.	■ Updates were made to **Appendix C** to address feedback received from the Lakeshore East Community Advisory Committee. ■ Updates were made to the following sections of the Ontario Line Final Lakeshore East Joint Corridor Early Works Report to address feedback received from the Riverside Business Improvement Area: ▪ **Table ES-2**; ▪ **Figure 1-2**; ▪ **Table 5-10**; ▪ **Figure 5-16**; and ▪ **Table 6-6**. ■ Development and provision of comment responses, including sharing of information, to the Lakeshore East Community Advisory Committee, the Riverside Business Improvement Area, Save Jimmie Simpson! and the GreekTown on the Danforth Business Improvement Area (**Appendix B3**). ■ Inclusion of comments and concerns in the Consultation section of the Final Lakeshore East Joint Corridor Early Works Report and **Appendix B3** as part of the consultation record.	■ None

Comment From	Key Themes of Feedback Received	Key Feedback	Metrolinx Actions in Response to Feedback	Lakeshore East Joint Corridor Station Early Works Timeline Implications
Technical Stakeholders – Provincial and Municipal Agencies	■ Local Environmental Conditions and Impact Assessment	■ The Toronto and Region Conservation Authority provided comments relating to detailed design; Voluntary Project Review submission; geotechnical and hydrogeological studies; stormwater management; location of flood plain in relation to early works; consulting and engaging with the public on park impacts; Environmental Impact Statement; and Eastern Wood-peewee habitat removals. ■ The Ministry of Heritage, Sport, Tourism and Culture Industries provided comments relating to previous engagement with agencies on the Heritage Detailed Design Report; property names; language used in reports to describe Metrolinx property; Provincial Policy Statement; archeological resources maps; and recommendations from and submissions of Archaeological Assessment reports. ■ The Ministry of the Environment, Conservation and Parks provided comments relating to soil and groundwater; surface water; existing ambient air quality; noise barrier specifications; traffic noise model; idling policies; requirements for laydown yards; Ontario's On-Site and Excess Soil Management Regulation; and local source water protection policies. ■ The City of Toronto provided comments relating to construction Noise and Vibration assessment limits, noise walls, impacts and mitigation; Lakeshore East Joint Corridor and East Harbour Station study areas overlap; Built Heritage Resources and Cultural Heritage Landscapes assessment, impacts and mitigation; Traffic and Transportation assessment, impacts and mitigation; Socio-Economic and Land Use Characteristics assessment, impacts and mitigation; Soil and Groundwater impacts and mitigation; Natural Environment assessment, impacts and mitigation; utility relocations, permits and approvals; bridge replacements; impacts to parks and greenspace; tree and vegetation removals; applicable planning studies; construction staging and laydown; recreational centres within the study area; future parks and open space; active transportation connections, and air quality methodology. ■ Infrastructure Ontario identified properties within the study area that may be owned by the Minister of Government and Consumer Service.	■ Updates were made to the following section of the Ontario Line Final Lakeshore East Joint Corridor Early Works Report to address feedback received from the Toronto and Region Conservation Authority: ▪ **Table 6-2**; and ▪ **Table 6-3**. ■ Updates were made to the following sections of the Ontario Line Final Lakeshore East Joint Corridor Early Works Report and **Appendix A4** to address feedback received from the Ministry of Heritage, Sport, Tourism and Culture Industries: ▪ **ES.4**; ▪ **Table ES-1**; ▪ **Table ES-2**; ▪ **Section 2.2.1.1**; ▪ **Section 3.2**; ▪ **Table 5-14**; ▪ **Figure 5-19**; ▪ **Table 6-7**; ▪ **Section 6.8**; and ▪ **Table 6-8**. ■ Updates were made to the following sections of the Ontario Line Final Lakeshore East Joint Corridor Early Works Report to address feedback received from the Ministry of the Environment, Conservation and Parks: ▪ **Table 5-5**; ▪ **Table 6-2**; ▪ **Table 6-3**; and ▪ **Table 6-4**. ■ Updates were made to the following sections of the Ontario Line Final Lakeshore East Joint Corridor Early Works Report, **Appendix A1**, **Appendix A3**, **Appendix A4**, to address feedback received from the City of Toronto: ▪ **Table ES-2**; ▪ **Section ES.3**; ▪ **Section 2.2.2.1**; ▪ **Section 2.2.2.3**; ▪ **Table 3-1**; ▪ **Section 5.6.2.1**; ▪ **Section 5.6.2.2**; ▪ **Section 5.6.1.3.2**; ▪ **Section 5.9.2.2**; ▪ **Figure 5-16**; ▪ **Table 5-10**; ▪ **Table 5-17**; ▪ **Table 6-9**; ▪ **Figure 5-21**; and ▪ **Table 6-2**. ■ Development and provision of comment responses to the Toronto and Region Conservation Authority, Ministry of Heritage, Sport, Tourism and Culture Industries, Ministry of the Environment, Conservation and Parks, the City of Toronto, and Infrastructure Ontario (**Appendix B3**), and inclusion of comments in the consultation section of the Final Lakeshore East Joint Corridor Early Works Report and **Appendix B3** as part of the consultation record.	■ None

