

Metrolinx

Final Environmental Conditions Report

Ontario Line Project

Prepared by:

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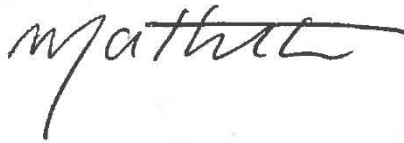
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Executive Summary

ES.1 Project Overview

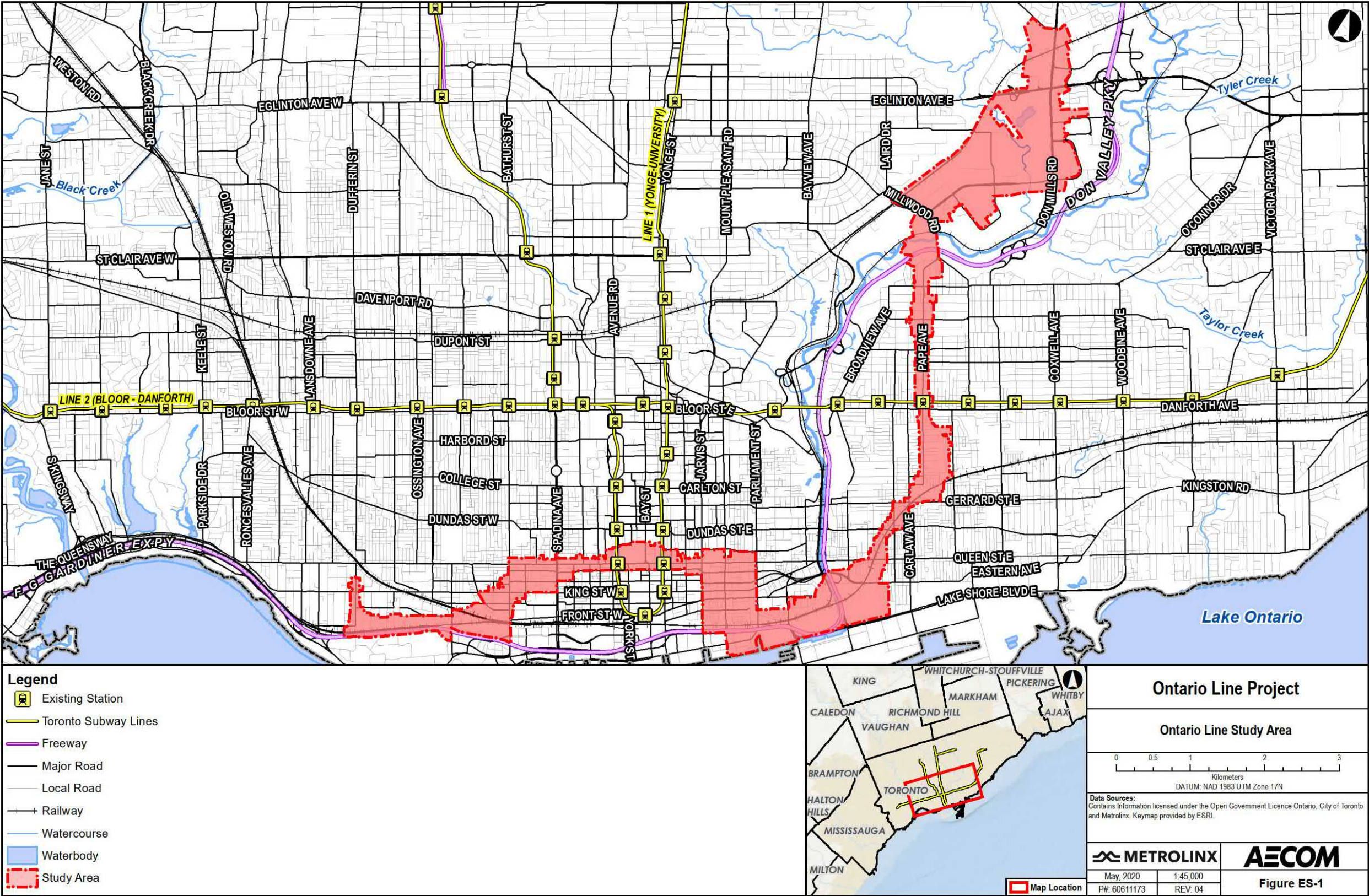
Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line, extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto. AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete this Environmental Conditions Report for the Ontario Line Project (the Project).

The Project is a new approximately 16 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 Ontario Line Study Area is shown in **Figure ES-1**. 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.

For the purpose of this Report, the Ontario Line Study Area has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station);
- Ontario Line South (from Osgoode Station to Pape Station); and
- Ontario Line North (from Pape Station to the Ontario Science Centre).

Figure ES-1: Ontario Line Study Area



ES.2 Study Process

This Environmental Conditions 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: Environmental Conditions Report Contents per Ontario Regulation 341/20: Ontario Line Project

| Reg. Section | Requirement | Report Section |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Section 4(3)1 | A statement of the purpose of the Ontario Line Project and a summary of background information relating to it. | Section 1.1 & Section 1.3 |
| Section 4(3)2 | The description of the Ontario Line Project. | Section 1.2 |
| Section 4(3)3 | A map showing the area studied in respect of the Ontario Line Project. | Figure 1-1 & Appendix A |
| Section 4(3)4 | A description of the local environmental conditions in the area studied in respect of the Ontario Line Project. | Section 3 & Appendix B |
| Section 4(3)5 | A description of all studies undertaken in relation to the Ontario Line Project, including, <ul style="list-style-type: none"> i. a summary of all data collected or reviewed; and, ii. a summary of all results and conclusions. | Section 3 & Appendix B |
| Section 4(3)6 | A preliminary description of the potential impacts that the Ontario Line Project might have on the environment that have been identified to date and an indication of how those impacts will be studied and described in further detail in the environmental impact assessment report. | Section 4 & Appendix B |
| Section 4(3)7 | A description of any potential measures for mitigating any negative impacts that the Ontario Line Project might have on the environment. | Section 4 & Appendix B |
| Section 4(3)8 | A description of the future studies that will be carried out as part of the environmental impact assessment report to determine potential impacts to the environment caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them. | Section 5 & Appendix B |
| Section 4(3)9 | A preliminary list of the potential municipal, provincial, federal or other approvals or permits that may be required for the Ontario Line Project. | Section 6 & Appendix B |
| Section 4(3)10 | A consultation record, including, <ul style="list-style-type: none"> i. a description of the consultations carried out with Indigenous communities and interested persons; ii. a list of the Indigenous communities and interested persons who participated in the consultations; iii. summaries of the comments submitted by Indigenous communities and interested persons; iv. a summary of discussions that Metrolinx had with Indigenous communities, and copies of all written comments submitted by Indigenous communities; | Section 7 & Appendix C |

| Reg. Section | Requirement | Report Section |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| | v. a description of what Metrolinx did to respond to concerns expressed by Indigenous communities and interested persons; and, vi. any commitments made by Metrolinx to Indigenous communities and interested persons in respect of the Ontario Line. | |

ES.3 Existing Conditions

Section 3 describes the natural, technical, socio-economic and cultural aspects of the existing environment in the context of the Project. Information on the following environmental components is provided in the sections below and, where applicable, is supplemented with supporting detailed technical reports and/or data:

- Natural Environment: **Section 3.1** and **Appendix B1**
- Soil and Groundwater: **Section 3.2**
- Air Quality: **Section 3.3** and **Appendix B2**
- Noise and Vibration: **Section 3.4** and **Appendix B3**
- Socio-Economic and Land Use Characteristics: **Section 3.5** and **Appendix B4**
- Built Heritage Resources and Cultural Heritage Landscapes: **Section 3.6** and **Appendix B5**
- Archaeological Resources: **Section 3.7** and **Appendix B6**
- Traffic and Transportation: **Section 3.8** and **Appendix B7**
- Utilities: **Section 3.9**

A summary of environmental conditions for each of the environmental components is provided below.

Natural Environment

The Ontario Line West and Ontario Line South Study Areas are mostly urbanized, with little natural habitat; where present, vegetation is limited to parks, rail corridors and residential backyards. As a result, wildlife habitat and habitat connectivity in Ontario Line West and Ontario Line South Study Areas are limited. The Ontario Line South and Ontario Line North Study Areas contain the Don River Valley, a designated Urban River Valley under the Greenbelt Plan. The Ontario Line North Study Area also contains a candidate regionally significant life science Area of Natural and Significant Interest within the E.T. Seton Park, as well as other designated features and natural heritage planning policy areas. The Ontario Line North Study Area also provides important habitat for wildlife in an urban setting. There are no environmentally significant areas in Ontario Line West.

Aquatic habitat is present in Ontario Line South and Ontario Line North Study Areas, associated with the Don River. This habitat is characterized by poor water quality and a generally degraded aquatic ecosystem. The Don River provides fish habitat important for migration, feeding and refuge. No critically limiting habitats for fish (e.g., spawning habitat) or critical habitat for aquatic species at risk are present within the Ontario Line Study Area. The fish community is mainly composed of pollution-tolerant species.

The following species at risk have high or medium potential to occur within the Ontario Line Study Area: Barn Swallow, Bank Swallow, Chimney Swift, Butternut and bat species at risk (including Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-coloured Bat) based on presence of suitable habitat.

The following species at risk have low potential to occur within the Ontario Line Study Area: Bobolink, Eastern Meadowlark and Blanding's Turtle due to lack of suitable habitat.

Soil and Groundwater

The majority of the Ontario Line Study Area is within the Iroquois Plain physiographic region, except for a small portion north of Eglinton Avenue and Don Mills Road which is in the South Slope physiographic region. The Iroquois Plain is a lowland mainly composed of sand extending north up to 10 km from the shoreline of Lake Ontario. The South Slope extends from the base of the Niagara Escarpment to the Iroquois Plain. It is characterized by low-lying moraine (mass of rocks and sediment deposited by glacier) and knolls (hills and mounds).

The review of the Ministry of the Environment, Conservation and Parks water well records database showed that bedrock depths within the Ontario Line West Study Area range from approximately 4.2 metres Below Ground Surface to 9.1 metres Below Ground Surface, and from approximately 13.6 metres Below Ground Surface to 30.5 metres Below Ground Surface in the Ontario Line South Study Area. Bedrock depth data were not available for the Ontario Line North Study Area. Overburden (above bedrock) geologic materials within the Study Area consist primarily of clayey silt, sand, silty clay, sand silt, and silty sand in localized areas.

Hydrostratigraphic Units (aquifers, bodies of rock or soil holding groundwater, and aquitards, bodies of rock or soil restricting groundwater flow) present within the Study Area include the Sunnybrook aquitard (Ontario Line West and Ontario Line North), Scarborough Aquifer Complex (Ontario Line West, Ontario Line South and Ontario Line North), Surficial Aquifer (Ontario Line South and Ontario Line North), Halton Aquitard (Ontario Line North), Oak Ridges Aquifer (Ontario Line North), Newmarket Aquitard (Ontario Line North), and Thorncliffe Aquifer Complex (Ontario Line North). Surficial

aquifer units, where present within the Ontario Line Study Area, are generally comprised of coarse-textured unconsolidated sand and gravelly sediments.

Source water areas/features, as defined by the Ministry of the Environment, Conservation and Parks were reviewed and it was determined that the majority of the Ontario Line Study Area overlaps with a Highly Vulnerable Aquifer, an aquifer that is susceptible to contamination due to its location near the ground surface or the surrounding soils. The Ontario Line South and Ontario Line North Study Areas are also within with Intake Protection Zones (areas of land and water that contribute source water to a surface water drinking water system intake within a specified distance) and Event Based Areas (area 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).

Air Quality

The results of the Air Quality Qualitative Assessment show that background air quality levels are predominantly below the Provincial and Federal thresholds; however, there are significant exceedances for benzo(a)pyrene and nitrogen oxides (NO_x) and lesser exceedances for PM_{2.5} and benzene.

The regional meteorological data representative of the Ontario Line Study Area suggest that wind blows from the northeast/east direction within the Ontario Line West and Ontario Line South Study Areas and from the north/northwest direction within the Ontario Line North Study Area.

The average monitored concentrations, annual contributions of critical air contaminants and greenhouse gases from traffic, bus and rail, and industrial sources of air quality contribution were assessed for each Study Area. The assessment found that the Ontario Line South Study Area had the highest emission amounts of criteria air contaminants and greenhouse gases, followed by the Ontario Line West Study Area. The Ontario Line North Study Area was found to have the lowest emission amounts of criteria air contaminants and greenhouse gases.

Noise and Vibration

Noise measurements indicate that average existing daytime, evening, and night-time noise levels in the vicinity of the representative alignment range as follows:

- Daytime (7 AM to 7 PM) $L_{eq,1hr}$: 48 dBA to 73 dBA;
- Evening (7 PM to 11 PM) $L_{eq,1hr}$: 48 dBA to 71 dBA;
- Night-time (11 PM to 7 AM) $L_{eq,1hr}$: 43 dBA to 70 dBA;

- Daytime (7 AM to 11 PM) $L_{eq,16hr}$: 53 dBA to 67 dBA; and
- Night-time (11 PM to 7 AM) $L_{eq,8hr}$: 49 dBA to 62 dBA.

Typically noise levels were higher in locations with a close proximity to arterial roadways and during hours with higher expected traffic volumes, while noise levels were lower in areas further from arterial roads and during hours with lower traffic volumes.

Where $L_{eq,X}$ 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 the equivalent time duration “X”. One hour ($L_{eq,1hr}$) periods are typically used in stationary source assessments (for example, the minimum or maximum one hour L_{eq} during a 12-hour daytime period), and 16/8 hour day/night split periods ($L_{eq,16hr}$ and $L_{eq,8hr}$, respectively) are used for rail and construction assessments.

Vibration measurements indicate the maximum root-mean-square vibration velocity at vibration sensitive spaces in the vicinity of the representative alignment range as follows:

- Theatres: 0.0067 millimetres per second to 0.0644 millimetres per second;
- Recording Studio: 0.0826 millimetres per second (outdoor); and
- Hospital: 0.016 millimetres per second (Magnetic Resonance Imaging Room).

Where root mean square velocity is defined as the square root of the mean-square value of an oscillating vibration velocity waveform, where the mean-square value is obtained by squaring the value of amplitudes at each instant in time and then averaging these values over the sample time. The root-mean-square amplitude is typically used to assess the vibration response of humans and equipment (CDT, 2013).

Socio-Economic and Land Use Characteristics

Provincial and municipal policy documents (i.e., Provincial Policy Statement, A Place to grow: Growth Plan for the Greater Golden Horseshoe, Greenbelt Plan, 2041 Regional Transportation Plan, and Toronto’s Official Plan) were reviewed. The Ontario Line Study Area is within an established urban centre containing every type of major land use – mixed use, commercial, employment sector, industrial, institutional, residential, and natural areas. Many of these land uses are transit-supportive, while others will need to be carefully managed during detailed design and implementation of the Project – namely residential and natural areas. Provincial and municipal policies applicable to the Ontario Line Study Area have a shared objective of strengthening connections and access to economic opportunities through improved transit networks.

There are several notable landmarks within the Ontario Line Study Area, including:

- Exhibition Place, Ontario Place and Fort York National Historic Site in the Ontario Line West Study Area;
- Nathan Phillips Square, the Lower Don Trail, and the Distillery District in the Ontario Line South Study Area; and
- The Don River Valley and Ontario Science Centre in the Ontario Line North Study Area.

Community amenities are present throughout the Ontario Line Study Area including schools, places of worship, libraries, a major hospital, emergency services, community centres and various parks and open spaces. Other community resources include daycares, housing cooperatives, community groups and various non-profit organizations and business associations.

The Study Area overlaps with 17 Census neighbourhoods in the City of Toronto. According to 2016 Census data, 14 of these neighbourhoods experienced a population increase from 2011, notably 47% in Niagara and 50% in Waterfront Communities-The Island.

Applications for proposed future development were reviewed to understand the scope of future development within the Ontario Line Study Area. There were 108 active development applications identified within the Ontario Line Study Area (as of June 25, 2020).

Built Heritage Resources and Cultural Heritage Landscapes

During the development of the Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment, 283 built heritage resources and cultural heritage landscapes, including Heritage Conservation Districts, were identified in the Ontario Line Study Area. Ontario Line West has the most known, previously identified and potential heritage resources (139), followed by Ontario Line South (121) and Ontario Line North (23).

Identified built heritage resources and cultural heritage landscapes are mainly concentrated:

- Ontario Line West Study Area – in the Exhibition Place area and throughout the downtown areas along Queen Street West, Richmond Street West, Adelaide Street West, King Street West, and Wellington Street West;
- Ontario Line South Study Area – along Pape Avenue, in the Distillery District, and within the downtown area along Queen Street East, Adelaide Street East and King Street East; and

- Ontario Line North Study Area – along Pape Avenue and at Eglinton Avenue East and Don Mills Road.

Notable built heritage resources and cultural heritage landscapes include:

- Ontario Line West Study Area – Exhibition Place and Fort York National Historic Site;
- Ontario Line South Study Area – Osgoode Hall, Old City Hall, Distillery District, Massey Hall, Campbell House, University Avenue and Trinity Square; and
- Ontario Line North Study Area – Ontario Science Centre and William Burgess Public School.

Archaeological Resources

Three Stage 1 archaeological assessments were developed for the Ontario Line Study Area: Ontario Line West, Ontario Line South and Ontario Line North. The Ontario Line Study Area features several previously identified archaeological sites (12 in Ontario Line West, 9 in Ontario Line South, none in Ontario Line North). Despite a large portion of the Ontario Line Study Area being cleared of archaeological potential, there are areas of high potential for recovering pre- and post-contact Indigenous and 19th Century Euro-Canadian archaeological resources, given proximity to water sources (e.g., Don River and Lake Ontario), soil texture and drainage, topography, and presence of early Euro-Canadian industries (e.g., William Davies Company and Joseph Simpson Knitting Mills), settlements and transportation routes (e.g., railways and early concession roads).

Traffic and Transportation

The intersection analysis results show that all the intersections within Ontario Line West, Ontario Line South, and Ontario Line North Study Areas operate at acceptable level of service 'D' or better and within capacity in both the AM and PM peak hours.

The transit network operations analysis showed, at the intersection level, the majority of the signalized intersections within the Ontario Line West and South Study Areas operate at Transit Level of Service that meet the targets for the studied corridors. At the road segment level, all transit vehicles travelling along the road segments within Ontario Line West and Ontario Line South experience an acceptable Transit Level of Service 'D' or better, meeting the minimum desirable Transit Level of Service for the studied sections. While many of the streets and intersections within the Ontario Line North Study Area meet the target of level of service 'D', some intersections along the major corridors, and segments of Pape Avenue in particular, exceed level of service 'D'.

The pedestrian network operations analysis showed, at the intersection level, the majority of the signalized intersections within the Ontario Line West, Ontario Line South, and Ontario Line North Study Areas operate below the targets set for the studied corridors. At the road segment level, pedestrians experience acceptable level of service along all the studied road segments within the Ontario Line West Study Area, with the exception of the Adelaide Street section between Brant Street and Bathurst Street and the Strachan Avenue section between East Liberty Street and Fleet Street which operate at Pedestrian Level of Service 'E'. Within the Ontario Line South Study Area, the majority of the road segments between University Avenue and Jarvis Street as well as the road segments along Sherbourne Street, Lake Shore Boulevard, and Gerrard Street operate at acceptable Pedestrian Level of Service 'C' or better. The remaining road segments generally operate at a critical Pedestrian Level of Service 'E'. Within the Ontario Line North Study Area, pedestrians generally experience levels of service below the Pedestrian Level of Service Target.

The cycling network operations analysis showed, at the intersection level, the majority of the signalized intersections within the Ontario Line West and South Study Areas operate at Bicycle Level of Service that meet the targets set for the studied corridors. However, all the signalized intersections within the Ontario Line North Study Area operate at levels of service that are below the target set for the studied corridors. At the road segment level, cyclists experience levels of service below the targets set for the studied corridors along all the road segments that lack cycling facilities within the Ontario Line West, Ontario Line South, and Ontario Line North Study Areas. However, cyclists were found to experience excellent Bicycle Level of Service 'A' or 'B' along the road segments that provide cycling facilities, namely, Richmond Street, Adelaide Street, Strachan Avenue, Shuter Street, Sherbourne Street, Lake Shore Boulevard, Thorncliffe Park Drive, Beth Neilson Drive, and the section of Pape Avenue between Mortimer Avenue and O'Connor Drive.

Utilities

Existing private and public utilities were reviewed within the Ontario Line Study Area. Private utilities include Aptum, Bell Canada, Bell 360, CN Fiber, Rogers Communications Partnership, Cogeco Data Services, Zayo Group, Telus Communications Company, Enbridge, Enwave, and Hydro One Networks Incorporated. Public utilities within the Ontario Line Study Area include Toronto Hydro and Toronto Water.

ES.4 Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities

Based on the existing environmental conditions information presented in **Section 3**, preliminary potential impacts and proposed mitigation measures and monitoring activities have been identified in **Section 4**. Refer to **Table ES-2** for a summary of this information.

Table ES-2a: Summary of Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities – Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Construction

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | Designated Natural Areas – West Don River Valley Candidate Regional Significant Life Science Areas of Natural and Scientific Interest | <ul style="list-style-type: none">Vegetation removal within the West Don River Valley Candidate Regional Significant Life Science Areas of Natural and Scientific | <ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities. | <ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities. |
| Natural Environment | Policy Areas – City of Toronto Natural Heritage System and E.T. Seton Park Environmentally Significant Area | <ul style="list-style-type: none">Vegetation removal within the City of Toronto Natural Heritage System and E.T. Seton Park Environmentally Significant Area | <ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities. | <ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities. |
| Natural Environment | Policy Areas – City of Toronto Ravine and Natural Feature Protection | <ul style="list-style-type: none">Tree removal within the City of Toronto Ravine and Natural Feature Protection | <ul style="list-style-type: none">Refer below to mitigation measures described for Tree Removal under Vegetation Communities.Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020). Adhere to all applicable bylaws and regulations for tree removals outside of Metrolinx properties. | <ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities. |
| Natural Environment | Policy Areas – Toronto and Region Conservation Authority’s Terrestrial Natural Heritage System and Regulation Areas | <ul style="list-style-type: none">Vegetation removal within Toronto and Region Conservation Authority Regulated Areas and Terrestrial Natural Heritage System | <ul style="list-style-type: none">Further consideration to minimize potential effects on Toronto and Region Conservation Authority’s Terrestrial Natural Heritage System to the extent possible will be undertaken during detailed design. | <ul style="list-style-type: none">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 | Policy Areas – Urban River Valley under the Greenbelt Plan | <ul style="list-style-type: none">Vegetation removal within the Urban River Valley | <ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment.Compensation for the removal of vegetation in accordance with Metrolinx’s Vegetation Guideline (2020) and integrated Vegetation Management approach will consider maintaining or enhancing connectivity along the Don River to the extent possible. | <ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment. |
| Natural Environment | Vegetation Communities | <ul style="list-style-type: none">Removal of vegetation communitiesDamage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion | <ul style="list-style-type: none">Vegetation removal will be kept to a minimum and limited to within the construction footprint.Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities.Provide compensation for the removal of vegetation in accordance with Metrolinx’s Vegetation Guideline (2020) and Integrated Vegetation Management approach.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 Species at Risk) and features (e.g., Significant Wildlife Habitat). Refer to the Wildlife, Significant Wildlife Habitat and Species at Risk mitigation measures described below. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.The approach to compensation monitoring will be determined by property ownership, applicable governing by-laws / regulations and location with respect to ecological functioning. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|---------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | Vegetation Communities | <ul style="list-style-type: none">City and Private Tree Removal | <ul style="list-style-type: none">An Arborist Report by an I.S.A. Certified Arborist may be prepared with regard to the Ontario Forestry Act R.S.O. 1990, and other regulations and best management practices as applicable.The Arborist Report may include, but not be limited to the individual identification of trees within the Study Area including those that require removal or preservation, or trees that may be injured as a result of the Project. Trees to be identified within the Study Area may include those on Metrolinx property, trees on public and private lands, and boundary trees. The City of Toronto by-laws dictate the minimum area buffers to be inventoried and Diameter at Breast Height (DBH) which requires inventory.Prior to the undertaking of tree removals, a Tree Removal Strategy / Tree Preservation Plan may be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees Guidelines (2016) and adherence with best practices, standards and regulations on safety, environmental and wildlife protections.Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020). Adhere to all applicable bylaws and regulations for tree removals outside of Metrolinx properties.Pruning of branches will be conducted through the implementation of proper arboricultural techniques.Tree Protection Zone 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. | <ul style="list-style-type: none">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 minimize impacts.The approach to compensation monitoring will be determined by property ownership, applicable governing by-laws / regulations and location with respect to ecological functioning. |
| Natural Environment | Vegetation Communities | <ul style="list-style-type: none">Increased erosion and sedimentation | <ul style="list-style-type: none">Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological LC communities.An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (2006), will be prepared prior to and implemented during construction to minimize the risk of sedimentation to the vegetation communities.Stockpiled materials or equipment will be stored within the construction footprint but shall be kept at least 30 metres away from any watercourse. Signs will be put up on site to indicate the 30 metres setback from any watercourse. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | Vegetation Communities | <ul style="list-style-type: none">Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use. | <ul style="list-style-type: none">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 of equipment will occur at least 30 metres away from any watercourse. Signs will be put up on site to indicate the 30 metres setback from any watercourse.All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | Wildlife | <ul style="list-style-type: none">Disturbance, displacement or mortality of wildlife | <ul style="list-style-type: none">If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease or be reduced and wildlife will be encouraged to move offsite and away from the construction area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | Significant Wildlife Habitat – General | <ul style="list-style-type: none">Disturbance, displacement or mortality of wildlife or habitat loss for the following Significant Wildlife Habitat:Candidate Amphibian Movement CorridorCandidate Bat Maternity ColoniesCandidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)Candidate Landbird Migratory Stopover AreaCandidate Reptile HibernaculaCandidate Turtle Nesting AreasConfirmed Amphibian Wetland Breeding HabitatConfirmed Marsh Breeding Bird HabitatConfirmed Turtle Wintering Area | <ul style="list-style-type: none">Potential effects and appropriate mitigation measures for Significant Wildlife Habitat as result of the Project Footprint will be determined as part of the Environmental Impact Assessment Report, as appropriate.Prior to construction, investigation of the Project Footprint for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate. | <ul style="list-style-type: none">Monitoring requirements will be determined in the Environmental Impact Assessment Report. |
| Natural Environment | Significant Wildlife Habitat – Monarch (Species of Conservation Concern) | <ul style="list-style-type: none">Disturbance or destruction of habitat used by Monarch Butterflies | <ul style="list-style-type: none">Removal of candidate habitat for Monarch Butterflies and compensation will be carried out in accordance with the Metrolinx Vegetation Guideline (2020). | <ul style="list-style-type: none">Regular monitoring will be undertaken during construction to prevent unauthorized impacts to the Migratory Butterfly Stopover Areas. |
| Natural Environment | Significant Wildlife Habitat – Turtles and Turtle Habitat, including Species of Conservation Concern | <ul style="list-style-type: none">Potential for impacts to turtles and/or turtle habitat | <ul style="list-style-type: none">Work within turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work.Post-construction habitat restoration will be implemented as required. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | Significant Wildlife Habitat – Snake Hibernacula | <ul style="list-style-type: none">Disturbance or destruction of Reptile Hibernaculum | <ul style="list-style-type: none">Where project activity occurs adjacent to suitable snake hibernacula, exclusionary fencing will be erected along the activity area to fully isolate the area of activity during the active snake season. In the event that exclusionary fencing cannot be installed, follow-up discussions with the Ministry of the Environment, Conservation and Parks and the Ministry of Natural Resources and Forestry (Ministry of Natural Resources and Forestry) will be required to determine adequate alternative mitigation measure(s).For areas where the hibernacula feature requires removal to facilitate development, the exclusion fencing is to be installed during the active snake season and prior to any construction activities commencing to prevent snakes from entering the feature pre-removal. Any snakes encountered within the exclusion fencing will be relocated outside the fencing and within suitable habitat containing suitable vegetation cover / refuge by a qualified biologist in accordance with the required permit(s) in accordance with the Ministry of Natural Resources and Forestry’s Reptile and Amphibian Exclusion Fencing (2013c). | <ul style="list-style-type: none">Monitoring will be undertaken prior to construction to survey exclusionary fencing installation and regular monitoring during construction to survey for snakes potentially trapped within exclusionary areas.Continuous monitoring of feature removal will be undertaken during activity. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | Significant Wildlife Habitat – Common Nighthawk | <ul style="list-style-type: none">Removal of candidate nesting habitat for Common Nighthawk | <ul style="list-style-type: none">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. | <ul style="list-style-type: none">Refer below for monitoring requirements described for Migratory Breeding Birds and Nests. |
| Natural Environment | Migratory Breeding Birds and Nests | <ul style="list-style-type: none">Disturbance or destruction of migratory bird nests | <ul style="list-style-type: none">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 are proposed to occur during the general nesting period a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal.If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection. | <ul style="list-style-type: none">Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites. |
| Natural Environment | Wildlife Habitat Connectivity | <ul style="list-style-type: none">Decrease of habitat connectivity for wildlife | <ul style="list-style-type: none">Refer to the mitigation measures described above for Urban River Valley under the Greenbelt Plan and Vegetation Communities.Opportunities to enhance the natural environment and provide a connection to the surrounding natural areas will be explored to the extent possible. | <ul style="list-style-type: none">Refer to monitoring described for Vegetation Communities. |
| Natural Environment | Species at Risk – General | <ul style="list-style-type: none">Habitat loss, disturbance and/or mortality to Species at Risk | <ul style="list-style-type: none">All requirements of the Endangered Species Act and Species at Risk Act will be met. Species-specific mitigation measures will be implemented based on any recommended surveys undertaken prior to construction, and consultation with Ministry of the Environment, Conservation and Parks / Ministry of Natural Resources and Forestry.If Species at Risk is present and conservation strategies have been developed by Ministry of Natural Resources and Forestry / Ministry of the Environment, Conservation and Parks, the Constructor will follow the commitments in the recover strategy.On-site personnel will be provided with information (e.g., factsheets) that addresses the existence of potential Species at Risk on-site, the identification of the Species at Risk species and the procedure(s) to follow if an individual is encountered or injured. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.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 / Bank Swallow | <ul style="list-style-type: none">Habitat loss, disturbance and/or mortality to Barn and/or Bank Swallow | <ul style="list-style-type: none">Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active.Where loss or disturbance cannot be avoided (e.g., due to work on bridges or banks), all requirements under the Endangered Species Act will be met, including any registration, compensation, replacement structures and/or permitting requirements.If construction activities are scheduled during the nesting season for Barn and/or Bank Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn and/or Bank Swallows are nesting on structures or banks that may be affected by construction activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | Species at Risk – Chimney Swift | <ul style="list-style-type: none">Habitat loss, disturbance and/or mortality to Chimney Swift | <ul style="list-style-type: none">If repair, maintenance or demolition of buildings / structures with suitable roosting / nesting habitat (e.g., chimneys) is to take place, targeted surveys for Chimney Swift will be completed as per the Bird Studies Canada Chimney Swift Monitoring Protocol (2009) during the nesting season of April 15 to October 15.Repair, maintenance, or demolition of an identified roosting / nesting structure may constitute destruction of critical habitat and would be discussed in advance with the Ministry of the Environment, Conservation and Parks and requirements of the Endangered Species Act will be met.Register activities for Chimney Swift under the Endangered Species Act and consult with Ministry of the Environment, Conservation and Parks to fulfil requirements the Endangered Species Act and its associated regulations. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required. |
| Natural Environment | Species at Risk – Bats | <ul style="list-style-type: none">Habitat loss, disturbance and/or mortality to Species at Risk Bats | <ul style="list-style-type: none">Removal of identified roosting structure / habitat would be discussed in advance with the Ministry of the Environment, Conservation and Parks and 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. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required. |
| Natural Environment | Species at Risk – Butternut | <ul style="list-style-type: none">Habitat loss, disturbance and/or mortality of Butternut | <ul style="list-style-type: none">If any works are proposed within the critical root zone (i.e., 25 metres radius from stem) of a butternut, mitigation, monitoring and compensation to address impacts to butternuts may be required based on the results of additional surveys (i.e., Butternut Health Assessment and DNA testing to confirm purity) and consultation with the Ministry of the Environment, Conservation and Parks. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required. |
| Natural Environment | Wetlands and Waterbodies | <ul style="list-style-type: none">Removal or impacts to wetland, aquatic and riparian vegetation, degradation of wetlands as result of dewatering and discharge activities; erosion and sedimentation to wetlands / waterbodies from construction; risk of contamination to wetlands / waterbodies as a result of spills. | <ul style="list-style-type: none">Construction activities will maintain the buffers established during the design phase to minimize potential negative impacts to wetlands and waterbodies.Shorelines or banks disturbed by construction activities will be immediately stabilized by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (December, 2006), as amended from time to time, will be prepared prior to and implemented during construction to minimize the risk of sedimentation to the waterbody.A Spill Prevention and Response Plan will be developed before work commences to ensure procedures and policies are in place during construction to minimize impacts to wetlands and watercourses.In wetland areas where vernal pooling occurs, prior to dewatering isolated work areas, wildlife will be captured and relocated to suitable habitat outside of the work area. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include alteration of activities to minimize impacts and enhance mitigation measures. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
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| | | | <ul style="list-style-type: none">▪ Vegetation removals will also consider and mitigate potential impacts to wetland communities. Until such a time that an OWES evaluation is completed and evaluated by Ministry of Natural Resources and Forestry, unevaluated wetlands should be considered as significant for the purposes of assessing impacts.▪ Wetland communities potentially affected by the Project will be clearly staked out on site.▪ If dewatering is proposed, it is recommended to be undertaken during the winter when the potential effects of changes in water levels are less significant in wetland communities. During detailed design the need for a dewatering zone of influence assessment and dewatering monitoring plan should be evaluated. The dewatering monitoring plan, should it be deemed required, will monitor for potential negative effects to nearby wetlands and adjacent vegetation communities if affected due to dewatering activities, and will provide an adaptive management plan should negative effects be observed. | |
| Natural Environment | Fish and Fish Habitat | <ul style="list-style-type: none">▪ Potential for direct, in-water impacts to fish and fish habitat.▪ Dewatering activities and water discharge resulting in changes in water velocity or temperature, soil and erosion, release of contaminated and sediment-laden water, fish habitat structure and cover, food supply, nutrient concentration, access to habitat leading to the displacement or stranding of fish. | <ul style="list-style-type: none">▪ All requirements of the Fisheries Act will be met.▪ In the event that in-water and/or near water construction works are required appropriate mitigation measures will be followed, as identified in Applicable Law and through consultation with the relevant authorities including Department of Fisheries and Oceans Canada. In-water works will be planned to consider timing windows to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed.▪ Prior to dewatering isolated work areas, fish will be captured and relocated to suitable habitat outside of the work area under a Licence to Collect Fish for Scientific Purposes from the Ministry of Natural Resources and Forestry.▪ Design water management system and dewatering operations to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody or adjacent wetlands. | <ul style="list-style-type: none">▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.▪ Monitoring for dewatering will be undertaken to confirm sediment-laden discharge, visible scour/erosion and/or changes in temperature within any receiving watercourse does not occur. |
| Soil and Groundwater | Soil Stability and Quality | <ul style="list-style-type: none">▪ Construction activities will cause displacement of the soils and bedrock. This may result in ground movement and settlement (e.g., during tunneling, deep excavations for box structures, and/or dewatering activities).▪ Construction activities (e.g., excavation) could expose contaminated materials and/or result in the spreading of contaminated materials. | <ul style="list-style-type: none">▪ Complete a detailed settlement analysis during the detailed design phase;▪ Potential subsidence/settlement impacts to existing structures can be mitigated with measures such as completion of pre-construction inspections of structures within the dewatering zone of influence and implementation of a settlement monitoring program.▪ Excavation support systems will be employed, as required.▪ Use tunneling equipment designed to reduce the potential for ground loss and the associated potential for settlements at the ground surface.▪ Conduct ground treatment such as jet grouting to reduce the risk of ground loss;▪ Remedial action plans, risk assessment and risk mitigation plans for encountering contamination, as necessary.▪ Develop a Soil and Excavated Materials Management Plan for the handling, management and disposal of all excavated material (i.e., soil, rock and waste) that is generated or encountered during the work. | <ul style="list-style-type: none">▪ Develop and conduct a settlement monitoring program to document construction effects, identify adverse trends and identify additional mitigation measures.▪ Soil and groundwater sampling and monitoring plans shall be implemented as required prior to, during, and post construction. Track soil in registry as required by Ontario Regulation 406/19. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
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| Soil and Groundwater | Groundwater | <ul style="list-style-type: none">▪ Dewatering efforts associated with construction of station infrastructure, tunnelling, the portals, etc., may cause local drawdown of the water table.▪ If extensive dewatering is required drawdown has the potential to impact the recharge of local wetlands.▪ There is a potential for structures to have foundations built below the local water table which may be affected by dewatering.▪ There is a potential to encounter contaminated groundwater. | <ul style="list-style-type: none">▪ Further hydrogeologic assessments will be conducted at locations requiring dewatering to estimate groundwater flow rates, predict impacts (such as lowering groundwater table), and evaluate treatment/discharge options. These studies are also needed to support potentially required water taking permits from the Ministry of the Environment, Conservation and Parks, including registration under the Ministry’s Environmental Activity Sector Register or Permit to Take Water applications.▪ Additional investigations to determine the Zone of Influence of any required dewatering will be necessary to fully consider the impacts to nearby structures and infrastructure. Further mitigation plans will be developed prior to construction.▪ A Groundwater Management and Dewatering Plan will be developed to guide the handling, management, and disposal of groundwater encountered. | <ul style="list-style-type: none">▪ Best management practices will be implemented for managing groundwater, including establishing a baseline and monitoring program during construction.▪ Monitor groundwater discharge as required.▪ Establish groundwater monitoring wells as required. |
| Air Quality | Construction Air Quality | <ul style="list-style-type: none">▪ Construction related air quality impacts (i.e., creation of vapours and particulate) are of a temporary nature and not likely to result in significant effects. Potential air quality impacts could include effects from diesel combustion and particulate emissions. | <ul style="list-style-type: none">▪ Schedule construction related activities to avoid overlapping construction activities where possible.▪ Minimize the number of machines operating in any one area at any given point in time.▪ Implement all applicable best practices identified in Environment Canada’s Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities document (Cheminfo Services Inc., 2005), where practical.▪ Implement mitigation measures from Environment Canada’s Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005) and the Ministry of the Environment, Conservation and Parks’ Technical Bulletin Management Approaches for Industrial Fugitive Dust Sources (Ministry of the Environment and Climate Change, 2017). | <ul style="list-style-type: none">▪ Monitor for dust and air quality parameters during construction to identify if any additional mitigation is required. |
| Noise and Vibration | Construction Noise | <ul style="list-style-type: none">▪ Environmental noise may cause annoyance and disturb sleep and other activities. | <ul style="list-style-type: none">▪ Use construction equipment compliant with noise level specifications in Ministry of the Environment, Conservation and Parks guidelines NPC-115 and NPC-118.▪ Keep equipment in good working order and operate with effective muffling devices.▪ Equipment enclosures.▪ Additional equipment silencers/mufflers.▪ Off-site construction of components.▪ Temporary construction site noise barriers or berms.▪ Restricting construction hours where possible.▪ Perform construction during day-time hours where possible. If night-time construction is necessary, the activities with the highest noise and vibration levels should be conducted during day-time periods. | <ul style="list-style-type: none">▪ Noise levels will be monitored where impact assessment indicates that noise exposure limits may be exceeded to identify if any additional mitigation is required.▪ At these locations, the Contractor will monitor noise continuously at each geographically distinct active construction site with one monitor located strategically to capture the highest exposure level based on planned construction activities and the number, geographic distribution and proximity of noise sensitive receptors. |
| Noise and Vibration | Construction Vibration | <ul style="list-style-type: none">▪ Exposure to vibration may result in public annoyance and complaints. Vibration may also cause damage to buildings and other structures. | <ul style="list-style-type: none">▪ Utilize equipment with low vibration emissions where possible (e.g., using drilled piles instead of impact piling).▪ Off-site construction of components.▪ Restricting construction hours.▪ Perform construction during day-time hours where possible. If night-time construction is necessary, the activities with the highest noise and vibration levels should be conducted during day-time periods. | <ul style="list-style-type: none">▪ Monitoring will be undertaken to ensure compliance with City of Toronto By-Law 514 and to identify need for additional mitigation if required.▪ Pre-construction building inspection for buildings adjacent to the construction sites is to be undertaken. Continuous vibration monitoring along the construction zone property lines closest to these structures will be initiated as warranted. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
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| Socio-Economic and Land Use | Property | <ul style="list-style-type: none">Property acquisition – permanent and temporary | <ul style="list-style-type: none">Specific property requirements will be confirmed during detailed design. Where access to property is required, ongoing consultation with affected landowners will help identify appropriate site-specific mitigation measures. | <ul style="list-style-type: none">None identified. |
| Socio-Economic and Land Use | All land uses and adjacent lands | <ul style="list-style-type: none">Nuisance effects from construction activities | <ul style="list-style-type: none">Refer above to mitigation measures described for Noise and Vibration and Air Quality.Minimize potential impacts to recreational uses, parks and open spaces to the extent feasible. | <ul style="list-style-type: none">Refer above to monitoring described for Noise and Vibration and Air Quality. |
| Socio-Economic and Land Use | All land uses and adjacent lands | <ul style="list-style-type: none">Land use and access disruption | <ul style="list-style-type: none">Provide well connected, clearly delineated, and appropriately signed walkways and cycling route options, with clearly marked detours where required.Provide temporary walkways with a pedestrian clearway of 2.1 metres, where possible. Temporary walkways required during construction will also meet AODA requirements for universal accessibility.Provide temporary lighting and wayfinding signs and cues for navigation around the construction site.Develop a plan to reduce the effects of light pollution.Access to businesses during working hours will be maintained, where feasible. Where regular access cannot be maintained, alternative access and signage will be provided.Minimize potential impacts and maintain access to recreational uses, parks and open spaces to the extent feasible.Where impacts to institutional uses or community groups and resources are anticipated, consult with the property owner to identify appropriate mitigation measures.Continue to engage with the City of Toronto and local school board(s) to confirm mitigation measures. | <ul style="list-style-type: none">Temporary access paths, walkways, cycling routes and fencing should be monitored. |
| Socio-Economic and Land Use | Visual Characteristics | <ul style="list-style-type: none">Visual effects from construction areas/activities | <ul style="list-style-type: none">A screened enclosure for the development site will be provided, as required, with particular attention to material storage areas.Consideration will be given to providing temporary landscaping along the borders of the construction site between site fencing/enclosure and walkways, where space allows, and where necessary. | <ul style="list-style-type: none">Construction activities will be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas. |
| Socio-Economic and Land Use | Light Pollution | <ul style="list-style-type: none">Light trespass, glare and light pollution effects | <ul style="list-style-type: none">Perform the work in such a way that any adverse effects of construction lighting are controlled or mitigated in such a way as to avoid unnecessary and obtrusive light with respect to adjoining residents, communities and/or businesses. | <ul style="list-style-type: none">Construction activities will be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas. |
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">Encroachment onto property | <ul style="list-style-type: none">Avoidance – Design the Project to avoid the property.If avoidance of the whole property is not feasible, then:<ul style="list-style-type: none">Design the Project to encroach onto the property as close to the property line as possible, while avoiding all impacts to the building and/or heritage attributes, including the urban landscaping on the west portion of the property.Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required. | <ul style="list-style-type: none">None identified. |

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| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">▪ Modifying the building to fit a new use | <ul style="list-style-type: none">▪ Avoidance – Design the Project to avoid the property.▪ If avoidance of the whole property is not feasible, then:<ul style="list-style-type: none">– Consider retention of the building by modifying the building to fit a new use in order to retain its cultural heritage value and heritage attributes.– Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required. | <ul style="list-style-type: none">▪ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">▪ Introduction of a new element and/or alteration that result in the removal or demolition of all or part of a heritage attribute | <ul style="list-style-type: none">▪ Avoidance – Design the Project to avoid the property.▪ If avoidance of the property are not feasible, and if removal or demolition of all or part of a heritage attribute cannot be avoided, then the following is required:<ul style="list-style-type: none">– Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required.– Consider documentation of the property that includes the identification of salvageable materials and/or heritage attributes, if applicable, prior to alteration/ change.– Design the Project to integrate new physical elements with the building and to be sympathetic and compatible with the Mid-Century Modern design (conforming to Parks Canada’s Standards & Guidelines for the Conservation of Historic Places in Canada, 2010). | <ul style="list-style-type: none">▪ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">▪ Relocation of all or part of the building | <ul style="list-style-type: none">▪ Avoidance – Design the Project to avoid the property.▪ If avoidance of the property is not feasible, complete a structural/engineering assessment to demonstrate the movability of the building or part of the building from this property to a new site.▪ If relocation or partial relocation of the building is possible and cannot be avoided, then the following is required:<ul style="list-style-type: none">– Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required.– Complete detailed documentation of the property that includes the identification of salvageable materials and/or heritage attributes prior to relocation, in order to inform what building components should be retained and conserved.– Stabilize the interior and exterior of the building before relocation.– Prepare the new site, i.e. construction of a new foundation, prior to relocation.– During design, incorporate commemoration signage in consultation with City of Toronto Heritage Preservation Services, to communicate the cultural heritage value of the relocated structure on the property to the public. | <ul style="list-style-type: none">▪ None identified. |

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| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">▪ Demolition of all or part of the building | <ul style="list-style-type: none">▪ Avoidance – Design Project to avoid the property.▪ If avoidance of the whole property is not feasible, and if demolition or partial demolition of the building on the property cannot be avoided, the following is required:<ul style="list-style-type: none">– Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required.– Complete detailed documentation of the property that includes the identification of salvageable materials and/or heritage attributes, prior to demolition.– During design, incorporate commemoration signage in consultation with City of Toronto Heritage Preservation Services, to communicate the cultural heritage value of the demolished structure on the property to the public. | <ul style="list-style-type: none">▪ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">▪ Impacts to properties that meet or have the potential to meet Ontario Regulation 10/06 under the Ontario Heritage Act | <ul style="list-style-type: none">▪ Obtain Ministry of Heritage, Sport, Tourism and Culture Industries Minister’s Consent, as required.▪ Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property(s) in order to determine and obtain any approval or permits required.▪ Complete detailed documentation of the property(s) that includes the identification of salvageable materials and/or heritage attributes prior to demolition.▪ During design, complete an Interpretation/Commemoration Strategy Framework in consultation with the City of Toronto Heritage Preservation Services. Incorporate commemoration signage to communicate the cultural heritage value of the demolished structure on the property to the public. | <ul style="list-style-type: none">▪ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">▪ Introduction of new elements and/or alterations that result in the removal or demolition of all or part of a heritage attribute | <ul style="list-style-type: none">▪ Avoidance – Design the Project to avoid the structure.▪ If avoidance of the structure is not feasible, and if removal or demolition of all or part of a heritage attribute and cannot be avoided, then the following is required:<ul style="list-style-type: none">– Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the structure in order to determine and obtain any approval or permits required.– Complete detailed documentation of the property that includes the identification of salvageable materials and/or heritage attributes prior to alteration, in order to inform what structure components should be retained and conserved. | <ul style="list-style-type: none">▪ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">▪ Encroachment into a Heritage Conservation District, causing a physical impact to the Heritage Conservation District, while avoiding physical impact to contributing buildings located within the proposed boundary of the Heritage Conservation District | <ul style="list-style-type: none">▪ Avoidance – Design Project to avoid the proposed Heritage Conservation District.▪ If avoidance of the Heritage Conservation District is not feasible, and if there is any physical impact of the Project proposed in the boundary of this Heritage Conservation District, then the following is required:<ul style="list-style-type: none">– Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the Heritage Conservation District in order to determine and obtain any approval or permits required. | <ul style="list-style-type: none">▪ None identified. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|-----------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">Vibration impacts to the building related to the Project on or adjacent to the property | <ul style="list-style-type: none">Avoidance – Design the Project to avoid vibration damage, including a sufficient buffer (within 250 metres) between Project components/activities and the building.If vibration impact cannot be avoided, then the following is required:<ul style="list-style-type: none">Documentation (Review and establish) of the structural condition of the building to determine if the structure is vulnerable to vibration impacts;Establish vibration limits based on building conditions, founding soil conditions and type of construction vibration;Implement vibration mitigating measures on the construction site and/or at the building;Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; andConduct regular condition surveys and reviews during construction to evaluate efficacy of protective measure in place prior to construction. If damage is identified, then implement additional corrective steps. | <ul style="list-style-type: none">None identified. |
| Archaeological Resources | Archaeological Potential | <ul style="list-style-type: none">Potential for the disturbance of unassessed or documented archaeological resources | <ul style="list-style-type: none">Areas identified as retaining archaeological potential in the Stage 1 archaeological assessment must be subject to a Stage 2 archaeological assessment.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 completion of detailed design. 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.Undertake future work in a manner that protects archaeological sites by conserving them in their original location or through archaeological fieldwork, and endeavour to conserve significant archaeological resources in their original location through documentation, protection, and avoidance of impacts. Where activities could disturb significant archaeological resources or areas of archaeological potential, Metrolinx will take appropriate measures to mitigate impacts.Include provisions in contract as recommended by archaeological assessment(s) (e.g., in case archaeological resources are discovered, protection of sites). All future Stage 2 Archaeological Assessment findings will be shared with all Indigenous communities that were engaged during the Stage 1 Archaeological Assessment process. | <ul style="list-style-type: none">None identified. |
| Archaeological Resources | Archaeological Resources | <ul style="list-style-type: none">Potential recovery of archaeological resources during construction | <ul style="list-style-type: none">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 communities will be initiated in the event that archaeological resources or human remains are discovered. | <ul style="list-style-type: none">None identified. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|----------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Traffic and Transportation | Transportation Network | <ul style="list-style-type: none">Construction may result in the need for temporary road or lane closures changing access to nearby land uses | <ul style="list-style-type: none">Maintain reasonable access through work zones, to the extent possible.Access to nearby land uses will be maintained to the extent possible. Potentially affected residents, tenants and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur.Potential impacts to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate wayfinding, regulatory, and warning signs.Consult with the City of Toronto and local school board(s) during construction planning including consideration of route detours. | <ul style="list-style-type: none">Traffic impacts to be monitored and mitigation adjusted as necessary during the construction period.Cycling network impacts to be monitored and mitigation adjusted as necessary during the construction period. |
| Traffic and Transportation | Transit Network | <ul style="list-style-type: none">Construction may result in access restrictions to local bus routes and temporary disruptions to the existing rail corridor | <ul style="list-style-type: none">Ensure that the public is notified in advance of any potential service disruptions.Consult with local transit agencies to establish a suitable mitigation strategy to be implemented.Consult with the City of Toronto and local school board(s) during construction planning including consideration of impacts to school bus stops. | <ul style="list-style-type: none">Traffic impacts to be monitored and mitigation adjusted as necessary during the construction period. |
| Utilities | Private Utilities | <ul style="list-style-type: none">Impact to private utilities – temporary disruption and permanent relocation | <ul style="list-style-type: none">Metrolinx will consult with the affected utility companies as Project planning and design advances.Appropriate mitigation measures will be determined once impacts are confirmed. | <ul style="list-style-type: none">None identified. |
| Utilities | Public Utilities and Municipal Servicing | <ul style="list-style-type: none">Impact to municipal infrastructure and servicing – temporary disruption and permanent relocation | <ul style="list-style-type: none">Metrolinx will co-ordinate with the City of Toronto and Toronto Water as Project planning and design advances regarding potential impacts and ensure that applicable City standards, guidelines, and criteria are met.Appropriate mitigation measures will be determined once impacts are confirmed. | <ul style="list-style-type: none">None identified. |

Table ES-2b: Summary of Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities – Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Operations

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | Designated Natural Areas – West Don River Valley Candidate Regionally Significant Life Science Areas of Natural and Scientific Interest | <ul style="list-style-type: none">Potential impacts will be assessed and evaluated as part of the Environmental Impact Assessment Report. | <ul style="list-style-type: none">Mitigation measures will be determined as part of the Environmental Impact Assessment Report, as applicable. | <ul style="list-style-type: none">Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable. |
| Natural Environment | Policy Areas – City of Toronto Natural Heritage Site E.T. Seton Park Environmentally Significant Area and Ravine and Natural Feature Protection Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and Regulation Areas Urban River Valley under the Greenbelt Plan | <ul style="list-style-type: none">Potential impacts will be assessed and evaluated as part of the Environmental Impact Assessment Report. | <ul style="list-style-type: none">Mitigation measures will be determined as part of the Environmental Impact Assessment Report, as applicable. | <ul style="list-style-type: none">Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable. |
| Natural Environment | Vegetation Communities | <ul style="list-style-type: none">Removal of vegetation during operational vegetation maintenance activities, if applicable.Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion during vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">Vegetation removal will be kept to a minimum and limited to within the Metrolinx right-of-way. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | Vegetation Communities | <ul style="list-style-type: none">Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use during maintenance activities. | <ul style="list-style-type: none">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 of equipment will occur at least 30 metres away from any watercourse.Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | Wildlife and Wildlife Habitat – General | <ul style="list-style-type: none">Disturbance, displacement or mortality of wildlife during operational vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, operational vegetation maintenance activities will cease or be reduced and wildlife will be encouraged to move off-site and away from the work area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|----------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | Significant Wildlife Habitat – Turtles and Turtle Habitat, including Species of Conservation Concern | <ul style="list-style-type: none">▪ Potential for impacts to turtles and/or turtle habitat during operational vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">▪ Work within turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work. | <ul style="list-style-type: none">▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | Migratory Breeding Birds and Nests, including Species of Conservation Concern birds | <ul style="list-style-type: none">▪ Disturbance or destruction of migratory bird nests during operational vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">▪ 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 operation vegetation maintenance activities are proposed to occur during the general nesting period a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal.▪ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection. | <ul style="list-style-type: none">▪ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites. |
| Natural Environment | Species at Risk – Barn / Bank Swallow | <ul style="list-style-type: none">▪ Habitat loss, disturbance and/or mortality to Barn and/or Bank Swallow during operational vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">▪ If operational vegetation maintenance activities are scheduled during the nesting season for Barn and/or Bank Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn and/or Bank Swallows are nesting on structures or banks that may be affected by activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting. | <ul style="list-style-type: none">▪ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required. |
| Natural Environment | Wetlands and Waterbodies | <ul style="list-style-type: none">▪ Potential impacts are not anticipated during operations. | <ul style="list-style-type: none">▪ None required. | <ul style="list-style-type: none">▪ None required. |
| Natural Environment | Fish and Fish Habitat | <ul style="list-style-type: none">▪ Potential impacts are not anticipated during operations. | <ul style="list-style-type: none">▪ None required. | <ul style="list-style-type: none">▪ None required. |
| Soil and Groundwater | N/A | <ul style="list-style-type: none">▪ Potential impacts are not anticipated during operations. | <ul style="list-style-type: none">▪ None required. | <ul style="list-style-type: none">▪ None required. |
| Air Quality | Operations Air Quality | <ul style="list-style-type: none">▪ Impacts from electric train operations are not anticipated; however, operation of other Project components (e.g., maintenance and storage facility) may result in air quality impacts. | <ul style="list-style-type: none">▪ Specific mitigation measures will be established in a future operations impact assessment, to be completed as part of the Environmental Impact Assessment Report. | <ul style="list-style-type: none">▪ Specific monitoring activities will be established in a future operations impact assessment, to be completed as part of the Environmental Impact Assessment Report. |
| Noise and Vibration | Operational Noise | <ul style="list-style-type: none">▪ Environmental noise may cause annoyance and disturb sleep and other activities. | <ul style="list-style-type: none">▪ Reducing noise at the source via one or more of the following:<ul style="list-style-type: none">– Continuously welded rail;– Rail dampers;– Quieter propulsion units;– Quieter heating and ventilation;– Changes to track layout; and– Designing transit facilities such that noise is minimized.▪ Optimal Maintenance:<ul style="list-style-type: none">– Adequate rail lubrication.▪ Noise attenuation:<ul style="list-style-type: none">– Noise walls. | <ul style="list-style-type: none">▪ Conduct air-borne noise monitoring in accordance with applicable guidelines.▪ Regularly assess the condition of the equipment; equipment should operate within original noise specification.▪ Continue to ensure that facilities operate in compliance with Ministry of the Environment, Conservation and Parks’ noise guidelines. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|-----------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Noise and Vibration | Operational Vibration | <ul style="list-style-type: none">▪ Vibration may cause annoyance and disturb sleep and other activities. Operational vibration is unlikely to cause building damage. | <ul style="list-style-type: none">▪ Reducing vibration at the source via one or more of the following:<ul style="list-style-type: none">– Continuously welded rail;– Rail dampers;– Changes to track layout; and– Designing transit facilities such that vibration is minimized.▪ Optimal Maintenance▪ Vibration transmission attenuation via one or more of the following:<ul style="list-style-type: none">– Resiliently supported rail ties;– High resilient fasteners; and– Ballast mats or floating slabs. | <ul style="list-style-type: none">▪ Assess vibration performance regularly to check compliance and to ensure no degradation of vibration mitigation performance. |
| Socio-Economic and Land Use | Visual Characteristics | <ul style="list-style-type: none">▪ Visual effects from public-facing structures and/or operations activities. | <ul style="list-style-type: none">▪ Minimize the visual effects of project structures (e.g., elevated guideways, support structures, retaining walls) by considering their location, building materials, architectural design, and surrounding landscape treatments.▪ Municipality and public engagement as Project planning and design progress.▪ Operations activities such as corridor maintenance to be minimized in duration and footprint to the extent possible. | <ul style="list-style-type: none">▪ No monitoring related to visual characteristics is anticipated to be required during operations. |
| Built Heritage Resources and Cultural Heritage Landscapes | N/A | <ul style="list-style-type: none">▪ Potential impacts are not anticipated during operations. | <ul style="list-style-type: none">▪ None required. | <ul style="list-style-type: none">▪ None required. |
| Archaeological Resources | N/A | <ul style="list-style-type: none">▪ Potential impacts are not anticipated during operations. | <ul style="list-style-type: none">▪ None required. | <ul style="list-style-type: none">▪ None required. |
| Traffic and Transportation | Transit Network | <ul style="list-style-type: none">▪ Operations may result in modification or disruption to local bus routes. | <ul style="list-style-type: none">▪ Ensure that the public is notified in advance of any potential service disruptions or modifications.▪ Consult with local transit agencies to establish a suitable mitigation strategy to be implemented. | <ul style="list-style-type: none">▪ No monitoring related to the transit network is anticipated to be required during operations. |
| Utilities | N/A | <ul style="list-style-type: none">▪ Potential impacts are not anticipated during operations. | <ul style="list-style-type: none">▪ None required. | <ul style="list-style-type: none">▪ None required. |

ES.5 Future Studies

Future studies that may be required as part of the Environmental Impact Assessment Report and/or Early Works Report(s) to determine potential impacts to the environment caused by the Project, and the potential measures for mitigating any negative impacts are identified in **Section 5**.

Future studies that may be required to support the Environmental Impact Assessment Report and/or Early Works Report(s) include, but are not limited to, the following:

- **Natural Environment**
 - Additional Ecological Land Classification surveys and plant inventories
 - Additional breeding bird surveys
 - Species-specific surveys and/or updated Species at Risk habitat screening
 - Significant Wildlife Habitat surveys
 - Detailed Fish and Fish Habitat Assessments
- **Noise and Vibration**
 - Stationary Sources Assessment (including layover/maintenance and storage facilities)
 - Rail Operation Assessment
 - Construction Assessments
- **Built Heritage Resources and Cultural Heritage Landscapes**
 - Heritage Detailed Design Report(s)
- **Archaeological Resources**
 - Stage 2 Archaeological Assessment(s)
 - Stage 3 and/or Stage 4 Archaeological Assessment(s), if required

At this time, future studies to support the Environmental Impact Assessment Report and/or Early Works Report(s) are not anticipated for soil and groundwater, air quality, socio-economic and land use characteristics, or traffic and transportation.

Future studies/plans that may be required prior to construction include, but are not limited to, the following:

- **Natural Environment**
 - Migratory Birds Convention Act Protected Birds Surveys
 - Fish and Fish Habitat Assessment

- Tree Surveys
- Exterior Building Surveys
- Species at Risk Pre-Construction Surveys
 - Aquatic Species at Risk
 - Bat Species at Risk
 - Chimney Swift
 - Barn Swallow
 - Butternut
 - Bank Swallow
 - Updated Species at Risk screening
- Dewatering Zone of Influence Assessment survey
- **Soil and Groundwater**
 - Construction Dewatering Assessment
 - Groundwater Management Plan
 - Spill Prevention and Response Plan
- **Air Quality**
 - Air Quality Management Plan
- **Traffic and Transportation**
 - Traffic Control and Management Plan(s)

At this time, future studies/plans to support construction activities are not anticipated for noise and vibration, socio-economic and land use characteristics, built heritage resources and cultural heritage landscapes, or archaeological resources.

ES.6 Permits and Approvals

A number of provincial and municipal 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:
 - Ontario Line West Study Area: Barn Swallow, Chimney Swift, Butternut, and Bat Species at Risk
 - Ontario Line South Study Area: Barn Swallow, Chimney Swift, Butternut, and Bat Species at Risk
 - Ontario Line North Study Area: Bank Swallow, Barn Swallow, Chimney Swift, Butternut, and Bat Species at Risk

- Registration through the Environmental Activity and Sector Registry in accordance with Ontario Regulation 63/16
- Permit to Take Water in accordance with the Ontario Water Resources Act, 1990
- 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)
 - Environmental Compliance Approvals from the Ministry of the Environment, Conservation and Parks in accordance with the Ontario Water Resources Act, 1990
- Environmental Compliance Approvals (noise and vibration) from the Ministry of the Environment, Conservation and Parks in accordance with the Environmental Protection Act, 1990 may be required for traction power substations
- Consultation with the Ministry of Heritage, Sport, Tourism and Culture Industries as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding properties that meet or potentially meet Ontario Regulation 10/06 criteria under the Ontario Heritage Act, 1990

A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. Metrolinx will obtain all required permits and approvals. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals. Metrolinx will also engage with the Toronto and Region Conservation Authority as Project planning and design advance.

Relevant federal legislation was reviewed; however, at this time, no federal permits and approvals are anticipated to be required.

Details are provided in **Section 6**.

ES.7 Summary of Consultation Activities

The consultation program followed by Metrolinx for this Project is described in **Section 7** of this Report and all consultation materials are included in **Appendix C**.

The consultation program utilized the following methods of engagement:

- Project website (www.metrolinx.com/ontarioline), email address (ontarioline@metrolinx.com), and phone number;
- Elected Official Briefings;
- Project notifications via mail, email, and newspaper advertisements;
- One round of public open houses held at five locations across Toronto;
- Postcard mailouts;
- Online engagement through the Project Engagement webpage (www.metrolinxengage.com/en/content/ontario-line-get-engaged) and Metrolinx social media outlets; and
- Letters, emails, and meetings with Indigenous communities.

In accordance with Section 4(3)10 of Ontario Regulation 341/20: Ontario Line Project, the consultation record summarized in **Section 7** and provided in **Appendix C** includes the following:

- i. a description of the consultations carried out with Indigenous communities and interested persons;
- ii. a list of the Indigenous communities and interested persons who participated in the consultations;
- iii. summaries of the comments submitted by Indigenous communities and interested persons;
- iv. a summary of discussions that Metrolinx had with Indigenous communities, and copies of all written comments submitted by Indigenous communities;
- v. a description of what Metrolinx did to respond to concerns expressed by Indigenous communities and interested persons; and
- vi. any commitments made by Metrolinx to Indigenous communities and interested persons in respect of the Ontario Line.

The official Notice of Publication of the Draft Environmental Conditions Report was issued to the public on September 17, 2020 through a variety of media (Project website, registered mail, social media, newspapers, and mail drop to nearby addresses). The

Draft Environmental Conditions Report was made available for public review on the Project Engagement webpage from September 17, 2020 to October 17, 2020 to obtain further public and stakeholder feedback on the Project.

Following the consultation program described in **Section 7**, the official Notice of Publication of the Final Environmental Conditions Report was issued to the public on November 30, 2020 through a variety of media (Project website, registered mail, social media, newspapers, and mail drop to nearby addresses). All parties notified of the Draft Environmental Conditions Report were notified of the publication of the Final Environmental Conditions Report and provided with access to a copy of it. Input/feedback received during the 30-day public review period was incorporated into this Report.

Table of Contents

| | page |
|--------------------------------------------------------------------------------|-----------|
| 1. Introduction | 1 |
| 1.1 Purpose of the Ontario Line Project | 1 |
| 1.2 Project Overview | 1 |
| 1.3 Project Background | 4 |
| 1.4 Study Area | 5 |
| 1.4.1 Ontario Line West | 6 |
| 1.4.2 Ontario Line South | 6 |
| 1.4.3 Ontario Line North | 6 |
| 2. Study Process | 10 |
| 2.1 Ontario Regulation 341/20: Ontario Line Project | 10 |
| 2.1.1 Environmental Conditions Report | 10 |
| 2.1.1.1 Draft Environmental Conditions Report | 10 |
| 2.1.1.2 Consultation on Environmental Conditions Report | 11 |
| 2.1.1.3 Final Environmental Conditions Report | 12 |
| 2.1.2 Contents of the Environmental Conditions Report | 12 |
| 2.2 Planning Context | 13 |
| 2.2.1 Provincial | 14 |
| 2.2.1.1 Provincial Policy Statement | 14 |
| 2.2.1.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe | 15 |
| 2.2.1.3 Greenbelt Plan | 16 |
| 2.2.1.4 2041 Regional Transportation Plan | 17 |
| 2.2.2 Municipal | 18 |
| 2.2.2.1 City of Toronto Official Plan | 18 |
| 3. Existing Conditions | 19 |
| 3.1 Natural Environment | 19 |
| 3.1.1 Methodology | 20 |
| 3.1.2 Ontario Line West | 21 |
| 3.1.2.1 Designated Natural Features / Planning Policy Areas | 21 |
| 3.1.2.2 Ecological Land Classification and Plant Inventory | 21 |
| 3.1.2.3 Fish and Fish Habitat | 25 |
| 3.1.2.4 Wildlife and Wildlife Habitat | 25 |
| 3.1.2.5 Significant Wildlife Habitat | 26 |
| 3.1.2.6 Species at Risk | 27 |
| 3.1.3 Ontario Line South | 31 |
| 3.1.3.1 Designated Natural Features/Planning Policy Areas | 31 |
| 3.1.3.2 Ecological Land Classification and Plant Inventory | 31 |
| 3.1.3.3 Fish and Fish Habitat | 39 |
| 3.1.3.4 Wildlife and Wildlife Habitat | 42 |

| | | | |
|-------|---------|----------------------------------------------------------|-----|
| | 3.1.3.5 | Significant Wildlife Habitat..... | 43 |
| | 3.1.3.6 | Species at Risk | 44 |
| 3.1.4 | | Ontario Line North..... | 51 |
| | 3.1.4.1 | Designated Natural Features/Planning Policy Areas..... | 51 |
| | 3.1.4.2 | Ecological Land Classification and Plant Inventory | 51 |
| | 3.1.4.3 | Fish and Fish Habitat | 66 |
| | 3.1.4.4 | Wildlife and Wildlife Habitat..... | 69 |
| | 3.1.4.5 | Significant Wildlife Habitat..... | 73 |
| | 3.1.4.6 | Species at Risk | 77 |
| 3.2 | | Soil and Groundwater | 83 |
| | 3.2.1 | Methodology | 83 |
| | 3.2.2 | Ontario Line West | 84 |
| | 3.2.2.1 | Geological Setting | 84 |
| | 3.2.2.2 | Hydrogeological Setting | 85 |
| | 3.2.2.3 | Groundwater Resources | 92 |
| | 3.2.3 | Ontario Line South | 100 |
| | 3.2.3.1 | Geological Setting | 100 |
| | 3.2.3.2 | Hydrogeological Setting | 107 |
| | 3.2.3.3 | Groundwater Resources | 108 |
| | 3.2.4 | Ontario Line North..... | 121 |
| | 3.2.4.1 | Geological Setting | 121 |
| | 3.2.4.2 | Hydrogeological Setting | 125 |
| | 3.2.4.3 | Groundwater Resources | 128 |
| 3.3 | | Air Quality | 139 |
| | 3.3.1 | Methodology | 139 |
| | 3.3.2 | Ontario Line West | 142 |
| | 3.3.2.1 | Existing Background Conditions..... | 142 |
| | 3.3.2.2 | Existing Conditions Assessment | 144 |
| | 3.3.3 | Ontario Line South | 150 |
| | 3.3.3.1 | Existing Background Conditions..... | 150 |
| | 3.3.3.2 | Existing Conditions Assessment | 151 |
| | 3.3.4 | Ontario Line North..... | 158 |
| | 3.3.4.1 | Existing Background Conditions..... | 158 |
| | 3.3.4.2 | Existing Conditions Assessment | 158 |
| 3.4 | | Noise and Vibration | 165 |
| | 3.4.1 | Methodology | 165 |
| | 3.4.2 | Ontario Line West | 167 |
| | 3.4.3 | Ontario Line South | 167 |
| | 3.4.4 | Ontario Line North..... | 170 |
| 3.5 | | Socio-Economic and Land Use Characteristics | 172 |
| | 3.5.1 | Methodology | 172 |
| | 3.5.2 | Ontario Line West | 174 |
| | 3.5.2.1 | Land Use Designations | 174 |
| | 3.5.2.2 | Secondary Plans | 181 |
| | 3.5.2.3 | Physical Neighbourhood Composition | 183 |

| | | |
|---------|-----------------------------------------------------------------|-----|
| 3.5.2.4 | Transit and Transportation Network | 184 |
| 3.5.2.5 | Public Realm Characteristics | 186 |
| 3.5.2.6 | Community Amenities | 188 |
| 3.5.2.7 | Neighbourhood Demographics | 192 |
| 3.5.2.8 | Future Development..... | 193 |
| 3.5.3 | Ontario Line South | 194 |
| 3.5.3.1 | Land Use Designations | 194 |
| 3.5.3.2 | Secondary Plans | 203 |
| 3.5.3.3 | Physical Neighbourhood Composition | 205 |
| 3.5.3.4 | Transit and Transportation Network | 206 |
| 3.5.3.5 | Public Realm Characteristics | 208 |
| 3.5.3.6 | Community Amenities | 209 |
| 3.5.3.7 | Neighbourhood Demographics | 221 |
| 3.5.3.8 | Future Development..... | 223 |
| 3.5.4 | Ontario Line North..... | 224 |
| 3.5.4.1 | Land Use Designations | 224 |
| 3.5.4.2 | Secondary Plans | 230 |
| 3.5.4.3 | Physical Neighbourhood Composition | 231 |
| 3.5.4.4 | Transit and Transportation Network | 233 |
| 3.5.4.5 | Public Realm Characteristics | 235 |
| 3.5.4.6 | Community Amenities | 236 |
| 3.5.4.7 | Neighbourhood Demographics | 245 |
| 3.5.4.8 | Future Development..... | 247 |
| 3.6 | Built Heritage Resources and Cultural Heritage Landscapes | 248 |
| 3.6.1 | Methodology | 249 |
| 3.6.2 | Ontario Line West | 250 |
| 3.6.3 | Ontario Line South | 261 |
| 3.6.4 | Ontario Line North..... | 271 |
| 3.7 | Archaeological Resources | 276 |
| 3.7.1 | Methodology | 276 |
| 3.7.2 | Ontario Line West | 277 |
| 3.7.3 | Ontario Line South | 278 |
| 3.7.4 | Ontario Line North..... | 282 |
| 3.8 | Traffic and Transportation..... | 294 |
| 3.8.1 | Methodology | 294 |
| 3.8.2 | Ontario Line West | 295 |
| 3.8.2.1 | Road Network | 295 |
| 3.8.2.2 | Intersections Analysis | 299 |
| 3.8.2.3 | Transit Network and Operations..... | 305 |
| 3.8.2.4 | Pedestrian Network and Operations | 312 |
| 3.8.2.5 | Cycling Networks and Operations..... | 313 |
| 3.8.3 | Ontario Line South | 315 |
| 3.8.3.1 | Road Network | 315 |
| 3.8.3.2 | Intersections Analysis | 319 |
| 3.8.3.3 | Transit Network and Operations..... | 329 |

| | | |
|-----------|-------------------------------------------------------------------------------------------|------------|
| 3.8.3.4 | Pedestrian Network and Operations | 337 |
| 3.8.3.5 | Cycling Networks and Operations | 338 |
| 3.8.4 | Ontario Line North..... | 339 |
| 3.8.4.1 | Road Network | 339 |
| 3.8.4.2 | Intersections Analysis | 343 |
| 3.8.4.3 | Transit Network and Operations..... | 351 |
| 3.8.4.4 | Pedestrian Network and Operations | 351 |
| 3.8.4.5 | Cycling Networks and Operations | 357 |
| 3.9 | Utilities | 358 |
| 3.9.1 | Private Utilities | 358 |
| 3.9.2 | Public Utilities and Municipal Servicing | 358 |
| 4. | Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities | 359 |
| 5. | Future Studies..... | 378 |
| 5.1 | Natural Environment | 378 |
| 5.2 | Soil and Groundwater | 382 |
| 5.3 | Air Quality | 383 |
| 5.4 | Noise and Vibration | 384 |
| 5.5 | Socio-Economic Environment..... | 385 |
| 5.6 | Built Heritage Resources and Cultural Heritage Landscapes | 385 |
| 5.7 | Archaeological Resources | 385 |
| 5.8 | Traffic and Transportation..... | 386 |
| 6. | Permits and Approvals..... | 387 |
| 6.1 | Federal..... | 387 |
| 6.1.1 | Canadian Navigable Waters Act, 2019 | 387 |
| 6.1.2 | Species at Risk Act, 2002 | 387 |
| 6.1.3 | Fisheries Act, 1985 | 387 |
| 6.1.4 | Migratory Birds Convention Act, 1994..... | 387 |
| 6.2 | Provincial | 388 |
| 6.2.1 | Endangered Species Act, 2007..... | 388 |
| 6.2.2 | Ontario Water Resources Act, 1990..... | 388 |
| 6.2.3 | Environmental Protection Act, 1990..... | 389 |
| 6.2.3.1 | On-Site and Excess Soil Management..... | 389 |
| 6.2.3.2 | Environmental Compliance Approval and Environmental Activity and Sector Registry | 389 |
| 6.2.4 | Ontario Heritage Act, 1990..... | 389 |
| 6.3 | Municipal..... | 390 |
| 6.3.1 | City of Toronto..... | 390 |
| 6.4 | Conservation Authorities..... | 390 |
| 6.5 | Utilities | 390 |
| 7. | Consultation Process | 391 |

| | | |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------|------------|
| 7.1 | Overview of the Consultation Process | 391 |
| 7.1.1 | Approach to Consultation..... | 391 |
| 7.1.2 | Record of Consultation..... | 392 |
| 7.1.3 | Identification of Interested Parties | 393 |
| 7.2 | Public Consultation Opportunities | 394 |
| 7.2.1 | January to February 2020 Public Information Sessions | 394 |
| 7.2.1.1 | Sign-in Sheets..... | 394 |
| 7.2.1.2 | Take-home Materials | 395 |
| 7.2.1.3 | Display Boards | 395 |
| 7.2.1.4 | Feedback Forms | 395 |
| 7.2.2 | Project Engagement Webpage: December 10, 2019 to September 16, 2020..... | 396 |
| 7.2.3 | Project Engagement Webpage: September 17 to October 17, 2020 | 397 |
| 7.3 | Public Feedback | 398 |
| 7.3.1 | Summary of Public Feedback Received through September 16, 2020 | 399 |
| 7.3.2 | Summary of Public Feedback Received between September 17 and October 17, 2020 | 403 |
| 7.3.2.1 | Summary of Feedback Received Through the Draft Environmental Conditions Report Online ‘Provide Your Feedback’ Forms..... | 404 |
| 7.3.2.2 | Summary of Feedback Received Through the Draft Environmental Conditions Report Online Discipline- Specific Feedback Forms..... | 405 |
| 7.4 | Engagement with Community Stakeholders and Groups..... | 407 |
| 7.5 | Engagement with Technical Stakeholders | 409 |
| 7.6 | Engagement with Elected Officials | 411 |
| 7.7 | Engagement with Indigenous Communities..... | 412 |
| 7.8 | Description of Metrolinx Response to Concerns Expressed by Indigenous Communities and Interested Persons | 413 |
| 7.8.1 | Description of Metrolinx Response to Concerns Expressed by Indigenous Communities..... | 414 |
| 7.8.2 | Description of Metrolinx Response to Concerns Expressed by Interested Persons | 414 |
| 7.9 | Commitment to Future Consultation | 418 |
| 8. | References | 419 |

List of Figures

| | | |
|--------------|--------------------------------------------------------------------------------------------------------------------------|-----|
| Figure 1-1: | Ontario Line Study Area..... | 2 |
| Figure 1-2: | Ontario Line Representative Alignment (Metrolinx and Infrastructure Ontario, 2019) | 5 |
| Figure 1-3: | Ontario Line West Study Area | 7 |
| Figure 1-4: | Ontario Line South Study Area | 8 |
| Figure 1-5: | Ontario Line North Study Area | 9 |
| Figure 3-1: | Ecological Land Classification – Ontario Line West Study Area | 23 |
| Figure 3-2: | Species at Risk and Species of Conservation Concern – Ontario Line West Study Area | 30 |
| Figure 3-3: | Ecological Land Classification – Ontario Line South Study Area | 34 |
| Figure 3-4: | Species at Risk and Species of Conservation Concern – Ontario Line South Study Area | 47 |
| Figure 3-5: | Ecological Land Classification – Ontario Line North Study Area..... | 55 |
| Figure 3-6: | Species at Risk and Species of Conservation Concern – Ontario Line North Study Area..... | 81 |
| Figure 3-7: | Physiography – Ontario Line West Study Area | 86 |
| Figure 3-8: | Topography and Drainage – Ontario Line West Study Area | 87 |
| Figure 3-9: | Surficial Geology – Ontario Line West Study Area | 88 |
| Figure 3-10: | Quaternary Geology – Ontario Line West Study Area | 89 |
| Figure 3-11: | Bedrock Geology – Ontario Line West Study Area | 90 |
| Figure 3-12: | Highly Vulnerable Aquifer – Ontario Line West Study Area | 93 |
| Figure 3-13: | Water Wells, Permit to Take Water and Environmental Activity and Sector Registry – Ontario Line West Study Area | 95 |
| Figure 3-14: | Physiography – Ontario Line South Study Area..... | 101 |
| Figure 3-15: | Topography and Drainage – Ontario Line South Study Area..... | 103 |
| Figure 3-16: | Surficial Geology – Ontario Line South Study Area | 104 |
| Figure 3-17: | Quaternary Geology – Ontario Line South Study Area | 105 |
| Figure 3-18: | Bedrock Geology – Ontario Line South Study Area | 106 |
| Figure 3-19: | Intake Protection Zone – Ontario Line South Study Area | 109 |
| Figure 3-20: | Highly Vulnerable Aquifer – Ontario Line South Study Area | 110 |
| Figure 3-21: | Water Wells, Permit to Take-Water and Environmental Activity and Sector Registry – Ontario Line South Study Area..... | 112 |
| Figure 3-22: | Physiography – Ontario Line North Study Area | 122 |
| Figure 3-23: | Topography and Drainage – Ontario Line North Study Area | 123 |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Figure 3-24: Surficial Geology – Ontario Line North Study Area | 124 |
| Figure 3-25: Quaternary Geology – Ontario Line North Study Area..... | 126 |
| Figure 3-26: Bedrock Geology – Ontario Line North Study Area | 127 |
| Figure 3-27: Intake Protection Zone – Ontario Line North Study Area | 129 |
| Figure 3-28: Highly Vulnerable Aquifer – Ontario Line North Study Area..... | 130 |
| Figure 3-29: Water Wells, Permit To Take-Water and Environmental Activity and Sector Registry – Ontario Line North Study Area | 133 |
| Figure 3-30: Wind Rose Representative of Meteorological Conditions – Ontario Line West and Ontario Line South Study Areas..... | 144 |
| Figure 3-31: Surrounding Industry – Ontario Line West Study Area | 149 |
| Figure 3-32: Surrounding Industry – Ontario Line South Study Area | 157 |
| Figure 3-33: Wind Rose Representative of Meteorological Conditions – Ontario Line North Study Area..... | 159 |
| Figure 3-34: Surrounding Industry – Ontario Line North Study Area..... | 164 |
| Figure 3-35: Noise and Vibration Measurement Locations | 166 |
| Figure 3-36: Land Use Designations – Ontario Line West Study Area..... | 175 |
| Figure 3-37: Community Amenities – Ontario Line West Study Area..... | 189 |
| Figure 3-38: Land Use Designations – Ontario Line South Study Area | 195 |
| Figure 3-39: Community Amenities – Ontario Line South Study Area..... | 211 |
| Figure 3-40: Land Use Designations – Ontario Line North Study Area | 225 |
| Figure 3-41: Community Amenities – Ontario Line North Study Area | 239 |
| Figure 3-42: Known, Previously Identified, and Potential Built Heritage Resources/Cultural Heritage Landscapes – Ontario Line West Study Area | 259 |
| Figure 3-43: Known, Previously Identified, and Potential Built Heritage Resources/Cultural Heritage Landscapes – Ontario Line South Study Area | 268 |
| Figure 3-44: Known, Previously Identified, and Potential Built Heritage Resources/Cultural Heritage Landscapes – Ontario Line North Study Area | 273 |
| Figure 3-45: Archaeological Potential – Ontario Line West Study Area | 279 |
| Figure 3-46: Archaeological Potential – Ontario Line South Study Area..... | 283 |
| Figure 3-47: Archaeological Potential – Ontario Line North Study Area..... | 290 |
| Figure 3-48: Road Network – Ontario Line West Study Area..... | 296 |
| Figure 3-49: Road Network – Ontario Line South Study Area..... | 316 |
| Figure 3-50: Road Network – Ontario Line North Study Area | 341 |

List of Tables

| | | |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Table 2-1: | Environmental Conditions Report Contents per Ontario Regulation 341/20: Ontario Line Project | 12 |
| Table 2-2: | City of Toronto Secondary Plans Applicable to the Project..... | 18 |
| Table 3-1: | Ecological Land Classification Vegetation Communities Identified by AECOM in June 2020 within the Ontario Line West Study Area | 22 |
| Table 3-2: | Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded within the Ontario Line West Study Area..... | 25 |
| Table 3-3: | Ecological Land Classification Vegetation Communities Identified from Previously Completed Environmental Assessments within the Ontario Line South Study Area | 32 |
| Table 3-4: | Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded within the Ontario Line South Study Area..... | 39 |
| Table 3-5: | Fish Community in Don River within the Ontario Line South Study Area | 41 |
| Table 3-6: | Designated Natural Areas within the Ontario Line North Study Area | 51 |
| Table 3-7: | Ecological Land Classification Vegetation Communities Identified within the Millwood Road Crossing Area of Investigation..... | 53 |
| Table 3-8: | Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded in the Millwood Road Area of Investigation..... | 57 |
| Table 3-9: | Ecological Land Classification Vegetation Communities Identified by Toronto and Region Conservation Authority within the E.T. Seton Park Crossing Area of Investigation | 58 |
| Table 3-10: | Regional Species of Conservation Concern Plants Recorded within the E.T. Seton Park Area of Investigation | 65 |
| Table 3-11: | Fish Community in Don River Study Area within the Ontario Line North Study Area | 68 |
| Table 3-12: | Quaternary Geology of the Ontario Line West Study Area | 85 |
| Table 3-13: | Hydrostratigraphic Units of the Greater Toronto Area (Toronto and Region Source Protection Area, 2015) | 91 |
| Table 3-14: | Source Water Protection Details for the Ontario Line West Study Area | 92 |
| Table 3-15: | Summary of Ontario Line West Ministry of the Environment, Conservation and Parks Water Well Record Information..... | 94 |

| | | |
|-------------|----------------------------------------------------------------------------------------------------------------------|-----|
| Table 3-16: | Quaternary Geology of the Ontario Line South Study Area | 102 |
| Table 3-17: | Source Water Protection Details for the Ontario Line South Study Area | 108 |
| Table 3-18: | Summary of Ontario Line South Ministry of the Environment, Conservation and Parks Water Well Record Information..... | 120 |
| Table 3-19: | Quaternary Geology of the Ontario Line North Study Area..... | 125 |
| Table 3-20: | Source Water Protection Details for the Ontario Line North Study Area | 131 |
| Table 3-21: | Summary of Ontario Line North Ministry of the Environment, Conservation and Parks Water Well Record Information..... | 132 |
| Table 3-22: | Summary of Applicable Guidelines and Standards..... | 140 |
| Table 3-23: | Comparison of Background Ambient Air Quality Data to Standards | 143 |
| Table 3-24: | Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line West..... | 147 |
| Table 3-25: | NPRI Listing of Industry – Ontario Line West..... | 148 |
| Table 3-26: | Environmental Compliance Approvals Listing of Industry – Ontario Line West..... | 150 |
| Table 3-27: | Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line South | 154 |
| Table 3-28: | NPRI Listing of Industries – Ontario Line South..... | 155 |
| Table 3-29: | Environmental Compliance Approvals Listing of Industry – Ontario Line South..... | 156 |
| Table 3-30: | Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line North | 162 |
| Table 3-31: | NPRI Listing of Industry – Ontario Line North | 162 |
| Table 3-32: | Environmental Compliance Approvals Listing of Industry – Ontario Line North | 163 |
| Table 3-33: | Noise Measurement Locations and Results – Ontario Line West..... | 168 |
| Table 3-34: | Vibration Measurement Results – Ontario Line West | 168 |
| Table 3-35: | Noise Measurement Locations and Results – Ontario Line South..... | 169 |
| Table 3-36: | Vibration Measurement Results – Ontario Line South | 169 |
| Table 3-37: | Noise Measurement Locations and Results – Ontario Line North | 171 |
| Table 3-38: | Ontario Line Study Area Segments and Sub-Areas..... | 173 |
| Table 3-39: | Institutional Uses within the Ontario Line West Study Area | 188 |
| Table 3-40: | Recreational Uses, Parks and Open Spaces within the Ontario Line West Study Area..... | 190 |

| | | |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Table 3-41: | Community Groups and Resources within the Ontario Line West Study Area | 191 |
| Table 3-42: | Institutional Uses within the Ontario Line South Study Area | 210 |
| Table 3-43: | Recreational Uses, Parks and Open Spaces within the Ontario Line South Study Area..... | 219 |
| Table 3-44: | Community Groups and Resources within the Ontario Line South Study Area | 220 |
| Table 3-45: | Institutional Uses within the Ontario Line North Study Area..... | 237 |
| Table 3-46: | Recreational Uses, Parks and Open Spaces within the Ontario Line North Study Area | 238 |
| Table 3-47: | Community Groups and Resources within the Ontario Line North Study Area | 244 |
| Table 3-48: | Summary of Built Heritage Resources and Cultural Heritage Landscapes – Ontario Line West Study Area | 251 |
| Table 3-49: | Summary of Built Heritage Resources and Cultural Heritage Landscapes – Ontario Line South Study Area | 262 |
| Table 3-50: | Summary of Built Heritage Resources and Cultural Heritage Landscapes – Ontario Line North Study Area..... | 272 |
| Table 3-51: | Summary of Traffic Operations at the Ontario Line West Study Area Intersections under Existing Conditions (2020) during the AM and PM Peak Hours..... | 301 |
| Table 3-52: | Transit Routes Servicing the Ontario Line West Study Area..... | 306 |
| Table 3-53: | Summary of Traffic Operations at the Ontario Line South Study Area Intersections under Existing Conditions (2020) during the AM and PM Peak Hours..... | 321 |
| Table 3-54: | Transit Routes Servicing the Ontario Line South Study Area | 330 |
| Table 3-55: | Summary of Traffic Operations at the Ontario Line North Study Area Intersections under Existing Conditions (2020) during the AM and PM Peak Hours..... | 346 |
| Table 3-56: | Transit Routes Servicing the Ontario Line North Study Area | 352 |
| Table 4-1: | Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Construction | 360 |
| Table 4-2: | Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Operations..... | 375 |
| Table 7-1: | Public Open House Details | 394 |
| Table 7-2: | Meetings with Elected Officials | 411 |

Appendices

Appendix A. Detailed Segment Maps

Appendix B. Technical Reports

- Appendix B1. Natural Environment Report
- Appendix B2. Air Quality Qualitative Assessment Report
- Appendix B3. Noise and Vibration Report
- Appendix B4. Socio-Economic and Land Use Characteristics Report
- Appendix B5. Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment
- Appendix B6. Stage 1 Archaeological Assessment Reports
- Appendix B7. Traffic and Transportation Report

Appendix C. Consultation Materials

- Appendix C1. Project Distribution List
- Appendix C2. January to February 2020 Public Open House Engagement Summary Report
- Appendix C3. Public Engagement Record: December 10, 2019 to September 17, 2020
- Appendix C4. Public Engagement Record: September 17 to October 17, 2020
- Appendix C5. Stakeholder Consultation and Correspondence Record
- Appendix C6. Indigenous Community Consultation and Correspondence Record

1. Introduction

1.1 Purpose of the Ontario Line Project

The Ontario Line will strengthen connections between people and jobs within Toronto and the surrounding region by improving the speed, frequency, reliability and overall footprint of rapid transit service. It will bring rapid transit to new communities in the east end, north of Danforth Avenue, and surrounding Exhibition/Ontario Place, providing residents with greater access to transit options and economic opportunities in closer proximity to their homes. Lastly, the Ontario Line will improve the quality of life for commuters by reducing travel time and providing a sustainable alternative to driving, helping to reduce the pressure on existing transportation systems.

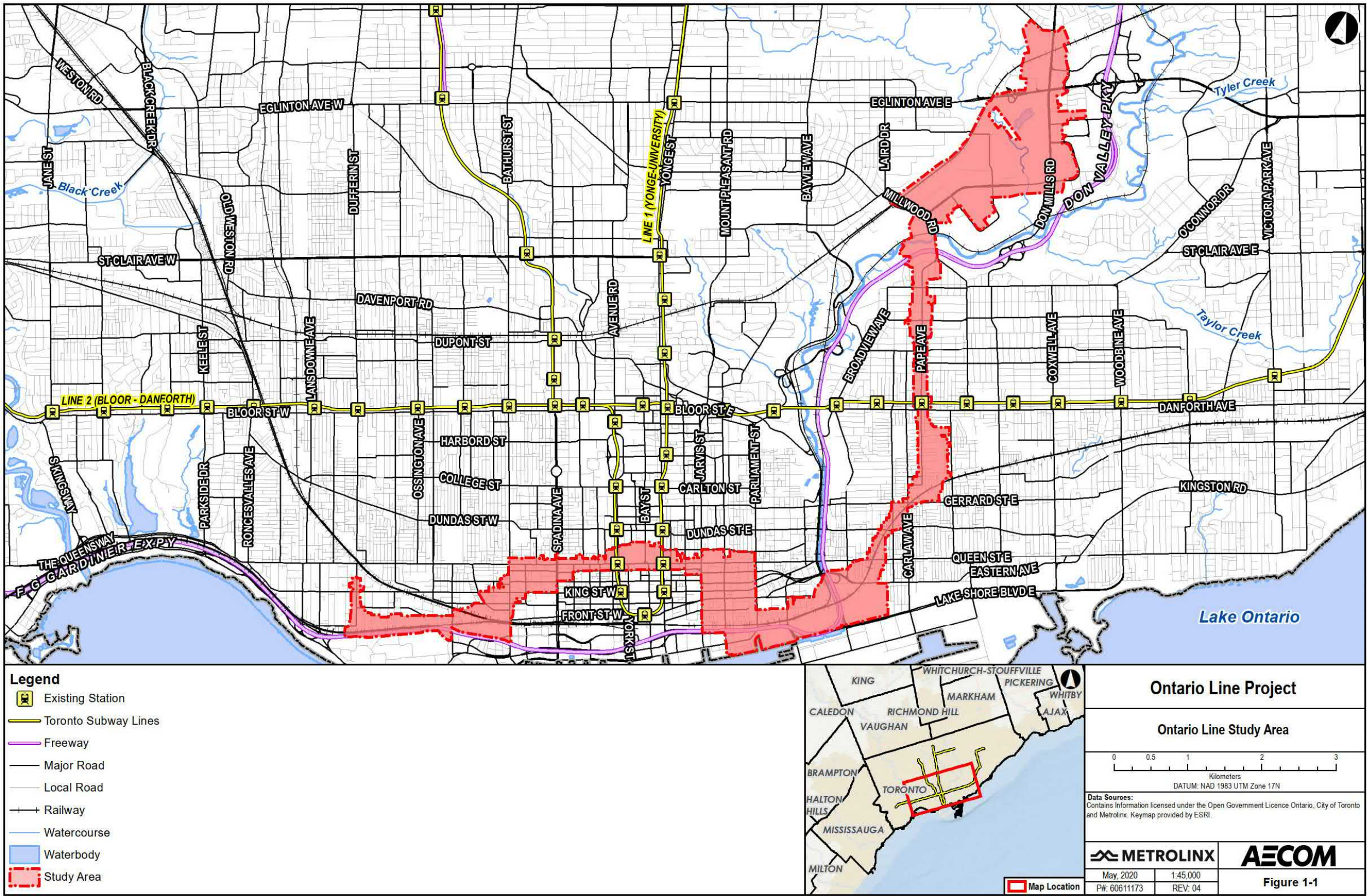
The above-mentioned benefits of the proposed Ontario Line support Metrolinx's 2041 Regional Transportation Plan, 2018 by connecting people with more frequent and reliable transit. In accordance with the goals of the Regional Transportation Plan, which include delivering strong connections, complete travel experiences, and healthy and sustainable communities, the proposed Ontario Line meets the strategic objectives outlined in the Ontario Line Initial Business Case and ensures alignment with Metrolinx's goals, further supporting the importance of this rapid transit project.

1.2 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. AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete this Environmental Conditions Report for the proposed Ontario Line Project (the Project).

The Project is a new approximately 16-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 Ontario Line Study Area is shown in **Figure 1-1**. 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.

Figure 1-1: Ontario Line Study Area



For the purpose of this Environmental Conditions Report, the Ontario Line Study Area has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station);
- Ontario Line South (from Osgoode Station to Pape Station); and
- Ontario Line North (from Pape Station to the Ontario Science Centre).

These segments are further described in **Section 1.4.1**.

This Draft Environmental Conditions Report has been completed in accordance with Ontario Regulation 341/20: Ontario Line Project (described in **Section 2.1**) and provides the description of the existing environmental conditions related to the Project, including the following information:

- A statement of the purpose of the Ontario Line Project and a summary of background information;
- The description of the Ontario Line Project;
- A map showing the area studied in respect of the Ontario Line Project;
- A description of the local environmental conditions in the area studied in respect of the Ontario Line Project;
- A description of all studies undertaken in relation to the Ontario Line Project;
- A preliminary description of the potential impacts that the Ontario Line Project might have on the environment that have been identified to date and an indication of how those impacts will be studied and described in further detail in the Environmental Impact Assessment Report;
- A description of any potential measures for mitigating any negative impacts that the Ontario Line Project might have on the environment;
- A description of the future studies that will be carried out as part of the Environmental Impact Assessment Report to determine potential impacts to the environment caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them;
- A preliminary list of the potential municipal, provincial, federal or other approvals or permits that may be required for the Ontario Line Project; and
- A consultation record.

1.3 Project Background

The City of Toronto and Metrolinx have previously undertaken the following planning studies:

- In 2009, City Council approved Yonge North Extension Environmental Assessment contingent on Relief Line.
- In 2012, Toronto Transit Commission's Downtown Rapid Transit Expansion Study concluded that Relief Line and GO Improvements will help ease crowding.
- In 2013, Relief Line was identified as "Next Wave" of transit projects in Metrolinx's visionary plan, Big Move. Relief Line was identified by Metrolinx as a priority for future transit investment.
- In 2014, Relief Line South project planning commenced.
- In 2015, Metrolinx board gave direction to advance planning of Relief Line South and Yonge Subway Extension, and assess a northerly extension of the Relief Line. Metrolinx completed the Yonge Relief Network Study recommending that Metrolinx, in partnership with the City of Toronto and Toronto Transit Commission, advance Relief Line project planning and development in order to further assess the extension of the Relief Line North from Danforth Avenue to Sheppard Avenue East.
- In 2018, the City of Toronto, Toronto Transit Commission, and Metrolinx issued Statement of Completion of the Relief Line South Transit Project Assessment Process, as prescribed in Ontario Regulation 231/08 under the Environmental Assessment Act.
- In 2018, Metrolinx's 2041 Regional Transportation Plan recognized Relief Line North as a key rapid transit project that is "In Development".

In 2019, the Government of Ontario introduced Bill 107, the Getting Ontario Moving Act to allow Ontario to move ahead with a variety of transit projects as part of the Transit Plan for the Greater Toronto and Hamilton Area, including the Ontario Line. Therefore, Metrolinx became responsible for leading and delivering the project. Metrolinx and Infrastructure Ontario, working together to deliver the Ontario Line, released the Initial Business Case (Metrolinx and Infrastructure Ontario, 2019) for the project, which was endorsed by the Metrolinx board. The Initial Business Case recommended advancing the design of the Ontario Line over Relief Line South. In October 2019, the City of Toronto endorsed working with Metrolinx on the Ontario Line.

1.4 Study Area

The Ontario Line Study Area was established based on the representative alignment presented in the Ontario Line Initial Business Case (Metrolinx and Infrastructure Ontario, 2019) where a buffer was applied to the representative alignment to delineate a sufficiently sized area to comprehensively characterize existing environmental conditions. The Ontario Line representative alignment from the Ontario Line Initial Business Case (Metrolinx and Infrastructure Ontario, 2019) is shown in **Figure 1-2**.

Figure 1-2: Ontario Line Representative Alignment (Metrolinx and Infrastructure Ontario, 2019)



For readability and the purposes of the discipline-specific existing environmental conditions reports, the Ontario Line Study Area has been divided into three segments:

- Ontario Line West (from Exhibition/Ontario Place to Osgoode Station);
- Ontario Line South (from Osgoode Station to Pape Station); and
- Ontario Line North (from Pape Station to the Ontario Science Centre).

An overview of the Ontario Line Study Area is shown in **Figure 1-1**. The Ontario Line West, Ontario Line South, and Ontario Line North Study Areas are shown in **Figure 1-3**, **Figure 1-4** and **Figure 1-5**. Detailed segment maps are provided in **Appendix A**.

1.4.1 Ontario Line West

The Ontario Line West Study Area approximate boundaries are Dufferin Street in the west, Osgoode Station in the east, Queen Street West in the north, and the Gardiner Expressway in the south. The Ontario Line West Study Area is shown in **Figure 1-3**.

1.4.2 Ontario Line South

The Ontario Line South Study Area approximate boundaries are Osgoode Station in the west, Pape Avenue in the east, Pape Station in the north, and the Toronto waterfront and Lakeshore Boulevard East in the south. The Ontario Line South Study Area is shown in **Figure 1-4**.

1.4.3 Ontario Line North

The Ontario Line North Study Area approximate boundaries are the Canadian Pacific rail tracks in the west, Don Mills Road in the east, Pape Station in the south, and Barber Greene Road/Green Belt Drive (north of Eglinton Avenue East) in the north. The Ontario Line North Study Area is shown in **Figure 1-5**.