8.8 Commitment to Future Consultation

Metrolinx is committed to continuing stakeholder and public engagement and consultation beyond the regulatory requirements set out in Section 10 of Ontario Regulation 341/20. Specifically, Metrolinx will:

- Maintain the Engagement webpage (Project website) (www.metrolinx.com/ontarioline) so interested parties can access updated Project information;
- Maintain the Project Distribution List to help ensure all interested parties receive Project updates; and
- Continue discussions with members of the public, local stakeholders and Indigenous Nations with respect to potential impacts and mitigation throughout Lakeshore East Joint Corridor early works planning and construction, as appropriate.

9. References

4Transit, 2018a:
East Harbour SmartTrack Station Environmental Project Report. Prepared for Metrolinx. Accessed January 2020 from: http://smarttrack.to/wp-content/uploads/2018/07/4T-P2-EH-018-SE-RPT-0001-New-SmartTrack-Stations-EPR-Volume-V-East-Harbour-SmartTrack-Station-0.pdf

4Transit, 2018b:
East Harbour SmartTrack Station – Natural Environment Report. May 2018. Prepared for Metrolinx.

AECOM, 2017a:
Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project Natural Environment Effects Assessment Report. Prepared for Metrolinx.

AECOM, 2017b:
Cultural Heritage Recommendations Report: 6, 8 and 10 Paisley Avenue, City of Toronto. Prepared for Metrolinx.

AECOM, 2017c:
Cultural Heritage Recommendations Report: 15 and 17 Tiverton Avenue, City of Toronto. Prepared for Metrolinx.

AECOM, 2017d:
Cultural Heritage Recommendations Report: 60 and 62 McGee Street, City of Toronto. Prepared for Metrolinx

AECOM, 2018a:
Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) – Natural Environment Report. Prepared for Metrolinx.

AECOM, 2018b:
Cultural Heritage Assessment Report, Relief Line South Transit Project Assessment, City of Toronto. Prepared for Metrolinx.

AECOM, 2020a:
Ontario Line Final Environmental Conditions Report. Prepared for Metrolinx. Available: https://www.metrolinxengage.com/en/content/ontario-line-environmental-conditions-report

AECOM 2020b:
Stage 1 Archaeological Assessment Report – South, Lots 13-16, Broken Front Concession, Lots 3-12, 14-15, Concession 1 From the Bay, Lot 11, Concession 2 From the Bay, Town of York, Geographic Township of York, County of York, now City of Toronto. Report on file with the Ministry of Heritage, Sport, Tourism and Culture Industries under PIF#: P438-0197-2019.

AECOM, 2020c:
Ontario Line Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment. Prepared for Metrolinx.

AECOM, 2020d:
Ontario Line Noise and Vibration Report. Prepared for Metrolinx.

AECOM, 2021:
Ontario Line Lakeshore East Joint Corridor Early Works Noise and Vibration Report. Prepared for Metrolinx.