Figure 1-3: Ontario Line West Study Area

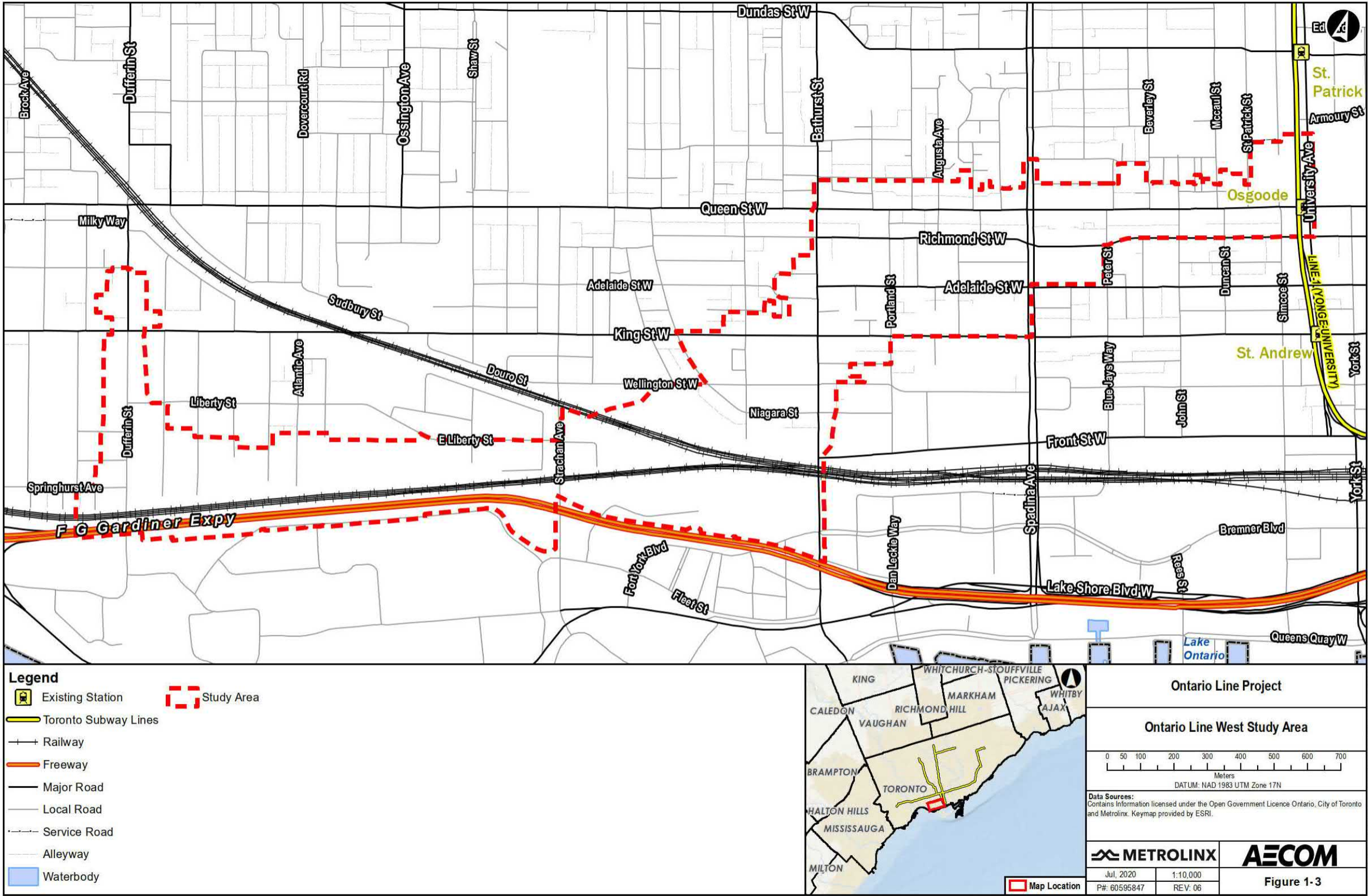


Figure 1-4: Ontario Line South Study Area

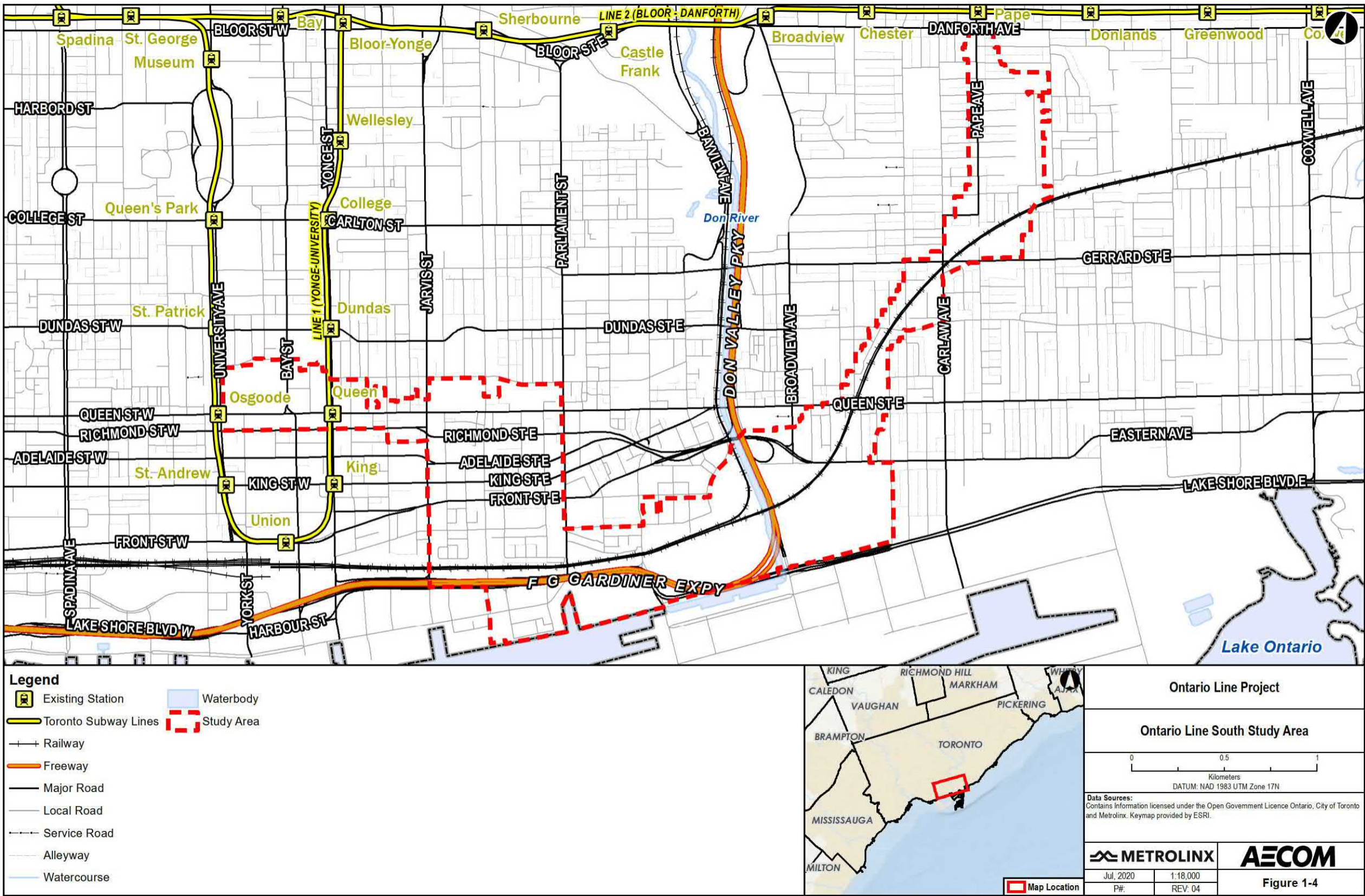
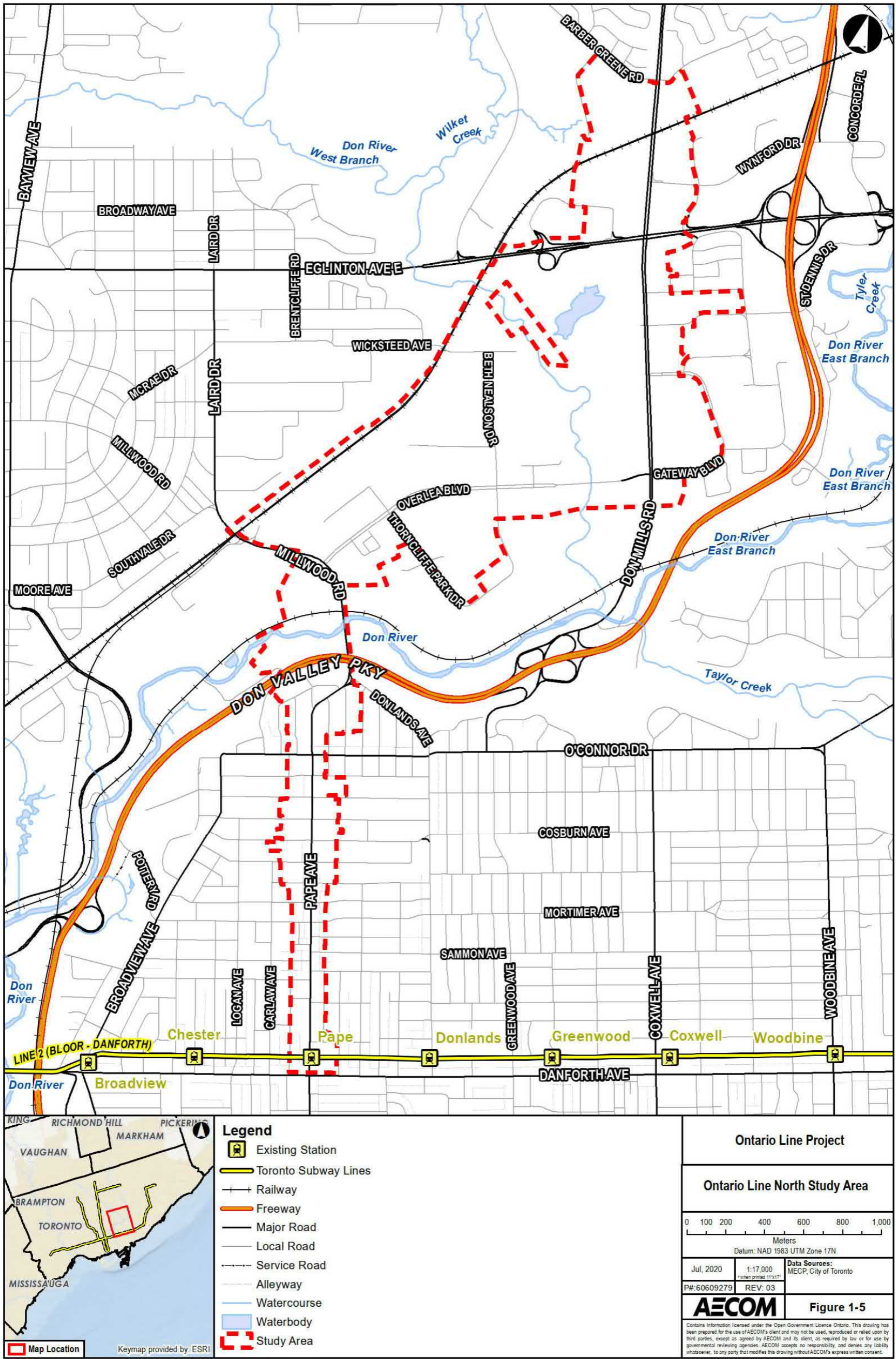


Figure 1-5: Ontario Line North Study Area



2. Study Process

2.1 Ontario Regulation 341/20: Ontario Line Project

This Project is being planned in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act. Ontario Regulation 341/20: Ontario Line Project is a proponent-driven, self-assessment process that provides a defined framework for the proponent to follow. Ontario Regulation 341/20: Ontario Line Project includes provisions for consultation with the public, agencies and Indigenous communities in addition to environmental conditions, early works, and environmental impact assessment reporting requirements.

This Environmental Conditions Report has been completed in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act. Reporting requirements for the early works and environmental impact assessment processes are being fulfilled under a separate file.

2.1.1 Environmental Conditions Report

2.1.1.1 Draft Environmental Conditions Report

The Draft Environmental Conditions Report was prepared to meet the requirements of Section 4 of Ontario Regulation 341/20: Ontario Line Project. The Draft Environmental Conditions Report summarized the local environmental conditions within the Study Area through a combination of desktop review and field studies by practitioners using industry standard techniques and guidelines. The Draft Environmental Conditions Report also provided a preliminary description of potential impacts that the Project may have on the environment and a description of how these impacts will be studied in further detail in the Early Works and/or Environmental Impact Assessment Report(s). In addition, potential mitigation measures were described, and a preliminary list of potential permits and approvals has been documented.

Reviews and field studies were undertaken to document the existing environmental conditions for the following disciplines:

- Natural Environment;
- Soil and Groundwater;
- Air Quality;
- Noise and Vibration;

- Socio-Economic and Land Use Characteristics;
- Cultural Heritage;
- Archaeology; and
- Traffic and Transportation.

2.1.1.2 Consultation on Environmental Conditions Report

The consultation program followed by Metrolinx for this Project is described in **Section 7** of this Report and all consultation materials are included in **Appendix C**.

The consultation program utilized the following methods of engagement:

- Project website (www.metrolinx.com/ontarioline), email address (ontarioline@metrolinx.com), and phone number;
- Elected Official Briefings;
- Project notifications via mail, email, and newspaper advertisements;
- One round of public open houses held at five locations across Toronto;
- Postcard mailouts;
- Online engagement through the Project Engagement webpage (www.metrolinxengage.com/en/content/ontario-line-get-engaged) and Metrolinx social media outlets; and
- Letters, emails, and meetings with Indigenous communities.

In accordance with Section 4(3)10 of Ontario Regulation 341/20: Ontario Line Project, the consultation record summarized in **Section 7** and provided in **Appendix C** includes the following:

- i. a description of the consultations carried out with Indigenous communities and interested persons;
- ii. a list of the Indigenous communities and interested persons who participated in the consultations;
- iii. summaries of the comments submitted by Indigenous communities and interested persons;
- iv. a summary of discussions that Metrolinx had with Indigenous communities, and copies of all written comments submitted by Indigenous communities;
- v. a description of what Metrolinx did to respond to concerns expressed by Indigenous communities and interested persons; and
- vi. any commitments made by Metrolinx to Indigenous communities and interested persons in respect of the Ontario Line.

The official Notice of Publication of the Draft Environmental Conditions Report was issued to the public on September 17, 2020 through a variety of media (Project website, registered mail, social media, newspapers, and mail drop to nearby addresses). The Draft Environmental Conditions Report was made available for public review on the Project Engagement webpage from September 17, 2020 to October 17, 2020 to obtain further public and stakeholder feedback on the Project.

2.1.1.3 Final Environmental Conditions Report

Following the consultation program described in **Section 2.1.1.2** and **Section 7**, the official Notice of Publication of the Final Environmental Conditions Report was issued to the public on November 30, 2020 through a variety of media (Project website, registered mail, social media, newspapers, and mail drop to nearby addresses). All parties notified of the Draft Environmental Conditions Report were notified of the publication of the Final Environmental Conditions Report and provided with access to a copy of it. Input/feedback received during the 30-day public review period was incorporated into this Report.

2.1.2 Contents of the Environmental Conditions Report

This Report has been prepared under Section 7 of Ontario Regulation 341/20: Ontario Line Project and contains the information outlined in **Table 2-1**.

Table 2-1: Environmental Conditions Report Contents per Ontario Regulation 341/20: Ontario Line Project

| Reg. Section | Requirement | Report Section |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Section 4(3)1 | A statement of the purpose of the Ontario Line Project and a summary of background information relating to it. | Section 1.1 & Section 1.3 |
| Section 4(3)2 | The description of the Ontario Line Project. | Section 1.2 |
| Section 4(3)3 | A map showing the area studied in respect of the Ontario Line Project. | Figure 1-1 & Appendix A |
| Section 4(3)4 | A description of the local environmental conditions in the area studied in respect of the Ontario Line Project. | Section 3 & Appendix B |
| Section 4(3)5 | A description of all studies undertaken in relation to the Ontario Line Project, including, <ul style="list-style-type: none"> i. a summary of all data collected or reviewed; and, ii. a summary of all results and conclusions. | Section 3 & Appendix B |
| Section 4(3)6 | A preliminary description of the potential impacts that the Ontario Line Project might have on the environment that have been identified to date and an indication of how those impacts will be studied and described in further detail in the environmental impact assessment report. | Section 4 & Appendix B |

| Reg. Section | Requirement | Report Section |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Section 4(3)7 | A description of any potential measures for mitigating any negative impacts that the Ontario Line Project might have on the environment. | Section 4 & Appendix B |
| Section 4(3)8 | A description of the future studies that will be carried out as part of the environmental impact assessment report to determine potential impacts to the environment caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them. | Section 5 & Appendix B |
| Section 4(3)9 | A preliminary list of the potential municipal, provincial, federal or other approvals or permits that may be required for the Ontario Line Project. | Section 6 & Appendix B |
| Section 4(3)10 | A consultation record, including, <ul style="list-style-type: none"> i. a description of the consultations carried out with Indigenous communities and interested persons; ii. a list of the Indigenous communities and interested persons who participated in the consultations; iii. summaries of the comments submitted by Indigenous communities and interested persons; iv. a summary of discussions that Metrolinx had with Indigenous communities, and copies of all written comments submitted by Indigenous communities; v. a description of what Metrolinx did to respond to concerns expressed by Indigenous communities and interested persons; and, vi. any commitments made by Metrolinx to Indigenous communities and interested persons in respect of the Ontario Line. | Section 7 & Appendix C |

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. 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 3.5** of this Report.

2.2.1 Provincial

2.2.1.1 Provincial Policy Statement

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

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

- Conserving heritage and significant cultural heritage landscapes and restricting development and site alteration on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved (Provincial Policy Statement, 2020, Sections 2.6.1 and 2.6.2).

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.

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, 2019 (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 destination for many people and businesses 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 a “priority transit corridor” (Ministry of Municipal Affairs and Housing, 2019). 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.

2.2.1.3 Greenbelt Plan

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 Plan¹. 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 Greenbelt Plan, 2017 describes the “Greenbelt” as a broad band of permanently protected land which:

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

1. The Ontario Line Study Area does not fall within the protections of the Niagara Escarpment Plan or Oak Ridges Moraine Conservation Plan.

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). 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).

2.2.1.4 2041 Regional Transportation Plan

The 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, 2018a). 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, 2018a).

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).

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 (City of Toronto, 2019). Chapters 1 to 5 of the Official Plan contain city-wide policies that guide new development and related decision-making. 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.

The Official Plan's land use policies are described in more detail in **Section 3.5**.

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. **Table 2-2** lists the Secondary Plans that are applicable to the Project.

Table 2-2: City of Toronto Secondary Plans Applicable to the Project

| City of Toronto Secondary Plan | Study Area Segment |
|--------------------------------------|-----------------------------------------|
| Fort York Secondary Plan | Ontario Line West |
| Garrison Common North Secondary Plan | Ontario Line West |
| King-Spadina Secondary Plan | Ontario Line West |
| Central Waterfront Secondary Plan | Ontario Line West Ontario Line South |
| King-Parliament Secondary Plan | Ontario Line South |
| Don Mills Crossing Secondary Plan | Ontario Line North |

These five Secondary Plans and their applicability to the Project are described in more detail in **Section 3.5**.

3. Existing Conditions

This section describes the natural, technical, socio-economic and cultural aspects of the existing environment present within the Ontario Line Study Area. The purpose of characterizing the existing environmental conditions is to establish a baseline condition to use for the assessment of preliminary potential impacts and proposed mitigation measures, described in **Section 4**.

Information on the following environmental components is provided in the sections below and, where applicable, is supplemented with supporting detailed technical reports and/or data:

- Natural Environment: **Section 3.1** and **Appendix B1**
- Soil and Groundwater: **Section 3.2**
- Air Quality: **Section 3.3** and **Appendix B2**
- Noise and Vibration: **Section 3.4** and **Appendix B3**
- Socio-Economic and Land Use Characteristics: **Section 3.5** and **Appendix B4**
- Built Heritage Resources and Cultural Heritage Landscapes: **Section 3.6** and **Appendix B5**
- Archaeological Resources: **Section 3.7** and **Appendix B6**
- Traffic and Transportation: **Section 3.8** and **Appendix B7**
- Utilities: **Section 3.9**

3.1 Natural Environment

A Natural Environment Report was completed to document existing natural environment features, outline the preliminary description of the potential impacts of the Ontario Line Project on the natural environment, outline a description of potential mitigation measures to mitigate those impacts, describe potential impacts to the natural environment caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them, and outline a preliminary list of the potential municipal, provincial, federal or other approvals or permits associated with the natural environment that may be required for the Ontario Line Project.

The Natural Environment Report can be found in **Appendix B1**. Methodology is summarized in **Section 3.1.1** and the results are presented in **Section 3.1.2** (Ontario Line West), **Section 3.1.3** (Ontario Line South) and **Section 3.1.4** (Ontario Line North).

3.1.1 Methodology

A review of available information and field investigations were conducted to establish natural environment existing conditions within the Ontario Line Study Area (mapped in **Figure 3-1 to Figure 3-6**).

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.

A background review of available desktop information was reviewed to characterize the existing natural environment conditions, including:

- Ministry of Natural Resources and Forestry's Ontario GeoHub base mapping data;
- Wildlife atlases;
- Planning documents and guidelines;
- Previously completed environmental assessments within the Ontario Line Study Area; and
- Open data portals.

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

- Ministry of Natural Resources and Forestry – Aurora District Office;
- Toronto and Region Conservation Authority; and
- Ontario Nature.

Field investigations were also completed in support of the Project, as summarized below:

Ontario Line West:

- Ecological Land Classification and Plant Inventory – June 2020
- Incidental Wildlife Observations – Spring 2020

Ontario Line South:

- Ecological Land Classification and Plant Inventory – October 2018

Ontario Line North:

- Ecological Land Classification and Plant Inventory
 - Millwood Road Area – June/July 2019
 - E.T. Seton Park – June 2020
- Aquatic Site Reconnaissance
 - Millwood Road Area – July 2019
 - E.T. Seton Park – October 2019
- Breeding Bird Surveys
 - Millwood Road Area – June/July 2019
- Nocturnal Amphibian Breeding Call Surveys
 - Millwood Road Area – April 2019
- Incidental Wildlife Observations
 - Millwood Road Area – Spring 2020
 - E.T. Seton Park – Spring 2020

Detailed methodology description is provided in **Appendix B1**.

3.1.2 Ontario Line West

3.1.2.1 Designated Natural Features / Planning Policy Areas

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (Ministry of Natural Resources and Forestry, 2020a), there are no Provincially Significant Wetlands, Locally Significant Wetlands, Areas of Natural or Significant Interest, valleylands, unevaluated wetlands or woodlands within the Ontario Line West Study Area. The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (City of Toronto, 2019).

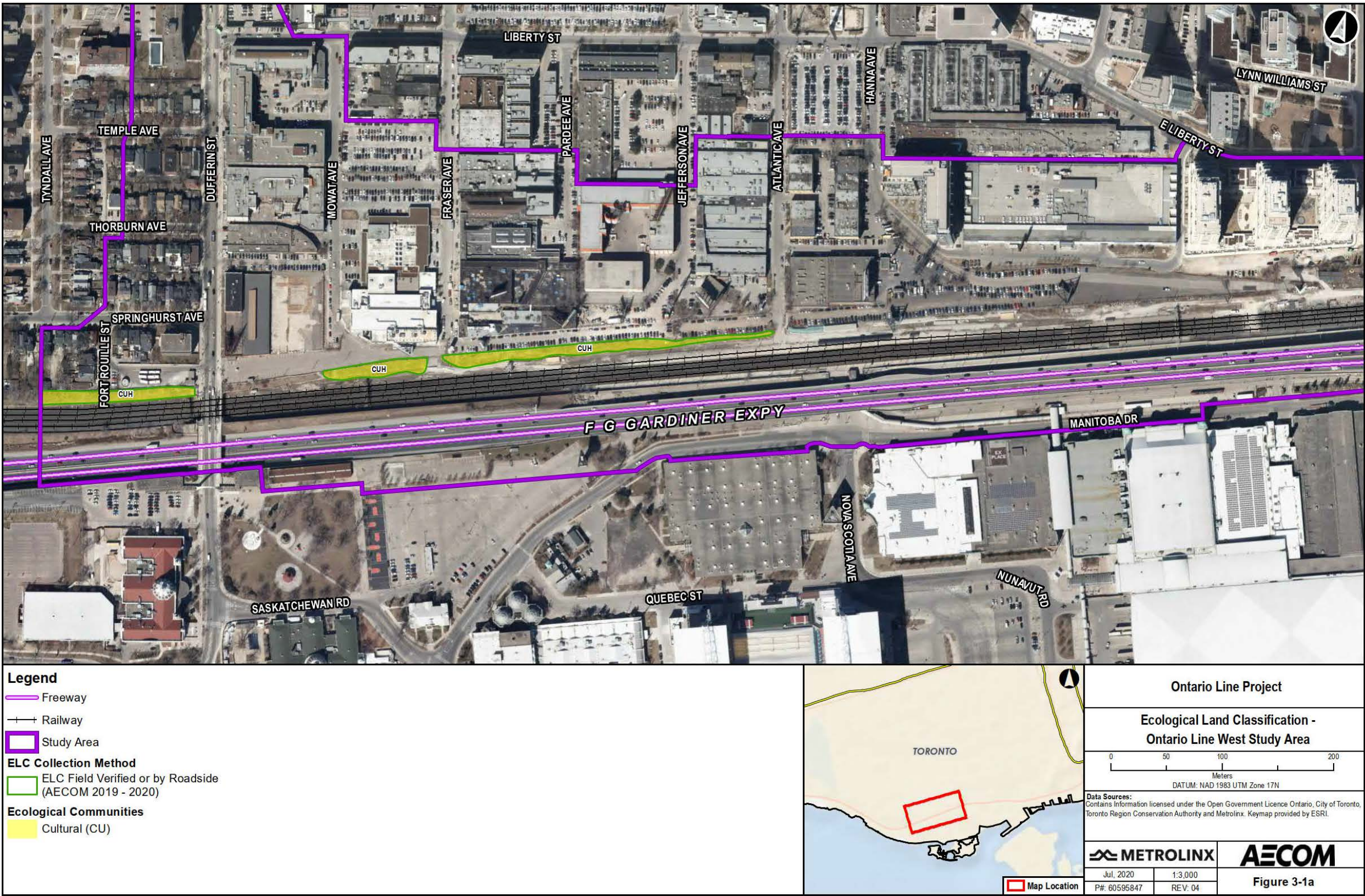
3.1.2.2 Ecological Land Classification and Plant Inventory

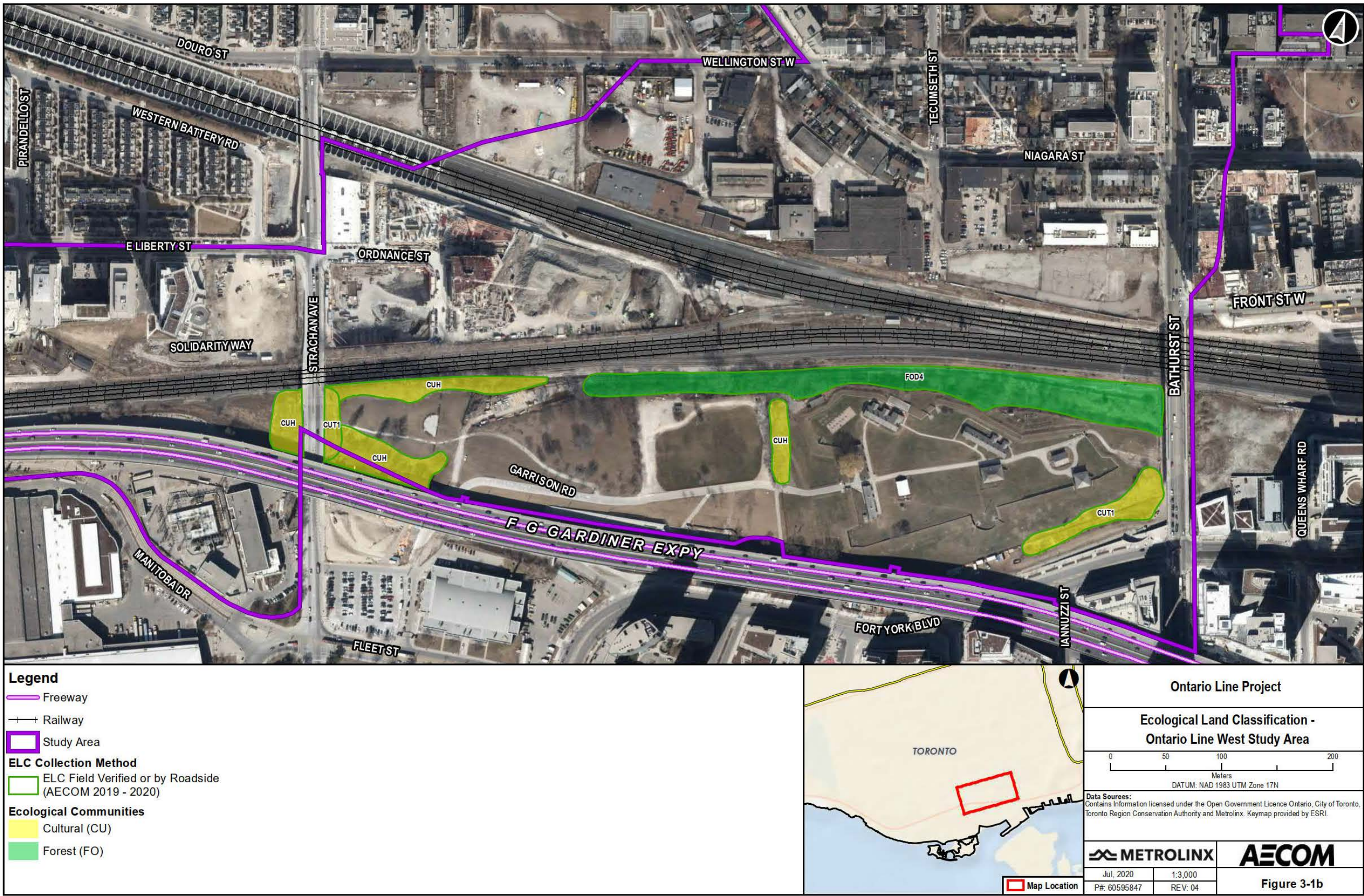
The majority of the Ontario Line West Study Area is urbanized and vegetation is limited to streetscapes (e.g., street trees, city parks, manicured lawns, etc.). Based on aerial photography interpretation, there are limited vegetation communities present within the Fort York Historic Site and within the Right of Way of the existing rail corridor. These vegetation communities were investigated by AECOM in June 2020; the results of which can be found in **Table 3-1** below. The vegetation communities in the Ontario Line West Study Area were mainly cultural in nature and consisted of Cultural Hedgerows, Cultural Thickets and a Deciduous Forest as shown in **Figure 3-1**.

Table 3-1: Ecological Land Classification Vegetation Communities Identified by AECOM in June 2020 within the Ontario Line West Study Area

| Ecological Land Classification | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | General Location | Comments |
|------------------------------------------|-------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Cultural Communities – Cultural Hedgerow | CUH | Cultural Hedgerow | ■ Manitoba maple (Acer negundo) dominated the canopy along with European ash (Fraxinus excelsior) and Siberian elm (Ulmus pumila). | ■ The shrub layer contained Manitoba maple and staghorn sumac (Rhus typhina). | ■ The ground layer was not noted in this community. | ■ West of Strachan Avenue | - |
| Cultural Communities – Cultural Hedgerow | CUH with MAS2 inclusion | Cultural Hedgerow with Mineral Shallow Marsh inclusion | ■ Manitoba maple dominated the canopy along with Siberian elm and tree-of-heaven (Ailanthus altissima). | ■ The shrub layer was dominated by Manitoba maple and Scotch elm (Ulmus glabra). | ■ The following species were found in the ground layer: garlic mustard (Alliaria petiolata), goldenrod species (Solidago spp.), yellow avens (Geum aleppicum), Philadelphia fleabane (Erigeron philadelphicus ssp. Philadelphicus) and thicket creeper (Parthenocissus inserta). | ■ North of the rail corridor, from Atlantic Ave. to the western limit of the Ontario Line West Study Area. | - |
| Cultural Communities – Cultural Hedgerow | CUH with CUT1a inclusion | Cultural Hedgerow with Manitoba Maple Thicket inclusion | ■ Horse chestnut (Aesculus hippocastanum) dominated the canopy along with Siberian elm, Freeman’s maple (Acer freemanii) and European ash. | ■ The shrub layer was dominated by European ash and Siberian elm. | ■ The following species were found in the ground layer: orchard grass (Dactylis glomerata), dame’s rocket (Hesperis matronalis), garlic mustard, tall goldenrod (Solidago altissima), wild carrot (Daucus carota), and common burdock (Arctium minus). | ■ In Fort York Park, east of Strachan Ave. between the rail corridor and Gardiner Expressway. | - |
| Cultural Communities – Cultural Thicket | CUT1 | Mineral Cultural Thicket | ■ Manitoba maple, eastern cottonwood (Populus deltoides ssp. Deltoides) and Siberian elm dominated the canopy layer. | ■ The shrub layer was dominated by Manitoba maple, red-osier dogwood (Cornus sericea) and thicket creeper. | ■ The ground layer was not noted in this community. | ■ West of Bathurst Street in Fort York Park. | |
| Forest Communities – Deciduous Forest | FOD4 | Dry – Fresh Deciduous Forest Ecosite | ■ Siberian elm, hybrid crack willow (Salix rubens), Manitoba maple, Norway maple (Acer platanoides) and white ash (Fraxinus americana) made up the canopy layer. | ■ The shrub layer was dominated by Manitoba maple, Morrow’s honeysuckle (Lonicera morrowii) and common buckthorn (Rhamnus cathartica). | ■ The following species were found in the ground layer: grass species including Kentucky blue grass (Poa pratensis) and orchard grass, garlic mustard, common burdock and dog-strangling vine (Cynanchum rossicum). | ■ In Fort York Park, south of the rail corridor and west of Bathurst Street | ■ Patch of Japanese knotweed (Fallopia japonica) growing along the trail. |

Figure 3-1: Ecological Land Classification – Ontario Line West Study Area





Of the 72 species documented in the Ontario Line West Study Area, 29 (40%) were native and 43 (60%) were invasive. There were no plant Species at Risk or provincially rare species (S1-S3 rank), however there were two Regional Species of Conservation Concern plants recorded, which are described in **Table 3-2** below. These Regional Species of Conservation Concern plants are not protected under federal or provincial legislation and therefore Metrolinx is not subject to their protection within their own lands. A comprehensive vascular plant list for the Ontario Line West Study Area is provided in **Appendix B1**.

Table 3-2: Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded within the Ontario Line West Study Area

| Common Name | Scientific Name | Local Status (Toronto and Region Conservation Authority) | Vegetation Community Observed | Source of Record |
|-------------------|---------------------------------|----------------------------------------------------------|-------------------------------|------------------|
| Slippery elm | Ulmus rubra | L3 | CUH near Strachan Avenue | AECOM (2020) |
| Eastern snowberry | Symphoricarpos albus var. albus | L3 | CUH near Strachan Avenue | AECOM (2020) |

Note: Local Rank – Toronto and Region Conservation Authority (2020c). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority within their jurisdiction:
L+: Exotic. Not native to Toronto and Region Conservation Authority jurisdiction (includes hybrids between native and exotic species).
L1: Rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L2: Probably rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout Toronto and Region Conservation Authority jurisdiction; may be of very localized concern in highly disturbed areas.

3.1.2.3 Fish and Fish Habitat

There were no watercourses identified within the Ontario Line West Study Area.

3.1.2.4 Wildlife and Wildlife Habitat

Appendix B1 has a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line West Study Area. The majority of these species are common and secure in Ontario and tolerant to urban conditions. Many bird species are protected under the Migratory Birds Convention Act and a few Species of Conservation Concern and Species at Risk species were noted and further described in **Appendix B1**.

Generally, the Ontario Line West Study Area is largely urbanized with very limited naturalized areas providing low-quality habitat for urban wildlife due to fragmentation, limited connectivity to significant natural areas, presence of non-native and invasive plants, and noise and vibration from surrounding vehicle, train and pedestrian traffic. However, it is important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for many migratory birds protected under the Migratory Birds Convention Act. The existing rail corridor may support movement of small mammals, birds and insects but overall is considered to be a poor wildlife linkage due to limited connectivity to significant natural areas, which are generally absent in the Ontario Line West Study Area.

Incidental Wildlife Observations

The following incidental wildlife were recorded during the 2020 field investigations within the Ontario Line West Study Area:

- Barn Swallow (*Hirundo rustica*)
- Song Sparrow (*Melospiza melodia*)
- Chimney Swift (*Chaetura pelagica*)

3.1.2.5 Significant Wildlife Habitat

Based on the preliminary review of Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a), the following Significant Wildlife Habitat types may occur within the Ontario Line West Study Area.

- Seasonal Concentration Areas:
 - **Candidate Bat Maternity Colonies** – Deciduous Forests (FOD), Mixed Forests (FOM), Deciduous Swamp (SWD) and Mixed Swamp (SWM) communities are considered to be candidate bat maternity colony habitats. A Deciduous Forest Community (FOD4) was identified within the Study Area north of the Gardiner Expressway between Strachan Avenue and Bathurst Street.
- Habitats of Species of Conservation Concern:
 - **Candidate Habitat for Species of Conservation Concern:**
 - Common Nighthawk (*Chordeiles minor*) – this species may nest on the flat, gravel rooftops of buildings in urban areas (Brigham et al., 2011).

- Eastern Wood-pewee (*Contopus virens*) – a forested area (FOD4) within the existing rail corridor may provide suitable nesting habitat. This species is protected by Migratory Birds Convention Act.
- Peregrine Falcon (*Falco peregrinus*) – high-rise buildings may provide suitable nesting habitat. This species is not protected by Migratory Birds Convention Act but receives protection under the Ontario Fish and Wildlife Conservation Act, 1997.
- Red-headed Woodpecker (*Melanerpes erythrocephalus*) – a forested area (FOD4) within the existing rail corridor may provide suitable habitat for this species. This species is protected by Migratory Birds Convention Act.

There were no candidate or confirmed rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the Ontario Line West Study Area. The Ontario Line West Study Area is significantly urbanized and contains many barriers to animal movements (i.e., railways, roads, construction areas and fences). In addition, there were no confirmed Species of Conservation Concern habitats identified within the Ontario Line West Study Area.

3.1.2.6 Species at Risk

The following Species at Risk have a high probability of occurring within the Ontario Line West 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. Barn Swallows are known to use anthropogenic structures (e.g., bridges and buildings); however, nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access mud to for nest building (Heagy et al., 2014). Therefore, anthropogenic structures (e.g., buildings) located within 200 metres of waterbodies were determined as having a higher probability of supporting Barn Swallow nesting. The buildings within the Ontario Line West Study Area were generally deemed to have low potential for supporting nesting Barn Swallows as these were located more than 200 metres from the nearest waterbody. This species was observed foraging within the Ontario Line West Study Area in the Garrison Commons; however, no nests in the vicinity were observed from accessible areas. It is suspected that Barn Swallow may be nesting closer to the Lake Ontario waterfront and forage further inland.

■ **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). Chimney Swifts were observed flying over in the Ontario Line West Study Area. Buildings with suitable chimneys or standalone smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line West Study Area. Suitable chimneys have the following characteristics (BSC, 2009; COSEWIC, 2018):

- Chimneys with a wide diameter of at least 2.5 standard bricks (20 centimetres [cm] x 9 cm x 6 cm) in width or that have a minimum interior diameter of 25 to 30 cm (or 1 foot)
- Chimneys built of brick, stucco, stone or concrete
- Chimneys lacking caps, spark protectors and animal guards that would otherwise prevent entry
- Chimneys lacking aluminum flues or metal linings that may prevent Chimney Swifts from clinging to the interior of the chimney
- Internal chimney temperatures between 13°C and 43°C
- Chimney height extends beyond the roofline with a preferred height of 2.68 metres.

The following Species at Risk have a medium probability of occurring within the Ontario Line West Study Area:

■ **Bat Species at Risk, including Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Long-eared Myotis (*Myotis septentrionalis*) and Tri-coloured 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. Tri-coloured bats are known to roost in dead leaf clusters while Eastern Small-footed Myotis are known to roost in rocky outcrops and talus slopes. All bat Species at Risk are known to roost in anthropogenic structures such as buildings in crevice-like spaces; under sidings, eaves, roof tiles or shingles or behind shutters or sliding doors, between building wings, cracks and crevices in walls, wall coatings, hollow mortice joints, rain gutters and chimneys; and/or in attics (Bat Conservation Trust, 2012; Ministry of Natural Resources and Forestry, 1984; Humphrey, 2017; Humphrey and Fotherby, 2019). There were no hibernacula

identified within the Ontario Line West Study Area; however, maternity roosting habitats may be present. Within the Ontario Line West Study Area, a forest community (FOD4) along the existing rail corridor may provide suitable maternity roosting habitats for these species. Buildings with potential entry / exit points within the Ontario Line West Study Area may also be used by bat Species at Risk for roosting.

- **Butternut**

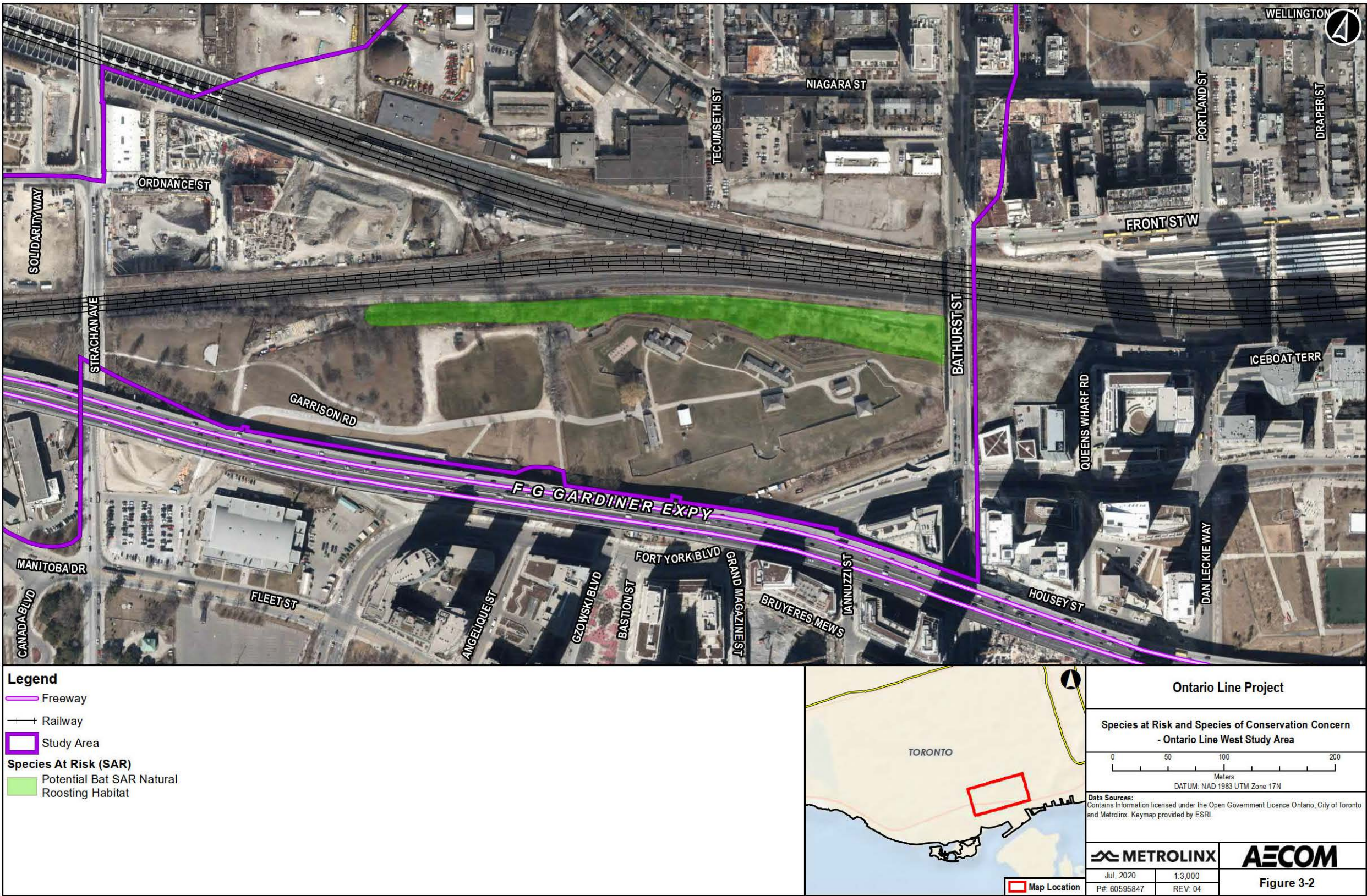
This species is listed as Endangered and receives protection under the provincial Endangered Species Act. This species may occur within the cultural hedgerows within the existing rail corridor or within the forested area.

The remaining Species at Risk identified had low probability of occurrence within the Ontario Line West Study Area:

- Bank Swallow
- Bobolink (*Dolichonyx oryzivorus*)
- Eastern Meadowlark (*Sturnella magna*)
- Blanding's Turtle.

There are no aquatic Species at Risk present given that there are no water features identified within the Ontario Line West Study Area. These features are mapped in **Figure 3-2**.

Figure 3-2: Species at Risk and Species of Conservation Concern – Ontario Line West Study Area



3.1.3 Ontario Line South

3.1.3.1 Designated Natural Features/Planning Policy Areas

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetlands, valleylands, unevaluated wetlands or woodlands within the Ontario Line South Study Area. The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (2019). The Don River Valley is designated as an Urban River Valley under the Greenbelt Plan.

3.1.3.2 Ecological Land Classification and Plant Inventory

Vegetation communities identified in the Ontario Line South Study Area were generally disturbed as result of anthropogenic activities and are largely limited to narrow vegetation strips within the existing rail corridor surrounded by heavily developed commercial, industrial and residential areas. These vegetation communities contained large proportions of non-native and invasive plant species and none were identified as being provincially significant (AECOM, 2017; AECOM, 2018; 4Transit, 2018a, 2018b; HDR, 2018; Golder Associates, 2018). Descriptions of vegetation communities and their structural compositions are summarized in **Table 3-3** and mapped in **Figure 3-3**.

There were no plant Species at Risk or provincially significant plants identified within the Ontario Line South Study Area (AECOM, 2017; AECOM, 2018; HDR, 2018). However, three Regional Species of Conservation Concern plants were recorded within or in the vicinity of the Ontario Line South Study Area. These Regional Species of Conservation Concern plants are not protected under federal or provincial legislation and therefore Metrolinx is not subject to their protection within their own lands.

There were no plant Species at Risk or provincially significant plants identified within the Ontario Line South Study Area (AECOM, 2017; AECOM, 2018; HDR, 2018). However, three Regional Species of Conservation Concern plants were recorded within or in the vicinity of the Ontario Line South Study Area and are summarized in **Table 3-4** below. These Regional Species of Conservation Concern plants are not protected under federal or provincial legislation and therefore Metrolinx is not subject to their protection within their own lands.

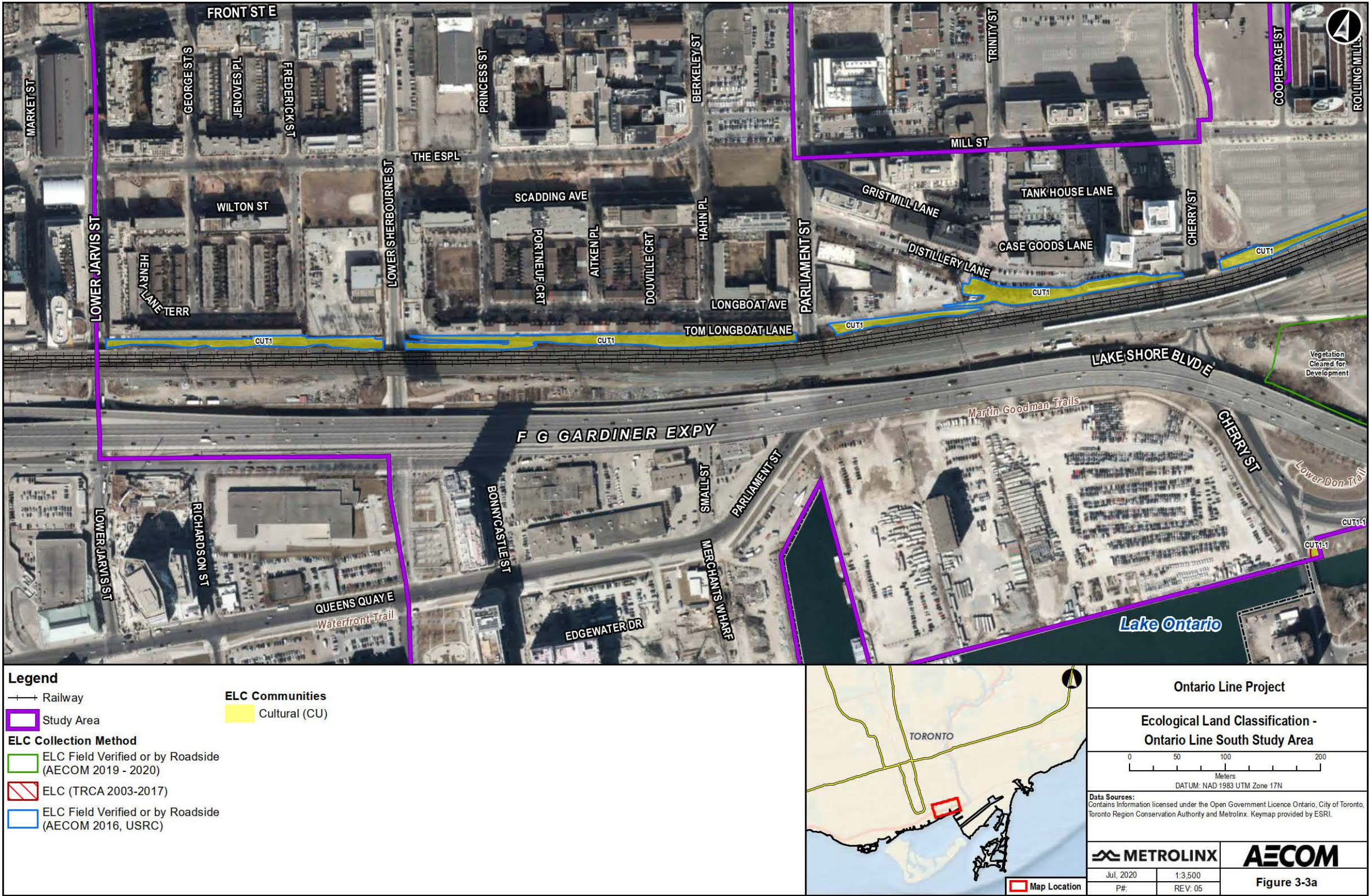
Table 3-3: Ecological Land Classification Vegetation Communities Identified from Previously Completed Environmental Assessments within the Ontario Line South Study Area

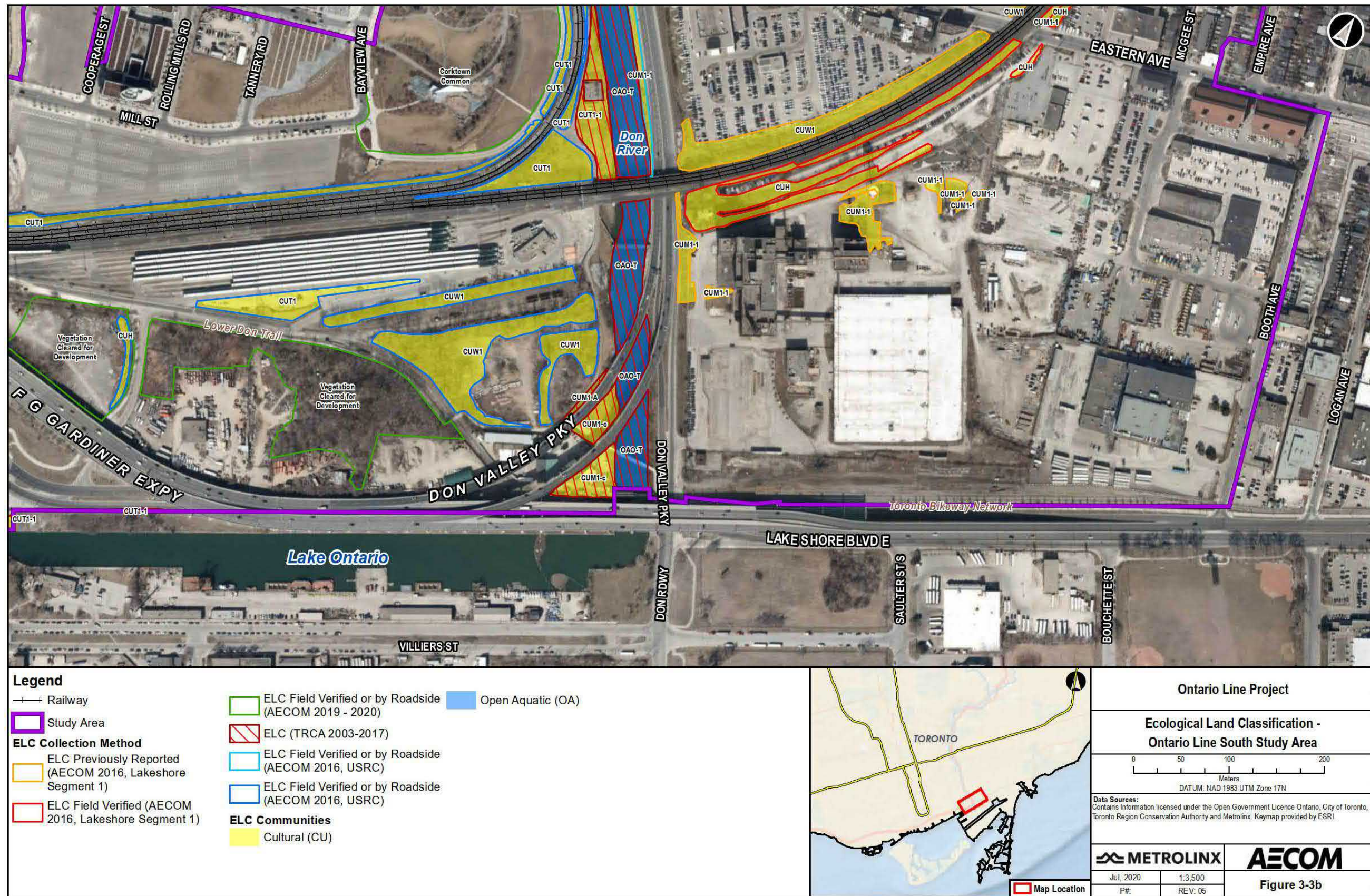
| Cultural Communities | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | General Location | Source |
|----------------------|-------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Cultural Meadow | CUM1 | Dry-moist Old Field Cultural Meadow | 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. | West of the Don River | Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018) |
| Cultural Meadow | CUM1-1 | Dry-moist Old Field Cultural Meadow | 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, garlic mustard, white sweet-clover (<i>Melilotus alba</i>), Canada goldenrod (<i>Solidago canadensis</i>), tall goldenrod, thicket creeper and wild carrot. | East of the Don River | Lake Shore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017) |
| Cultural Meadow | CUM1-A | Native Forb Meadow | Less than 10% tree cover consisting of Russian olive (<i>Elaeagnus angustifolia</i>). | No shrub layer identified in this community. | Greater than 60% ground cover primarily dominated by goldenrods, grasses and Canada thistle (<i>Cirsium arvense</i>). | West of the Don River underneath the Don Valley Parkway | Toronto and Region Conservation Authority (2003) |
| Cultural Meadow | CUM1-b with a CUP1-A | Exotic Cool-season Grass Graminoid Meadow with a Cultural Plantation inclusion | Less than 10% tree cover consisting of Austrian Pine (<i>Pinus nigra</i>), giant-toothed aspen (<i>Populus grandidentata</i>) and balsam poplar (<i>Populus balsamifera</i>). | No shrub layer identified in this community. | Greater than 60% ground cover primarily dominated by grasses, Canada thistle, wild carrot and common milkweed (<i>Asclepias syriaca</i>). | East of the Don River within the clover-leaf of the on-ramp for the Don Valley Parkway | Toronto and Region Conservation Authority (2003) |
| Cultural Meadow | CUM1-c | Exotic Forb Meadow | Less than 10% tree cover consisting of green ash (<i>Fraxinus pensylvanica</i>). | Less than 10% cover dominated by common buckthorn. | Greater than 60% ground cover primarily dominated by white sweet clover (<i>Melilotus alba</i>), common chicory (<i>Cichorium intybus</i>) | West of the Don River underneath the Don Valley Parkway | Toronto and Region Conservation Authority (2003) |
| Cultural Thicket | CUT1 | Mineral Cultural Thicket | Less than 25% tree cover: dominated by tree species such as: Manitoba maple, Norway maple and tree-of-heaven. Less common trees noted in the canopy included green ash, white mulberry (<i>Morus alba</i>), Carolina poplar (<i>Populus X canadensis</i>) and wych elm (<i>Ulmus glabra</i>). | Between 25 and 60% shrub cover: dominated by staghorn sumac, common buckthorn, grey dogwood (<i>Cornus racemosa</i>), Russian olive and Oriental bittersweet (<i>Celastrus orbiculatus</i>). | Ground species made up more than 60% of this community, including especially tall goldenrod, dog strangling vine and mugwort (<i>Artemisia vulgaris</i>). | West of the Don River | Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018) |
| Cultural Thicket | CUT1-1 | Sumac Deciduous Thicket | Less than 10% tree cover consisting of tree-of-heaven, Russian olive, Manitoba maple and eastern cottonwood. | Greater than 60% shrub cover dominated by staghorn sumac with lesser of white mulberry, choke cherry (<i>Prunus virginiana</i>), red-osier dogwood, common buckthorn and narrow-leaf willow (<i>Salix exigua</i>). | Greater than 60% ground cover dominated by grasses, stinging nettle, common milkweed, Canada thistle and bouncing bet (<i>Saponaria officinalis</i>). | West of the Don River north of the existing rail corridor | Toronto and Region Conservation Authority (2003) |

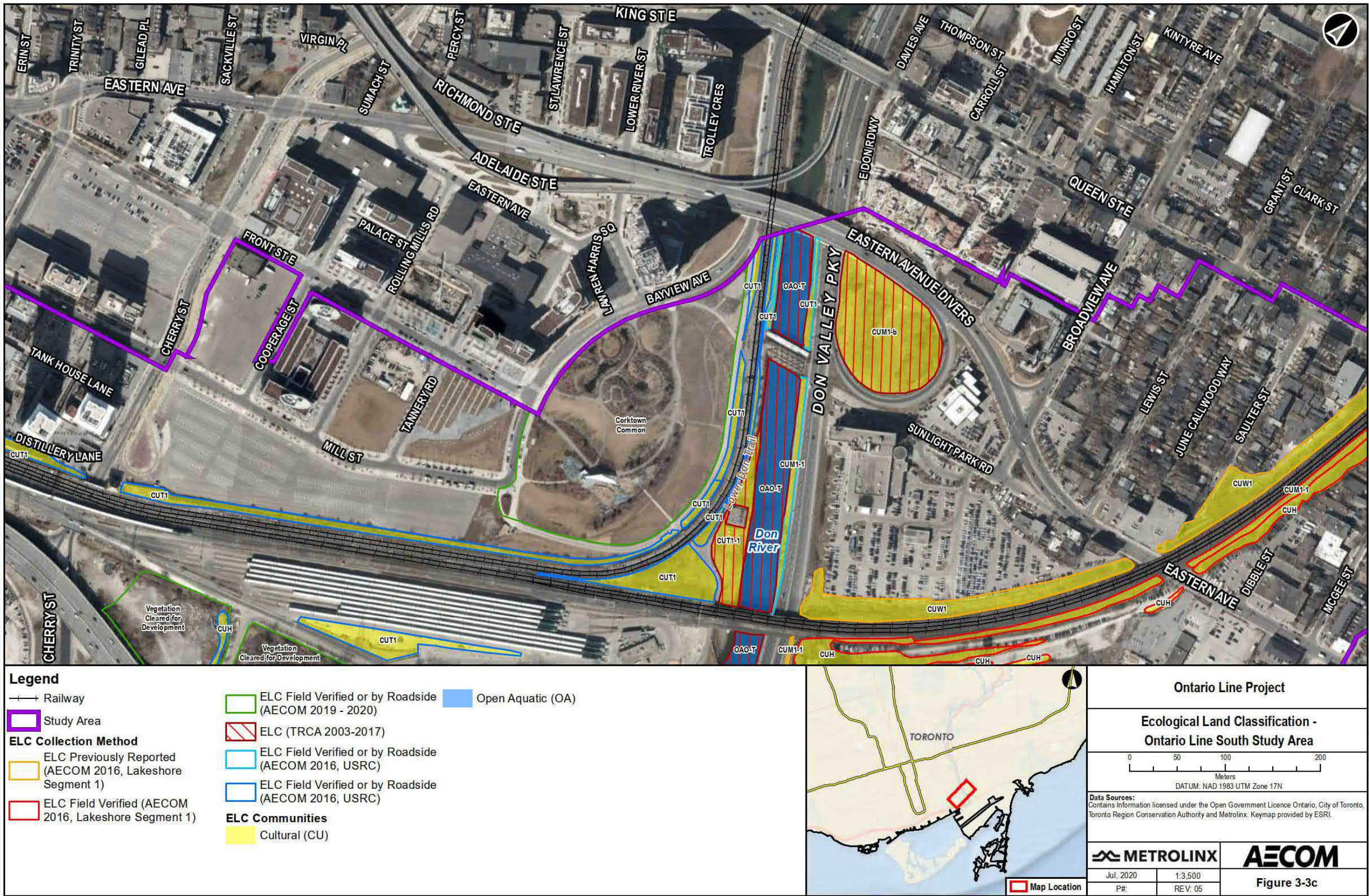
| Cultural Communities | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | General Location | Source |
|---------------------------------|-------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Cultural Woodland | CUW1 | Mineral Cultural Woodland | The species composition of cultural woodlands varied depending on the location along the Union Station Rail Corridor. Tree canopy cover was 25-60% and mainly dominated by Manitoba maple, tree-of-heaven or Eastern cottonwood. Less common tree species included black cherry (<i>Prunus serotina</i>) and green ash. | The shrub cover generally consisted of Tartarian honeysuckle (<i>Lonicera tatarica</i>), Japanese knotweed, red-osier dogwood, and common buckthorn. | Ground cover was largely dominated by stinging nettle and garlic mustard, both highly invasive species. Other ground species consisted of thicket creeper, riverbank grape (<i>Vitis riparia</i>), and common plantain (<i>Plantago major</i>). | West of the Don River | Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018) |
| Cultural Woodland | CUW1 | Mineral Cultural Woodland | Less than 60% tree canopy was dominated by Manitoba maple, Siberian elm (<i>Ulmus pumila</i>) or black walnut (<i>Juglans nigra</i>). Less dominant trees included tree-of-heaven, Norway maple, green ash and black locust (<i>Robinia pseudoacacia</i>). Red oak (<i>Quercus rubra</i>) 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 (<i>Equisetum arvense</i>), goldenrods, bracken fern (<i>Pteridium aquilinum</i>), common St. John's wort (<i>Hypericum perforatum</i>) and sometimes to a lesser extent, false Solomon's seal (<i>Maianthemum racemosum</i>). | East of the Don River | Lake Shore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017) |
| Cultural Hedgerows ² | CUH | Cultural Hedgerows | The tree canopy was dominated by Manitoba maple, common buckthorn and Russian olive. | No shrub layer identified in this community. | Ground cover consisted of the same herbaceous species described above for cultural thickets and woodlands. | West of the Don River | Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018) |
| Cultural Hedgerows | CUH | Cultural Hedgerows | The tree canopy was dominated by Siberian elm, Manitoba maple, tree-of-heaven or black walnut depending on the location. Other less dominant tree species noted included poplar (<i>Populus</i> 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. | East of the Don River | Lake Shore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017) |

2. For the purpose of this investigation, cultural hedgerows were roughly defined as narrow strips or rows of trees, either planted or natural growing as remnants of old vegetation communities that were removed in the past, with minimal vegetative cover underneath

Figure 3-3: Ecological Land Classification – Ontario Line South Study Area









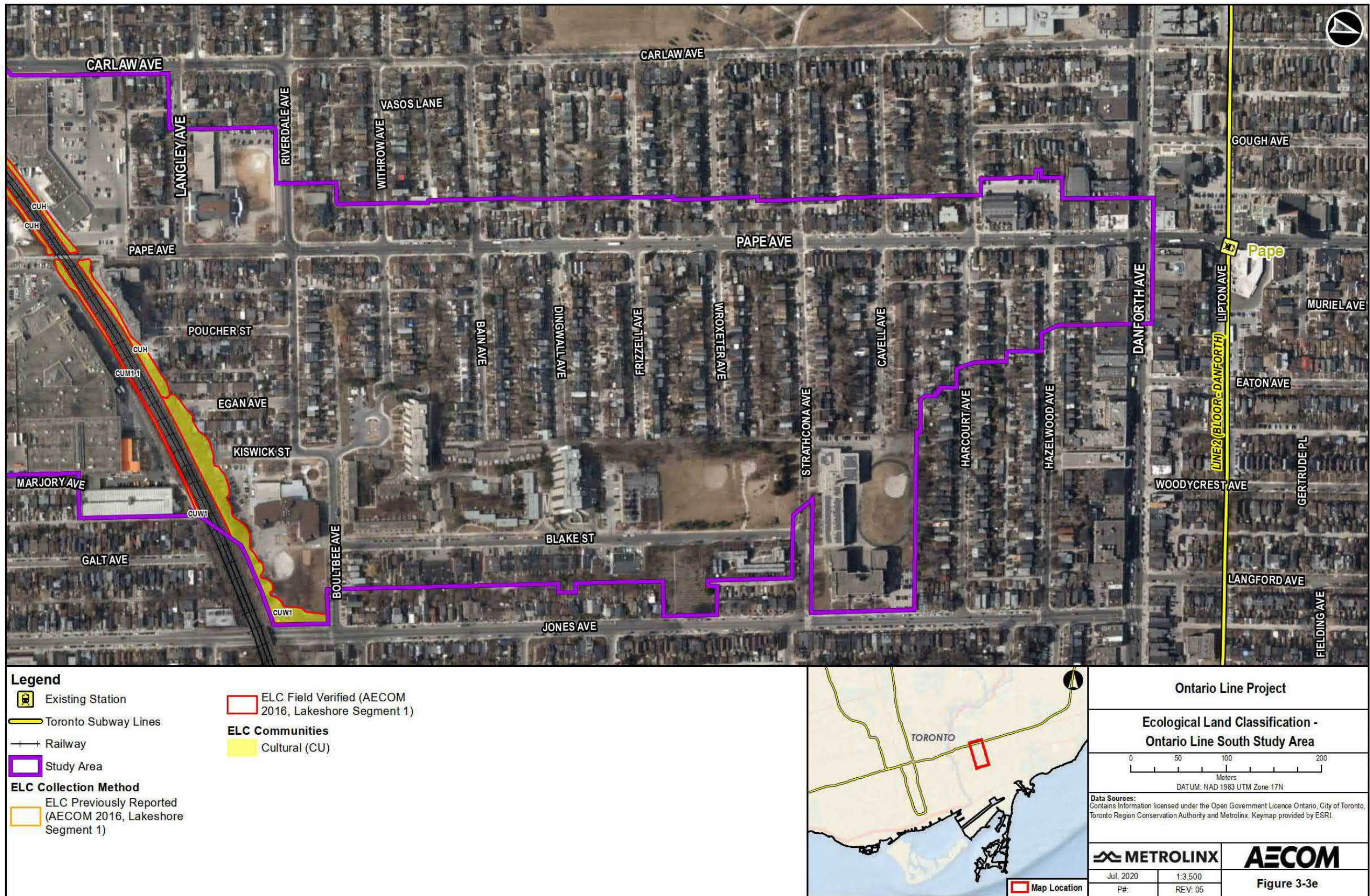


Table 3-4: Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded within the Ontario Line South Study Area

| Common Name | Scientific Name | Local Rank | General Location within the Ontario Line South Study Area | Source |
|-----------------------------|-------------------------------|------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Wild red currant | <i>Ribes triste</i> | L3 | East of the Don River | Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017) |
| American prickly-ash | <i>Zanthoxylum americanum</i> | L3 | East of the Don River | Lakeshore East Rail Corridor Expansion Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017) |
| Big bluestem | <i>Andropogon gerardii</i> | L3 | East of the Don River | Lakeshore East Rail Corridor Expansion Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017) |

Note: Local Rank – Toronto and Region Conservation Authority (2020c). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority within their jurisdiction:
 L+: Exotic. Not native to Toronto and Region Conservation Authority jurisdiction (includes hybrids between native and exotic species).
 L1: Rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
 L2: Probably rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
 L3: Generally secure in natural matrix; considered to be of regional concern.
 L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
 L5: Generally secure throughout Toronto and Region Conservation Authority jurisdiction; may be of very localized concern in highly disturbed areas.

3.1.3.3 Fish and Fish Habitat

Watershed Description

The Study Area contains the Don River, which is situated within the Don River watershed with the southern extent adjacent to the Lake Ontario waterfront. The Don River watershed is approximately 80% urbanized with almost half of the watershed dedicated to residential development (AECOM, 2017). As one of the watersheds most anthropologically affected in Toronto and Region Conservation Authority's jurisdiction, the natural cover that remains is mostly along the larger valleys and in the headwaters,

which serve as wildlife refuges and recreational spaces for the 1.2 million residents that live within its boundaries (AECOM, 2017). The Don River watershed has suffered extensive degradation as a result of the removal of natural cover and the alteration of the hydrologic system through the spread of agriculture and subsequent urbanization of the watershed. Lack of effective stormwater control including the increase of impervious surfaces, stormwater retention ponds affecting seasonal fluctuations of flows and physical alterations to tributaries (TRCA, 2009) has resulted in flooding, erosion, poor water quality and degraded terrestrial and aquatic ecosystems. The water quality of the Don River is impacted by industrial and sewage outfalls, untreated storm water discharge and agricultural runoff (TRCA, 2009). Rising population density has led to further development and expanded areas of impervious ground cover as well as heavy use of public greenspaces and natural areas (AECOM, 2017).

Aquatic Habitat Description Previous assessments of the Don River within the Ontario Line South Study Area showed evidence of prior re-alignment to accommodate urban transportation corridor development with little natural features present (AECOM, 2017) and slow flowing, turbid water (HDR, 2018). Banks were found to have a narrow strip of riparian vegetation and steel support walls (HDR, 2018). Bankfull width and depth were approximately 40 metres and 2 metres respectively, with wetted width approximately 36 metres (HDR, 2018). The Don River within the Study Area provides direct fish habitat important for migration, feeding and refuge however conditions are generally non-limiting throughout with no specialized (critically limiting spawning habitat) identified (AECOM, 2017, 4Transit, 2018a). Migratory species (i.e., Salmon) use the Don River as a seasonal migratory corridor to and from Lake Ontario as no barriers to fish use were identified (AECOM, 2017).

Fish Species Composition

The section of the Don River through the Ontario Line South Study Area is classified as estuarine in the City of Toronto Natural Heritage Study (HDR, 2018) with 33 species of fish recorded (Toronto and Region Conservation Authority, 2020a). The aquatic species composition represents a mix of generally common warm to cold water species that are intermittently tolerant to tolerant of environmental perturbation with Salmonid species being the exception (AECOM, 2018). Coldwater species that are generally intolerant such as Atlantic Salmon and Brown Trout were identified, however are not anticipated to be resident fish. Rather, they have been captured in the Don River as a result of sport fish restocking initiatives and/or seasonal migration to and from Lake Ontario (AECOM, 2018; TRCA, 2009). **Table 3-5** provides a summary of records including the number of fish species, thermal regime, anticipated timing window for in-water works. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk have been recorded within the Ontario Line North Study Area (Fisheries and Oceans Canada, 2020), except historical records discussed in **Section 3.1.3.6**.

Table 3-5: Fish Community in Don River within the Ontario Line South Study Area

| Watercourse | Number of Fish Species | Thermal Regime ¹ | Fish Community Records (2011-2019; Source: Toronto and Region Conservation Authority) |
|-------------|------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Don River | 33 | Warm ² | <p>Mixed Assemblage of Cold, Cool, and Warm Water Species³ including:</p> <p>Cold:</p> <ul style="list-style-type: none"> ▪ Atlantic Salmon* ▪ Alewife* ▪ Brown Trout* ▪ Chinook Salmon* ▪ Rainbow Trout* <p>Cool:</p> <ul style="list-style-type: none"> ▪ Blacknose Dace ▪ Common Shiner ▪ Creek Chub ▪ Emerald Shiner ▪ Gizzard Shad ▪ Northern Pike ▪ Rock Bass ▪ Round Goby ▪ Sea Lamprey ▪ Smallmouth Bass ▪ Spottail Shiner ▪ Walleye ▪ White Sucker ▪ Yellow Perch ▪ Quillback <p>Warm:</p> <ul style="list-style-type: none"> ▪ Bigmouth Buffalo ▪ Bluntnose Minnow ▪ Brown Bullhead ▪ Common Carp* ▪ Fathead Minnow ▪ Freshwater Drum ▪ Goldfish* ▪ Goldfish x Common Carp hybrid* ▪ Koi* ▪ Longnose Gar ▪ Pumpkinseed ▪ Spotfin Shiner ▪ White Bass |

Note: 1. Thermal regime data provided by Toronto and Region Conservation Authority (2020).
2. Coldwater species such as salmon and trout were identified, however are not anticipated to be resident fish, rather a result of sport fish restocking initiatives and/or seasonal migration to and from Lake Ontario (AECOM, 2018). As such, thermal regime is based on resident fish community structure and has been confirmed through Toronto and Region Conservation Authority correspondence as a warmwater regime.
3. Thermal Regime by species Source: The Ontario Freshwater Fishes Life History Database, Eakins, 2020).
* denotes non-native species (Source: Fish Communities of the Toronto Waterfront, Toronto and Region Conservation Authority, 2008).

3.1.3.4 Wildlife and Wildlife Habitat

Appendix B1 has a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line South Study Area. There is limited natural cover providing wildlife habitat within the Ontario Line South Study Area in the form of urban parks, residential yards and narrow strips of riparian vegetation along the Don River and within the existing rail corridor (HDR, 2018). The Corktown Common Park is located in the West Don Lands adjacent to the Don River and was converted from an industrial brownfield to a 7.3 ha park, containing a system of restored urban prairie and marsh habitats situated on top of a flood protection landform (Waterfront Toronto, 2020).

This park provides habitat for urban wildlife. Small pockets of low-quality vegetation west of Don River supporting urban wildlife were documented but generally lacked in amphibian breeding habitat (AECOM, 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 fragmented with low connectivity to significant natural features (AECOM, 2017). The existing rail corridor provides low-quality movement corridors for some small mammals, birds and insects.

Most of the bird species recorded within the existing rail corridor east of the Don River consisted of common species in Ontario that are tolerant to urban disturbances except for Barn Swallow and Chimney Swift, both Species at Risk birds protected under the Endangered Species Act, noted flying over the existing rail corridor (AECOM, 2017).

Areas that could potentially support herpetofauna tolerant of urban conditions including American Toad (*Anaxyrus americanus*), Dekay's Brownsnake (*Storeria d. dekayi*), and Eastern Gartersnake (*Thamnophis s.sirtalis*) were also identified close to the Don River (4Transit, 2018b).

Generally, the Ontario Line South Study Area provides limited wildlife habitat throughout and although the Don River may function as a movement corridor for small to medium sized urban wildlife, there is low connectivity to other significant natural features with many barriers to animal movement (i.e., railways, roads, construction areas and fences). However, it is important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for many migratory birds, which are protected under the Migratory Birds Convention Act.

3.1.3.5 Significant Wildlife Habitat

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) and the sources listed in **Appendix B1**, the following Significant Wildlife Habitat types occur or may occur within the Ontario Line South Study Area. Refer to **Appendix B1** for the Significant Wildlife Habitat Screening in the Ontario Line South Study Area.

- **Habitats of Species of Conservation Concern:**
 - **Confirmed Habitat for Species of Conservation Concern:**
 - Peregrine Falcon – this species may nest on ledges of high-rise buildings. This species was recorded by Toronto and Region Conservation Authority in 2010 near the intersection of Queen Street West and University Avenue. The Sheraton Centre Toronto Hotel located at 123 Queen Street West is a confirmed and current nesting location for this species (Canadian Peregrine Foundation, 2020). This species is not protected by Migratory Birds Convention Act but receives protection under the Ontario Fish and Wildlife Conservation Act, 1997.
 - Northern Map Turtle – the Don River may serve as a movement corridor for this species due to its moderate flow and less than 1 metres depth. However, there are no suitable nesting or basking habitats present. A single record of this species within the Ontario Line South Study Area was reported by Ontario Nature in 2016.
 - **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), as well as along the banks of the Don River. This species was recorded by Toronto and Region Conservation Authority in 2016 near the intersection of Pape Avenue and Danforth Avenue. This species is protected by Migratory Birds Convention Act.
 - Eastern Wood-pewee – the cultural woodlands (CUW1) west of the Don River may provide suitable nesting habitat for this species. This species is protected by Migratory Birds Convention Act.
 - Red-headed Woodpecker – wooded areas (e.g., cultural woodlands) may provide suitable habitat for this species. This species is protected by Migratory Birds Convention Act.
 - Monarch – cultural meadows (CUM1) east and west of the Don River may provide suitable foraging and rearing habitat.

- **Snapping Turtle** – the Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 metres and may serve as movement corridor for this species to Lake Ontario. However, there are no suitable nesting, or basking habitats present.

There were no candidate or confirmed seasonal concentration areas, rare vegetation communities or specialised habitat for wildlife identified within the Ontario Line South Study Area. Although the Don River within the Ontario Line South Study Area acts as an important movement corridor for small urban wildlife in a highly urbanized area, it does not qualify as a candidate animal movement (amphibian or deer) corridor based on the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) due to high levels of urbanization, fragmentation and barriers to animal movements (i.e., railways, roads, construction areas and fences).

3.1.3.6 Species at Risk

The following Species at Risk have a high probability of occurring within the Ontario Line South 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. Barn Swallows are aerial insectivores and commonly forage over open areas such as waterbodies, pastures with livestock and woodlands edges (Ministry of Natural Resources and Forestry, 2013a), and often live in close association with humans, building their cup-shaped mud nests, which are often reused from year to year, almost exclusively on human-made structures such as open barns, buildings, under bridges and in culverts (Ministry of the Environment, Conservation and Parks, 2019a). Nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access to mud for nest building (Heagy et al., 2014). According to 4Transit (2018b), Barn Swallows were observed foraging in the vicinity of the rail bridge crossing the Don River suggesting that active nests may be present under this bridge. Generally, the buildings within the Ontario Line South 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.

■ **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. Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts

within the Ontario Line South Study Area. A list of characteristics for suitable chimneys is provided above in **Section 3.1.2.6**. Based on review of available online secondary source information, there are two confirmed Chimney Swift sites within the Ontario Line South Study Area. According to 4Transit (2018b), Chimney Swift nests were confirmed in 2017 inside the chimney located on 21 Don Roadway, which is situated on the east bank of the Don River and south of the existing rail corridor. The second location is one of the largest known roosts in Ontario, located at the Moss Park Armoury on 130 Queen Street East (Bird Studies Canada and SwiftWatch, 2019). Chimney Swifts have strong site fidelity (i.e., will return and use sites year after year) as long as the conditions of the nest and roost sites remain stable (Ministry of Natural Resources and Forestry, 2013b).

The following Species at Risk have a medium probability of occurring within the Ontario Line South Study Area:

- **Bat Species at Risk, including Eastern Small-footed Myotis, Little Brown Myotis, Northern Long-eared Myotis and Tri-coloured Bat**

Bat Species at Risk are listed as Endangered and receive protection under the Endangered Species Act. There were no hibernacula identified within the Ontario Line South Study Area; however, maternity roosting habitats may be present. Within the Ontario Line South Study Area, treed areas, including forest and cultural woodlands within the existing rail corridor may provide suitable maternity roosting habitats for these species. Buildings with potential entry / exit points within the Ontario Line South Study Area may also be used by bat Species at Risk for roosting. The rail bridge over the Don River is not considered to be roosting habitat for bat Species at Risk as these species are not known to use bridges or rail overpasses as day roost habitats at northern latitudes (Keeley and Tuttle, 1999; Bennet et al., 2008; Bektas et al., 2018; Civjan et al., No Date; Adam and Hays, 2000). Documented cases of this behaviour have only been recorded in the southern United States along with the Pacific northwest and west coast (Keeley and Tuttle, 1999; Bennet et al., 2008; Bektas et al., 2018; Civjan et al., No Date; Adam and Hays, 2000). There are no documented cases of bats utilizing bridges as roosting habitat in Ontario or Michigan, as bridges at these northern latitudes are not warm enough to meet bats' microclimatic conditions.

- **Butternut**

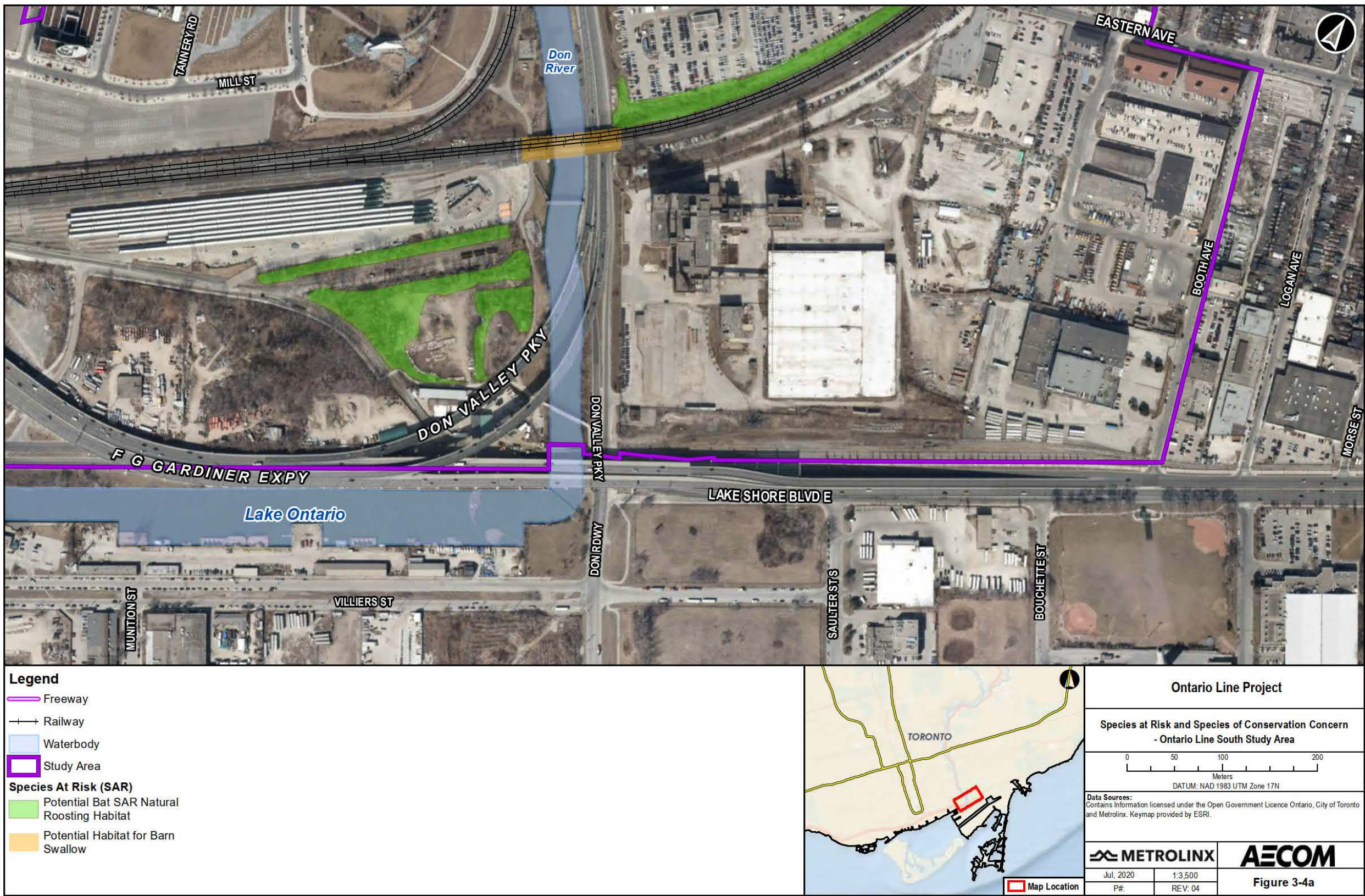
This species is listed as Endangered and receives protection under the Provincial Endangered Species Act. This species may occur within the cultural hedgerows within the existing rail corridor.

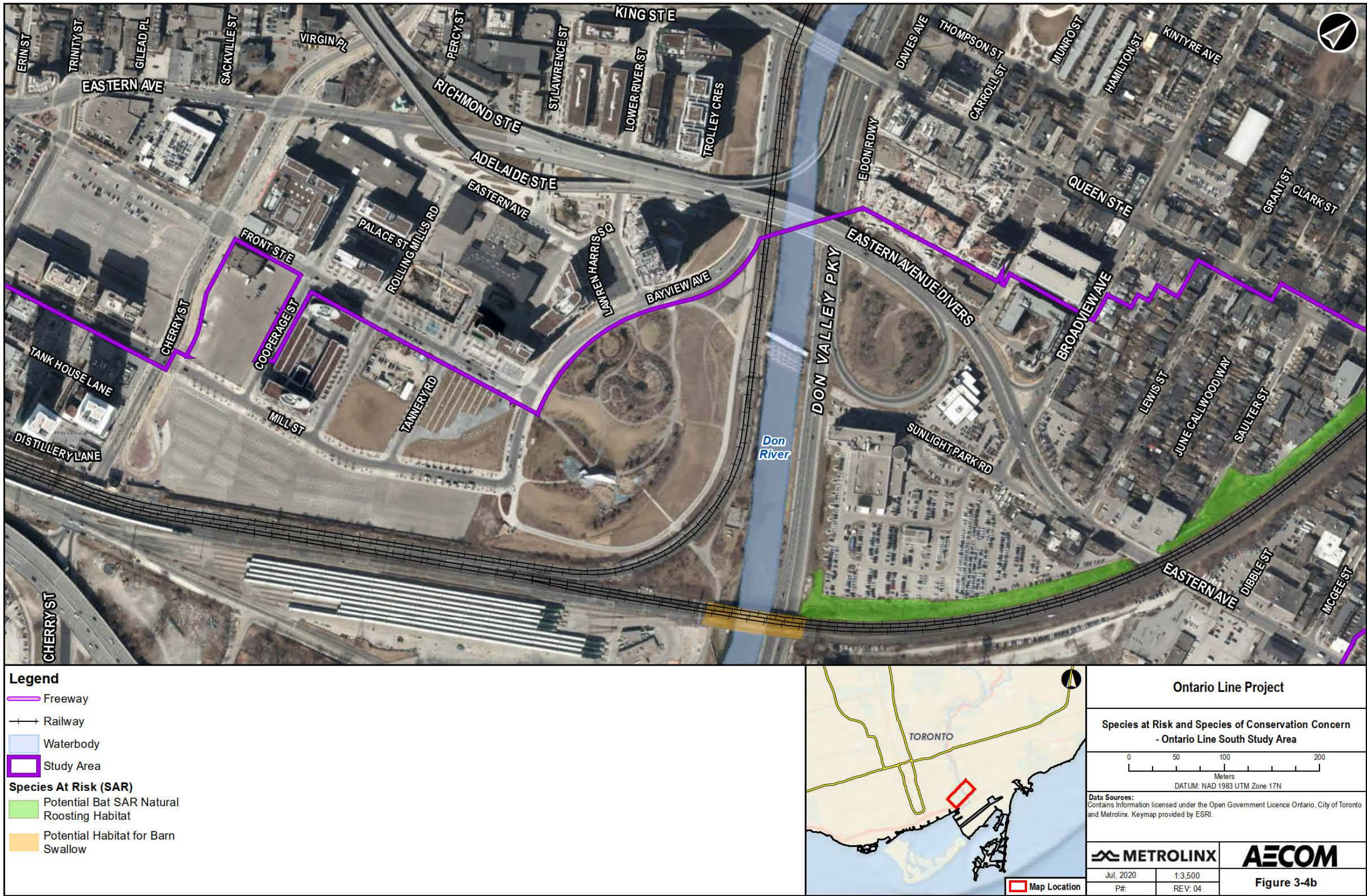
The remaining Species at Risk had low probability of occurrence due to lack of habitat identified within the Ontario Line South Study Area:

- Bank Swallow
- Bobolink
- Eastern Meadowlark
- Blanding's Turtle.

There were historical Natural Heritage Information Centre records from 1884 and 1926 of Lake Sturgeon (*Acipenser fulvescens*) and Redside Dace (*Clinostomus elongatus*), respectively, as well as American Eel (4Transit, 2018a). Listed as Endangered under the Endangered Species Act, these species were not included in the Species at Risk habitat screening provided in **Appendix I** as these records from Natural Heritage Information Centre were considered to be historical (i.e., more than 20 years old). Lake Sturgeon and Redside Dace are unlikely to still persist within the Don River, which does not provide suitable habitat conditions for these species. American Eels are habitat generalists; however, Fisheries and Oceans Canada's 2020 Aquatic Species at Risk Map and MNRF data records are considered to be current and indicate that there is no critical habitat for aquatic Species at Risk in the Don River within the entire Ontario Line Study Area. Species at Risk in the Ontario Line South Study Area are mapped in **Figure 3-4**.

Figure 3-4: Species at Risk and Species of Conservation Concern – Ontario Line South Study Area









3.1.4 Ontario Line North

3.1.4.1 Designated Natural Features/Planning Policy Areas

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (2020a), there are no Provincially Significant Wetlands, Locally Significant Wetlands or provincially significant Areas of Natural and Scientific Interest within the Ontario Line North Study Area. However, there is a candidate regionally significant life science Areas of Natural and Significant Interest within the E.T. Seton Area of Investigation, as well as unevaluated wetlands and wooded areas within both Areas of Investigation. The City of Toronto does not identify significant woodlands or significant valleylands in their Official Plan (2019). **Table 3-6** below provides a brief summary of these designated natural areas.

Table 3-6: Designated Natural Areas within the Ontario Line North Study Area

| Designated Natural Area Type | Name of Feature | Significance Status | Area (ha) within Ontario Line North Study Area |
|--------------------------------------------------------------|-----------------------|----------------------------------|------------------------------------------------|
| Wetland | Not Applicable | Unevaluated Wetland | 5.8 |
| Woodlands | Unknown | Unknown | 55.1 |
| Life Science Areas of Natural and Scientific Interest | West Don River Valley | Candidate Regionally Significant | 23.5 |

In addition, the Don River Valley within the Ontario Line North Study Area is a valleyland feature consisting of a continuous natural vegetation corridor with a minimum width of 100 metres and containing over 25% of natural cover, fish habitat and regionally and locally rare species identified within the Candidate Regionally Significant West Don River Valley Life Science Areas of Natural and Significant Interest and environmentally significant area within E.T. Seton Park. Although there was no mapping available from secondary sources identifying the boundaries of this valleyland specifically, the City of Toronto's Natural Heritage System and Ravine and Natural Feature Protection By-law, and Toronto and Region Conservation Authority's regulation limits generally include the extent of the valleyland within the Ontario Line North Study Area. The Don River Valley is also designated as an Urban River Valley under the Greenbelt Plan.

3.1.4.2 Ecological Land Classification and Plant Inventory

The majority of the Ontario Line North Study Area included developed residential and commercial areas with vegetation limited to streetscapes (e.g., street trees, City parks,

manicured lawns). Field investigations were focused on the natural areas present within the Millwood Road and E.T. Seton Park Areas of Investigation and described in the following sub-sections.

Millwood Road Area of Investigation

Nine vegetation communities were identified within the Millwood Road Area of Investigation. The locations and Ecological Land Classifications of these vegetation communities are shown on **Figure 3-5** and summarized in **Table 3-7** below. None of these vegetation communities are provincially significant. Representative photographs of the vegetation communities identified within the Millwood Road Crossing Area of Investigation are provided in **Appendix B1**.

A comprehensive vascular plant list for the Millwood Road Area of Investigation is provided in **Appendix B1**. A total of 125 plant species were recorded within the area investigated. Of the 125 species that could be identified to species level, 68 (54%) were native and 57 (46%) were non-native species.

One Species at Risk, butternut, was incidentally observed in two locations during Ecological Land Classification surveys in the Millwood Road Area of Investigation; this species is listed as Endangered and protected under the Endangered Species Act. One butternut was observed in the Dry – Fresh Sugar Maple – Oak Deciduous Forest Type near Millwood Road, noted to be in general good health conditions (e.g., minimal evidence of butternut canker (*Ophiognomonia clavigignenti-juglandacearum*) and was surrounded by tree protection fencing, assumingly, by the City of Toronto, which suggests that this individual may be a pure specimen. A second butternut was noted in the Fresh – Moist Lowland Deciduous Forest Ecosite near the existing rail corridor. It was measured to be approximately 24-centimeter diameter at breast height and was noted to be heavily affected by butternut canker. The live canopy percent could not be confirmed at the time of field investigations given that this butternut was just beginning to leaf out, but several dead branches were noted in the canopy. It's anticipated that this specimen was a pure butternut; however, a butternut health assessment and DNA test should be completed if proposed works are within 25 metres of this tree. An arborist with tree climbing qualifications would be required to collect a DNA sample. Detailed tree inventories are required during Detailed Design to confirm there are no additional butternuts within the Study Area. No other Species at Risk or provincially significant plants were observed during Ecological Land Classification surveys.

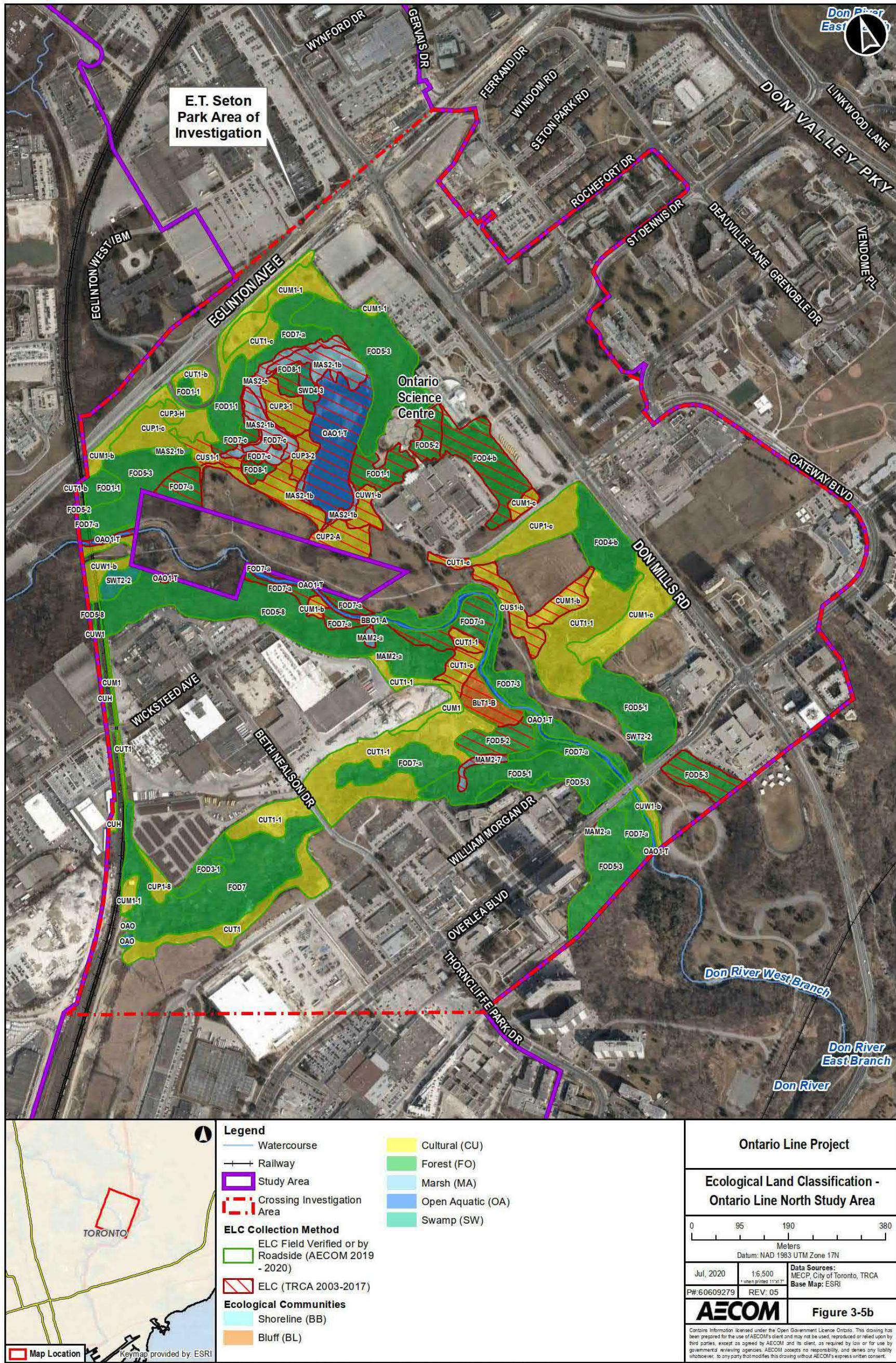
Table 3-7: Ecological Land Classification Vegetation Communities Identified within the Millwood Road Crossing Area of Investigation

| Communities | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments |
|----------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Forest Communities – Deciduous Forest | FOD4 | Dry – Fresh Deciduous Forest Ecosite | Greater than 60% tree cover: dominated by Norway maple, Manitoba maple, Siberian elm, and black walnut. | No distinct shrub layer could be observed in the community. | Between 10 and 60% ground cover: dominated by false nettle (<i>Boehmeria cylindrica</i>), dog-strangling vine, reed canary grass (<i>Phalaris arundinacea</i>), and dame’s rocket). | |
| Forest Communities – Deciduous Forest | FOD5-3 with a FOD5-2 inclusion | Dry – Fresh Sugar Maple – Oak Deciduous Forest Type | Greater than 60% tree cover: canopy dominated by sugar maple (<i>Acer saccharum</i>), red oak (<i>Quercus rubra</i>), and bitternut hickory (<i>Carya cordiformis</i>). | Between 10 and 25% shrub cover: dominated by sugar maple and included green ash (<i>Fraxinus pennsylvanica</i>). | Between 10 and 25% ground cover: dominated by grass species (<i>Poaceae</i> sp.), sugar maple, and eastern creeping snowberry (<i>Gaultheria hispidula</i>). | An inclusion of Dry – Fresh Sugar Maple – Beech Deciduous Forest Type was noted along the Lower Don Recreation Trail near the valley bottom. Suitable cavity trees for bats were present in this mature forest. Generally more non-native, weedy species were present along the edge of Millwood Road. |
| Forest Communities – Deciduous Forest | FOD7a with MAM2 inclusion | Fresh – Moist Lowland Deciduous Forest Ecosite | Greater than 60% tree cover: canopy dominated by sugar maple, Freeman’s maple, and, to a lesser extent, tree-of-heaven. | Between 25 and 60% shrub cover: dominated by Manitoba maple, green ash, American basswood (<i>Tilia americana</i>), and red oak. | Greater than 60% ground cover: dominated by stinging nettle (<i>Urtica dioica</i> ssp. <i>Dioica</i>), common burdock, and wood avens (<i>Geum urbanum</i>). | Patch of invasive species growing along the trail, including Japanese knotweed, abundant dog-strangling vine, and garlic mustard. |
| Forest Communities – Deciduous Forest | FOD7b with MAM2-10 Inclusion and a Mineral Open Beach / bar (BBO1) inclusion | Fresh – Moist Lowland Deciduous Forest Ecosite with Forb Mineral Meadow Marsh inclusion | Canopy dominated by Siberian elm, crack willow (<i>Salix fragilis</i>), and eastern cottonwood. | Shrub layer dominated by Manitoba maple and common buckthorn. | Ground layer dominated by stinging nettle and, to a lesser extent, garlic mustard, dog-strangling vine, goldenrod species, and common ragweed (<i>Ambrosia artemisifolia</i>). | Forb Mineral Meadow Marsh was dominated by stinging nettle, goldenrods and dog strangling vine. No standing water was observed. A sand, gravelly beach was noted as an inclusion of FOD7b along the Don River on the north bank. Abundant evidence of disturbance, including trails, invasive species, and abandoned bonfire sites. |
| Forest Communities – Deciduous Forest | FOD7c with FOD5-3 inclusion | Fresh – Moist Lowland Deciduous Forest Ecosite | Canopy dominated by Manitoba maple, crack willow, black locust (<i>Robinia pseudoacacia</i>), and black walnut. | Shrub layer dominated by Manitoba maple and common buckthorn. | Ground layer dominated by Canadian wood nettle (<i>Laportea canadensis</i>) and tall nettle (<i>Urtica procera</i>) and, to a lesser extent, goldenrod species, dame’s rocket, and garlic mustard. | Dog-strangling vine was dominant along the edge of the Lower Don Recreational Trail. |
| Cultural Communities – Cultural Meadow | CUM1-1 | Dry-moist Old Field Meadow | No tree canopy layer identified in this community. | Between 0 and 10% shrub cover: dominated by Manitoba maple and common buckthorn. | Greater than 60% ground cover: dominated by dog-strangling vine, dame’s rocket, common tansy (<i>Tanacetum vulgare</i>) and, to a lesser extent, common milkweed, reed canary grass, and stinging nettle. | This Dry-moist Old Field Meadow was located along the south bank of the Don River underneath the Millwood Road Overpass Bridge. |

| Communities | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments |
|-----------------------------------------|-------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cultural Communities – Cultural Meadow | CUM1-1 with CUT1 inclusion | Mineral Cultural Meadow with Common Lilac Cultural Thicket inclusion | No tree canopy layer identified in this community. | Less than 25% shrub cover dominate by eastern red cedar (Juniperus virginiana), Tartarian honeysuckle (Lonicera tatarica), and common buckthorn. | Greater than 60% ground cover dominated by goldenrods, poison ivy (Toxicodendron radicans ssp. Negundo), dog strangling vine, reed-canary grass, wild carrot, and Canada thistle. | This Mineral Cultural Meadow was located within the existing rail corridor of the Don Valley Parkway. The Common Lilac Cultural Thicket inclusion was present along the south side of the Don Valley Parkway. |
| Cultural Communities – Cultural Meadow | CUM1-1 with CUT1-1 inclusion | Dry-moist Old Field Meadow with Mineral Sumac Cultural Thicket inclusion | No tree canopy layer identified in this community. | Less than 60% shrub cover was dominated by staghorn sumac, Manitoba maple, and Tartarian honeysuckle. | Greater than 60% ground cover was dominated by stinging nettle and, to a lesser extent, dog-strangling vine, dame's rocket, and Kentucky blue grass. | This Dry-moist Old Field Meadow was located north of the existing rail corridor. Active construction was ongoing at the time of field investigation. The Mineral Sumac Cultural Thicket was located immediately along the north side of the rail tracks. A small patch of common reed (Phragmites australis), a wetland invasive plant, was present adjacent to the construction parking area. |
| Cultural Communities – Cultural Thicket | CUT1 | Mineral Cultural Thicket Ecosite | No tree canopy layer identified in this community. | Greater than 60% shrub cover dominated by staghorn sumac, Morrow's honeysuckle, Norway maple, black elderberry (Sambucus nigra), Manitoba maple and common buckthorn. | Greater than 60% ground cover: dominated by dog-strangling vine, garlic mustard, and wood avens. | Evidence of disturbance underneath the Hydro Corridor (e.g., cutting of shrubs and Manitoba maple). |

Figure 3-5: Ecological Land Classification – Ontario Line North Study Area





No other Species at Risk or provincially significant plants were observed during Ecological Land Classification surveys. Six Regional Species of Conservation Concern plants were observed and are summarized in **Table 3-8**.