Archaeological Services Inc. (ASI) 2017:
Stage 1 Archaeological Assessment GO Rail Network Electrification TPAP, City of Toronto, Regional Municipalities of Peel, Halton, York and Durham, County of Simcoe, Ontario. Report on file with the Ministry of Heritage, Sport, Tourism and Culture Industries under PIF# P057-0834-2016.

Armstrong, D.K. and J.E.P. Dodge, 2007:
Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release—Data 219.

Brigham, R.M., J. Ng, R.G. Poulin and S.D. Grindal, 2011:
Common Nighthawk (Chordeiles minor), version 2.0. In The Birds of North America (A. F. Poole, Editor). Cornell Laboratory of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.213

Canadian Council of Ministers of the Environment, 2012:
Canadian Ambient Air Quality Standards. Available: https://www.alberta.ca/canadian-ambient-air-quality-standards.aspx

Chapman, L.J. and D.F. Putnam, 1984:
The Physiography of Southern Ontario, Third Edition, Ontario Geological Survey, Special Volume 2.

Cheminfo Services Inc., 2005:
Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Prepared for Environment Canada. Available: http://www.bv.transports.gouv.qc.ca/mono/1173259.pdf

City of Toronto, 2013:
Lower Don Trail: Access, Environment and Art Master Plan. Available: https://www.toronto.ca/wp-content/uploads/2018/01/8ecf-lower_don_trail_master_plan.pdf

City of Toronto, 2016a:
Guidelines for Using Synchro 9.

City of Toronto, 2016b:
Tree Protection Policy and Specifications for Construction Near Trees. Accessed in November 2019 from: https://www.toronto.ca/data/parks/pdf/trees/tree-protection-specs.pdf.

City of Toronto, 2017a:
Ravine and Natural Feature Protection By-Law. Accessed in February 2020 from: https://www.toronto.ca/wp-content/uploads/2017/08/96f6-Ravine-and-Natural-Feature-Protection-By-Law-Brocure-Division-Planning-And-Development.pdf

City of Toronto, 2018a:
Statistics Canada 2016 Census of Population. Available: https://www.toronto.ca/city-government/data-research-maps/neighbourhoods-communities/neighbourhood-profiles/

City of Toronto, 2018b:
City of Toronto Road Classification System Update. Available: https://www.toronto.ca/services-payments/streets-parking-transportation/traffic-management/road-classification-system/2012-update-to-the-road-classification-system/

City of Toronto, 2018c:
Unilever Precinct Secondary Plan. Available: https://www.toronto.ca/legdocs/bylaws/2018/law1192.pdf

City of Toronto, 2018d:
Unilever Precinct Plan Planning Framework. Available: https://www.toronto.ca/wp-content/uploads/2018/08/96e2-UNILEVER-PLANNING-FRAMEWORK-backgroundfile-115782.pdf

City of Toronto, 2019a:
Toronto Official Plan – Office Consolidation February 2019. Available: https://www.toronto.ca/wp-content/uploads/2019/06/8f06-OfficialPlanAODA_Compiled-3.0.pdf

City of Toronto, 2019b:
Parkland Strategy: Growing Toronto Parkland. Available: https://www.toronto.ca/wp-content/uploads/2019/11/97fb-parkland-strategy-full-report-final.pdf

City of Toronto, 2020a:
Toronto Maps V2. Accessed in February 2020 from: http://map.toronto.ca/maps/map.jsp?app=TorontoMaps_v2.

City of Toronto, 2020b:
Vision Zero Mapping Tool. Available: www.toronto.ca/services-payments/streets-parking-transportation/road-safety/vision-zero/safety-measures-and-mapping

City of Toronto, 2020c:
Waterfront Transit Reset. Available: https://www.toronto.ca/city-government/planning-development/planning-studies-initiatives/waterfront-transit-reset/#:~:text=The%20City%20of%20Toronto%2C%20in,improvements%20for%20the%20waterfront%20area.