Table 3-8: Toronto and Region Conservation Authority Regional Species of Conservation Concern Plants Recorded in the Millwood Road Area of Investigation

| Common Name | Scientific Name | Local Rank | Vegetation Community Observed |
|----------------------|-------------------------------------------------|------------|-------------------------------|
| Red pine | <i>Pinus resinosa</i> | L1 | FOD7c |
| Hoary vervain | <i>Verbena stricta</i> | L3 | CUM1-1 |
| Hard-stemmed bulrush | <i>Schoenoplectus acutus</i> var. <i>acutus</i> | L3 | FOD7b |
| Eastern Snowberry | <i>Symphoricarpos albus</i> var. <i>albus</i> | L3 | FOD5-3 |
| Butternut | <i>Juglans cinerea</i> | L3 | FOD5-3 |
| Wood-sorrel | <i>Oxalis montana</i> | L2 | FOD4, FOD7b, FOD7c |

Note: Local Rank – Toronto and Region Conservation Authority (2020c). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority within their jurisdiction:
L+: Exotic. Not native to Toronto and Region Conservation Authority jurisdiction (includes hybrids between native and exotic species).
L1: Rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L2: Probably rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout Toronto and Region Conservation Authority jurisdiction; may be of very localized concern in highly disturbed areas.

E.T. Seton Park Area of Investigation

Vegetation communities within the E.T. Seton Park Area of Investigation were classified to 40 vegetation types. It appears that natural vegetation communities dominated the landscape, particularly forest communities which represented 33.69 hectares (ha) or 54% of the of the Study Area. Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FOD5-8) and Fresh-Moist Lowland Deciduous Forest (FOD7) were the largest vegetation communities while Fresh-Moist Manitoba Maple Lowland Deciduous Forest (FOD7-a) was the most frequently occurring community type. The locations and Ecological Land Classifications of these vegetation communities are shown on **Figure 3-5**. These vegetation communities are further described in **Table 3-9** below.

Table 3-9: Ecological Land Classification Vegetation Communities Identified by Toronto and Region Conservation Authority within the E.T. Seton Park Crossing Area of Investigation

| Community | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments | Verified by AECOM 2020 |
|----------------------|-------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------|
| Beach/Bar | BBO1-A | Open Riparian Sand/Gravel Bar | No tree canopy layer identified in this community. | No shrub layer identified in this community. | The following species were dominant in the ground cover: reed-canary grass, forget-me-not (<i>Myosotis scirpoides</i>) and stinging nettle. | There is a moderate level of non-native species present and evidence of flash floods and disturbed hydrology. | Yes |
| Bluff Communities | BLT1-B | Deciduous Treed Bluff | Dominant species in the canopy included: sugar maple, paper birch (<i>Betula papyrifera</i>), American elm (<i>Ulmus americana</i>), and white ash. | The following species were dominant in the shrub layer: white ash, alternate-leaved dogwood (<i>Cornus alternifolia</i>), and hybrid honeysuckle (<i>Lonicera x bella</i>). | The following species were dominant in the shrub layer: field horsetail, dog-strangling vine, coltsfoot (<i>Tussilago farfara</i>) and Virginia creeper (<i>Parthenocissus quinquefolia</i>). | – | No |
| Cultural Communities | CUH | Cultural Hedgerow | Manitoba maple dominated the canopy along with white ash, trembling aspen (<i>Populus tremuloides</i>) and Siberian elm. | Common buckthorn was present in the shrub layer. | The following species were dominant in the ground layer: Virginia creeper, tall goldenrod and dog-strangling vine. | – | Yes |
| Cultural Communities | CUM1-1 | Mineral Cultural Meadow | No tree canopy layer identified in this community. | No shrub layer identified in this community. | The following species were dominant in the ground layer: Kentucky blue-grass, dog-strangling vine, wild carrot, white sweet-clover and common dandelion (<i>Taraxacum officinale</i>). | – | Yes |
| Cultural Communities | CUM1-b | Exotic Cool-season Grass Graminoid Meadow | Dominant species in the canopy included: <i>Lonicera x bella</i> shrub honeysuckle, Siberian elm, staghorn sumac, black locust, white spruce (<i>Picea glauca</i>) and common buckthorn. | No shrub layer identified in this community. | The following species were dominant in the ground layer: grasses, common reed (<i>Phragmites australis asustralis</i>) dog-strangling vine, Canada thistle and tall goldenrod. | – | Yes |
| Cultural Communities | CUM1-c | Exotic Forb Meadow | Dominant species in the canopy included: Norway spruce (<i>Picea abies</i>), honey locust (<i>Gleditsia triacanthos</i>), and white spruce. | The following species were dominant in the shrub layer: common buckthorn, hybrid honeysuckle and staghorn sumac. | Dog-strangling vine dominated in the ground layer. Orchard grass, Canada thistle and tall goldenrod was also present. | – | Yes |
| Cultural Communities | CUP1-c, with CUT1-1 inclusion | Locust Deciduous Plantation | Dominant species in the canopy included: black locust with some black walnut and Manitoba maple. | Common buckthorn dominated in the shrub layer with staghorn sumac and Morrow's honeysuckle. | The following species were dominant in the ground layer: dog-strangling vine, tall goldenrod, and garlic mustard. | Formerly designated FOD4-c. | Yes |
| Cultural Communities | CUP1-c | Locust Deciduous Plantation | Black locust dominated the canopy with some black walnut and sugar maple in the sub-canopy. | The following species were dominant in the shrub layer: hybrid honeysuckle, hawthorn species (<i>Crataegus</i> sp.), common buckthorn and white ash. | The following species were dominant in the ground layer: dog-strangling vine, garlic mustard and grasses. | Formerly designated FOD4-c. | Yes |
| Cultural Communities | CUP1-8 | Red Oak Deciduous Plantation | Red oak dominated the canopy along with black locust. | The shrub layer was dominated by common buckthorn and Morrow's honeysuckle. | The following species were dominant in the ground layer: dog-strangling vine, bracken fern, goldenrod species, false Solomon's seal and garlic mustard. | – | Yes |

| Community | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments | Verified by AECOM 2020 |
|----------------------|-------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------|
| Cultural Communities | CUP2-A | Restoration Mixed Plantation | Dominant species in the canopy included: Austrian pine (Pinus nigra), green ash and bur oak (Quercus macrocarpa). | The following species were dominant in the shrub layer: red oak, white pine (Pinus strobus), common buckthorn and staghorn sumac. | The following species were dominant in the ground layer: grasses, dog-strangling vine, Canada thistle and bird vetch (Vicia cracca). | – | No |
| Cultural Communities | CUP3-1 | Red Pine Coniferous Plantation | The canopy was dominated by red pine (Pinus resinosa) with white pine and American elm also present. | Common buckthorn and white ash dominated in the shrub layer. | The following species were dominant in the ground layer: dog-strangling vine, garlic mustard, enchanters' nightshade (Circaea sp.) and herb-Robert (Geranium robertianum). | – | No |
| Cultural Communities | CUP3-2 | White Pine Coniferous Plantation | The canopy was dominated by white pine with some alder (Alnus sp.) species present. | Shrub species were not noted. | The following species were dominant in the ground layer: dog-strangling vine, enchanters' nightshade and stinging nettle. | – | No |
| Cultural Communities | CUP3-H | Mixed Conifer Coniferous Plantation | Dominant species in the canopy included: red pine, white pine, Norway spruce and white spruce. | Common buckthorn and hybrid honeysuckle dominated in the shrub layer. | Garlic mustard and dog-strangling vine dominated in the ground layer. Grasses were also present. | – | Yes |
| Cultural Communities | CUS1-1, with CUP3-C inclusion | Hawthorn Successional Savannah | Dominant species in the canopy included: eastern cottonwood, hawthorn species, ash species (Fraxinus spp.), black locust and white pine. | Common buckthorn and hawthorn species dominated in the shrub layer. | Dog-strangling vine dominated in the ground layer. Tall goldenrod and grasses were also present. | History of cattle grazing; native hawthorn | No |
| Cultural Communities | CUS1-b | Exotic Successional Savannah | Dominant species in the canopy included: Hybrid poplar (Populus x jackii), honey locust, Colorado Spruce (Picea pungens), and Manitoba maple. | Hybrid poplar and European cranberrybush (Viburnum opulus) dominated in the shrub layer. | The following species were dominant in the ground layer: dog-strangling vine, smooth brome (Bromus inermis), wild carrot and tall goldenrod. | Formerly tended landscapes with ornamentals | No |
| Cultural Communities | CUT1 | Mineral Cultural Thicket | Dominant species in the canopy included: Siberian elm, tree-of-heaven, and Manitoba maple. | The following species were dominant in the shrub layer: staghorn sumac, common buckthorn and Siberian elm. | The following species were dominant in the ground layer: dog-strangling vine, Virginia creeper and tall goldenrod. | – | Yes |
| Cultural Communities | CUT1-1, with MAS2-1b inclusion | Sumac Deciduous Thicket | Dominant species in the canopy included: trembling aspen, balsam poplar, and Manitoba maple. | The following species were dominant in the shrub layer: staghorn sumac, common buckthorn and hybrid honeysuckle. | The following species were dominant in the ground layer: dog-strangling vine, Virginia creeper, garlic mustard, grasses and goldenrod species. | – | Yes |
| Cultural Communities | CUT1-1, with CUP3-H complex | Sumac Deciduous Thicket | Dominant species in the canopy included: white ash, Manitoba maple and trembling aspen. | The following species were dominant in the shrub layer: staghorn sumac, riverbank grape and hybrid honeysuckle. | The following species were dominant in the ground layer: dog-strangling vine, grasses and goldenrod species. | – | No |
| Cultural Communities | CUT1-1 | Sumac Deciduous Thicket | No tree canopy layer identified in this community. | The shrub layer was dominated by staghorn sumac with buckthorn and Morrow's honeysuckle. | Dog-strangling vine dominated in the ground layer. Tall goldenrod, grasses and garlic mustard were also present. | Honeysuckle (Lonicera spp.) and autumn olive (Elaeagnus umbellata) present. | Yes |
| Cultural Communities | CUT1-b, with CUT1-1 inclusion | Buckthorn Deciduous Thicket | The canopy was dominated by white ash and Manitoba maple. | The shrub layer was dominated by common buckthorn. Hybrid honeysuckle and white ash were also present. | Dog-strangling vine dominated in the ground layer. Tall goldenrod and grasses were also present. | Buckthorn in more-or-less pure stands | Yes |

| Community | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments | Verified by AECOM 2020 |
|-------------------------|-------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Cultural Communities | CUT1-b | Buckthorn Deciduous Thicket | The canopy was dominated by common buckthorn and white spruce. | The following species were dominant in the shrub layer: common buckthorn, staghorn sumac, Manitoba maple and eastern red cedar. | The following species were dominant in the ground layer: dog-strangling vine, Canada blue grass (<i>Poa compressa</i>), and Kentucky blue grass. | Buckthorn in more-or-less pure stands | Yes |
| Cultural Communities | CUT1-c | Exotic Deciduous Thicket | Dominant species in the canopy included: black locust, Manitoba maple, white Ash and common buckthorn. | The following species were dominant in the shrub layer: Manitoba maple, common buckthorn, riverbank grape and staghorn sumac. | The following species were dominant in the ground layer: dog-strangling vine, grasses, garlic mustard, Virginia creeper and tall goldenrod. | Honeysuckle, lilac (<i>Syringa</i> sp.), multiflora rose (<i>Rosa multiflora</i>), autumn olive (<i>Elaeagnus umbellata</i>), etc. | Yes |
| Cultural Communities | CUW1 | Mineral Cultural Woodland | The canopy was dominated with Manitoba maple and white ash. | The following species were dominant in the shrub layer: common buckthorn, Manitoba maple, common lilac (<i>Syringa vulgaris</i>), and Amur honeysuckle (<i>Lonicera maackii</i>). | Dog-strangling vine dominated in the ground layer, followed by zig-zag goldenrod (<i>Solidago flexicaulis</i>) and garlic mustard. | – | Yes |
| Cultural Communities | CUW1-b with CUM1 inclusion | Exotic Successional Woodland | Dominant species in the canopy included: reddish willow (<i>Salix x. rubens</i>), Siberian elm, black locust, eastern cottonwood and Manitoba maple. | The following species were dominant in the shrub layer: Manitoba maple, common buckthorn, Siberian elm, hybrid honeysuckle and American elm. | Dog-strangling vine dominated in the ground layer, followed by common buckthorn, garlic mustard and dame's rocket. Smooth brome and tall goldenrod were also present. | Abandoned homesteads & formerly manicured yards | Yes |
| Forest Communities (FO) | FOD1-1 | Dry-Fresh Red Oak Deciduous Forest | Dominant species in the canopy included: red oak, sugar maple, American basswood, American beech (<i>Fagus grandifolia</i>) and ironwood (<i>Ostrya virginiana</i>). | The following species were dominant in the shrub layer: common buckthorn, sugar maple and staghorn sumac. | The following species were dominant in the ground layer: northern bush honeysuckle (<i>Diervilla lonicera</i>), dog-strangling vine, riverbank grape and garlic mustard. | – | Yes |
| Forest Communities (FO) | FOD3-1 with MAS2-1 inclusion | Dry-Fresh Poplar Deciduous Forest | Dominant canopy species included: trembling aspen, red oak and white ash. | The following species were dominant in the shrub layer: common buckthorn, Morrow's honeysuckle and trembling aspen. | Dog-strangling vine dominated the ground layer with bracken fern. | – | Yes |
| Forest Communities (FO) | FOD4-b | Dry-Fresh Manitoba Maple Deciduous Forest | The canopy was dominated by Manitoba maple and black locust with some American basswood and white ash present. | Common buckthorn, hybrid honeysuckle and staghorn sumac dominated in the shrub layer. | The following species were dominant in the ground layer: enchanters' nightshade, garlic mustard, dame's rocket, goldenrod, wild sarsaparilla (<i>Aralia nudicaulis</i>) and yellow avens. | – | Yes |
| Forest Communities (FO) | FOD4-b, with FOD3-1 inclusion | Dry-Fresh Manitoba Maple Deciduous Forest | Dominant species in the canopy included: Manitoba maple, white Ash, and American elm. | The following species were dominant in the shrub layer: riverbank grape, common buckthorn, Virginia creeper and multiflora rose. | The ground layer was dominated by dog-strangling vine and garlic mustard. | – | No |
| Forest Communities (FO) | FOD5-1 with SWD2-2 inclusion | Dry-Fresh Sugar Maple Deciduous Forest | Sugar maple dominated the canopy. Red oak, black cherry, white ash, American beech and sugar maple were also present. | The following species were dominant in the shrub layer: sugar maple, white ash, chokecherry (<i>Prunus virginiana</i>) and hybrid honeysuckle. | The following species were dominant in the ground layer: garlic mustard, yellow trout-lily (<i>Erythronium americanum</i>) and large false Solomon's seal. | – | Yes |
| Forest Communities (FO) | FOD5-1 | Dry-Fresh Sugar Maple Deciduous Forest | Sugar maple dominated the canopy. Red oak and black cherry were also present. | The following species were dominant in the shrub layer: sugar maple, chokecherry buckthorn, and alternate-leaved dogwood. | The ground layer was dominated by zig-zag goldenrod, dog-strangling vine and garlic mustard. | – | Yes |

| Community | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments | Verified by AECOM 2020 |
|-------------------------|-------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|
| Forest Communities (FO) | FOD5-2, with CUP3-b inclusion | Dry-Fresh Sugar Maple – Beech Deciduous Forest | Dominant species in the canopy included: American beech and sugar maple. | The following species were dominant in the shrub layer: American beech, sugar maple and common buckthorn. | The ground layer was dominated by garlic mustard and yellow trout-lily. | – | No |
| Forest Communities (FO) | FOD5-2 | Dry-Fresh Sugar Maple – Beech Deciduous Forest | Dominant species in the canopy included: sugar maple, American beech, red oak, white ash and ironwood. | The following species were dominant in the shrub layer: sugar maple, common buckthorn, chokecherry, white ash and Manitoba maple. | The following species were dominant in the ground layer: garlic mustard, yellow trout-lily, zig-zag goldenrod and dog-strangling vine. | – | Yes |
| Forest Communities (FO) | FOD5-3 | Dry-Fresh Sugar Maple – Oak Deciduous Forest | Dominant species in the canopy included: sugar maple, red oak, American beech, white ash, American basswood and ironwood. | The following species were dominant in the shrub layer: sugar maple, alternate-leaved dogwood and common buckthorn. | The following species were dominant in the ground layer: zig-zag goldenrod, sarsaparilla, garlic mustard, dog-strangling vine, large false Solomon's seal and Canada mayapple (Podophyllum peltatum). | – | Yes |
| Forest Communities (FO) | FOD5-3, with MAM2-a inclusion | Dry-Fresh Sugar Maple – Oak Deciduous Forest | Dominant species in the canopy included: red oak, sugar maple, American basswood and black cherry. | The following species were dominant in the shrub layer: sugar maple, white ash, common buckthorn and chokecherry. | The following species were dominant in the ground layer: garlic mustard, zig-zag goldenrod, Virginia creeper, large false Solomon's seal and starry false Solomon's seal (Maianthemum stellatum). | – | Yes |
| Forest Communities (FO) | FOD5-3, with FOD4-b and FOD6-1 inclusions | Dry-Fresh Sugar Maple – Oak Deciduous Forest | Dominant species in the canopy included: sugar maple, red oak and white ash. | The following species were dominant in the shrub layer: sugar maple, chokecherry, alternate-leaved dogwood and white ash. | The following species were dominant in the ground layer: zig-zag goldenrod, garlic mustard, large false Solomon's seal and Canada black-snakeroot (Sanicula canadensis var. canadensis). | – | No |
| Forest Communities (FO) | FOD5-8 | Dry-Fresh Sugar Maple – White Ash Deciduous Forest | Dominant species in the canopy included: sugar maple, white ash, American beech and red oak. | The following species were dominant in the shrub layer: sugar maple, Manitoba maple and white ash. | The following species were dominant in the ground layer: yellow trout-lily, starry false Solomon's seal, garlic mustard and zig-zag goldenrod. | – | Yes |
| Forest Communities (FO) | FOD5-8 with CUP1 inclusion | Dry-Fresh Sugar Maple – White Ash Deciduous Forest | Dominant species in the canopy included: sugar maple, white ash, red oak, American beech and eastern hemlock (Tsuga canadensis). | Chokecherry and common buckthorn dominated in the shrub layer. | The following species were dominant in the ground layer: zig-zag goldenrod, grasses, marginal wood-fern (Dryopteris marginalis), and garlic mustard. | CUP1 inclusion consisted of white pine, trembling aspen, silver maple, staghorn sumac and red-osier dogwood. | Yes |
| Forest Communities (FO) | FOD5-8, with FOD4-b inclusion | Dry-Fresh Sugar Maple – White Ash Deciduous Forest | Dominant species in the canopy included: sugar maple, white ash, paper birch and black cherry. | The following species were dominant in the shrub layer: alternate-leaved dogwood, sugar maple, chokecherry and Norway maple. | The following species were dominant in the ground layer: garlic mustard, zig-zag goldenrod, Virginia creeper and yellow trout-lily. | – | Yes |
| Forest Communities (FO) | FOD7 with CUT1-1 inclusion | Fresh-Moist Lowland Deciduous Forest | Dominant species in the canopy included Manitoba maple, eastern cottonwood, willow species and Siberian elm. | Shrub species were not noted. | Ground layer species were not noted. | This community was observed from roadside. | Yes |
| Forest Communities (FO) | FOD7-3 | Fresh-Moist Willow Lowland Deciduous Forest | Dominant species in the canopy included: reddish willow, eastern cottonwood, Manitoba maple, European black alder (Alnus glutinosa) and Norway maple. | The following species were dominant in the shrub layer: European black alder, Lonicera x bella shrub honeysuckle, common buckthorn and staghorn sumac. | The following species were dominant in the ground layer: dog-strangling vine, goldenrod, garlic mustard, stinging nettle and Virginia creeper. | – | Yes |

| Community | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments | Verified by AECOM 2020 |
|-------------------------|-------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------|
| Forest Communities (FO) | FOD7-a | Fresh-Moist Manitoba Maple Lowland Deciduous Forest | Dominant species in the canopy included: American elm, Manitoba maple, white ash, reddish willow, and eastern cottonwood. | Common buckthorn, honeysuckle and riverbank grape dominated the shrub layer. | The following species were dominant in the ground layer: garlic mustard, dog-strangling vine, dame's rocket, Virginia creeper and tall goldenrod. | – | Yes |
| Forest Communities (FO) | FOD7-a with CUM1 inclusion | Fresh-Moist Manitoba Maple Lowland Deciduous Forest | Manitoba maple, white ash, sugar maple and American basswood dominated the canopy. | Manitoba maple, common buckthorn and white ash made up a majority of the shrub layer. | The following species were dominant in the ground layer: zig-zag goldenrod, ostrich fern (Matteuccia struthiopteris), dog-strangling vine and field horsetail. | – | Yes |
| Forest Communities (FO) | FOD7-c | Fresh-Moist Exotic Deciduous Forest | The canopy was dominated by alder species with Manitoba maple and reddish willow also present. | The following species were dominant in the shrub layer: alder species, common buckthorn and hybrid honeysuckle. | The following species were dominant in the ground layer: alder species, dog-strangling vine, enchanters' nightshade and spotted spurge (Euphorbia maculata). | – | No |
| Forest Communities (FO) | FOD8-1 | Fresh-Moist Poplar Deciduous Forest | Dominant species in the canopy included: trembling aspen, paper birch, white ash and hawthorn species. | The following species were dominant in the shrub layer: hybrid honeysuckle, common buckthorn, white ash and sugar maple. | The following species were dominant in the ground layer: dog-strangling vine, Virginia creeper and sensitive fern (Onoclea sensibilis). | – | No |
| Wetland Communities | MAM2-7 | Horsetail Mineral Meadow Marsh | American elm was present in the canopy. | American elm was present in the shrub layer. | The following species were dominant in the ground layer: field horsetail, rice cut grass (Leersia oryzoides), bittersweet nightshade (Solanum dulcamara), and jewelweed (Impatiens capensis). | Usually non-coastal, + dense cover (no bare soil). | No |
| Wetland Communities | MAM2-a | Common Reed Mineral Meadow Marsh | Common reed dominated in the canopy. | Shrub species include Morrow's honeysuckle and choke cherry. | The following species were dominant in the ground layer: field horsetail, Virginia creeper, bittersweet nightshade and coltsfoot. | – | Yes |
| Wetland Communities | MAS2-1b | Narrow-leaved Cattail Mineral Shallow Marsh | Hybrid cattail (Typha x glauca) and reed manna grass (Glyceria maxima) dominated in the canopy. | Shrub species were not noted. | The ground layer was dominated by jewelweed. | Typha angustifolia or T. x glauca; indicates disturbance | Yes |
| Wetland Communities | MAS2-1b, with SWT2-2 inclusion | Narrow-leaved Cattail Mineral Shallow Marsh | Typha x glauca dominated in the canopy. | Shrub species were not noted. | The ground layer was dominated by reed manna grass. | Typha angustifolia or T. x glauca; indicates disturbance | No |
| Wetland Communities | MAS2-e | Giant Manna Grass Mineral Shallow Marsh | White cedar (Thuja occidentalis) and white spruce were present in the canopy. | The shrub layer was dominated by reed manna grass. Purple loosestrife (Lythrum salicaria) and Canada thistle were also present. | The ground layer was dominated by bittersweet nightshade. | Glyceria maxima (an exotic) | No |
| Wetland Communities | OA01-T | Turbid Open Aquatic (unvegetated) | Typha x glauca dominated in the canopy. | Shrub species were not noted. | The following species were dominant in the ground layer: pondweed species (Potamogetonaceae spp.), fennel-leaved pondweed (Stuckenia pectinata), and curly-leaved pondweed (Potamogeton crispus). | Unnatural system: sedimentation and/or nutrient input | No |

| Community | Ecological Land Classification Code | Ecological Land Classification Name | Tree Canopy | Shrub Layer | Ground Layer | Comments | Verified by AECOM 2020 |
|---------------------|-------------------------------------|----------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|
| Wetland Communities | SWD4-3 | Paper Birch – Poplar Mineral Deciduous Swamp | Trembling aspen, white ash, alder species dominated in the canopy. | The following species were dominant in the shrub layer: riverbank grape, common buckthorn, trembling aspen and white ash. | The following species were dominant in the ground layer: fowl blue grass (Poa palustris), purple-stemmed aster (Symphyotrichum puniceum), jewelweed and sensitive fern. | – | No |
| Wetland Communities | SWT2-2 | Willow Mineral Thicket Swamp | Green ash and Manitoba maple dominated in the canopy. | Narrow-leaf willow dominated in the shrub layer. Red osier dogwood and amur maple (Acer ginnala) were also present. | The following species were dominant in the ground layer: field horsetail, white paniced aster (Symphyotrichum lanceolatum), Kentucky blue-grass and giant goldenrod (Solidago gigantea). | – | Yes |
| Wetland Communities | SWT2-2 with MAM2-a inclusion | Willow Mineral Thicket Swamp | Reddish willow, Manitoba maple and balsam poplar dominated in the canopy. | Common reed dominated in the shrub layer. | The following species were dominant in the ground layer: stinging nettle, dog-strangling vine and garlic mustard. | – | Yes |

A comprehensive vascular plant list for the E.T. Seton Park Crossing Area of Investigation is provided in **Appendix B1**. A total of 166 plant species were recorded within the area investigated. Of the 166 species that could be identified to species level, 106 (64%) were native and 60 (36%) were non-native species. It appears that natural vegetation communities dominated the landscape, particularly forest communities which represented 33.69 hectares or 54% of the of the Study Area. Dry-Fresh Sugar Maple – White Ash Deciduous Forest and Fresh-Moist Lowland Deciduous Forest were the largest vegetation communities while Fresh-Moist Manitoba Maple Lowland Deciduous Forest was the most frequently occurring community type.

Three butternuts were incidentally encountered within the E.T. Seton Park Area of Investigation; they are described as follows:

- One Butternut tree had a diameter at breast height of 20-centimeters, some evidence of butternut canker and a live crown of 50-60%. Leaves could not be reached by staff from the ground for DNA testing but can likely be reached using pruners. It is suspected that this specimen is pure.
- A second Butternut tree had a diameter at breast height of 4-centimeters, little to no evidence of butternut canker and a live crown of 90%. Similarly, leaves could not be reached from the ground but could be accessed via a pruner for DNA sample collection in the future. This specimen exhibited atypical characteristics of a butternut, which suggests that it is likely a hybrid, and DNA testing is recommended to confirm hybridity.
- A third Butternut tree was recorded to have a diameter at breast height of 22-centimeters with no visible evidence of butternut canker. Live canopy percent could not be determined as the canopy was obscured by understorey foliage. This specimen exhibited atypical characteristics of a butternut, which suggests that it is likely a hybrid specimen, and DNA testing is recommended to confirm hybridity.

Detailed tree inventories are required during detailed design to confirm there are no additional Butternuts within the Ontario Line North Study Area.

No other Species at Risk or provincially significant plants were observed during Ecological Land Classification surveys. Toronto and Region Conservation Authority and AECOM recorded 27 Regional Species of Conservation Concern plants, which are summarized in **Table 3-10** below. During the confirmatory Ecological Land Classification surveys, AECOM recorded 16 plant species considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority; the remaining species were recorded by Toronto and Region Conservation Authority and were not encountered by AECOM in 2020. Aside from the Butternut, the Regional

Species of Conservation Concern are not protected under federal or provincial legislation, and as such, Metrolinx is not subject to their protection within their own lands.

Table 3-10: Regional Species of Conservation Concern Plants Recorded within the E.T. Seton Park Area of Investigation

| Common Name | Scientific Name | Local Rank | Source of Record |
|------------------------------------|-----------------------------------------------|-------------------|-------------------------------------------|
| Red pine | <i>Pinus resinosa</i> | L1 | AECOM (2020) |
| Sycamore | <i>Platanus occidentalis</i> | L2 | Toronto and Region Conservation Authority |
| White oak | <i>Quercus alba</i> | L2 | Toronto and Region Conservation Authority |
| Bearded short-husk | <i>Brachyelytrum erectum</i> | L3 | AECOM (2020) |
| Black-fruited mountain-rice | <i>Patis racemosa</i> | L3 | AECOM (2020) |
| Blue cohosh | <i>Caulophyllum thalictroides</i> | L3 | AECOM (2020) |
| Blunt-leaf water-leaf | <i>Hydrophyllum canadense</i> | L3 | AECOM (2020) |
| Broad-leaved sedge | <i>Carex platyphylla</i> | L3 | AECOM (2020) |
| Butternut | <i>Juglans cinerea</i> | L3 | AECOM (2020) |
| Dwarf scouring-rush | <i>Equisetum scirpoides</i> | L3 | AECOM (2020) |
| Eastern snowberry | <i>Symphoricarpos albus</i> var. <i>albus</i> | L3 | Toronto and Region Conservation Authority |
| Maple-leaved viburnum | <i>Viburnum acerifolium</i> | L3 | Toronto and Region Conservation Authority |
| Meadow horsetail | <i>Equisetum pratense</i> | L3 | AECOM (2020) |
| Ninebark | <i>Physocarpus opulifolius</i> | L3 | AECOM (2020) |
| Northern dewberry | <i>Rubus flagellaris</i> | L3 | Toronto and Region Conservation Authority |
| Shagbark hickory | <i>Carya ovata</i> | L3 | Toronto and Region Conservation Authority |
| Sharp-lobed hepatica | <i>Anemone acutiloba</i> | L3 | AECOM (2020) |
| Shinleaf | <i>Pyrola elliptica</i> | L3 | Toronto and Region Conservation Authority |
| Star duckweed | <i>Lemna trisulca</i> | L3 | Toronto and Region Conservation Authority |
| Swamp red currant | <i>Ribes triste</i> | L3 | Toronto and Region Conservation Authority |
| Turtlehead | <i>Chelone glabra</i> | L3 | Toronto and Region Conservation Authority |
| White bear sedge | <i>Carex albursina</i> | L3 | AECOM (2020) |
| White rattlesnake-root | <i>Prenanthes alba</i> | L3 | AECOM (2020) |

| Common Name | Scientific Name | Local Rank | Source of Record |
|---------------------|------------------------------------------------------|------------|-------------------------------------------|
| White spruce | <i>Picea glauca</i> | L3 | AECOM (2020) |
| Witch-hazel | <i>Hamamelis virginiana</i> | L3 | AECOM (2020) |
| Wood millet | <i>Milium effusum</i> | L3 | AECOM (2020) |
| Wood-anemone | <i>Anemone quinquefolia</i> var. <i>quinquefolia</i> | L3 | Toronto and Region Conservation Authority |

Note: Local Rank (Toronto and Region Conservation Authority, 2020b). Species with a rank of L1 to L3 are considered to be Regional Species of Conservation Concern by Toronto and Region Conservation Authority within their jurisdiction.
L+: Exotic. Not native to Toronto and Region Conservation Authority jurisdiction (includes hybrids between native and exotic species).
L1: Rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L2: Probably rare in Toronto and Region Conservation Authority jurisdiction, of concern regionally.
L3: Generally secure in natural matrix; considered to be of regional concern.
L4: Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L5: Generally secure throughout Toronto and Region Conservation Authority jurisdiction; may be of very localized concern in highly disturbed areas.

3.1.4.3 Fish and Fish Habitat

Watershed Description

The general watershed characteristics of the Don River in the Ontario Line South Study Area also applies to the reaches of the Don River and Don River West Branch located within the Ontario Line North Study Area.

Aquatic Habitat Description

Field investigations of the general aquatic habitat conditions occurred within the Millwood Road and E.T. Seton Park Areas of Investigation in the Ontario Line North Study Area. The results of these field investigations are summarized below.

Millwood Road Area of Investigation

The assessed reach of the Don River in the Millwood Road Area of Investigation was conveyed southwest through the Study Area with moderate flow and morphology consisting of sequences of runs (50%), riffles (25%) and pools (25%). The mean wetted width of the channel was approximately 20 metres and mean wetted depth was approximately 0.3 metres. The mean bankfull depth was approximately 25 metres and mean bankfull depth was approximately 1.0 metres. Substrate was mainly comprised of cobble, gravel, sand, silt, and boulder, in order of dominance. Right upstream bank was stable, while the left upstream bank was moderately unstable with scouring due to high water levels. Riparian cover was low (30%) and consisted of trees (90%) and shrubs (10%). Instream cover (100% total cover) was provided primarily by cobble (90%),

boulder (5%) and woody debris (5%). No barriers to fish passage or groundwater indicators were observed.

The assessed reach provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk identified in desktop review or agency correspondence that are afforded protection under the Endangered Species Act were identified within the surveyed reach. A photographic log of the assessed reach is presented in **Appendix B1**.

E.T. Seton Park Area of Investigation

The assessed reach of the Don River West Branch was conveyed southwest through the Study Area with moderate flow and morphology consisting of sequences of runs (50%), riffles (25%) and pools (25%). The mean wetted width of the channel was approximately 15 metres and mean wetted depth was approximately 0.2 metres. The mean bankfull depth was approximately 20 metres and mean bankfull depth was approximately 1.0 metres. Substrate was mainly comprised of cobble, gravel, sand, silt, and boulder, in order of dominance. Banks were unstable with scouring at meanders throughout the Ontario Line North Study Area. Riparian cover was moderate (35%) and consisted of trees (90%) and shrubs (10%). Instream cover (100% total cover) was provided primarily by cobble (60%), boulder (35%) and woody debris (15%). No barriers to fish passage or groundwater indicators were observed.

The assessed reach provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk identified in desktop review or Toronto and Region Conservation Authority sampling data that are afforded protection under the Endangered Species Act were identified within the surveyed reach. A photographic log of the assessed reach is presented in **Appendix B1**.

Fish Species Composition

The aquatic species composition represents a mix of generally common forage species that are tolerant of environmental perturbation.

Fish records for the Don River West Branch within and upstream of the Ontario Line North Study Area were obtained from Toronto and Region Conservation Authority in 2020. **Table 3-11** below provides a summary of records including the number of fish species and thermal regime within the Don River West Branch. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk have been recorded

within the Ontario Line North Study Area (Fisheries and Oceans Canada, 2020), except historical records discussed in **Section 3.1.4.6**.

Table 3-11: Fish Community in Don River Study Area within the Ontario Line North Study Area

| Official Name Label | Number of Fish Species | Thermal Regime ¹ | Toronto and Region Conservation Authority/Ministry of Natural Resources and Forestry Fish Community Records |
|------------------------------------|------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Don River West Branch ² | 5 | Warm | Mixed Assemblage of Cool and Warm Water Species ³ including: Cool: <ul style="list-style-type: none"> ▪ Blacknose Dace ▪ Creek Chub ▪ Longnose Dace ▪ White Sucker Warm: <ul style="list-style-type: none"> ▪ Fathead Minnow ▪ Longnose Dace ▪ White Sucker |

Note: 1. Thermal regime data provided by Toronto and Region Conservation Authority in 2020.
 2. Fish community assemblage within the Don River may consist of a larger species diversity and may include some of the species identified in **Table 3-5**. However, Toronto and Region Conservation Authority fish community records presented in **Table 3-11** are sourced from Toronto and Region Conservation Authority sampling locations in closest proximity to the Ontario Line North Study Area.
 3. Thermal Regime by species Source: The Ontario Freshwater Fishes Life History Database, Eakins, 2020).
 * denotes non-native species (Source: Fish Communities of the Toronto Waterfront, Toronto and Region Conservation Authority (, 2008).

Millwood Road Crossing Area of Investigation

During AECOM's 2019 fish habitat assessment, the assessed reach of the Don River in the Millwood Road Crossing Area of Investigation was conveyed southwest through the Study Area with morphology consisting of sequences of runs (50%), riffles (25%) and pools (25%). The mean wetted width of the channel was approximately 20 metres and mean wetted depth was approximately 0.3 metres. The mean bankfull depth was approximately 25 metres and mean bankfull depth was approximately 1.0 metre. Substrate was mainly comprised of cobble, gravel, sand, silt, and boulder, in order of dominance. Right upstream bank was stable, while the left upstream bank was moderately unstable with scouring due to high water levels. Riparian cover was low (30%) and consisted of trees (90%) and shrubs (10%). Instream cover (100% total cover) was provided primarily by cobble (90%), boulder (5%) and woody debris (5%). No barriers to fish passage or groundwater indicators were observed.

The assessed reach provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk identified in desktop review or agency correspondence that are afforded protection under the Endangered Species Act were identified within the surveyed reach. A photographic log of the assessed reach is presented in **Appendix B1**.

E.T. Seton Park Crossing Area of Investigation

During AECOM's 2019 fish habitat assessment, the assessed reach of the Don River West Branch was conveyed southwest through the Study Area with morphology consisting of sequences of runs (50%), riffles (25%) and pools (25%). The mean wetted width of the channel was approximately 15 metres and mean wetted depth was approximately 0.2 metres. The mean bankfull depth was approximately 20 metres and mean bankfull depth was approximately 1.0 metre. Substrate was mainly comprised of cobble, gravel, sand, silt, and boulder, in order of dominance. Banks were unstable with scouring at meanders throughout the Study Area. Riparian cover was moderate (35%) and consisted of trees (90%) and shrubs (10%). Instream cover (100% total cover) was provided primarily by cobble (60%), boulder (35%) and woody debris (15%). No barriers to fish passage or groundwater indicators were observed. During Ecological Land Classification surveys completed in June 2020, a tributary of the Don River West Branch that branches off west and continues towards Beth Neilson Drive was observed; however, this tributary was not anticipated to be affected by the Ontario Line Project and therefore no additional field investigations were completed for this reach.

The assessed reach provides habitat for general life processes (i.e., feeding, migration, refuge) and is non-limiting throughout. No habitat classified as critical by the Species at Risk Act and no aquatic Species at Risk identified in desktop review or Toronto and Region Conservation Authority sampling data that are afforded protection under the Endangered Species Act were identified within the surveyed reach. A photographic log of the assessed reach is presented in **Appendix B1**.

3.1.4.4 Wildlife and Wildlife Habitat

Appendix B1 has a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line North Study Area. A large proportion of the Ontario Line North Study Area consists of residential and commercial buildings, with the remainder consisting of natural area systems associated with the Don River. Generally, the forested ravines of the Don River provide higher quality of wildlife habitat that facilitate and support wildlife movement as discussed above. The following subsections document the results of wildlife surveys completed in the Ontario Line North Study Area.

Millwood Road Crossing Area of Investigation

Birds

A total of 37 species of birds were recorded within the Millwood Road Area of Investigation during the breeding bird surveys completed in 2019. **Appendix B1** provides a comprehensive summary of the breeding bird survey results and the locations of the eight breeding bird stations are mapped in **Appendix B1**. The most abundant species recorded was the Red-winged Blackbird (*Agelaius phoeniceus*), followed by Yellow Warbler (*Dendroica petechia*) and American Goldfinch (*Carduelis tristis*). Two area-sensitive species were also recorded including Hairy Woodpecker (*Picoides villosus*) and Blue-grey Gnatcatcher (*Poliophtila caerulea*). The majority of the species recorded are common throughout southern Ontario; however, many of the recorded species are protected under the Migratory Birds Convention Act. One bird Species at Risk, Barn Swallow, and one bird Species of Conservation Concern, Eastern Wood-pewee (*Contopus virens*), were recorded during the breeding bird surveys.

Barn Swallow is listed as Threatened under the Endangered Species Act and receives species and habitat protection under the Endangered Species Act. A total of three individuals were observed foraging near breeding bird point count stations BBS-MC-004 and BBS-MC-006 during the first round of surveys. The North Toronto Wastewater Treatment Plant located immediately west of the Millwood Road Area of Investigation and Ontario Line North Study Area likely provides suitable nesting habitat for Barn Swallow as suitable open structures were observed and juveniles were observed perched on a building within the property during field investigations on July 9, 2019. Habitats for bird Species at Risk are discussed further in **Appendix B1**.

Eastern Wood-pewee is listed as Special Concern but does not receive species or habitat protection under the Endangered Species Act; however, habitats for Species of Conservation Concern are protected under the PPS. A total of three individuals were recorded near breeding bird point count stations BBS-MC-007 and BBS-MC-008. As a result, the FOD5-3 and FOD7a are considered to be confirmed Significant Wildlife Habitat for Eastern Wood-pewee.

No nests were observed under the Millwood Road Overpass Bridge. Though the bridge was too tall to confirm with 100% confidence from the ground, given that the bridge is subjected to high levels of noise and vibration from daily vehicular traffic, its anticipated that it is unlikely to provide suitable nesting habitat for more sensitive species such as Barn Swallow.

There were two sites along the Don River where several burrows were noted in the eroded, undercut banks. The first site is located near the Millwood Road overpass bridge. At this location (Location 1), approximately 6 burrows were noted at the south

eroding vertical bank of the Don River, estimated to be at height of 2 metres and 30 metres wide, near breeding point count BBS-MC-004; however, no Bank Swallows (*Riparia riparia*), a bird Species at Risk known to make and nest in burrows in vertical faces, were observed during the breeding bird surveys in 2019. Northern Rough-winged Swallows (*Stelgidopteryx serripennis*), a common species that also nests in burrows, was recorded flying near this breeding bird point count station. This suggests that these burrows may be used by this species but none were observed entering or exiting the burrows. The other site (Location 3) was located on the north bank approximately 200 metres west of the Millwood Road overpass bridge and was estimated to be at a height of 2 metres and 20 metres wide. At this location, approximately 12 burrows were noted in the sandy, sunny, south facing bank. No Bank Swallows were observed at these locations during 2019 field investigations. Photograph of these burrow locations are provided in the photographic log in **Appendix B1**.

Amphibians and Amphibian Habitat

There were no amphibians heard calling on the first survey and it was noted that there was likely no standing water in the Forb Mineral Meadow Marsh (MAM2-10) inclusion of the Fresh – Moist Lowland Deciduous Forest Ecosite (FOD7b), which did not constitute suitable amphibian breeding habitat. Background noise levels were high due to vehicle, airplane, and rail traffic and the running water of the Don River. Due to high noise levels and absence of standing water, it was determined that the second and third rounds of amphibian breeding surveys were not required to further assess Station 1. Therefore, there was no significant amphibian breeding habitat identified within the Millwood Road Area of Investigation.

Incidental Wildlife Observations

The following incidental wildlife were recorded during the 2019 field investigations within the Millwood Road Area of Investigation:

- Red Admiral Butterfly (*Vanessa atalanta*)
- Eastern Cottontail (*Sylvilagus floridanus*)
- Monarch (*Danaus plexippus*).

These are common wildlife tolerant to urban disturbances; however, Monarch is listed as Special Concern under the Endangered Species Act and therefore is considered to be a Species of Conservation Concern. The Monarch was observed flying over the Mineral Cultural Meadow (CUM1-1) within the Right of Way of the Don Valley Parkway. There were no large patches of Common Milkweed identified within the Mineral Cultural Meadow; however, this meadow may act as foraging habitat for this species.

E.T. Seton Park Crossing Area of Investigation

Appendix B1 contains a comprehensive list of wildlife recorded in or in the vicinity of the Ontario Line North Study Area. The majority of the species are common and secure in Ontario and tolerant to urban disturbances. The E.T. Seton Park Area of Investigation provides habitat for many urban wildlife species, including migratory breeding bird species protected under the Migratory Birds Convention Act (Ramsay-Brown, 2015).

An additional two sites along the Don River within the E.T. Seton Park Area of Investigation were identified to have burrows in eroding, undercut banks. One site (Location 2) was initially identified during the fish habitat assessment completed in 2019. At this site, a total of six burrows were noted on the sandy, south bank (facing north) estimated to be at a height of 2 metres tall and 25 to 30 metres wide. Presence of woody debris and vegetation such as Manitoba maple were noted at the top and bottom of bank. The other site (Location 4) was located on the north bank (facing south) of the Don River and estimated to be at a height of 2 metres and approximately 30 metres in width. Approximately 30 burrows were noted in the vertical bank consisting of sandy substrate. The top of the bank consisted of mowed grass surrounded by young Manitoba maple and more mature willows. No Bank Swallows were observed at these locations during 2019 field investigations. Photographs of these burrow locations are provided in the photographic log in **Appendix B1**.

Incidental Wildlife Observations

The following incidental wildlife were recorded during the 2020 field investigations within the E.T. Seton Park Area of Investigation:

- Amphibians:
 - American Toad
- Birds:
 - American Crow (*Corvus brachyrhynchos*)
 - Blue Jay (*Cyanocitta cristata*)
 - Cedar Waxwing (*Bombycilla cedrorum*)
 - Chimney Swift
 - Downy Woodpecker (*Picoides pubescens*)
 - Eastern Phoebe (*Sayornis phoebe*)
 - Eastern Wood-pewee (*Contopus virens*)
 - Grey Catbird (*Dumetella carolinensis*)
 - Mallard (*Anas platyrhynchos*)
 - Red-eyed Vireo (*Vireo olivaceus*)

- Red-tailed Hawk (*Buteo jamaicensis*)
- Red-winged Blackbird (*Agelaius phoeniceus*)
- Song Sparrow (*Melospiza melodia*)
- Yellow Warbler (*Setophaga petechia*)
- Butterflies:
 - Cabbage White (*Pieris rapae*)
 - Eastern Tiger Swallowtail (*Papilio glaucus*)
 - Spring Azure (*Celastrina ladon*)
- Mammals:
 - American Red Squirrel (*Tamiasciurus hudsonicus*)
 - Eastern Chipmunk (*Tamias striatus*)
 - Eastern Grey Squirrel (*Sciurus carolinensis*)

The majority of the wildlife observed are considered to be urban wildlife common to downtown Toronto. Two Chimney Swifts were observed flying over the circle parking lot south of Overlea Boulevard. Eastern Wood-pewee was recorded vocalizing in the Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FOD5-10) located west of the Don River.

In addition, anecdotal evidence was provided by a member of the public that there was an active Cooper's Hawk nest in the Red Oak Deciduous Plantation (CUP1-8) Community in previous years.

3.1.4.5 Significant Wildlife Habitat

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a) and field investigations completed within the Millwood Road and E.T. Seton Park Areas of Investigation, the following Significant Wildlife Habitat types occur or may occur within the Ontario Line North Study Area. Refer to **Appendix B1** for the Significant Wildlife Habitat Screening in the Ontario Line North Study Area.

- **Seasonal Concentration Areas:**
 - **Confirmed Turtle Wintering Areas** – Based on records received from Toronto and Region Conservation Authority and Ontario Nature, the ponds in E.T. Seton Park behind the Ontario Science Centre support Painted Turtle and Snapping Turtle and provide confirmed turtle wintering area habitat.

- **Candidate Bat Maternity Colonies** – Deciduous Forests (FOD), Mixed Forests (FOM), Deciduous Swamp (SWD) and Mixed Swamp (SWM) communities are considered to be candidate bat maternity colony habitats. Suitable snag trees were observed within the treed areas in the Millwood Road and E.T. Seton Park Areas of Investigation.
 - **Candidate Reptile Hibernacula** – reptile hibernacula sites for common snakes may be present in burrows or rock outcroppings in dry areas within the Millwood Road and E.T. Seton Park Areas of Investigation.
 - **Candidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)** – there were four separate locations where several burrows were observed at each location in the vertical eroded banks along the Don River. Two locations (Burrow Locations 1 and 3) were within the Millwood Road Area of Investigation and the other two locations (Burrow Locations 2 and 4) were in the E.T. Seton Park Area of Investigation.
 - **Candidate Landbird Migratory Stopover Area** – According to Migratory Birds in the City of Toronto (Dougan & Associates and North-South Environmental Inc., 2009), the natural areas within the City of Toronto, specifically along the shoreline and those associated with ravine systems such as the Don River act as an annual stopover for migratory birds. Therefore, the natural areas within the Millwood Road and E.T. Seton Park Areas of Investigation, which are within approximately 5 kilometres (km) of the Lake Ontario shoreline may act as candidate landbird migratory stopover areas. These locations cannot be confirmed as significant as detailed bird migration surveys were not completed.
- **Specialized Habitat for Wildlife:**
- **Candidate Turtle Nesting Areas** – sandy or gravel shorelines along the Don River may provide suitable nesting habitat for turtles.
 - **Confirmed Amphibian Wetland Breeding Habitat** – The ponds in E.T. Seton Park behind the Ontario Science Centre and associated marshes provide amphibian breeding habitat as confirmed through records received from Ontario Nature, including records of American Toad, Green Frog (*Rana clamitans*) and American Bullfrog (*Lithobates catesbeianus*). According to the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015a), wetlands with breeding American Bullfrogs are considered to be significant.

- **Confirmed Marsh Breeding Bird Habitat** – Green Herons with probable breeding were observed in June 2020 and Trumpeter Swans in 2019 in the ponds behind the Ontario Science Centre based on records reviewed from eBird (2017). The pond and associated shallow marsh (MAS) communities are considered to be significant marsh breeding bird habitat.
- **Habitats of Species of Conservation Concern:**
 - **Confirmed Habitat for Species of Conservation Concern:**
 - Eastern Wood-pewee – based on records from AECOM’s field investigations and Toronto and Region Conservation Authority records, the forested areas within the Millwood Road and E.T. Seton Park Areas of Investigation provide breeding habitat for Eastern Wood-pewee. This species is protected by Migratory Birds Convention Act.
 - Monarch – The Mineral Cultural Meadow (CUM1) within the ROW of the Don Valley Parkway in the Millwood Road Area of Investigation provides foraging and rearing habitat for this species. Large patches of Common Milkweed were not noted but the Mineral Cultural Meadow (CUM1) provides foraging habitat.
 - Snapping Turtle – the ponds in the E.T. Seton Park provide overwintering habitat for this species. Snapping Turtle was recorded by Toronto and Region Conservation Authority in these ponds in 2013.
 - **Candidate Habitat for Species of Conservation Concern:**
 - Western Chorus Frog (*Pseudacris maculata* pop. 1) – the ponds in E.T. Seton Park behind the Ontario Science Centre may provide suitable breeding habitat. Toronto and Region Conservation Authority has a record of Western Chorus Frog from 1990 in these ponds; however, its unlikely that this species still persists in this location given that this record is more than 20 years old.
 - Black-crowned Night Heron (*Nycticorax nycticorax*) – this species may forage near the Don River and roost in trees along the forested riparian banks. However, this species likely nests in the Leslie Street Spit (outside the Ontario Line North Study Area), where there is a known large rookery. This species is protected by Migratory Birds Convention Act.
 - Common Nighthawk – this species may nest on flat, gravel rooftops of buildings in urban areas (Brigham *et al.*, 2011). Several buildings within the Ontario Line North Study Area were identified to have flat rooftops. This species is protected under the Migratory Birds Convention Act.

- Great Egret (*Ardea alba*) – this species may forage near the Don River and roost in trees along the forested riparian banks. This species is protected by Migratory Birds Convention Act.
 - Peregrine Falcon – there were no high-rise buildings identified within the Ontario Line North Study Area that are suitable for nesting; however, Peregrine Falcons may be observed flying over the Study Area preying on abundant supply of pigeons, other small passerines and occasionally mammals (White et al., 2020).
 - Red-headed Woodpecker – the forested areas within the Millwood Road and E.T. Seton Park Areas of Investigation may provide suitable habitat. This species is protected by Migratory Birds Convention Act.
 - Wood Thrush (*Hylocichla mustelina*) – the forested areas within the Millwood Road and E.T. Seton Park Areas of Investigation may provide suitable habitat. This species is protected by Migratory Birds Convention Act.
 - Monarch – cultural meadows may provide foraging and rearing habitat for this species. A dense patch consisting of more than 60 common milkweeds was noted in the CUT1-1 community located east of Beth Neilson Drive (43.710944, -79.341518), which may act as suitable egg-laying habitat for Monarchs. No Monarch caterpillars were observed in this patch at the time of confirmatory Ecological Land Classification surveys in 2020.
 - Northern Map Turtle – the Don River may serve as a movement corridor and provide nesting habitat for this species.
 - Snapping Turtle – the Don River is a moderately flowing river with depths ranging from 0.1 metres to 1.0 metres, with sandy/gravel banks at certain locations and may serve as movement corridor for this species to Lake Ontario, as well as nesting habitat. Toronto and Region Conservation Authority provided a record of Snapping Turtle in the ponds behind the Ontario Science Centre from 2013.
- **Animal Movement Corridors:**
- **Candidate Amphibian Movement Corridor** – The Don River and the forested habitats within the E.T. Seton Park Area of Investigation are candidate significant habitat due to the presence of significant amphibian breeding habitat within the ponds behind the Ontario Science Centre.

There were no rare vegetation communities identified within the Ontario Line North Study Area.

3.1.4.6 Species at Risk

The following Species at Risk have a high probability of occurring within the Ontario Line North 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. This species was observed foraging within the Millwood Road Area of Investigation during AECOM's breeding bird surveys. Barn Swallows are aerial insectivores and commonly forage over open areas such as waterbodies, pastures with livestock and woodlands edges (Ministry of Natural Resources and Forestry, 2013a), and often live in close association with humans, building their cup-shaped mud nests, which are often reused from year to year, almost exclusively on human-made structures such as open barns, buildings, under bridges and in culverts (Ministry of the Environment, Conservation and Parks, 2019a). Nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access to mud for nest building (Heagy et al., 2014). Therefore, anthropogenic structures located within 200 metres of waterbodies were considered to have a higher probability of supporting Barn Swallow nesting. It is anticipated that the buildings associated with the Ontario Science Centre and Go Green Youth Centre located within the E.T. Seton Park Area of Investigation may have higher probability of nesting Barn Swallows than other buildings within the Ontario Line North Study Area because they are within 200 metres of the Don River. In addition, the North Toronto Wastewater Treatment Plant located immediately west of the Millwood Road Area of Investigation and Ontario Line North Study Area likely provides suitable nesting habitat for Barn Swallow as suitable open structures were observed and juveniles were observed perched on a building within the property during field investigations on July 9, 2019.

- **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). Chimney Swift was recorded by

Toronto and Region Conservation Authority in 2010 and 2016 foraging within the Millwood Road and E.T. Seton Park Areas of Investigation, suggesting that they may be nesting nearby. AECOM also observed Chimney Swifts foraging over the E.T. Seton Park Area of Investigation in 2020. A large uncapped chimney (as seen from Google Earth aerial Imagery) is located within the North Toronto Wastewater Treatment Plant, located immediately outside of the Ontario Line North Study Area, that may provide suitable habitat; however, no Chimney Swifts were recorded during AECOM's breeding bird surveys. Buildings with suitable chimneys or standalone uncapped smokestacks may provide nesting or roosting habitat for Chimney Swifts within the Ontario Line North Study Area. A list of characteristics for suitable chimneys is provided above in **Section 3.1.2.6**. Chimney Swifts have strong site fidelity (i.e., will return and use sites year after year) as long as the conditions of the nest and roost sites remain stable (Ministry of Natural Resources and Forestry, 2013b).

- **Butternut**

This species is listed as Endangered and receives protection under the Provincial Endangered Species Act. A total of five butternuts were identified within the Ontario Line North Study Area, including two in the Millwood Road Area of Investigation and three in the E.T. Seton Park Area of Investigation with varying degrees of evidence of butternut canker (*Ophiognomonia clavigignenti-juglandacearum*). Detailed tree inventories are required during detailed design to confirm that there are no additional butternuts within the Study Area.

The following Species at Risk have a medium probability of occurring within the Ontario Line North Study Area:

- **Bank Swallow**

This species listed as Threatened and receives protection under the Provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Bank Swallow nesting habitat includes naturally eroding banks and humanmade sand and gravel pits, quarries and stockpiles where vertical or near-vertical (at least 75°) surfaces of suitable material (typically fine sand or silt) are available (Ministry of Natural Resources and Forestry, 2017b). This species nest in burrows and is strongly colonial, rarely nesting alone (Garrison, 1999). Colonies may consist of 10 to 2,000 nests (Cornell Laboratory of Ornithology, 2019). There were four separate sites where several burrows (ranging from 6 to 30) were observed at each location in the vertical eroded banks of the Don River; two sites (Burrow Location 1 and 3) were in the

Millwood Road Area of Investigation and the other two sites (Burrow Location 2 and 4) were in the E.T. Seton Park Area of Investigation. Representative photos of the locations and extents of the four sites are provided in **Appendix B1**. Bank Swallows were not recorded during the breeding bird survey completed in 2019 within the Millwood Road Area of Investigation. As species-specific surveys were not yet completed to confirm use of burrows by Bank Swallows, these four locations were assumed to be suitable potential habitat.

■ **Bat Species at Risk, including Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-coloured Bat**

Bat Species at Risk are listed as Endangered and receive protection under the Endangered Species Act. There were no hibernacula identified within the Ontario Line North Study Area during field investigation or through the background information review; however, maternity roosting habitats may be present. Little Brown Myotis and Northern Myotis may roost in trees that are hollow, have cavities or loose bark. Tri-coloured bats are known to roost in dead leaf clusters while Eastern Small-footed Myotis are known to roost in rocky outcrops and talus slopes. All bat Species at Risk are also known to roost in anthropogenic structures such as buildings in crevice-like spaces; under sidings, eaves, roof tiles or shingles or behind shutters or sliding doors, between building wings, cracks and crevices in walls, wall coatings, hollow mortice joints, rain gutters and chimneys; and/or in attics (Bat Conservation Trust, 2012; Ministry of Natural Resources and Forestry, 1984; Humphrey, 2017; Humphrey and Fotherby, 2019). Within the Ontario Line North Study Area, forested areas associated with the Don River Valley where cavity trees are available may provide suitable maternity roosting habitats for these species. Rocky outcrops weren't identified within the Ontario Line North Study Area. Buildings with potential entry / exit points within the Ontario Line North Study Area may also be used by bat Species at Risk for roosting. Bat Species at Risk are not known to use bridges or rail overpasses as day roost habitats at northern latitudes. Therefore, the Millwood Road overpass bridge and the existing rail overpass crossing the Don River in E.T. Seton Park are not considered to be roosting habitat for bat Species at Risk.

The remaining Species at Risk recorded in the Ontario Line North Study Area had low probability of occurrence due to lack of habitat (refer to **Appendix B1** for the full Species at Risk habitat screening):

- Bobolink;
- Eastern Meadowlark; and
- Blanding's Turtle.

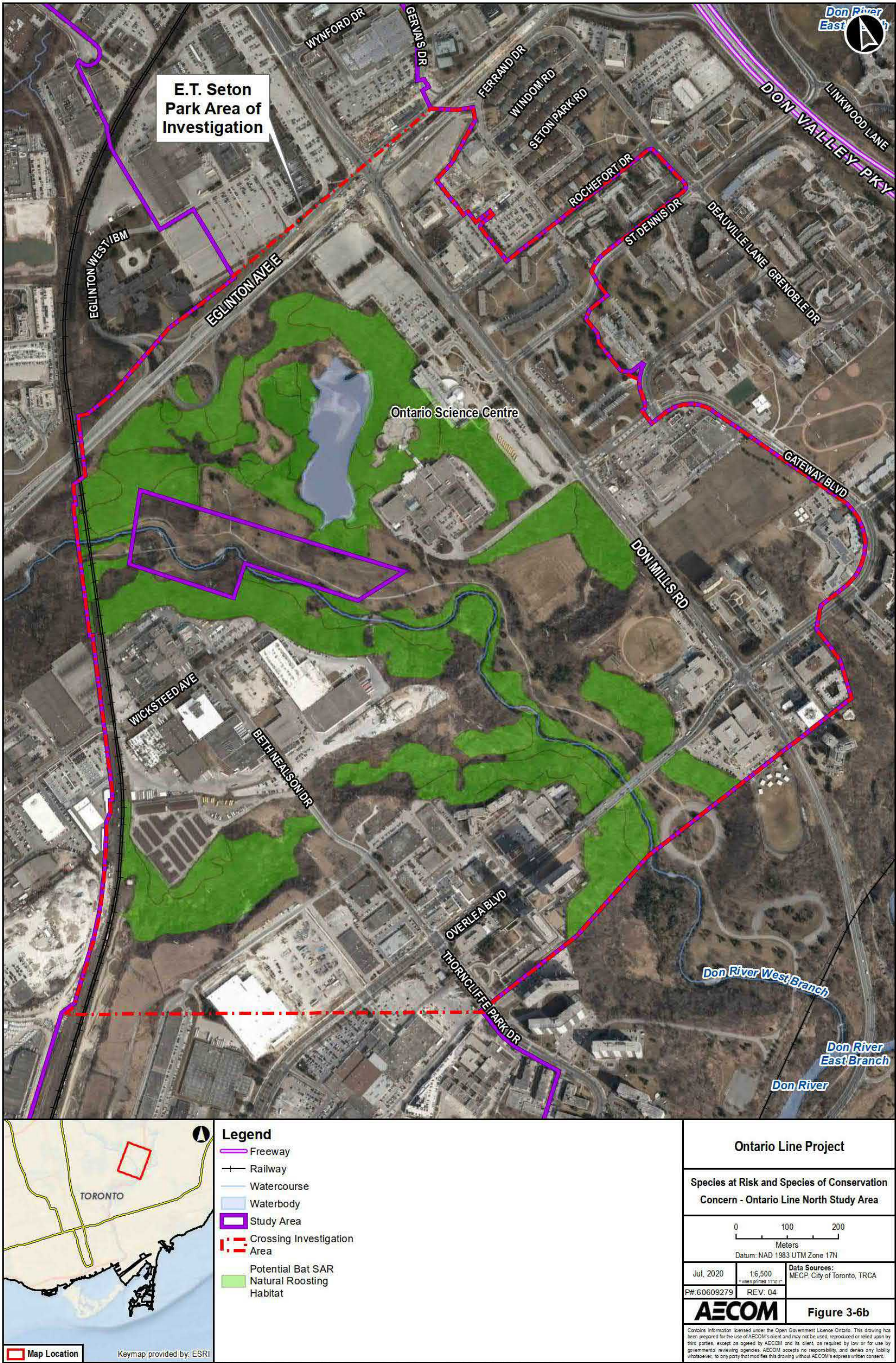
Lake Sturgeon, American Eel, and Redside Dace were not included in the Species at Risk habitat screening provided in **Appendix B1** given their historical records (more than 20 years old). This is further confirmed through correspondence with Ministry of Natural Resources and Forestry on January 30 2018, wherein Ministry of Natural Resources and Forestry stated that there are no occupied habitats for Redside Dace or Lake Sturgeon within the Don River and Don River West Branch in the Ontario Line North Study Area. Furthermore, review of Department of Fisheries and Oceans Canada's 2020 Aquatic Species at Risk Map indicated that there is no critical habitat for aquatic Species at Risk in the Don River within the entire Ontario Line Study Area. Fisheries and Oceans Canada's 2020 Aquatic Species at Risk Map and MNRF data records are considered current to confirm regulatory records.

There were records of Blanding's Turtle from 2019) in the vicinity of Millwood Road in the Ontario Line North Study Area (Ontario Nature, 2020); however, there were no records of Blanding's Turtle within the Ontario Line Study Area provided by Ontario Nature. The Ontario Line North Study Area is located within a densely urbanized area with several movement barriers including roads, highways and existing rail tracks that would impede movement. Furthermore, the Don River is characterized as moderately flowing in the Ontario Line North Study Area which can also be a movement barrier for Blanding's Turtles (Ministry of the Environment, Conservation and Parks, 2019b). Therefore, the probability of Blanding's Turtles traveling along the Don River Valley into the Ontario Line Study Area was deemed to be low.

Species at Risk in the Ontario Line North Study Area are mapped in **Figure 3-6**.

Figure 3-6: Species at Risk and Species of Conservation Concern – Ontario Line North Study Area





3.2 Soil and Groundwater

A soil and groundwater assessment was completed to document existing soil and groundwater features, outline the preliminary description of the potential impacts of the Ontario Line Project on soil and groundwater conditions, outline a description of potential mitigation measures to mitigate those impacts, describe potential impacts to soil and groundwater within the Ontario Line Project and the potential measures for mitigating any negative impacts in respect to soil and groundwater, and outline a preliminary list of the potential municipal, provincial, federal or other approvals or permits associated with soil and groundwater that may be required for the Ontario Line Project.

Methodology is provided in **Section 3.2.1** and the results are presented in **Section 3.2.2** (Ontario Line West), **Section 3.2.3** (Ontario Line South) and **Section 3.2.4** (Ontario Line North).

3.2.1 Methodology

A review of available information was conducted to establish soil and groundwater existing conditions within the Ontario Line Study Area (mapped in **Figure 3-7 to Figure 3-29**).

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.

A background review of available desktop information was reviewed to characterize the existing soil and groundwater conditions, including:

- 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).

3.2.2 Ontario Line West

3.2.2.1 Geological Setting

Physiography and Topography

The Ontario Line West Study Area is situated within the Iroquois Plain physiographic region, as mapped by Chapman and Putnam (1984), as shown in **Figure 3-7**.

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 Ontario Line West Study Area is shown in **Figure 3-8**. Elevations within the Study Area range from approximately 80 to 90 metres Above Sea Level. The topography in the vicinity of the Study Area is highly affected by the extensive local development and is generally undulating in nature, with a general downward slope in the direction of Lake Ontario.

Surficial Geology

The surficial geology³ within the Ontario Line West Study Area is shown in **Figure 3-9**. Identified surficial soils consist of Till Deposits (undifferentiated older tills, which may include stratified deposits).

Quaternary Geology

The Quaternary geology within the Ontario Line West Study Area is shown in **Figure 3-10**. A review of Quaternary geology mapping, available at a smaller scale than the Surficial Geology mapping, indicates that the primary surficial deposits within the Study

3. The surficial geology is the shallowest native soil below any topsoil layer.

Area are Glaciolacustrine Deposits (sand, gravelly sand, and gravel) and Till with sandy silt to silt matrix.

Table 3-12 summarizes the identified geologic features in additional detail.

Table 3-12: Quaternary Geology of the Ontario Line West Study Area

| Quaternary Geology | Soil Conditions |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Glaciolacustrine Deposits | Sand, gravelly sand and gravel derived from nearshore and beach deposits. |
| Till Deposits | Predominantly sandy silt to silt matrix, commonly rich in clasts and often high in total matrix carbonate content. |

Bedrock Geology

Bedrock geology within the Ontario Line West Study Area is shown on **Figure 3-11**. 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 70 metres Above Sea Level to 84 metres Above Sea Level.

3.2.2.2 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. An aquitard is classically defined as a geological unit that restricts the flow of groundwater. Where present, surficial aquifer units within the Study Area are typically comprised of coarse-textured unconsolidated (overburden) sand and gravelly sediments, as described in the previous section. Based on the Overburden Thickness map [Toronto and Region Source Protection Area, 2015] and a typical north-south cross-section along Yonge Street provided by Toronto and Region Conservation Authority as part of the Conceptual Understanding Water Budget Report (Puopolo, J. and Usher, S., 2007), the overburden thickness within the Study Area is less than approximately 20 metres, with thinner overburden deposits observed in the southern portion of the Study Area.

Figure 3-7: Physiography – Ontario Line West Study Area

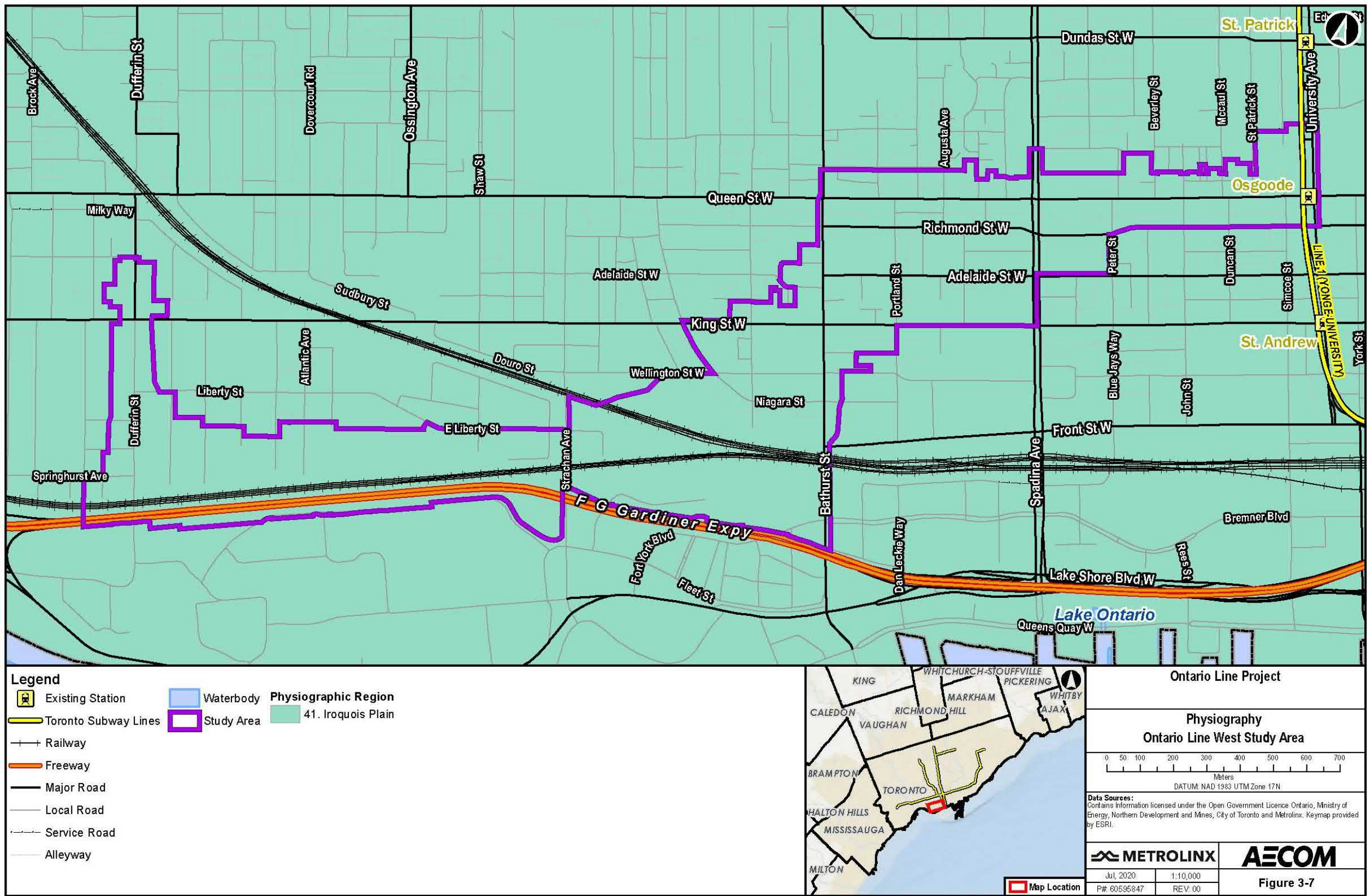


Figure 3-8: Topography and Drainage – Ontario Line West Study Area

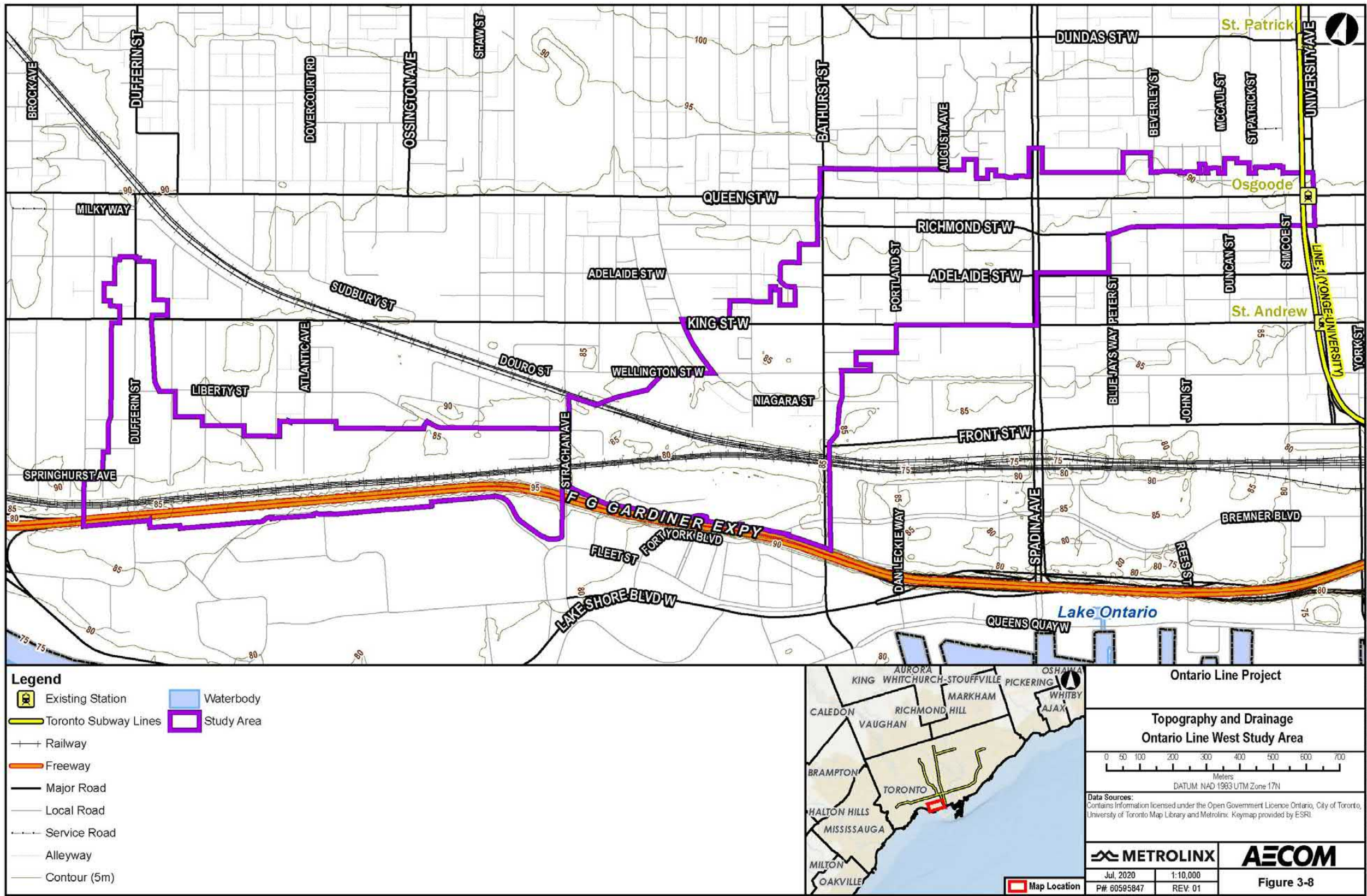


Figure 3-9: Surficial Geology – Ontario Line West Study Area

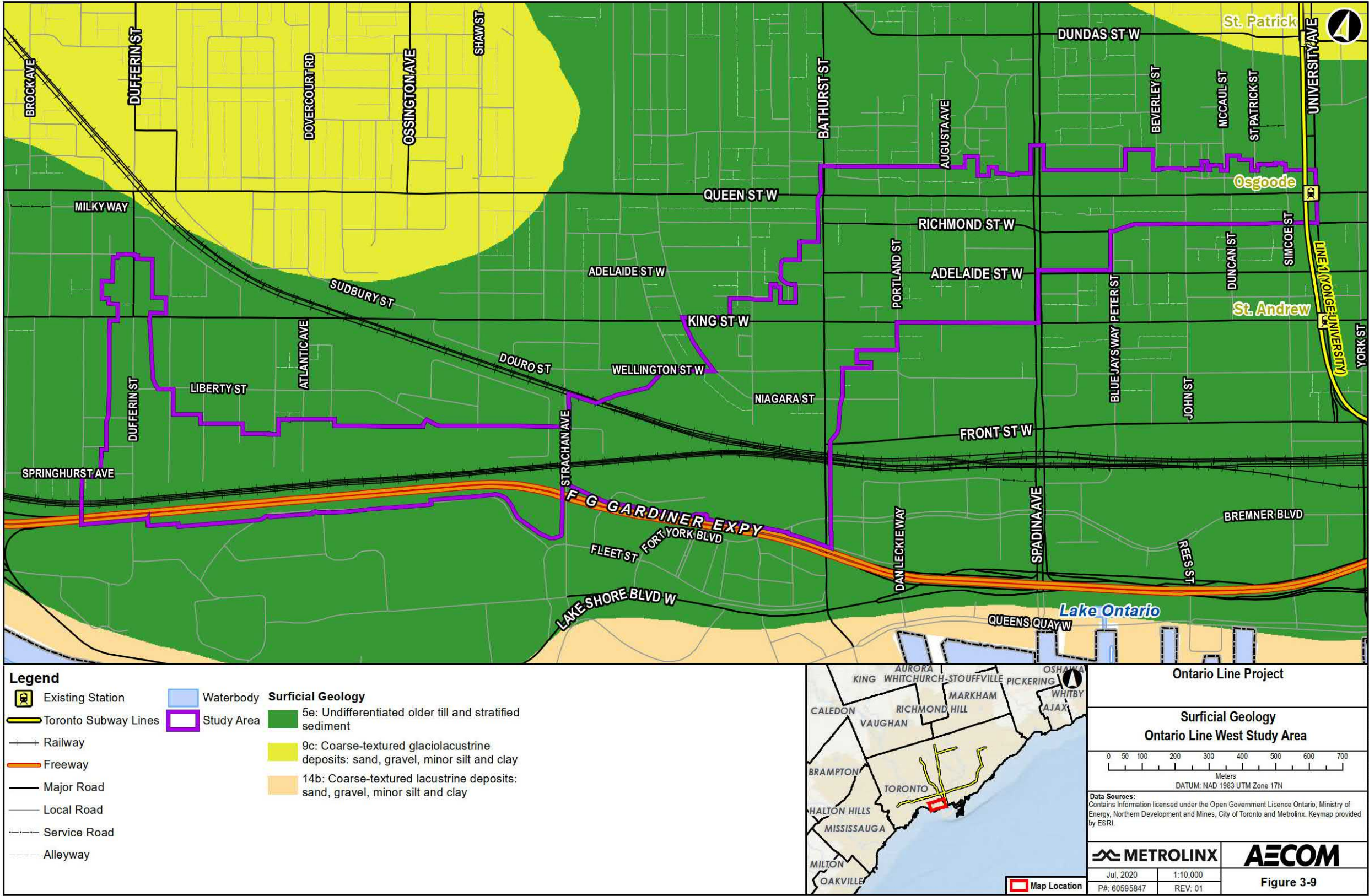


Figure 3-10: Quaternary Geology – Ontario Line West Study Area

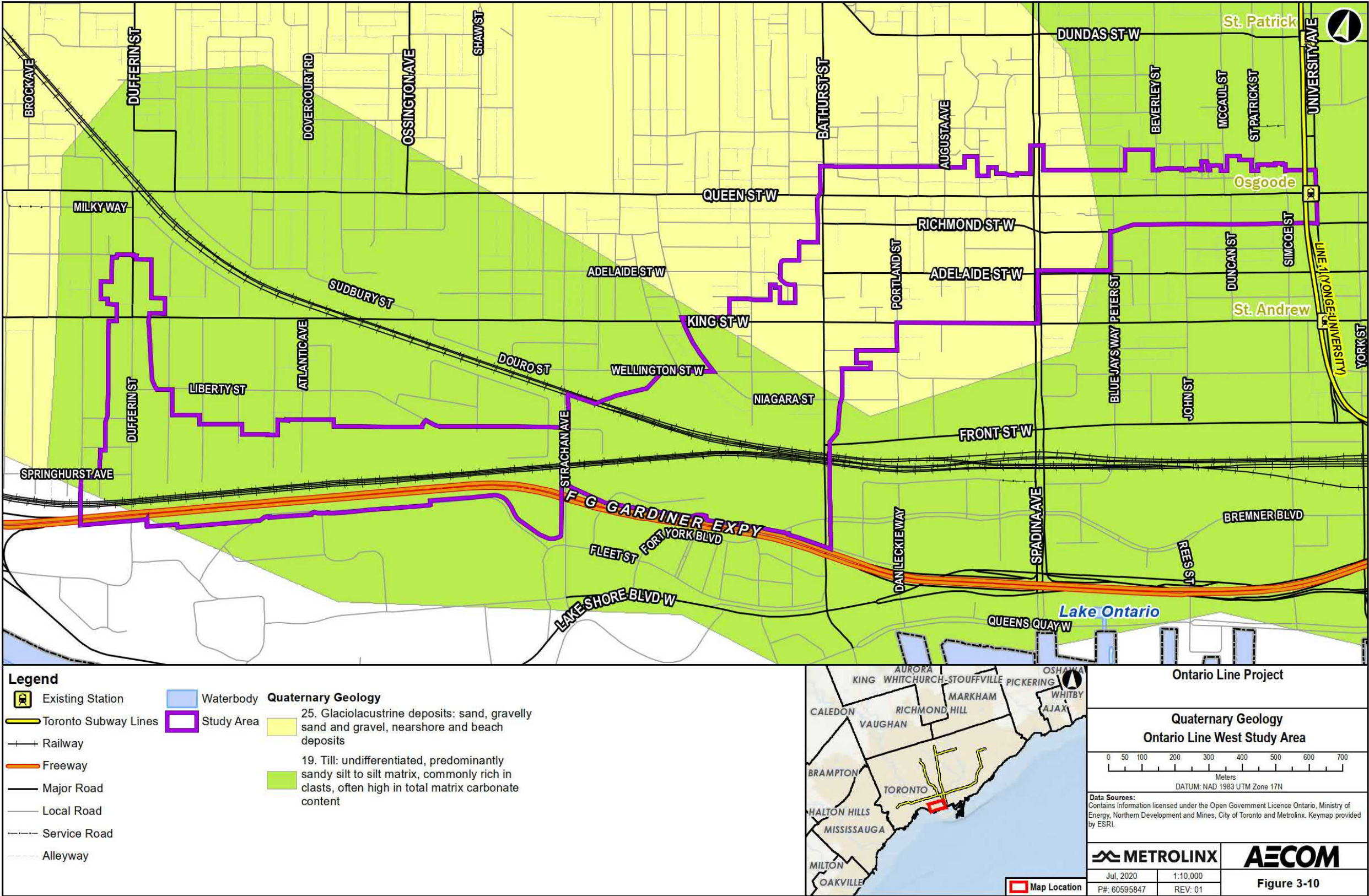
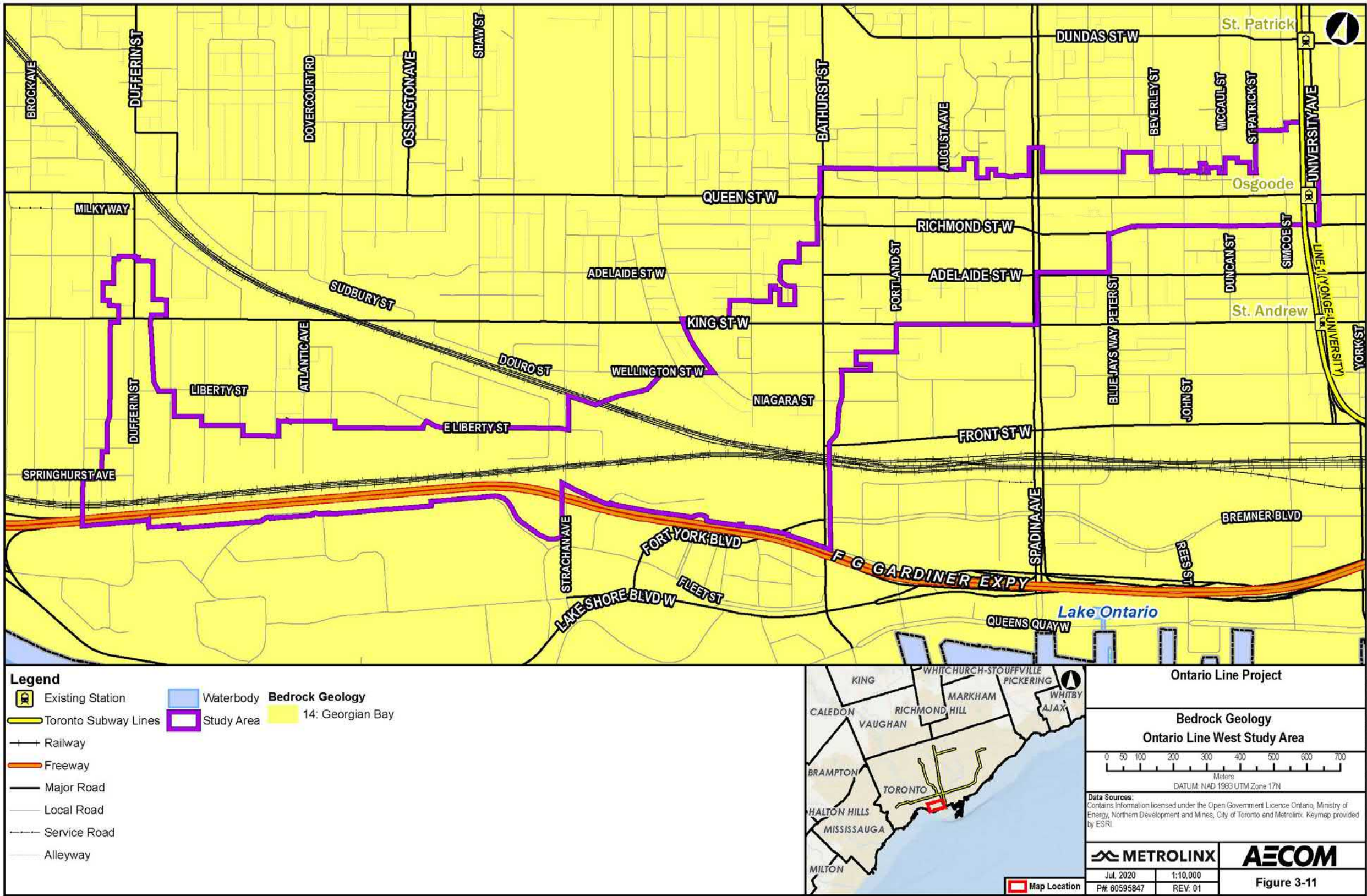


Figure 3-11: Bedrock Geology – Ontario Line West Study Area



A review of the Ministry of the Environment, Conservation and Parks water well records database indicates that the overburden geologic materials within the Study Area consist primarily of clayey silt, sand, silty clay, sand silt, and silty sand in localized areas. Bedrock was encountered in some of the reviewed Ministry of the Environment, Conservation and Parks well records, at depths ranging from approximately 4.2 metres Below Ground Surface to 9.1 metres Below Ground Surface in the southern portion of the Study Area.

The well-established hydrostratigraphic framework for the Greater Toronto Area is summarized in **Table 3-13**.

Table 3-13: Hydrostratigraphic Units of the Greater Toronto Area (Toronto and Region Source Protection Area, 2015)

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

Based on the Toronto and Region Source Protection Area (2015) document, the following two Hydrostratigraphic Units are present within the Study Area: Sunnybrook aquitard and Scarborough Aquifer Complex. In addition, the Study Area is at the approximate boundary of the mapped extent of the Thornccliffe Aquifer. It is unlikely that this unit exhibits significant thickness, if it is present at all within the Study Area.

Regional Groundwater Flow

In general, the dynamics of shallow groundwater flow within overburden deposits are 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) is primarily horizontal with a minor vertical component to deeper units or discharge zones (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 to flow direction changes depending on proximity to surface watercourses/water bodies and subsurface geology.

The surficial/shallow groundwater system within the Study Area is influenced by surface topography and likely flows to the south towards Lake Ontario.

3.2.2.3 Groundwater Resources

Source Water Protection

The Ontario Line West Study Area is located within the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Region. The presence of source water areas/features within the Ontario Line West Study Area is described below and shown in **Figure 3-12**.

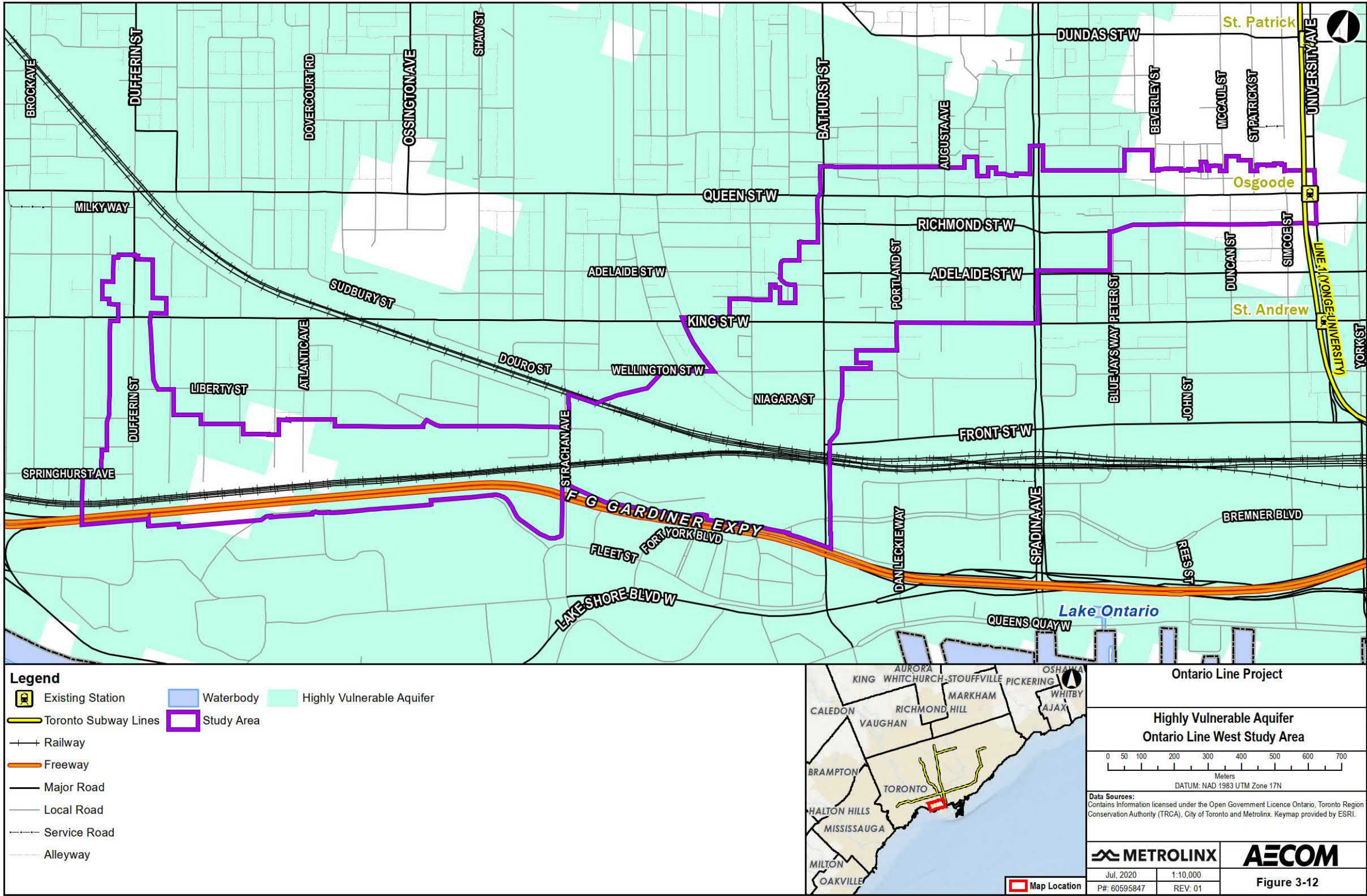
A summary of source water protection details for the Ontario Line West Study Area is included in **Table 3-14**.

Table 3-14: Source Water Protection Details for the Ontario Line West Study Area

| Source Water Protection Feature | Present | Source Protection Plan Policies | Legal Effect of Policy |
|----------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Highly Vulnerable Aquifer | Yes, Highly Vulnerable Aquifer Score of 6 | Related Source Protection Plan policies: SAL-10, SAL-11, SAL-12, SAL-13, DNAP-3, OS-3 | 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).

Figure 3-12: Highly Vulnerable Aquifer – Ontario Line West Study Area



Highly Vulnerable Aquifer

The Ontario Line West Study Area overlaps with a Highly Vulnerable Aquifer. 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. In **Figure 3-12**, the Highly Vulnerable Aquifer is denoted by the green polygon. Gaps within this polygon, shown in white, are areas that are not considered to be Highly Vulnerable Aquifer. Therefore, the Highly Vulnerable Aquifer does not cover the full Study Area.

Ministry of the Environment, Conservation and Parks Water Well Records

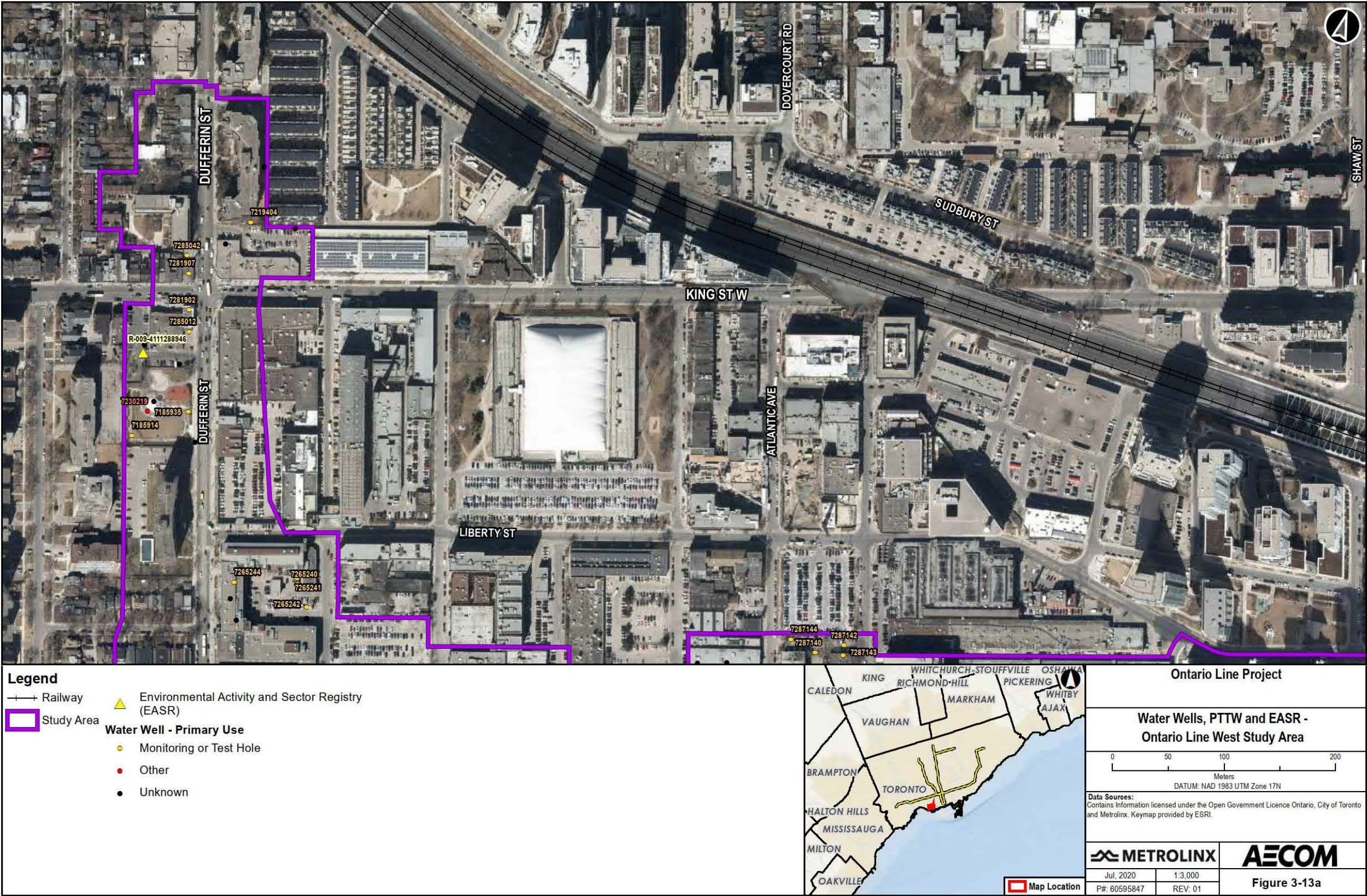
An inventory of local private water wells (i.e., domestic, commercial, industrial, etc.) was prepared within the Ontario Line West Study Area by searching the Ministry of the Environment, Conservation and Parks Water Wells Information System database. Results are shown in **Figure 3-13**, along with the primary use of each well. A total of 507 water well records were found located within the Ontario Line West Study Area.

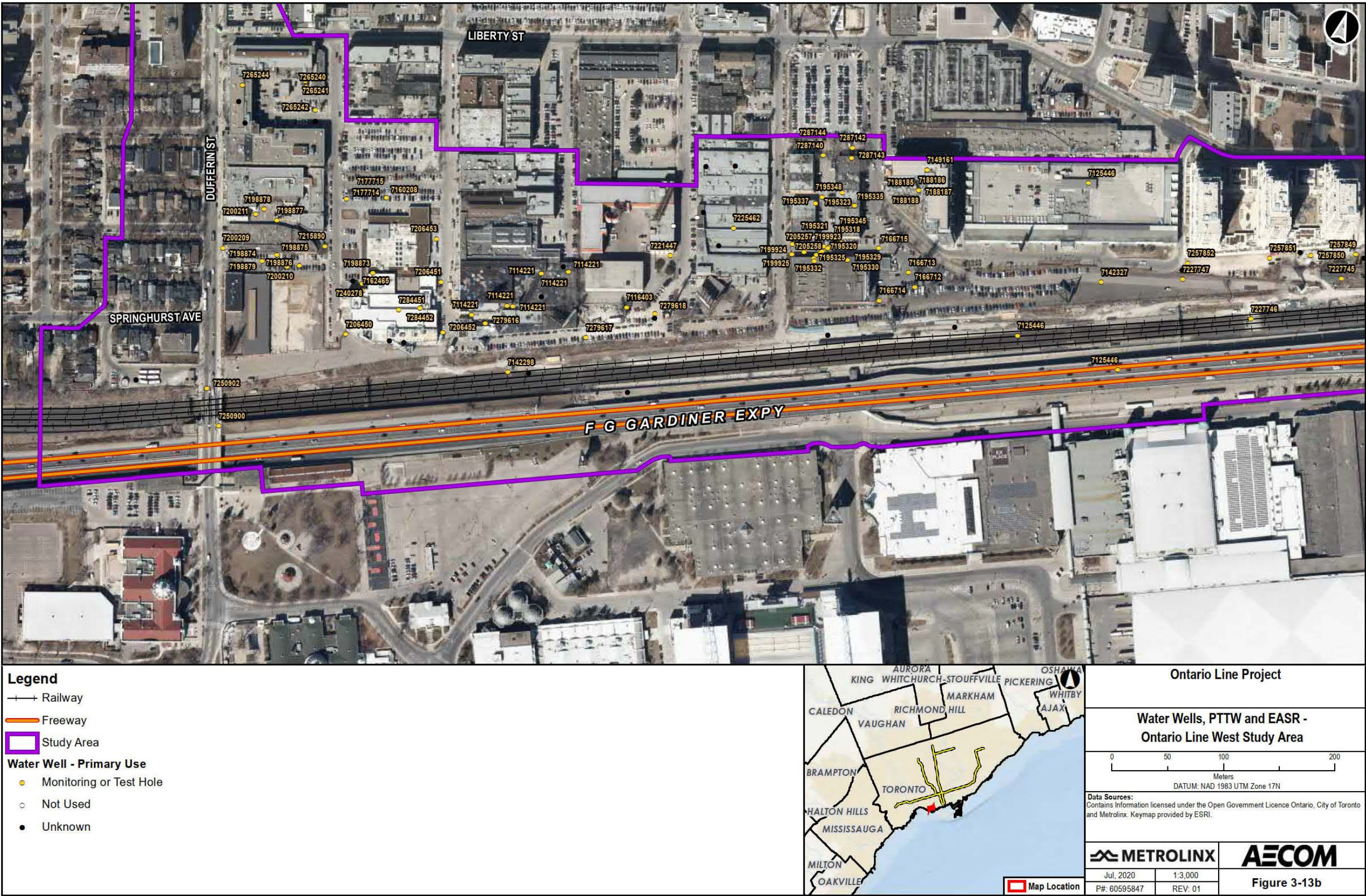
As shown in **Table 3-15**, available well records indicate that 65% of known groundwater use within the Ontario Line West Study Area is for monitoring and test hole purposes. Approximately 4% of the Ministry of the Environment, Conservation and Parks water well records indicate that the well is not used, accounting for decommissioning records and dry wells and followed by other uses (less than 1%). Approximately 30% of Ministry of the Environment, Conservation and Parks water well records did not specify the well use and therefore are classified as 'Unknown'.