City of Toronto, 2021a:
Open Data Portal. Accessed in April 2021 from: https://open.toronto.ca/

City of Toronto, 2021b:
Development Applications. Available: http://app.toronto.ca/DevelopmentApplications/mapSearchSetup.do?action=init

City of Toronto, dtah, and Mott Macdonald, 2021:
Lower Don Trail Phase 2 Improvements, Site Information Bulletin January 25, 2021. Available: https://www.toronto.ca/wp-content/uploads/2021/03/96f1-lower-don-trail-improvements-phase-2-site-info-bulletin.pdf

City of Toronto, n.d.a.:
Downtown Plan. Available: https://www.toronto.ca/legdocs/mmis/2019/cc/bgrd/backgroundfile-135953.pdf

City of Toronto, n.d.b.:
Lower Don Trail Improvements. Accessed May 2021. Available: https://www.toronto.ca/city-government/planning-development/construction-new-facilities/improvements-expansion-redevelopment/lower-don-trail/

City of Toronto, n.d.c.:
Public Art. Accessed May 2021. Available: https://waterfrontoronto.ca/nbe/wcm/connect/waterfront/waterfront_content_library/waterfront+home/our+vision/design+excellence/public+art

City of Toronto, n.d.d.:
Improving The Esplanade and Mill Street. Available: https://www.toronto.ca/community-people/get-involved/public-consultations/infrastructure-projects/the-esplanade-mill-street/

City of Toronto, n.d.e:
Leslieville Traffic Management and Mitigation Study. Available: https://www.toronto.ca/community-people/get-involved/public-consultations/infrastructure-projects/leslieville-traffic-management-mitigation-study/

City of Toronto, n.d.f:
Unilever Precinct Planning Study. Available: https://www.toronto.ca/city-government/planning-development/planning-studies-initiatives/unilever-precincteast-harbour-proposed-employment-development/

City of Toronto, n.d.g:
Broadview Avenue Extension Environmental Assessment. Available: https://www.toronto.ca/community-people/get-involved/public-consultations/infrastructure-projects/broadview-avenue-extension-environmental-assessment/

City of Toronto, Waterfront Toronto, 2017a:
Port Lands and South of Eastern Transportation and Servicing Master Plan Class Environmental Assessment. Available: https://waterfrontoronto.ca/nbe/wcm/connect/waterfront/832467ff-bbdb-4b72-9aed-3e6c2860ebcf/TSMP_EA-Report-Sept+29+2017.compressed.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=832467ff-bbdb-4b72-9aed-3e6c2860ebcf

City of Toronto, Waterfront Toronto, 2017b:
Gardiner Expressway and Lake Shore Boulevard East Reconfiguration: Environmental Assessment and Urban Design Study. Available: https://waterfrontoronto.ca/nbe/wcm/connect/waterfront/1fa0930b-c313-4e9b-85bd-e346f7d41ec5/Gardiner+EA+Report+-+Exec+Summary+-+Final.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=1fa0930b-c313-4e9b-85bd-e346f7d41ec5

Dobbyn, 1994:
Atlas of the Mammals of Ontario. Ontario: Federation of Ontario Naturalists.

Dougan & Associates and North-South Environmental Inc., 2009:
Migratory Birds in the City of Toronto – A Literature Review and Data Assessment Final Report. Prepared for the City of Toronto Planning.

GO Transit, 2020:
Trip Planning. See Schedules. Available: https://www.gotransit.com/en/trip-planning/seeschedules

Golder Associates, 2018:
Natural Environment Existing Conditions – Relief Line South, Toronto, Ontario. March 2018.

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.

HDR, 2018:
Relief Line South Environmental Project Report. Prepared for City of Toronto, Toronto Transit Commission, and Metrolinx.

Land Information Ontario, 2017:
Metadata Tool. Accessed in February 2018 from: https://www.ontario.ca/page/land-information-ontario

Metrolinx, 2017:
GO Rail Network Electrification Transit Project Assessment Process Environmental Project Report. Available: http://www.metrolinx.com/en/electrification/docs/GO%20Rail%20Network%20Electrification%20Environmental%20Project%20Report_Volume%201.pdf

Metrolinx, 2018:
2041 Regional Transportation Plan for the Greater Toronto and Hamilton Area. Available: http://www.metrolinx.com/en/regionalplanning/rtp/Metrolinx%20-%202041%20Regional%20Transportation%20Plan%20%E2%80%93%20Final.pdf

Metrolinx, 2019:
Ontario Line Initial Business Case. Available: http://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/20190725_Ontario_Line_IBC.PDF

Metrolinx, 2021:
GO Rail Network Electrification Addendum. Accessed in June 2021. Available: https://www.metrolinxengage.com/en/engagement-initiatives/go-rail-network-electrification-addendum-pic3

Metrolinx, 2021b:
Union Station East Rail Corridor: 2021 Construction Season. Available: http://www.metrolinx.com/images/greaterregion/projects/unionstation/USRC-East_Brochure_2021-EN.pdf

Ministry of Heritage, Sport, Tourism and Culture Industries, 2016:
Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, A Checklist for the Non-Specialist. http://www.mtc.gov.on.ca/en/heritage/tools.shtml.

Ministry of Tourism and Culture, 2011:
Standards and Guidelines for Consultant Archaeologists.

NatureServe, 2019:
National and Subnational Conservation Status Definitions. Accessed January 2020 from: http://explorer.natureserve.org/nsranks.htm.

Ontario Geological Survey, 1961:
Metropolitan Toronto Bedrock Contours.

Ontario Geological Survey, 1984:
Physiography of Southern Ontario. Available: https://open.canada.ca/data/en/dataset/d22354e8-cb01-5262-aed5-1de48d1ffb0a

Ontario Geological Survey, 2007:
Paleozoic Geology of Southern Ontario.

Ontario Hot Mix Producers Association, 2015:
Ontario Hot Mix Producers Association Environmental Practices Guide, Ontario Hot Mix Asphalt Plants, Fifth Edition. Available: http://www.onasphalt.org/files/Publications/OHMPA%20EPG%20Document%20Single%20Pages%20-%20Website.pdf

Ontario Ministry of Municipal Affairs and Housing, 2020:
Provincial Policy Statement. Accessed in February 2020 from: https://www.ontario.ca/page/provincial-policy-statement-2020

Ontario Ministry of Natural Resources and Forestry, 2010:
Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ontario Ministry of Natural Resources and Forestry, 2017a:
Make-a-Map: Natural Heritage Areas. Accessed in February 2018 from: http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US

Ontario Ministry of Natural Resources and Forestry, 2020:
Ontario GeoHub. Accessed in January 2020 from: https://geohub.lio.gov.on.ca/. Powered by Land Information Ontario.

Ontario Ministry of the Environment and Climate Change, 2018:
Ontario Air Standards for Sulphur Dioxide (SO_2). Available: https://prod-environmental-registry.s3.amazonaws.com/2018-03/SO2%20Decision%20Document%20%28March%202018%29_0.pdf

Ontario Ministry of the Environment, 2008:
Operations Manual for Air Quality Monitoring in Ontario. Available: https://dr6j45jk9xcmk.cloudfront.net/documents/1466/3-7-32-manual-for-air-quality-monitoring-en.pdf

Ontario Ministry of the Environment, Conservation and Parks, 2020:
Ontario's Ambient Air Quality Criteria. Available: https://files.ontario.ca/mecp-ambient-air-quality-criteria-list-en-2020-05-01.pdf

Ontario Ministry of the Environment, Conservation and Parks, 2021:
Changes to Water Taking EASRs.

Ontario Ministry of Transportation, 2020:
Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects. Available: https://prod-environmental-registry.s3.amazonaws.com/2020-07/AQGHG%20Guide%20%28May%202020%29.pdf

Province of Ontario, 1990a:
Ontario Water Resources Act. Available: https://www.ontario.ca/laws/statute/90o40

Province of Ontario, 1990b:
The Planning Act. Available: https://www.ontario.ca/document/citizens-guide-land use-planning/planning-act

Province of Ontario, 1998:
Conservation Authorities Act. Available: https://www.ontario.ca/laws/statute/90c27

Province of Ontario, 2017:
Greenbelt Plan. Available: https://files.ontario.ca/greenbelt-plan-2017-en.pdf

Province of Ontario, 2020
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

Province of Ontario, 2020:
Ontario Regulation 341/20: Ontario Line Project. Available: https://www.ontario.ca/laws/regulation/r20341

Rogers, D.P, R.C. Ostry and P.F. Karrow, 1961:
Metropolitan Toronto Bedrock Contours, Ontario Department of Mines, Preliminary Map 102.