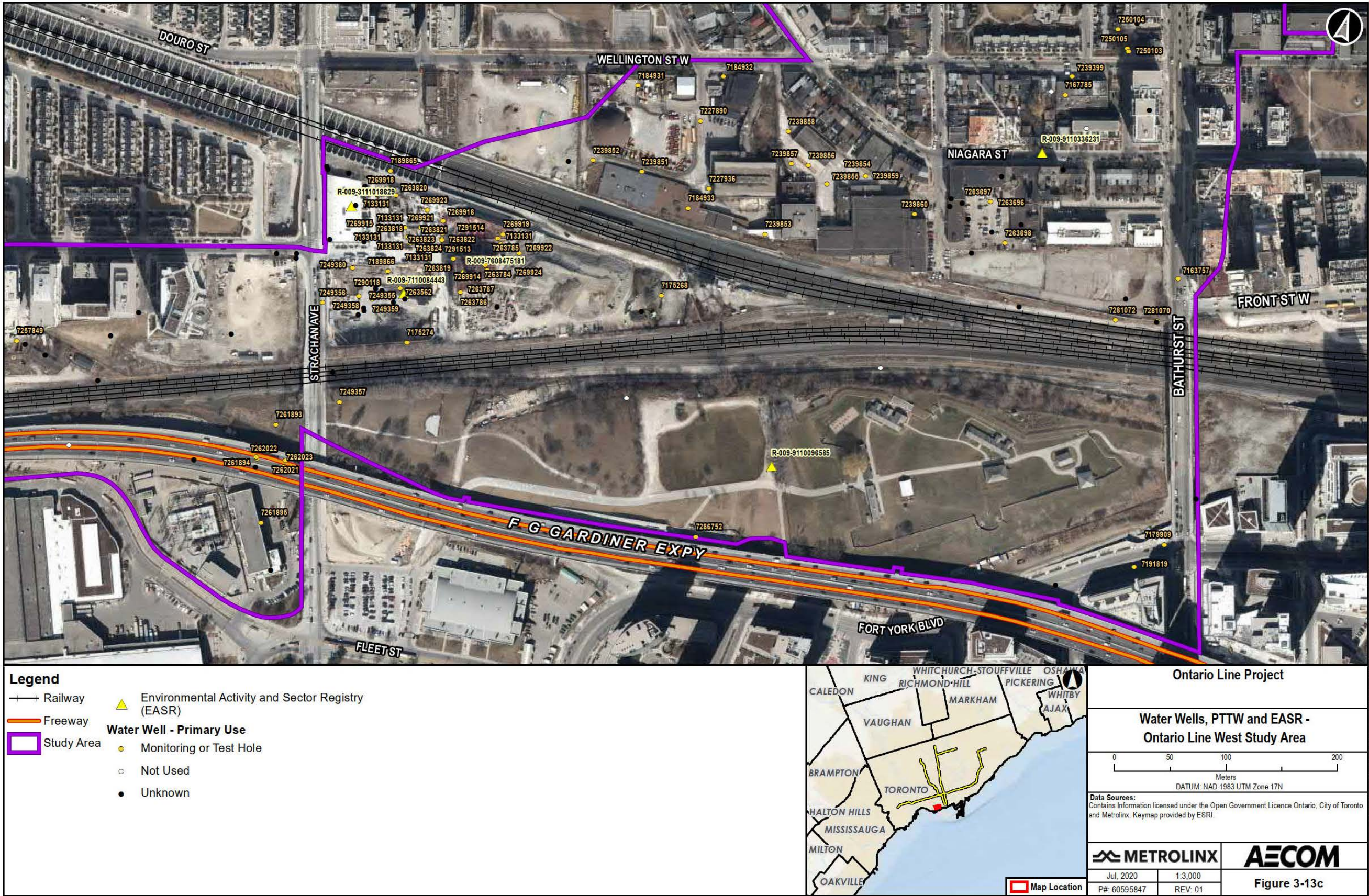
Table 3-15: Summary of Ontario Line West Ministry of the Environment, Conservation and Parks Water Well Record Information

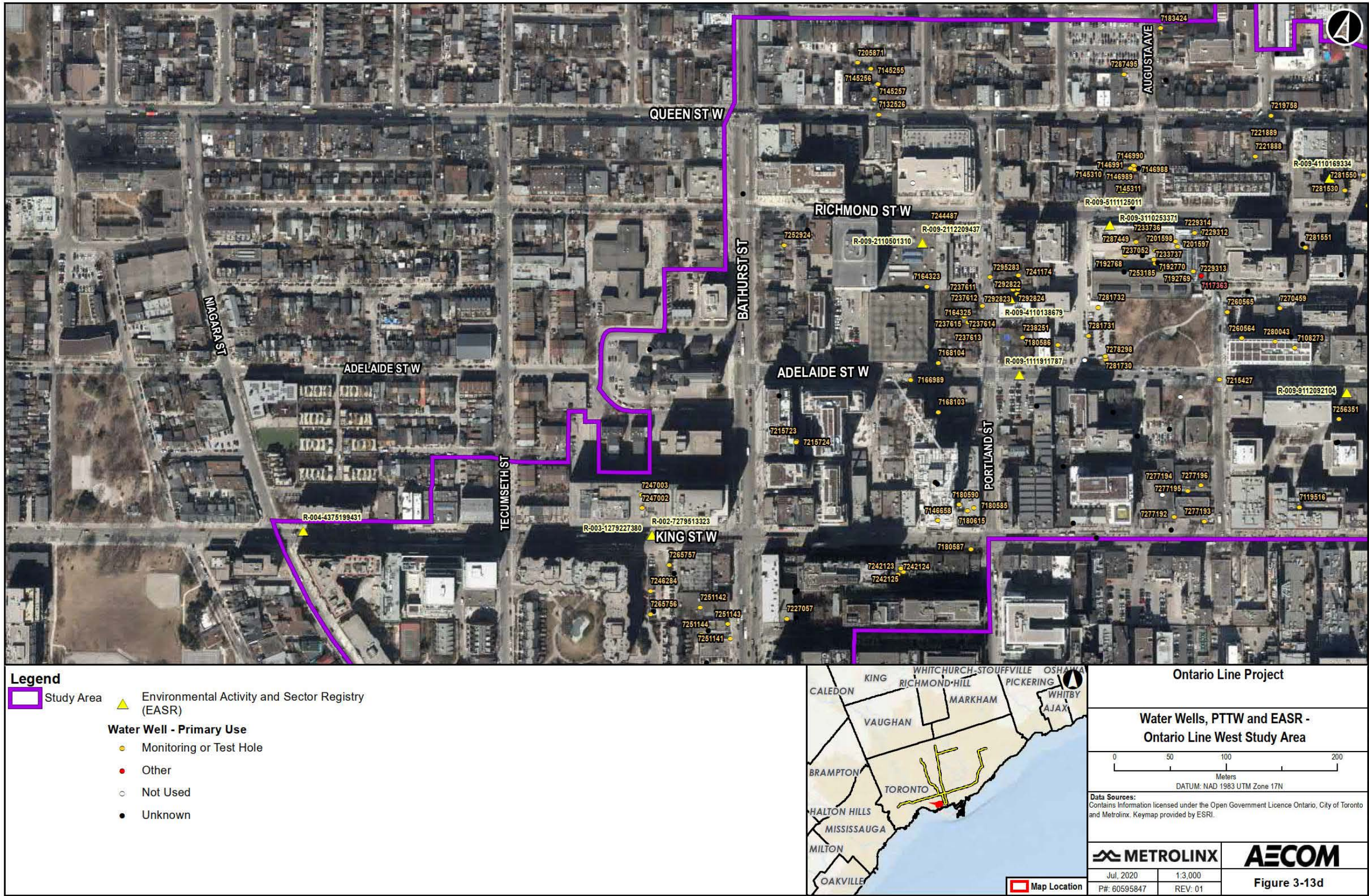
| Primary Water Use | Number of Well Records | Well Depth (metres) | Primary Well Type |
|---------------------------------|------------------------|---------------------|------------------------------------------|
| Monitoring and Test Hole | 329 | 2 to 50 | Information is not available |
| Not Used | 22 | 4 to 14 | 2 bedrock, 12 overburden, and 8 unknowns |
| Other | 3 | 6 to 10 | Information is not available |
| Unknown | 153 | 2 to 21 | 4 overburden, 149 unknowns |

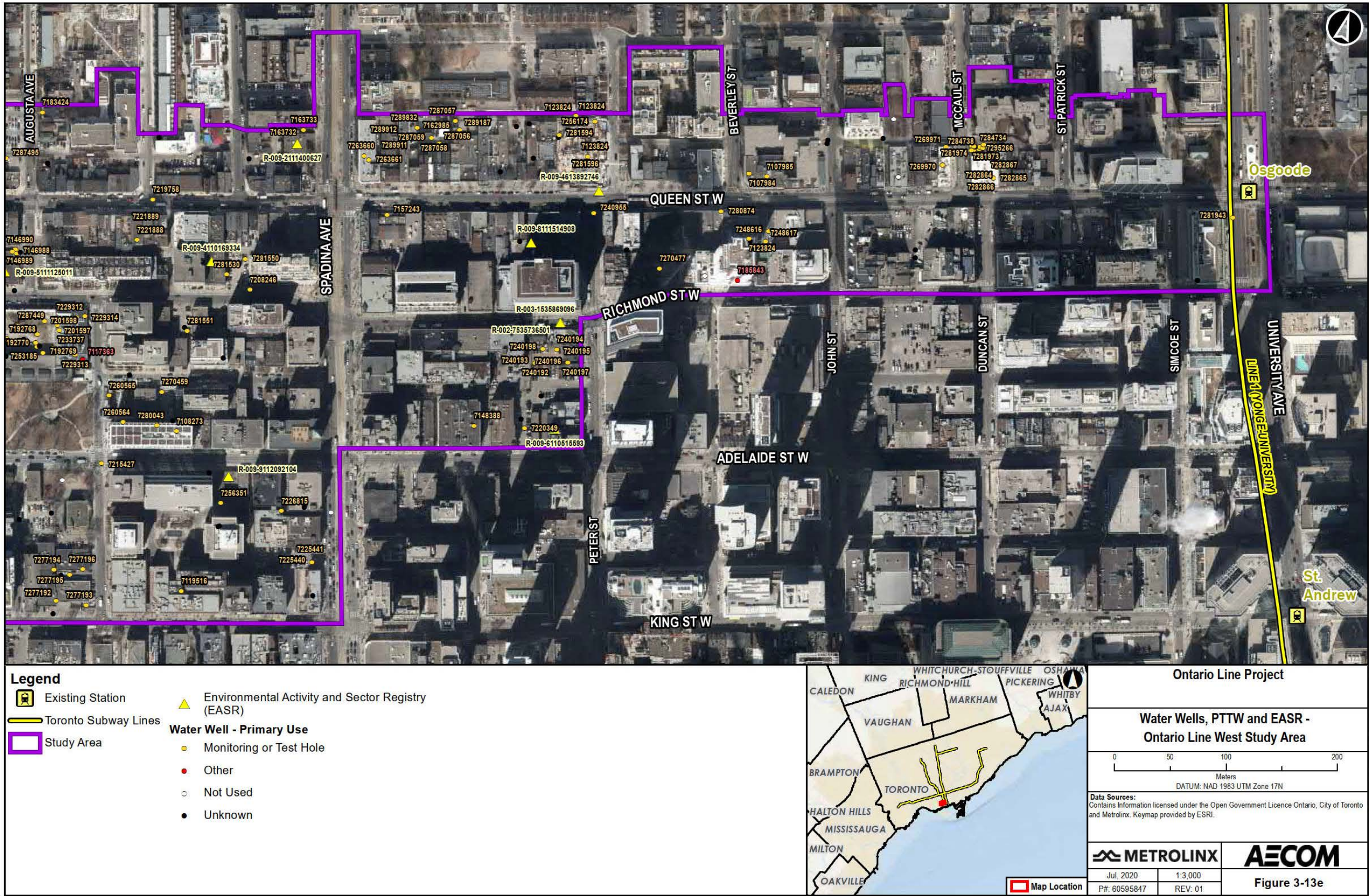
Figure 3-13: Water Wells, Permit to Take Water and Environmental Activity and Sector Registry – Ontario Line West Study Area











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

A search of the Ministry of the Environment, Conservation and Parks Permit to Take Water database returned three 3 results within the Ontario Line West Study Area. Two of these results were expired and one is an active record for a building sump permanent drainage system purpose.

A search of the Ministry of the Environment, Conservation and Parks Environmental Activity and Sector Registry database returned 23 results within the Ontario Line West Study Area. Eighteen Environmental Activity and Sector Registry records were identified for construction dewatering purposes.

The referenced location for each Permit to Take Water and Environmental Activity and Sector Registry is shown in **Figure 3-13**.

Water Level Data

A total of eleven Ministry of the Environment, Conservation and Parks water well records were identified that report a static water level. These reported water levels represent either the water table position or the potentiometric surface⁴ 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. Static water levels reported on the identified well records range between about 1.8 metres and 12.84 metres Below Ground Surface.

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

3.2.3 Ontario Line South

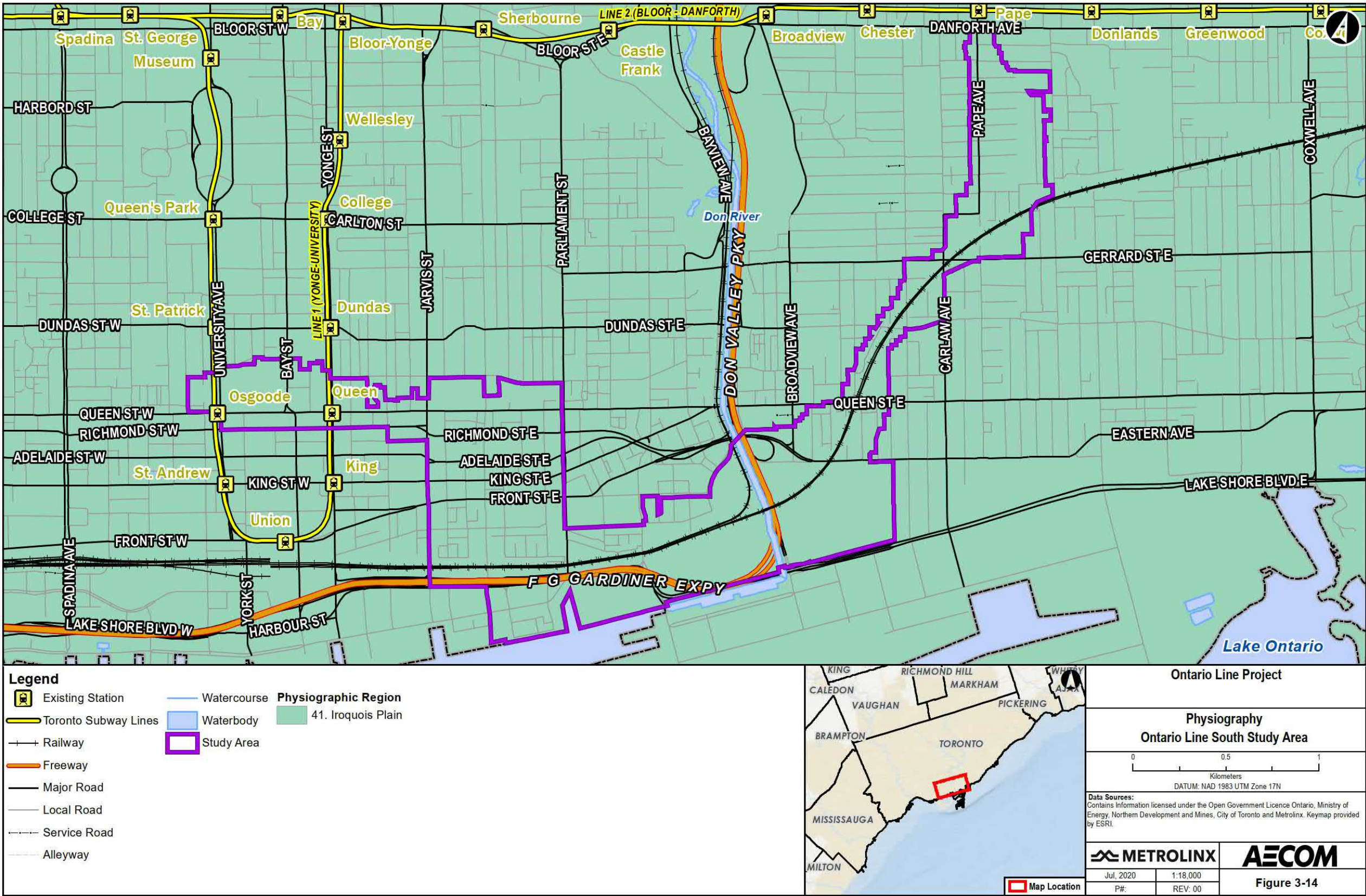
3.2.3.1 Geological Setting

Physiography and Topography

The Ontario Line South Study Area is situated within the Iroquois Plain physiographic region, as mapped by Chapman and Putnam (1984) and described in detail in **Section 3.2.2.1**. A physiographic map of the area is provided in **Figure 3-14**.

4. The potentiometric surface is a hypothetical surface representing the level which groundwater would rise if not trapped in confined aquifer.

Figure 3-14: Physiography – Ontario Line South Study Area



The ground surface topography within the Ontario Line South Study Area is shown in **Figure 3-15**. The elevations within the Ontario Line South Study Area range from approximately 80 to 115 metres Above Sea Level. The topography in the vicinity of the Study Area is highly affected by the extensive local development and is generally undulating in nature, with a general downward slope in the direction of the Don River and Lake Ontario.

Surficial Geology

The surficial geology within the Ontario Line South Study Area is shown in **Figure 3-16**. Identified surficial soils include of i) Till Deposits (undifferentiated older tills, may include stratified deposits); ii) Coarse-textured Glaciolacustrine Deposits (sand, gravel, minor silt and clay derived from foreshore-basinal deposits); iii) Coarse-textured Lacustrine Deposits (sand, gravel, minor silt and clay derived from littoral deposits); and iv) Modern Alluvial Deposits (clay, silt, sand, gravel, may contain organic remains).

Quaternary Geology

The Quaternary geology within the Ontario Line South Study Area is shown in **Figure 3-17**. A review of Quaternary geology mapping, available at a smaller scale than the Surficial Geology mapping, indicates that the primary surficial deposits within the Study Area are Glaciolacustrine Deposits (sand, gravelly sand, and gravel) and Till with sandy silt to silt matrix. **Table 3-16** summarizes the identified geologic features in additional details.

Table 3-16: Quaternary Geology of the Ontario Line South Study Area

| Quaternary Geology | Soil Conditions |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Glaciolacustrine Deposits | Sand, gravelly sand and gravel derived from nearshore and beach deposits. |
| Till Deposits | Predominantly sandy silt to silt matrix, commonly rich in clast and often high in total matrix carbonate content. |

Bedrock Geology

Bedrock geology within the Ontario Line South Study Area is shown in **Figure 3-18**. 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 61 metres Above Sea Level to 76 metres Above Sea Level.

Figure 3-15: Topography and Drainage – Ontario Line South Study Area

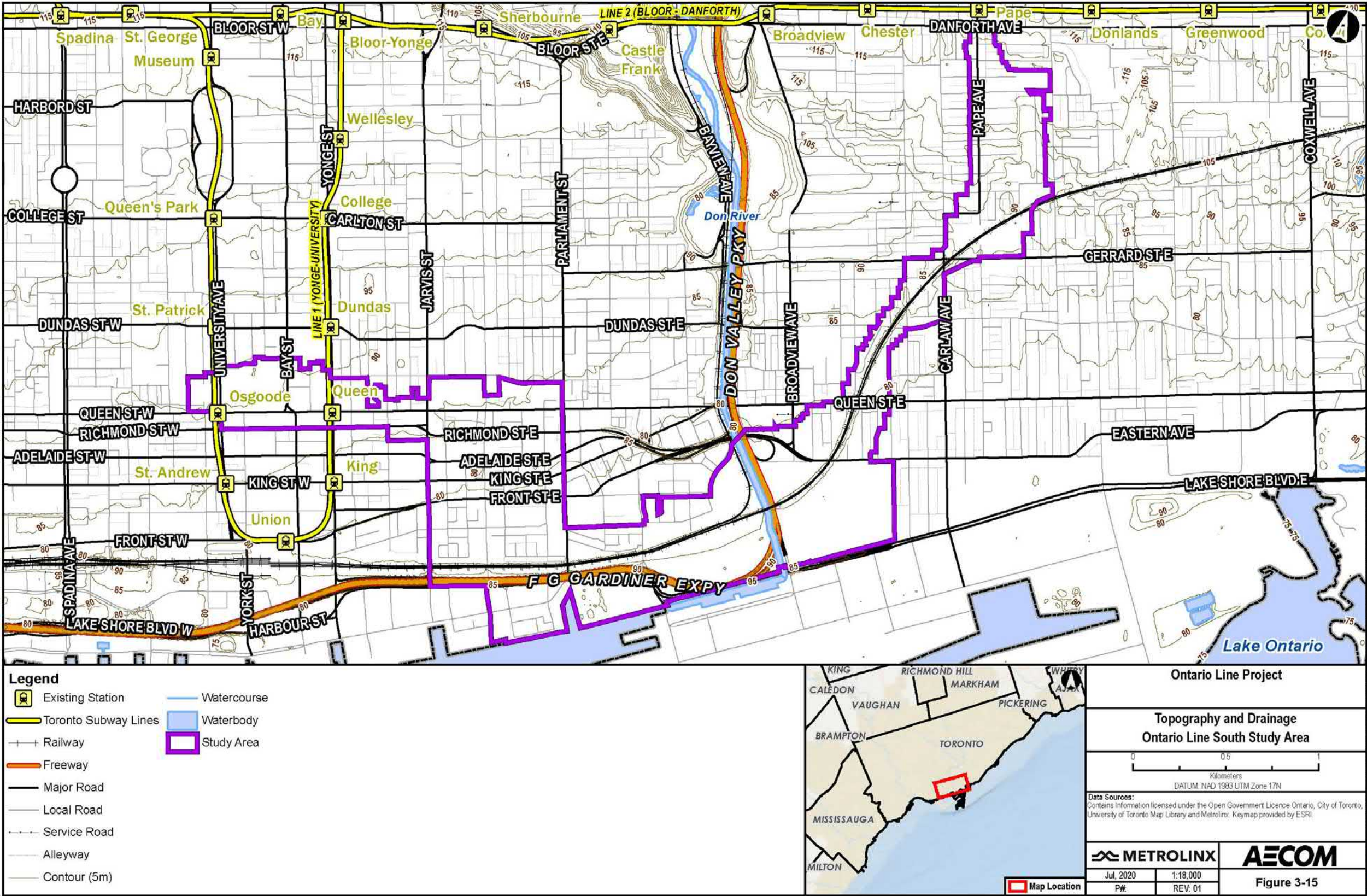


Figure 3-16: Surficial Geology – Ontario Line South Study Area

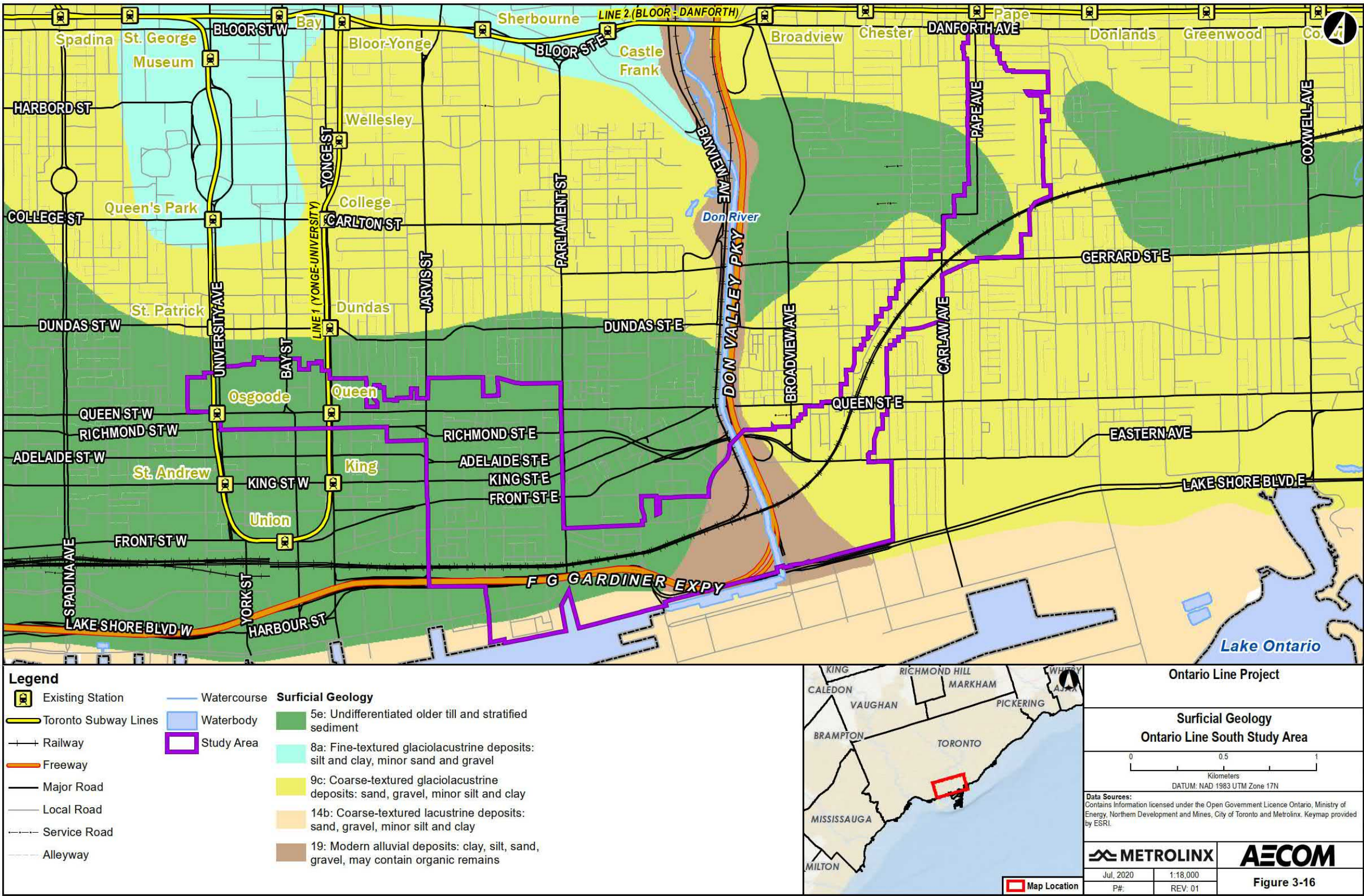


Figure 3-17: Quaternary Geology – Ontario Line South Study Area

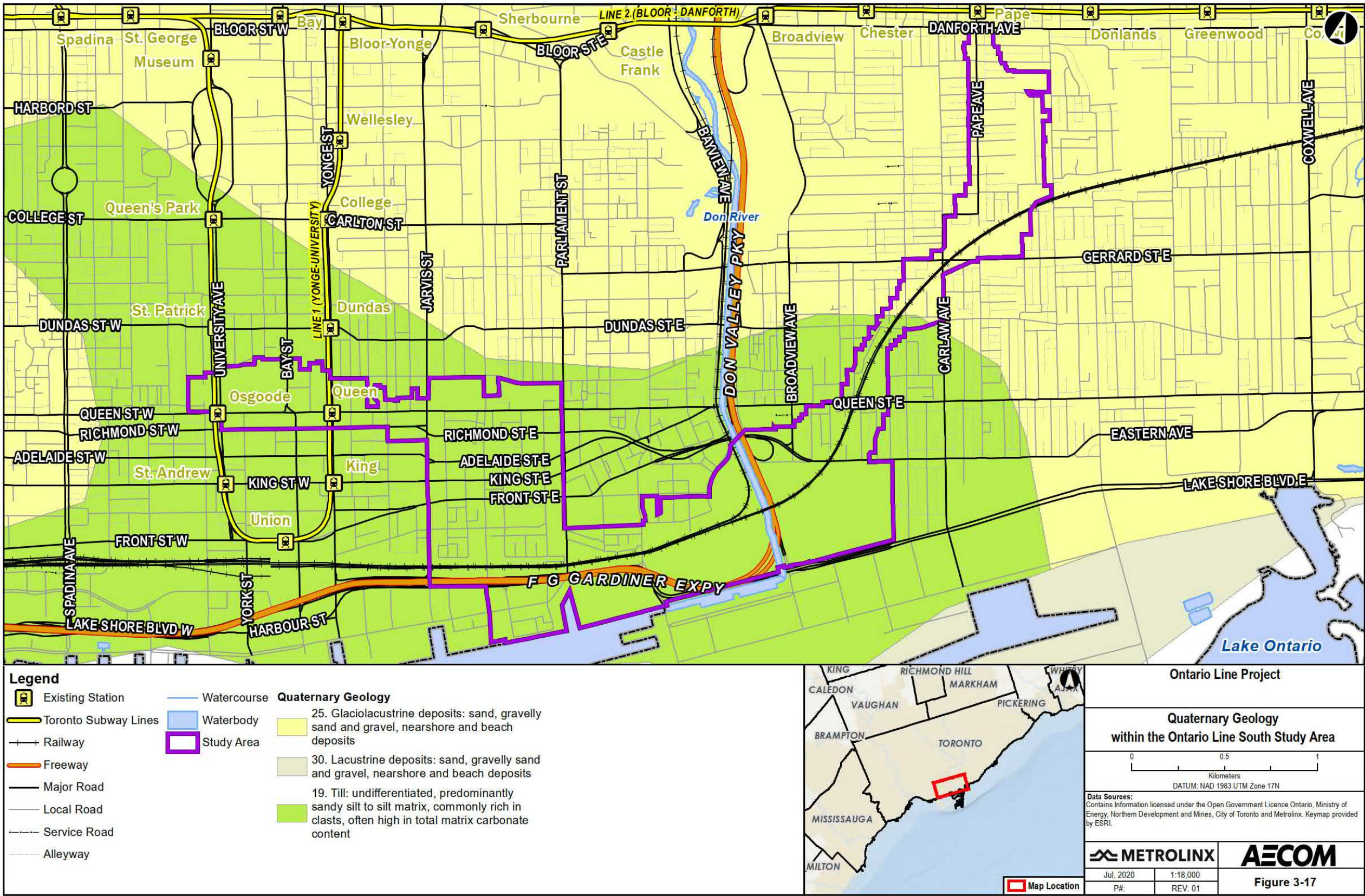
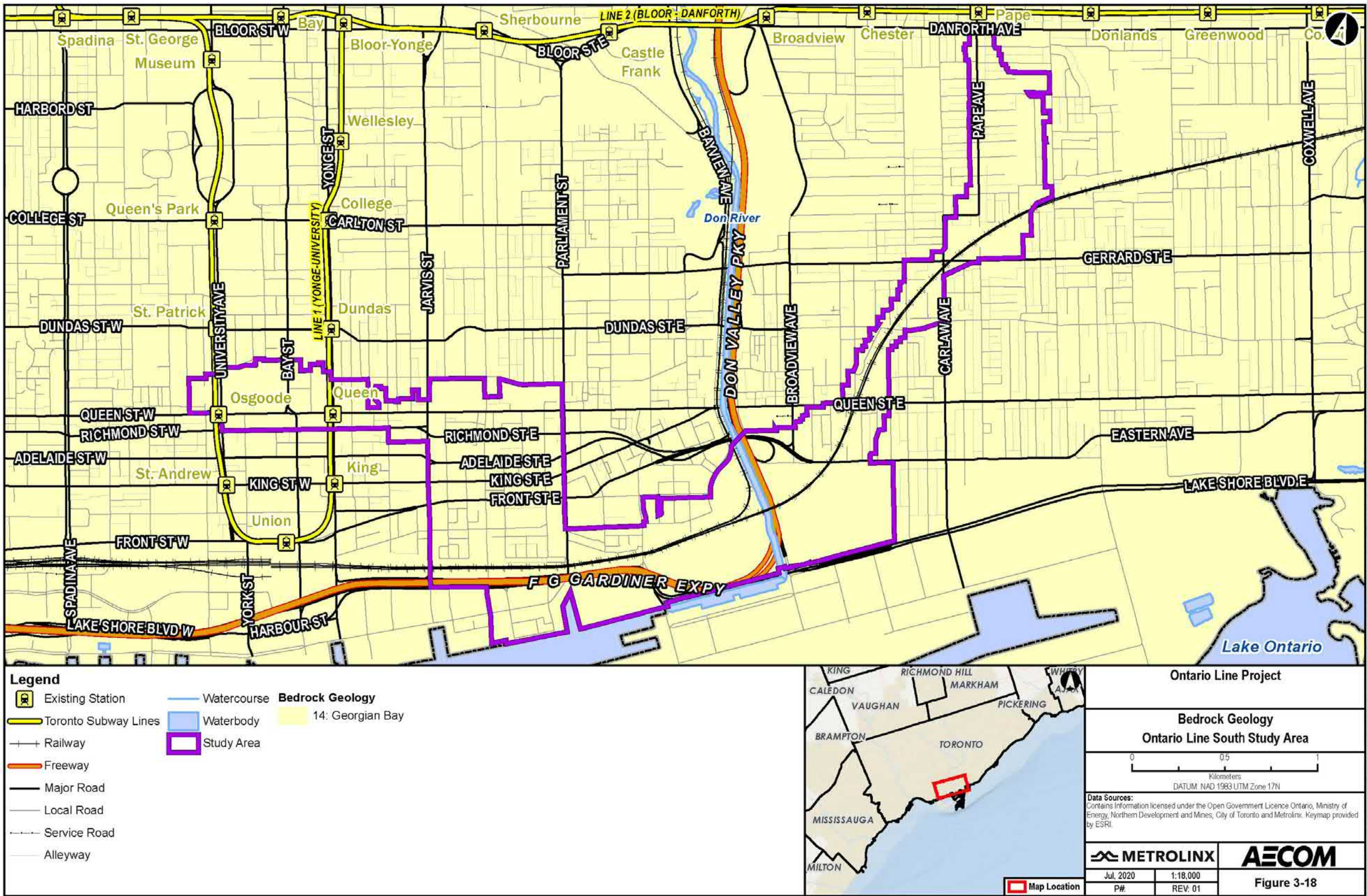


Figure 3-18: Bedrock Geology – Ontario Line South Study Area



3.2.3.2 Hydrogeological Setting

Where present, surficial aquifer units within the Study Area are typically comprised of coarse-textured unconsolidated (overburden) sand and gravelly sediments, as described in the previous section. Based on the Overburden Thickness map [Toronto and Region Source Protection Area, 2015], and a typical cross-section along Don River Watershed (West Don River) provided by Toronto and Region Conservation Authority as part of the Don River Watershed Plan: Geology and Groundwater Resources – Report on Current Conditions (Toronto and Region Conservation Authority, 2009) and a north-south cross-section along Yonge Street provided by Toronto and Region Conservation Authority as part of the Conceptual Understanding Water Budget Report (Puopolo, J. and Usher, S., 2007), the overburden thickness within the Ontario Line South Study Area is less than approximately 30 metres, with thinner overburden deposits observed along the river valleys, and the southern portion of the Study Area.

A review of the Ministry of the Environment, Conservation and Parks water well records database indicates that the overburden geologic materials within the Ontario Line South Study Area consist primarily of clayey silt, silty clay, silt, sand, sandy silt, and silty sand in localized areas. Bedrock was encountered in some of the reviewed Ministry of the Environment, Conservation and Parks well records, at depths ranging from approximately 13.6 metres Below Ground Surface to 30.5 metres Below Ground Surface.

The well-established stratigraphic framework for the Greater Toronto Area is summarized in **Table 3-13** (Toronto and Region Source Protection Area, 2015). Based on the Toronto and Region Conservation Authority (2009) cross-section along Don River Watershed (West Don River) and the cross-section along Yonge Street (Puopolo, J. and Usher, S., 2007), the following three Hydrostratigraphic Units are present within the Study Area: Surficial Aquifer (Recent Sediments – associated with the former Lake Iroquois shoreline deposits), potentially minor Oak Ridges Aquifer sediments along the Don River Valley, and Scarborough Aquifer Complex (organic-rich over silts and clays). In addition, the Study Area is at the approximate boundary of the mapped extent of the Thorncliffe Aquifer. It's unlikely that this unit is present within the Study Area, and if it is, it's unlikely it exhibits significant thickness.

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) is primarily horizontal with a minor vertical component to deeper units

or discharge zones (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 to flow direction changes depending on proximity to surface watercourses/ water bodies and subsurface geology.

The surficial/shallow groundwater system within the Study Area is influenced by surface topography and likely flows to the south towards Lake Ontario.

3.2.3.3 Groundwater Resources

Source Water Protection

The Ministry of the Environment, Conservation and Parks defines several source water areas/features that are of relevance to the Ontario Line South Study Area. These include:

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

The Ontario Line South Study Area is located within the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Region. The presence of the above areas/features within the Ontario Line South Study Area is described below and shown in **Figure 3-19** and **Figure 3-20**.

A summary of source water protection details for the Ontario Line South Study Area is included in **Table 3-17**.

Table 3-17: Source Water Protection Details for the Ontario Line South Study Area

| Source Water Protection Feature | Present | Source Protection Plan Policies | 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 | - |
| Highly Vulnerable Aquifer | Yes, Highly Vulnerable Aquifer Score of 6 | Related Source Protection Plan policies: 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: 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).

Figure 3-19: Intake Protection Zone – Ontario Line South Study Area

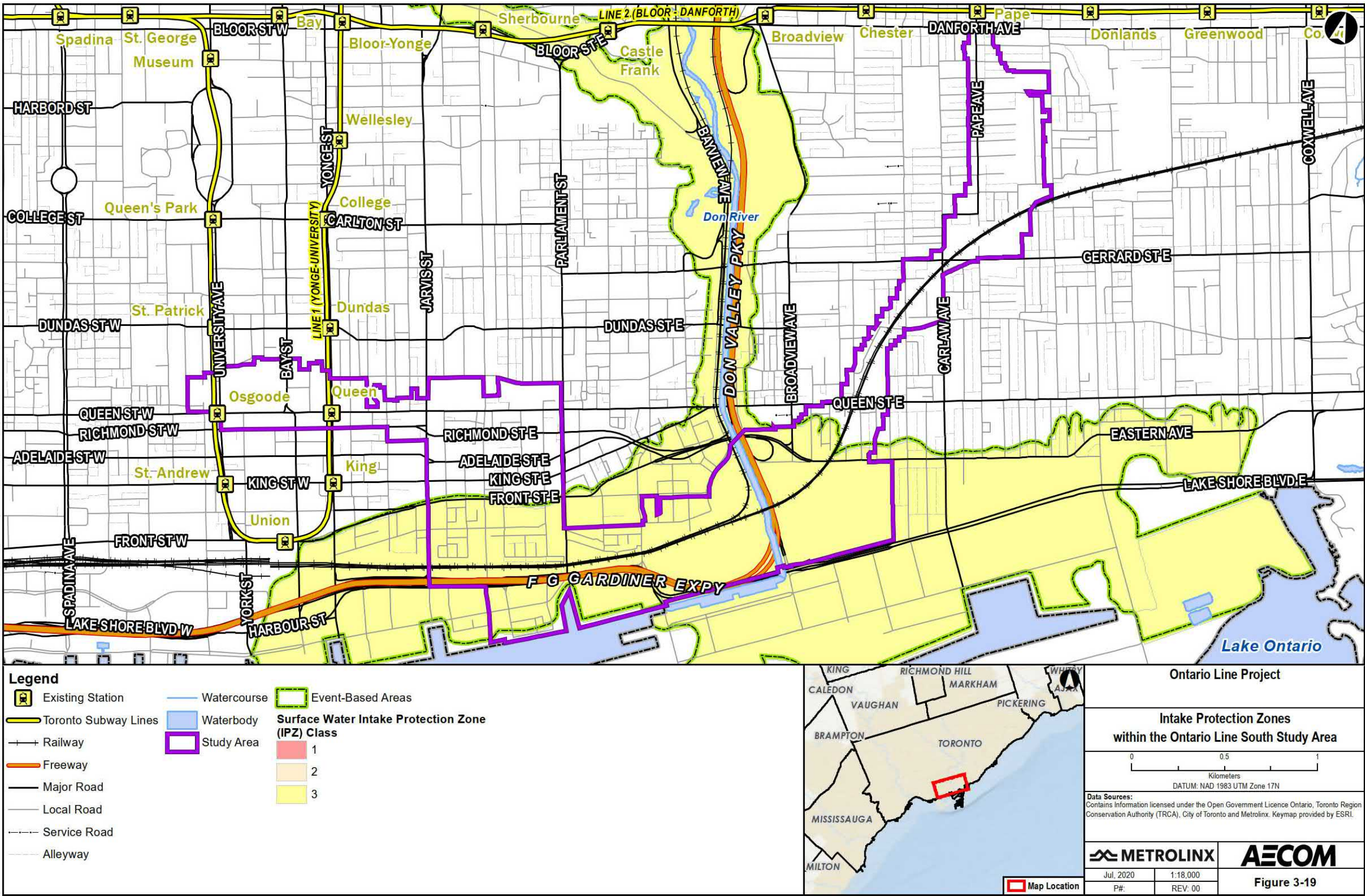
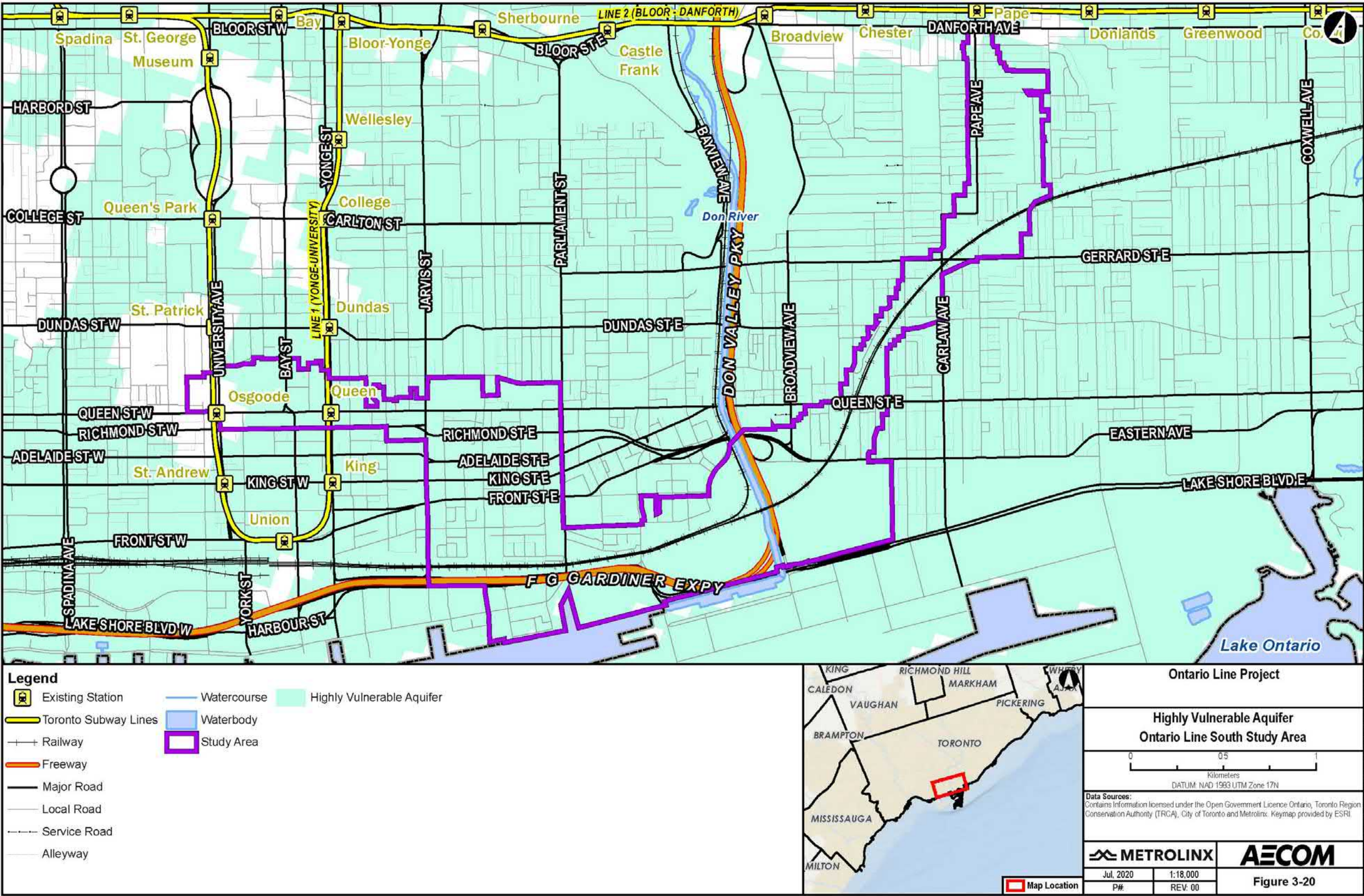


Figure 3-20: Highly Vulnerable Aquifer – Ontario Line South Study Area



Intake Protection Zone

Intake Protection Zones applies to those areas of land and water that contribute source water to a surface water drinking water system intake within a specified distance, a minimum water travel time prior to water treatment plant operator response, and the remaining upstream watershed area (also referred to as the Total Water Contributing Area). The Ontario Line South Study Area is located within Intake Protection Zone 3 (Intake Protection Zone-3).

Highly Vulnerable Aquifer

Most of the Ontario Line South Study Area overlaps with a Highly Vulnerable Aquifer. In **Figure 3-20**, the Highly Vulnerable Aquifer is denoted by the green polygon. Gaps within this polygon, shown in white, are areas that are not considered to be Highly Vulnerable Aquifer. Therefore, the Highly Vulnerable Aquifer does not cover the full Study Area.

Event Based Area

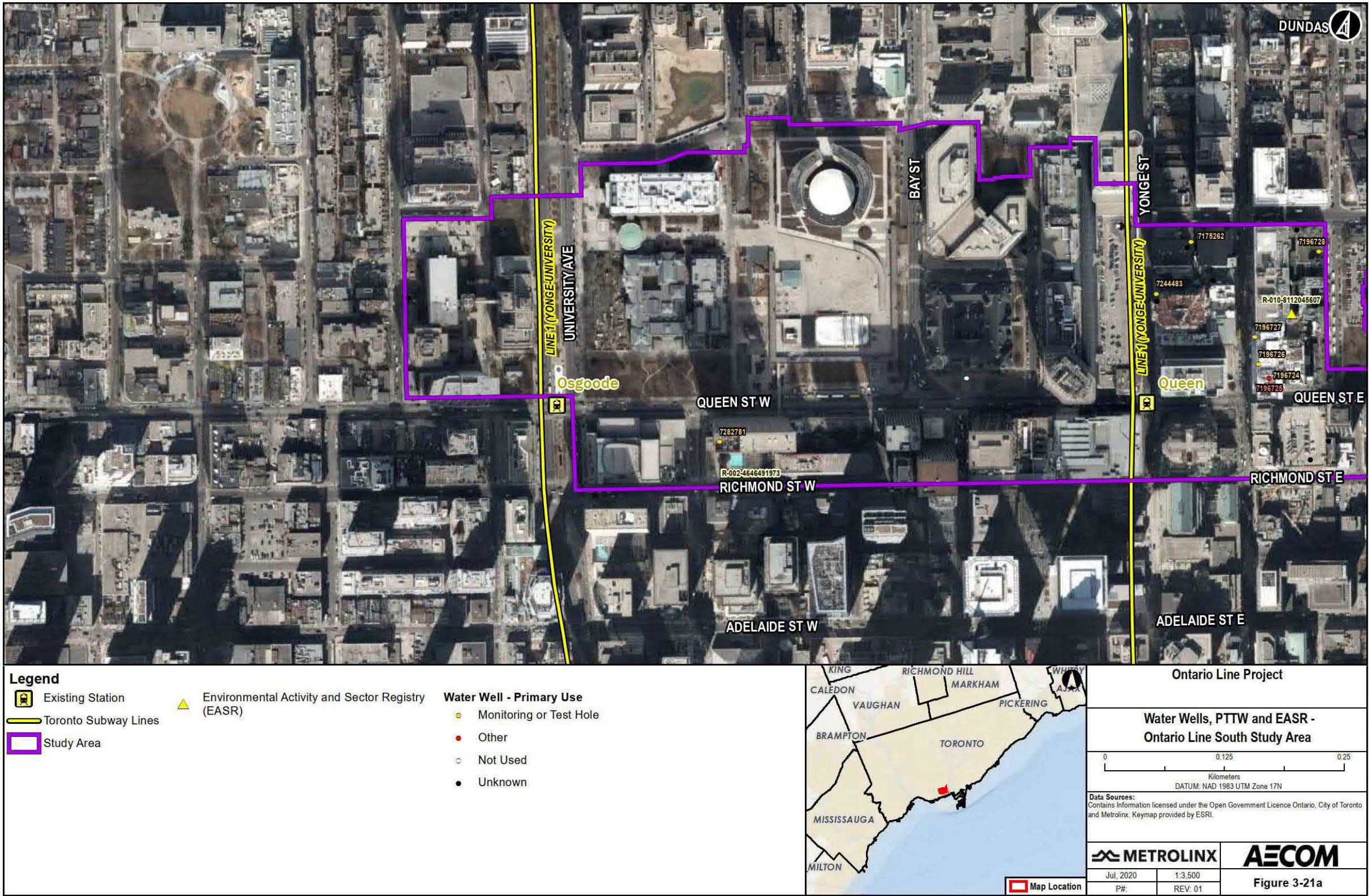
An Event Based Area is an area within a watershed where a spill could pollute the surface water drinking supply. The Ontario Line South Study Area is located within an Event Based Area for Stored/Transported Fuel/Oil Spill; Pipeline Fuel/Oil Spill; and Wastewater Treatment Plant/Sanitary Sewer.