Riverside Business Improvement Area, 2019:
Riverside District Business Improvement Area Streetscape and Public Space Master Plan. Available: https://riverside-to.com/wp-content/uploads/2019/02/Riverside-Streetscape-Master-Plan-compressed.pdf

Statistics Canada, 2016:
2016 Census Profile. Available: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E

Toronto and Region Conservation Authority, 2005:
Lower Don River West Remedial Flood Protection Project Class Environmental Assessment. Available: https://trca.ca/conservation/green-infrastructure/lower-don-river-west-remedial-flood-protection-project/environmental-assessment/

Toronto and Region Conservation Authority, 2013a:
Hydrological Assessment Submissions: Conservation Authority Guidelines for Development Applications.

Toronto and Region Conservation Authority, 2013b:
Toronto and Region Conservation Authority Technical Guidelines for the Development of Environmental Management Plans for Dewatering. Available: https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2016/02/17185417/TRCA_Technical_Guidelines_for_the_Development_of_EMPs_for_Dewatering.pdf

Toronto and Region Conservation Authority, 2014a:
Don Mouth Naturalization and Port Lands Flood Protection Plan. Available: https://trca.ca/conservation/green-infrastructure/don-mouth-naturalization-port-lands-flood-protection-project/don-mouth-environmental-assessment/

Toronto and Region Conservation Authority, 2014b:
The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority.

Toronto and Region Conservation Authority, 2015:
Toronto and Region Source Protection Area, Approved Updated Assessment Report. Available: https://ctcswp.ca/the-science/toronto-and-region-spa-assessment-report/

Toronto and Region Conservation Authority, 2019:
Erosion and Sediment Control Guide for Urban Construction. Available: https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2020/01/30145157/ESC-Guide-for-Urban-Construction_FINAL.pdf

Toronto and Region Conservation Authority, 2020a:
Regulated Area Search. Available: https://trca.ca/planning-permits/regulated-area-search-v3/

Toronto and Region Conservation Authority, 2020b:
Flood Plain Map. Available: https://trca.ca/conservation/flood-risk-management/flood-plain-map-viewer/#map

Toronto and Region Conservation Authority, 2020c:
Watersheds Map. Available: https://trca.ca/conservation/watershed-management/

Toronto and Region Conservation Authority, 2020d:
Toronto and Region Conservation Authority Open Data & Information. Accessed in January 2020 from: https://data.trca.ca/

Toronto and Region Conservation Authority, 2021a.
https://portlandsto.ca/wp-content/uploads/DMNP-EA-Amendment-April-15-2021.pdf

Toronto and Region Conservation Authority, 2021b:
https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2021/04/09165112/BEFP-Final-Class-EA-Report-April-05-2021-compressed.pdf

Toronto Transit Commission, 2019:
Toronto Transit Commission Schedules and Maps. Available: https://www.ttc.ca/PDF/Transit_Planning/Service%20Summary_2019-05-12.pdf

Transportation Research Board, 2000:
Highway Capacity Manual 2000. Available: https://trid.trb.org/view/475202

VIA Rail, 2020:
Explore our destinations. Ontario and Quebec. Available: https://www.viarail.ca/en/explore-our-destinations/trains/ontario-and-quebec

Waterfront Toronto, 2016:
What is a Flood Protection Landform? Available: http://blog.waterfrontoronto.ca/nbe/portal/wt/home/blog-home/posts/what-is-a-flood-protection-landform

Waterfront Toronto, 2020:
Corktown Common. Accessed in May 2020 from: https://waterfrontoronto.ca/nbe/portal/waterfront/Home/waterfronthome/projects/corktown+common