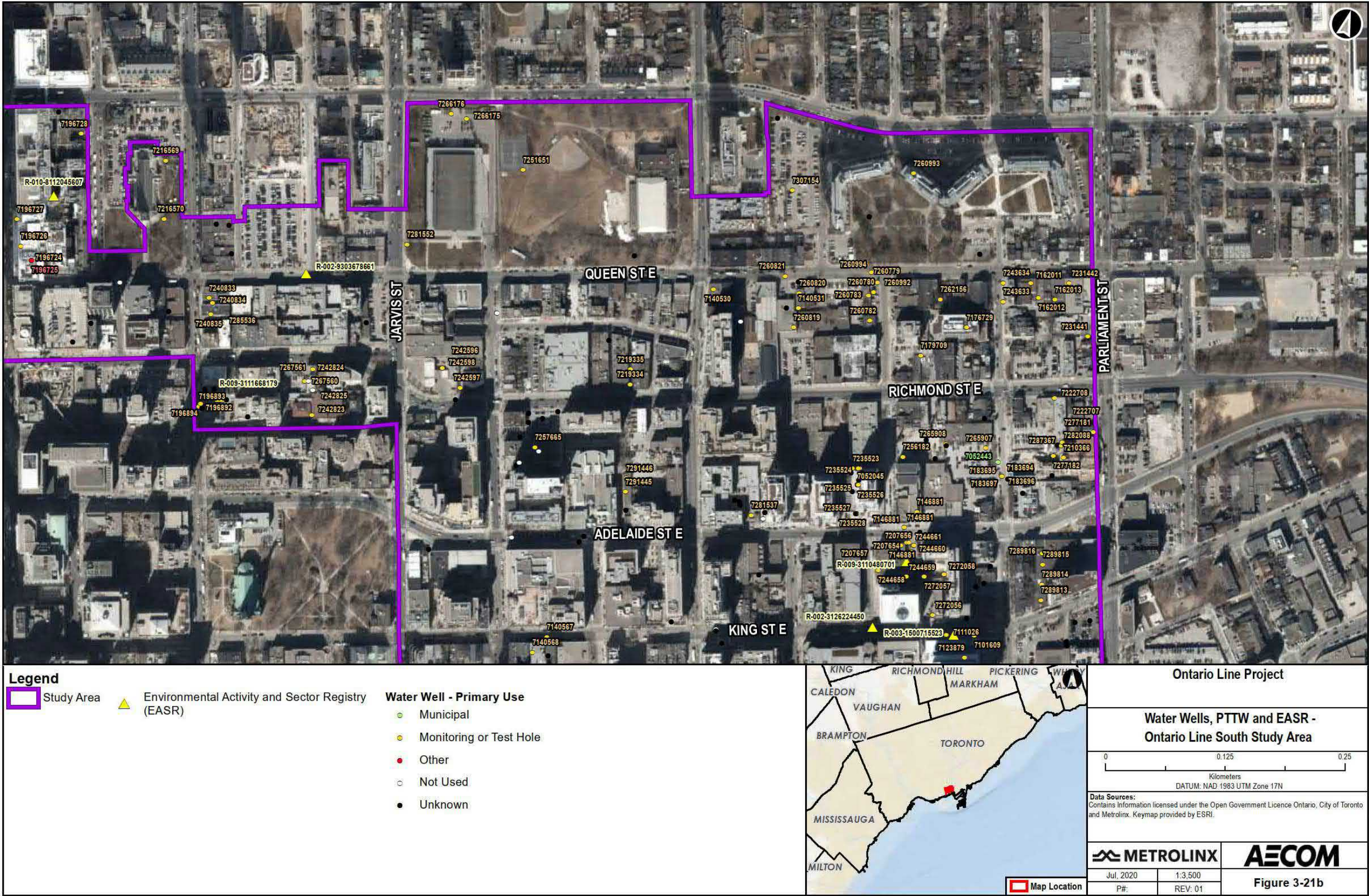
Ministry of the Environment, Conservation and Parks Water Well Records

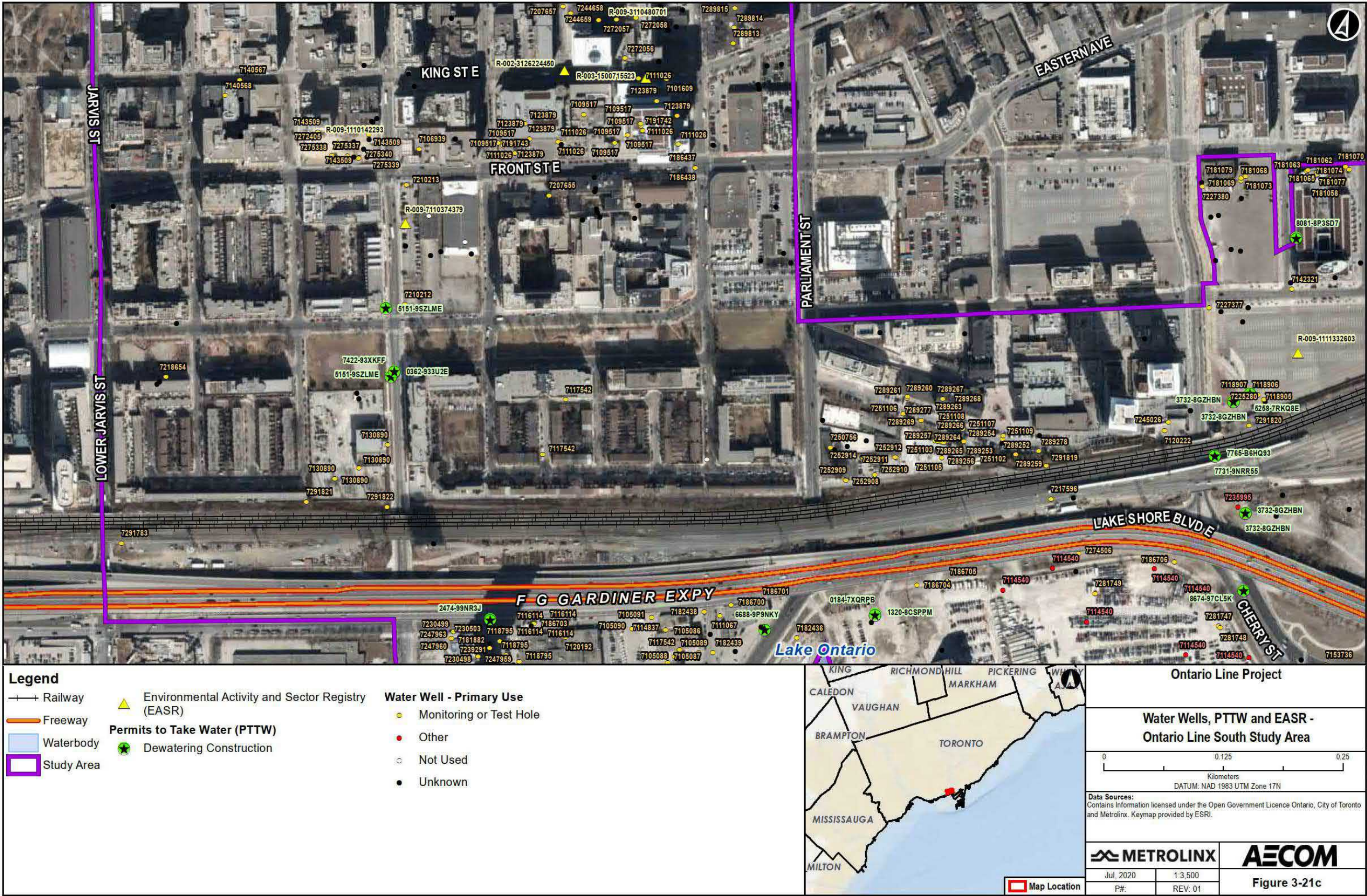
An inventory of local private water wells (i.e., domestic, commercial, industrial, etc.) was prepared within the Ontario Line South Study Area by searching the Ministry of the Environment, Conservation and Parks Water Well Information System database. Results are shown in **Figure 3-21**, along with the primary use of each well. A total of 1124 water well records were found located within the Ontario Line South Study Area.

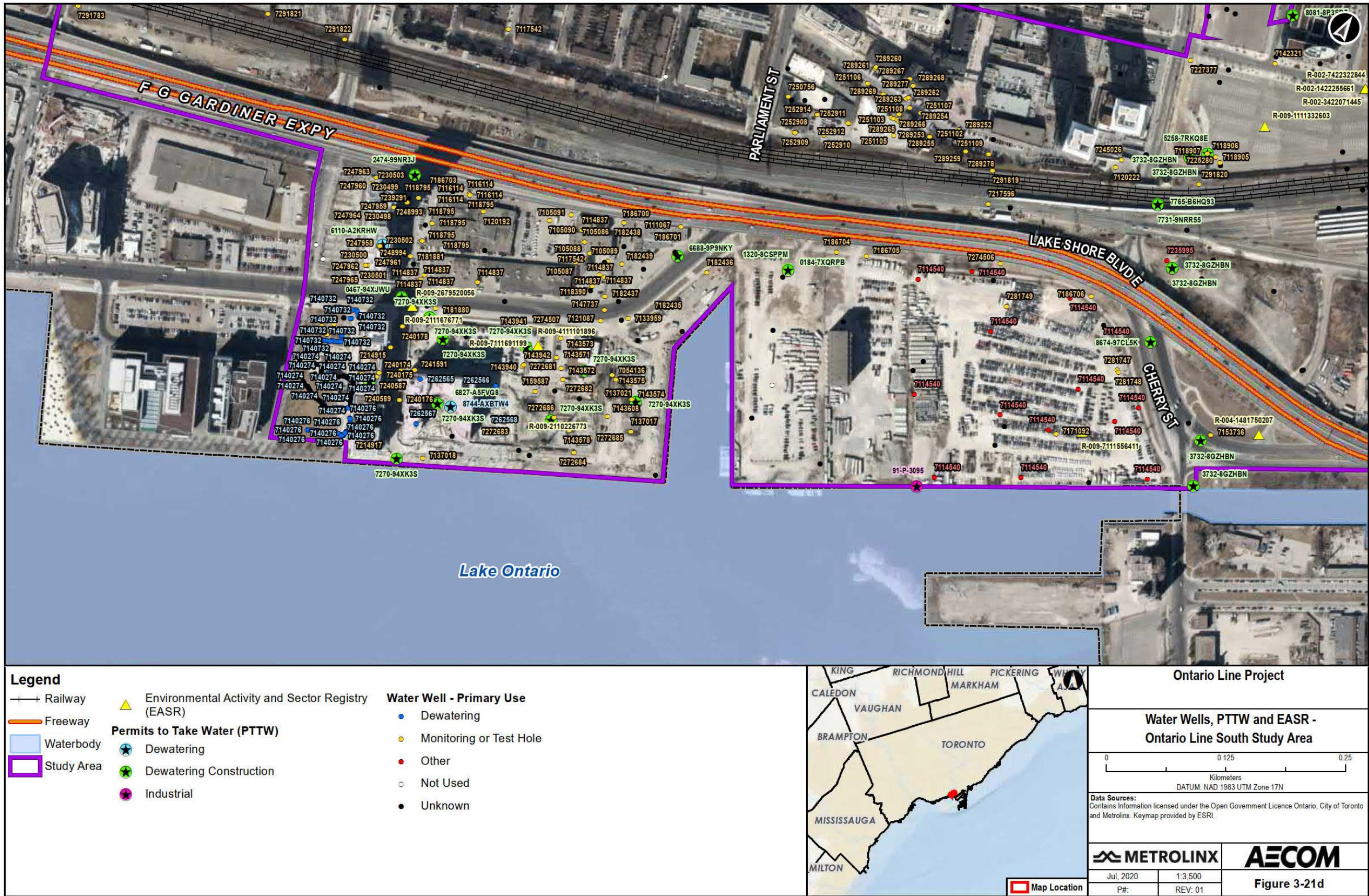
As shown in **Table 3-18**, available well records indicate that 53% of groundwater use within the Ontario Line South Study Area is for dewatering and monitoring and test hole purposes. Approximately 41% of Ministry of the Environment, Conservation and Parks water well records did not specify the well use and therefore are classified as 'Unknown'. Approximately 5% of the Ministry of the Environment, Conservation and Parks water well records indicate that the well is not used, accounting for decommissioning records and dry wells, followed by other uses (2%), and municipal (less than 1%).

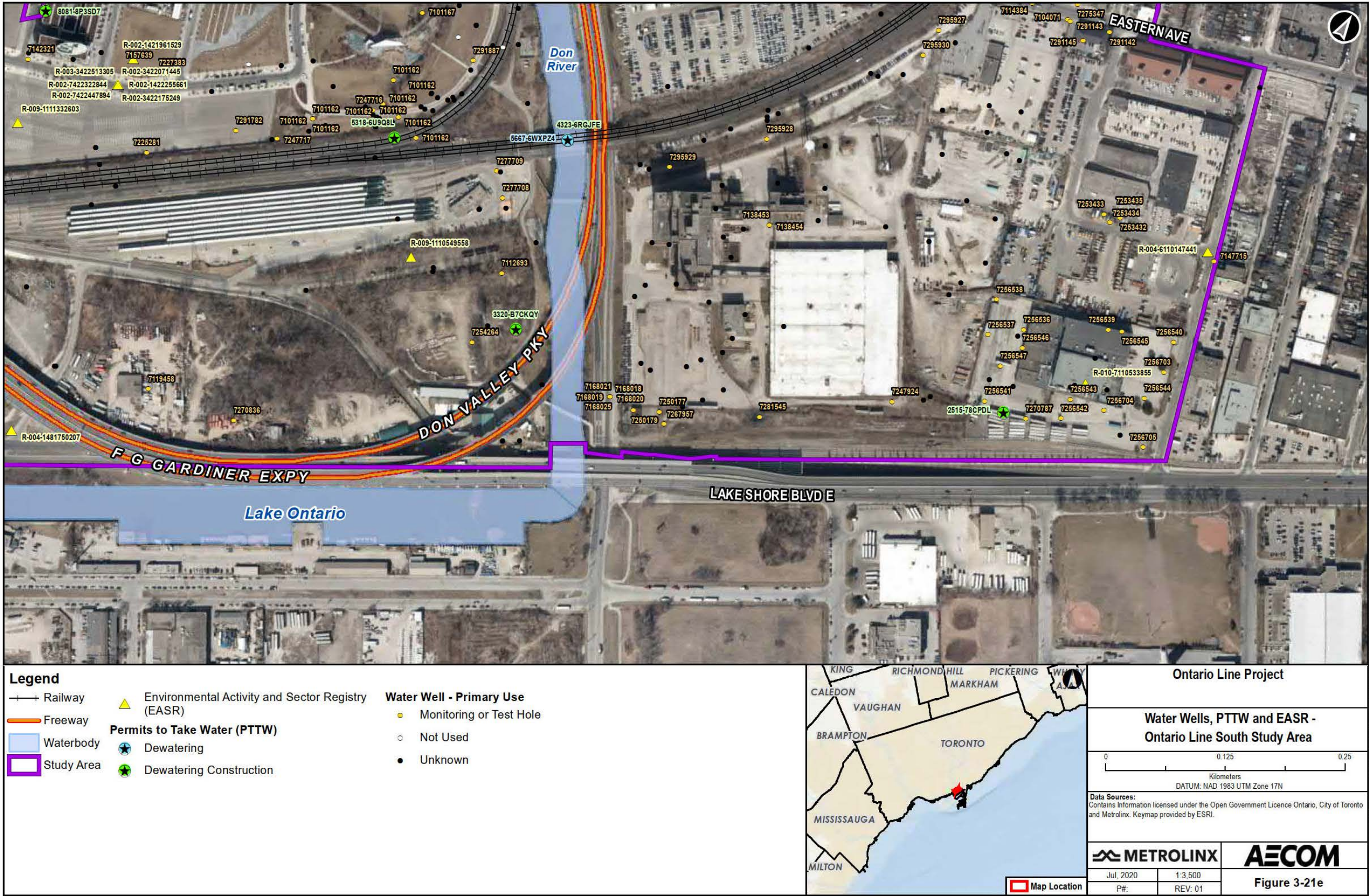
Figure 3-21: Water Wells, Permit to Take-Water and Environmental Activity and Sector Registry – Ontario Line South Study Area

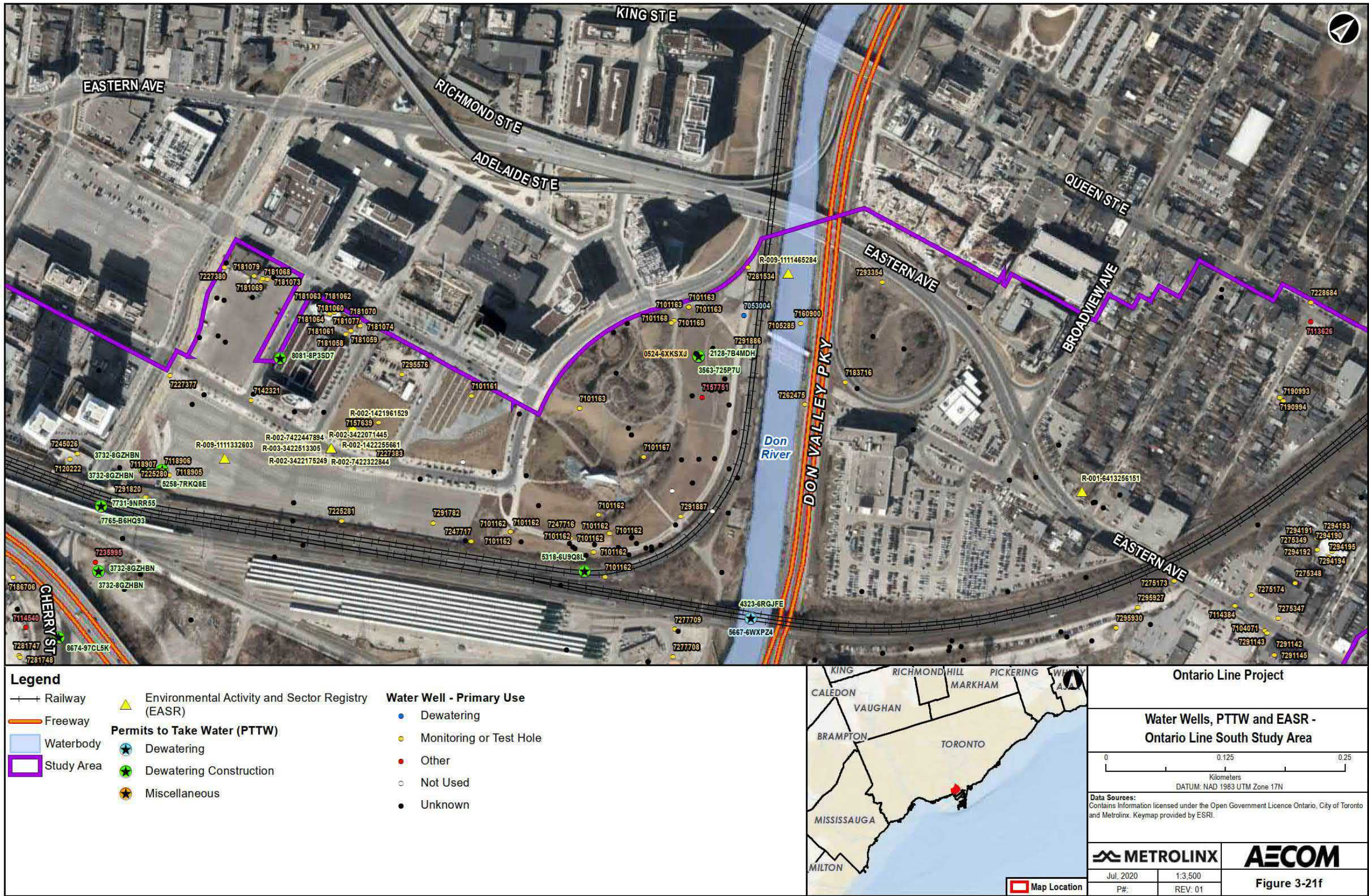


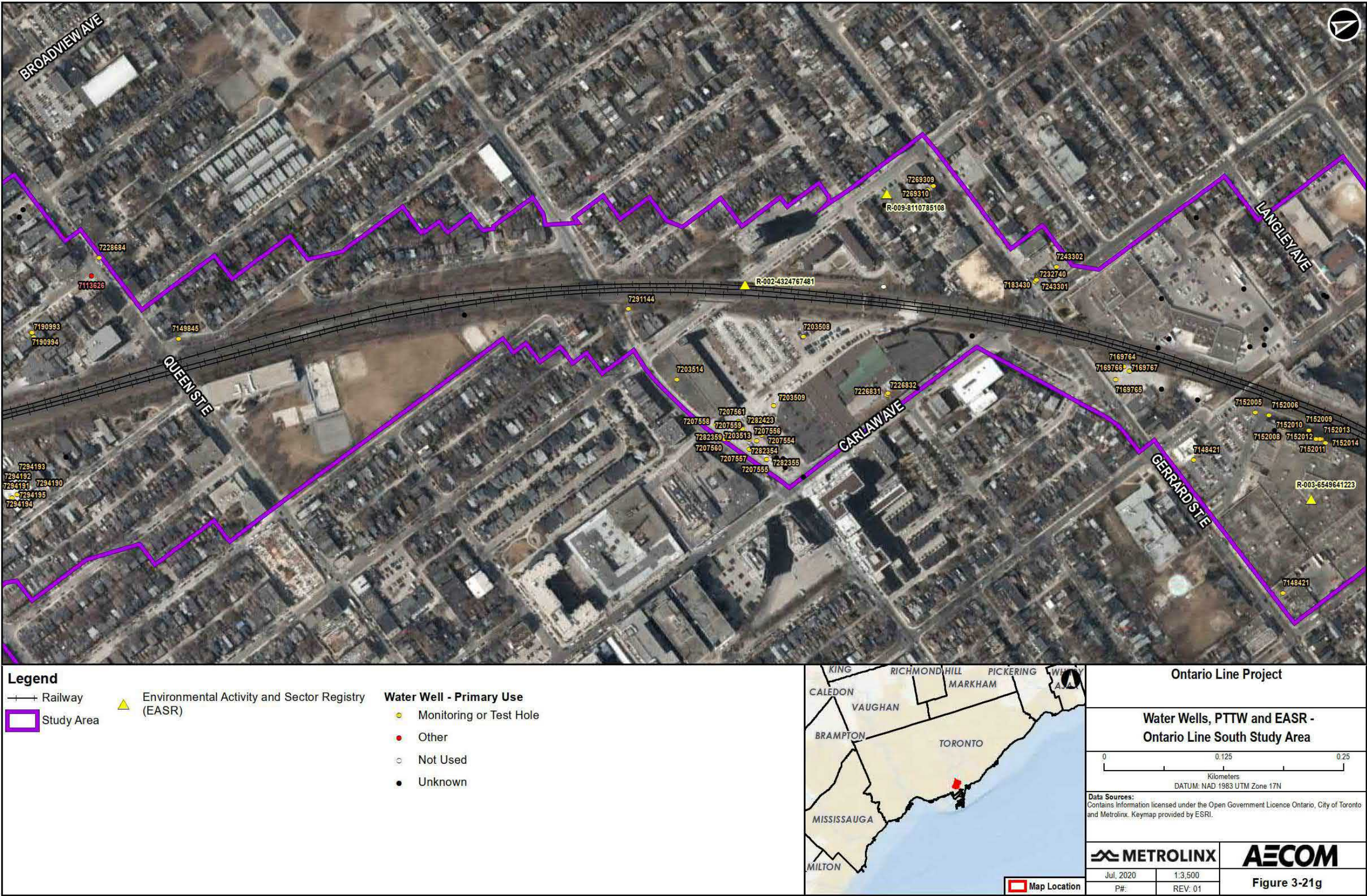












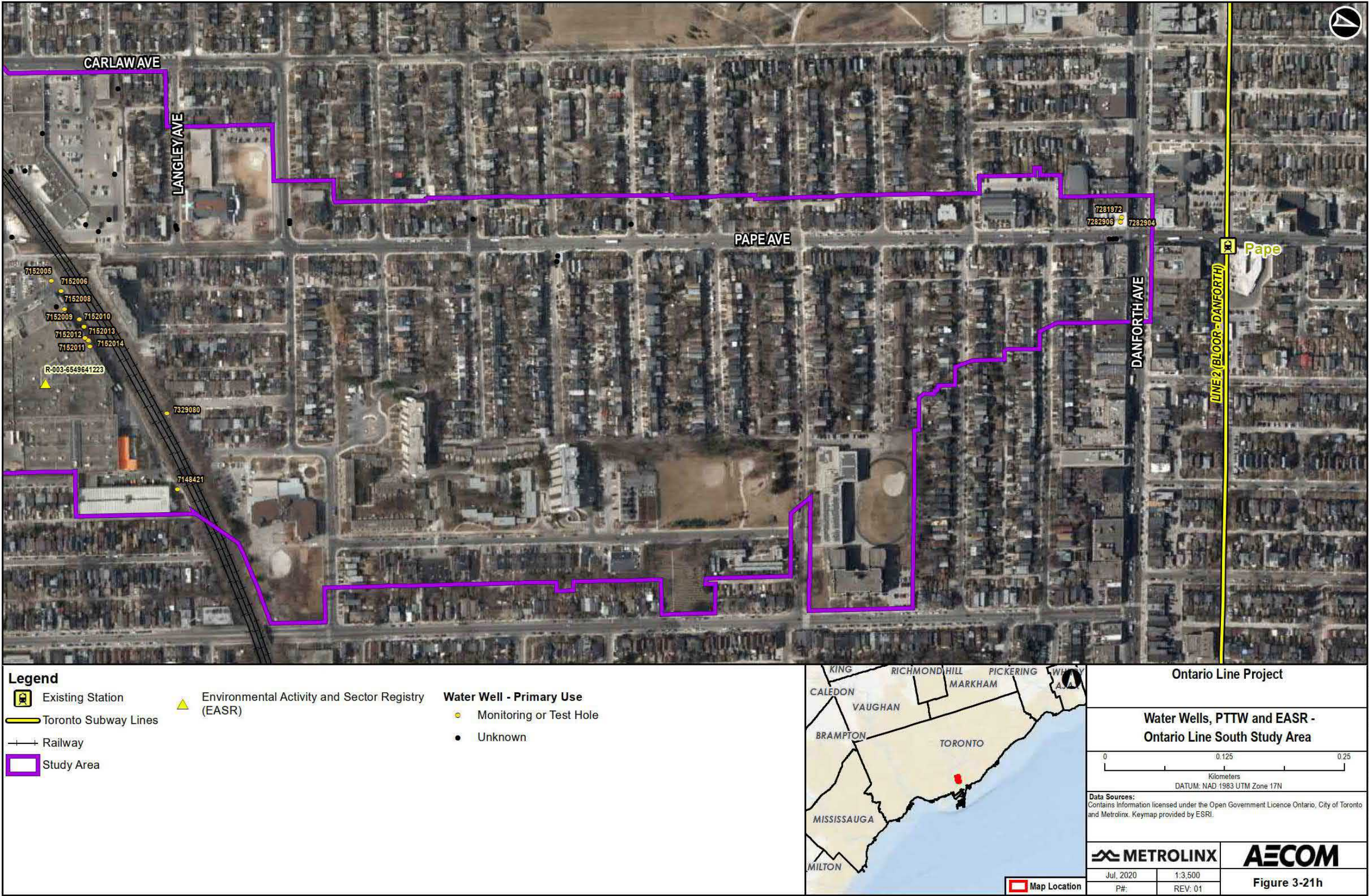


Table 3-18: Summary of Ontario Line South Ministry of the Environment, Conservation and Parks Water Well Record Information

| Primary Water Use | Number of Well Records | Well Depth (metres) | Primary Well Type |
|--------------------------------------------|------------------------|------------------------------|----------------------------------------|
| Dewatering/Monitoring and Test Hole | 592 | 1 to 64 | 14 overburden, 6 bedrock, 572 unknowns |
| Municipal | 1 | Information is not available | Information is not available |
| Not Used | 51 | Information is not available | Information is not available |
| Other | 18 | 5 to 9 | Information is not available |
| Unknown | 462 | 1 to 66 | Information is not available |

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

A search of the Ministry of the Environment, Conservation and Parks Permit to Take-Water database returned 47 results within the Ontario Line South Study Area. 32 of them are expired and 14 records are active and 30 of these are for construction dewatering purposes.

A search of the Ministry of the Environment, Conservation and Parks Environmental Activity and Sector Registry database returned 37 results within the Ontario Line South Study Area. 14 Environmental Activity and Sector Registry records were identified for construction dewatering purposes.

The referenced location for each Permit To Take-Water and Environmental Activity and Sector Registry is shown in **Figure 3-21**.

Water Level Data

A total of seventeen Ministry of the Environment, Conservation and Parks water well records were identified that report 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. Static water levels reported on the identified well records range between about 1.34 metres and 7.60 metres Below Ground Surface.

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

3.2.4 Ontario Line North

3.2.4.1 Geological Setting

Physiography and Topography

The Ontario Line North Study Area is situated within the South Slope and Iroquois Plain physiographic regions, as mapped by Chapman and Putnam (1984). A physiographic map of the area is provided in **Figure 3-22**.

The Iroquois Plain covers a majority of the Study Area and is described in detail in **Section 3.2.2.1**. The small portion in the north of the Ontario Line North Study Area lies within the South Slope physiographic region, which is characterized by a smooth, faintly drumlinized clay till plain. Ground surface elevations range from about 280 metres Above Sea Level where the South Slope intersects the Oak Ridges Moraine to about 80 metres Above Sea Level near the Lake Ontario shoreline.

The ground surface topography within the Ontario Line North Study Area is shown in **Figure 3-23**. The elevations within the Ontario Line North Study Area range from approximately 85 to 140 metres Above Sea Level. The topography in the vicinity of the Study Area is highly affected by the extensive local development and is generally undulating in nature, with a general downward slope in the direction of the Don River and Don River West Branch.

Surficial Geology

The surficial geology within the Ontario Line North Study Area is shown in **Figure 3-24**. Identified surficial soils include i) Till Deposits (stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain); ii) Till Deposits (undifferentiated older tills, may include stratified deposits); iii) Coarse-textured Glaciolacustrine Deposits (sand, gravel, minor silt and clay derived from foreshore-basinal deposits); and iv) Modern Alluvial Deposits (clay, silt, sand, gravel, may contain organic remains).

Figure 3-22: Physiography – Ontario Line North Study Area

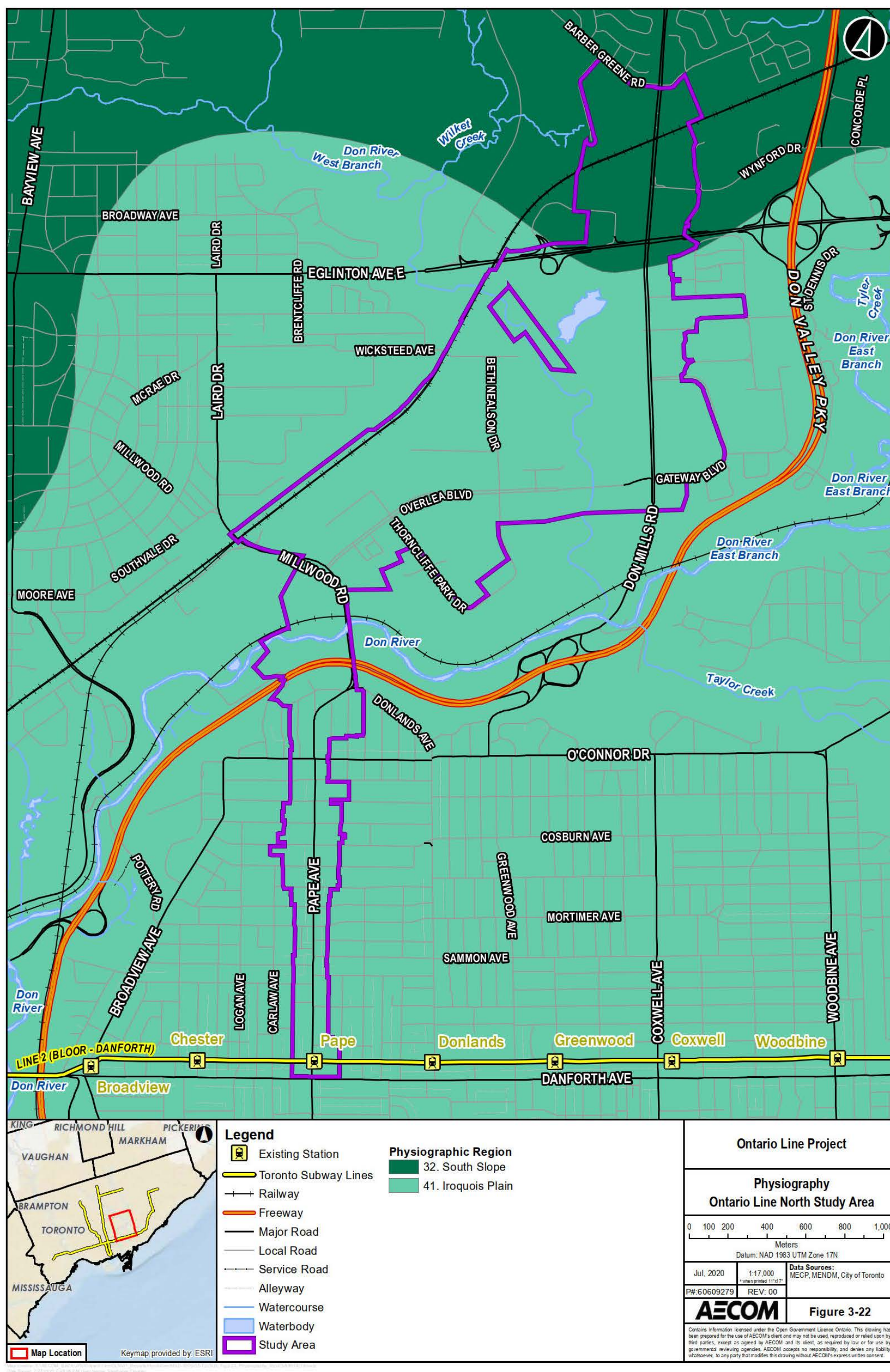


Figure 3-23: Topography and Drainage – Ontario Line North Study Area

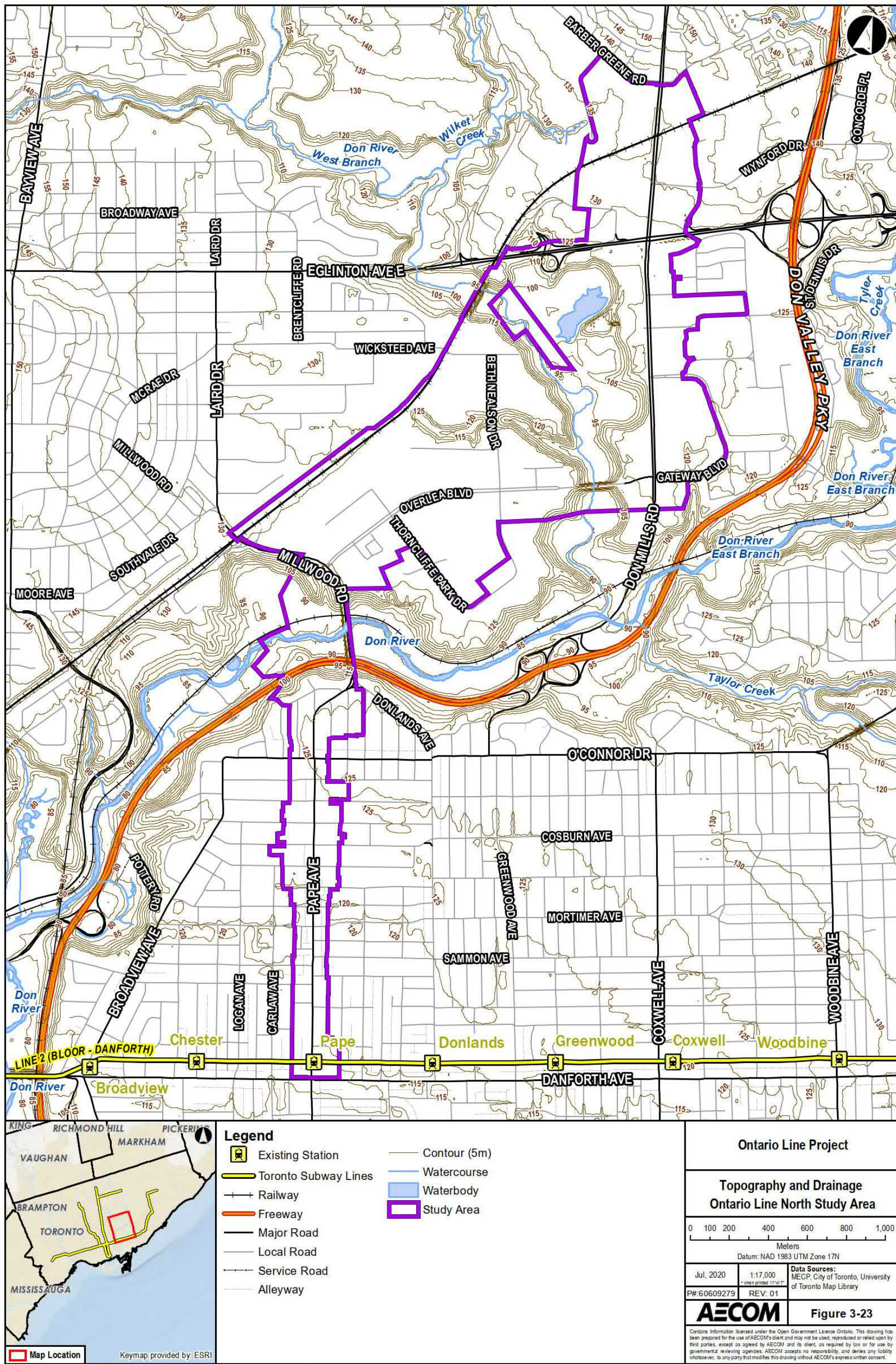
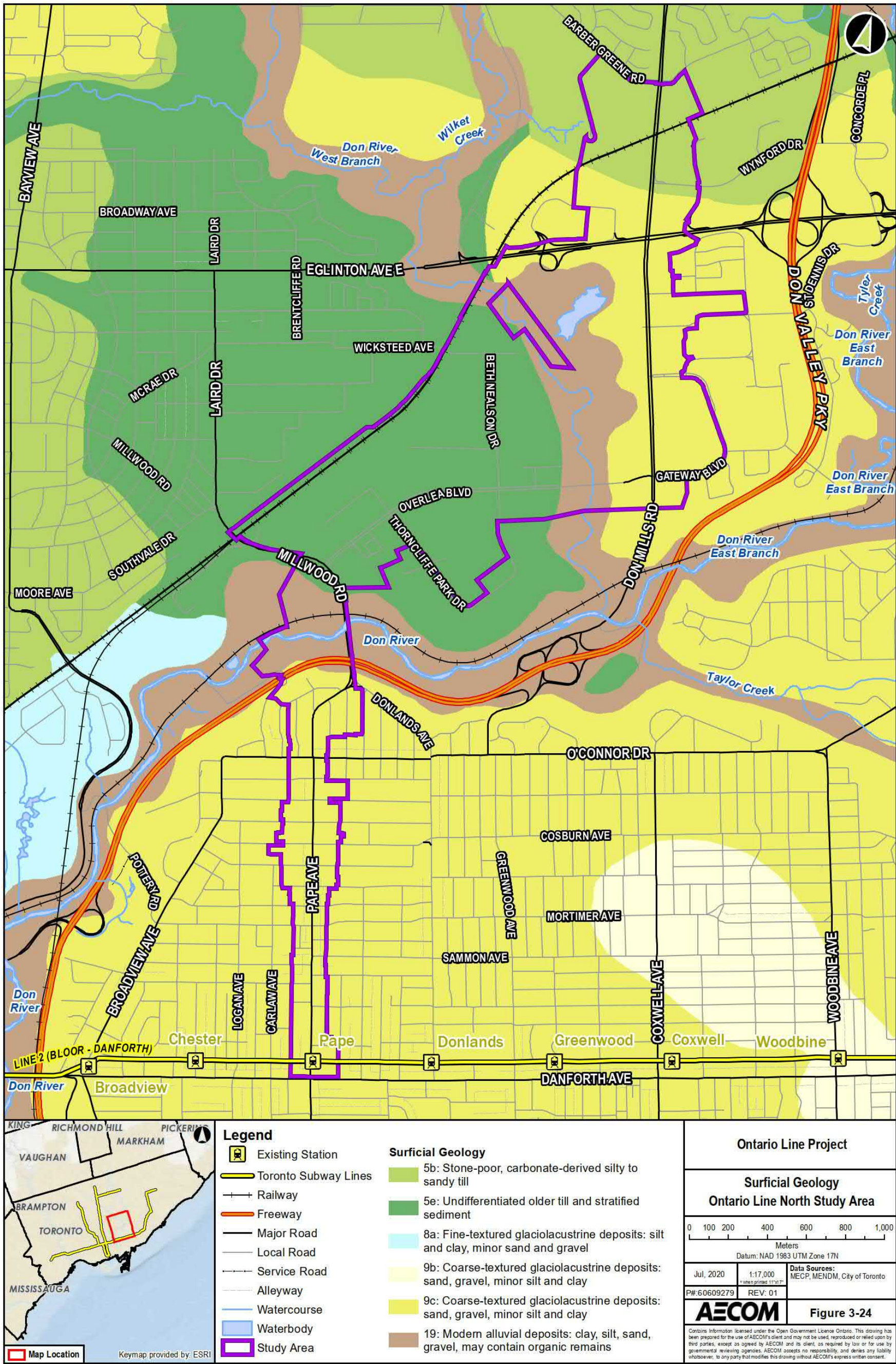


Figure 3-24: Surficial Geology – Ontario Line North Study Area



Quaternary Geology

The Quaternary geology within the Ontario Line North Study Area is shown in **Figure 3-25**. A review of Quaternary geology mapping, available at a smaller scale than the Surficial Geology mapping, indicates that the primary surficial deposits within the Study Area are Glaciolacustrine Deposits (sand, gravelly sand, and gravel) and Halton Till with silt to silty clay matrix. **Table 3-19** summarizes the identified geologic features in additional details.

Table 3-19: Quaternary Geology of the Ontario Line North Study Area

| Quaternary Geology | Soil Conditions |
|----------------------------------|-----------------------------------------------------------------------------------------|
| Glaciolacustrine Deposits | Sand, gravelly sand and gravel derived from nearshore and beach deposits. |
| Halton Till | Predominantly a silt to silty clay matrix, high in carbonate content with a poor clast. |

Bedrock Geology

Bedrock geology within the Ontario Line North Study Area is shown in **Figure 3-26**. 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 61 metres Above Sea Level to 84 metres Above Sea Level.

3.2.4.2 Hydrogeological Setting

Where present, surficial aquifer units within the Study Area are typically comprised of coarse-textured unconsolidated (overburden) sand and gravelly sediments, as described in the previous section. Based on the Overburden Thickness map [Toronto and Region Source Protection Area, 2015] and a typical cross-section along Don River Watershed (West Don River) provided by Toronto and Region Conservation Authority as part of the Don River Watershed Plan: Geology and Groundwater Resources – Report on Current Conditions (Toronto and Region Conservation Authority, 2009), the overburden thickness within the Ontario Line North Study Area is approximately 20 metres to 90 metres, with thinner overburden deposits observed along the river valleys and southern portion of the Study Area.

A review of the Ministry of the Environment, Conservation and Parks water well records database indicates that the overburden geologic materials within the Ontario Line North Study Area consist primarily of silty clay, silty sand, sandy silt, sand, and silt in localized areas.

Figure 3-25: Quaternary Geology – Ontario Line North Study Area

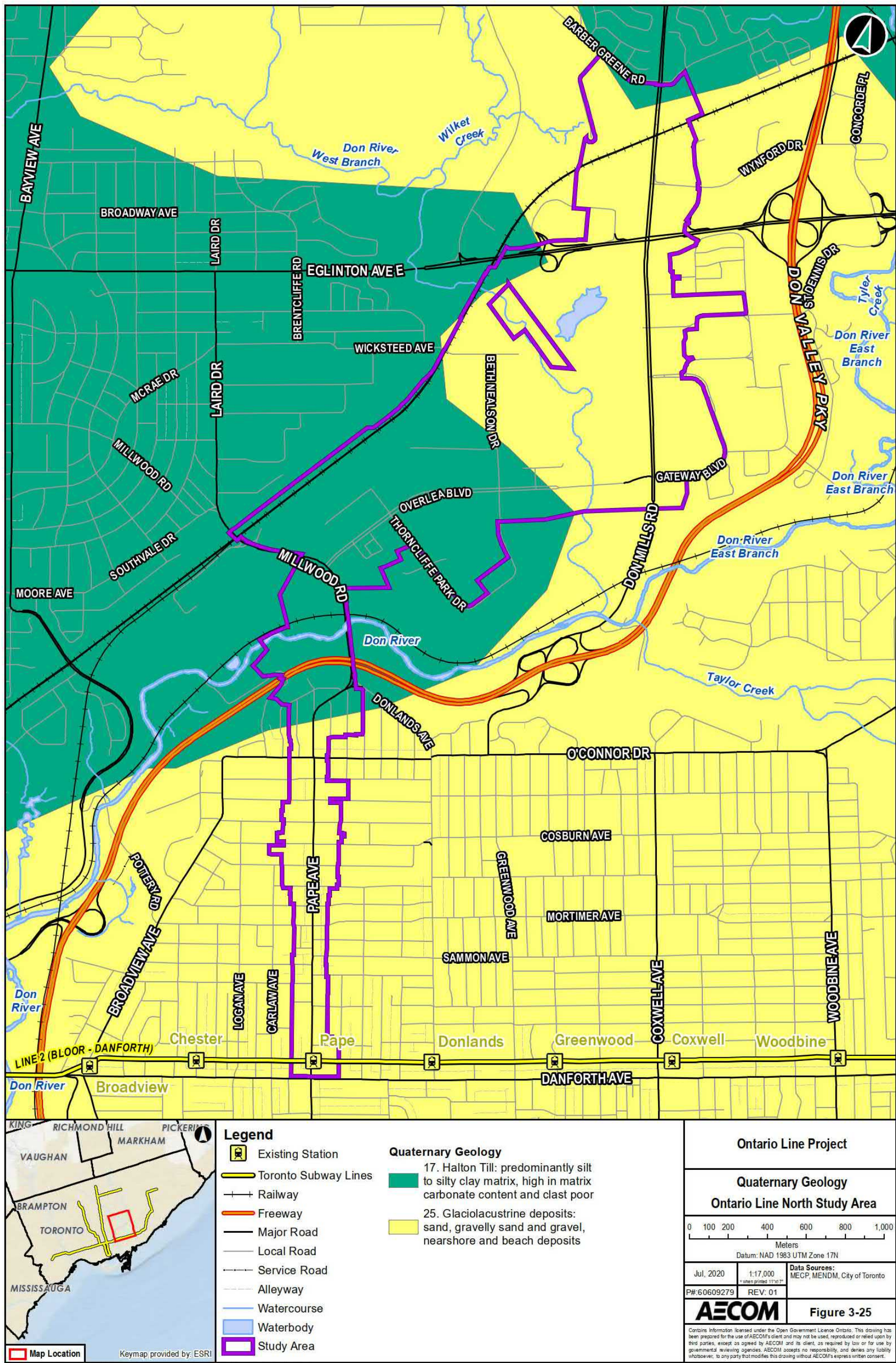
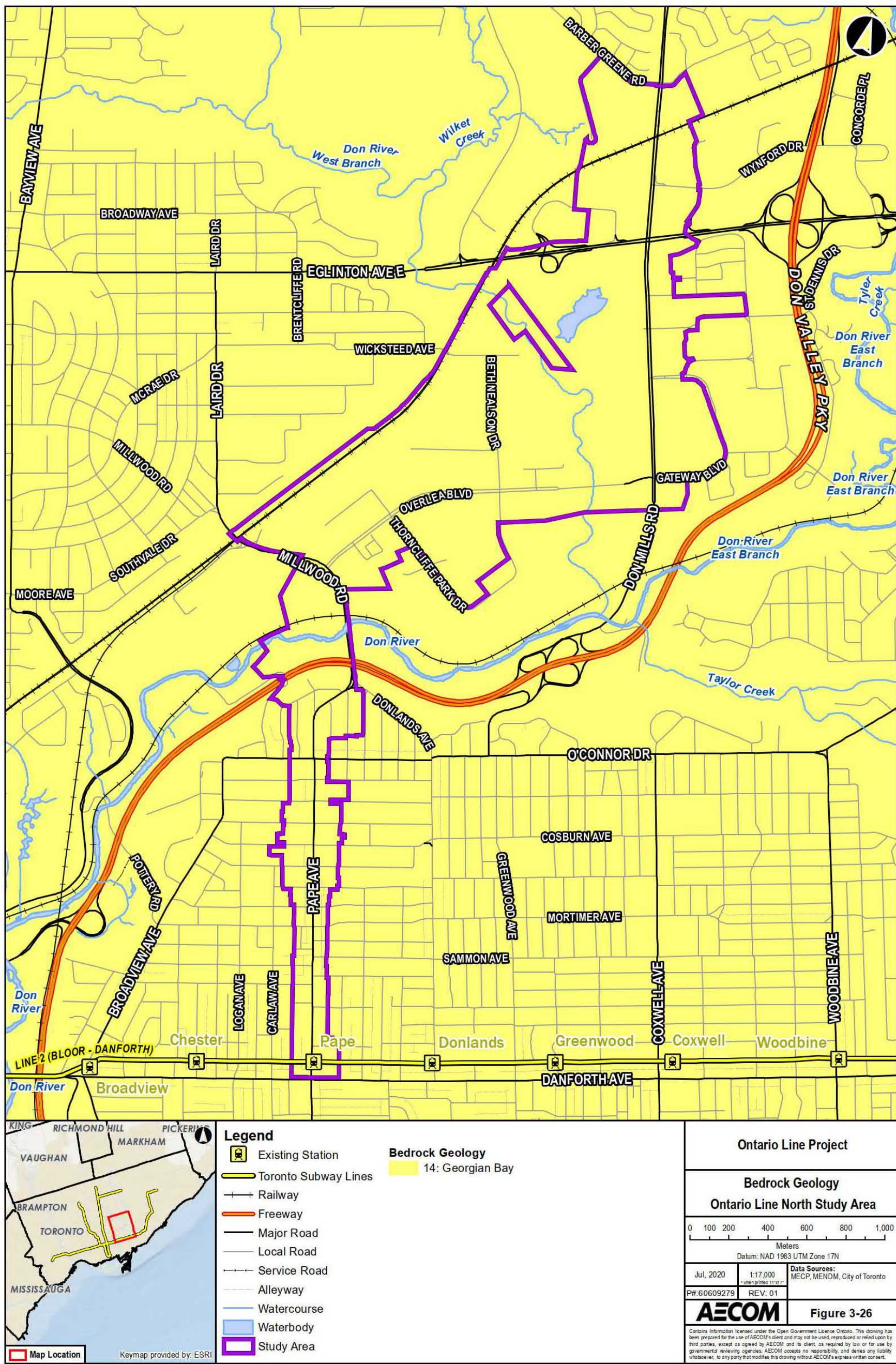


Figure 3-26: Bedrock Geology – Ontario Line North Study Area



The well-established hydrostratigraphic framework for the Greater Toronto Area is summarized in **Table 3-13** (Toronto and Region Source Protection Area, 2015). Based on the Toronto and Region Conservation Authority (2009) cross-section along Don River Watershed (West Don River), the following seven Hydrostratigraphic Units are present within the Ontario Line North Study Area: Surficial Aquifer (Recent Sediments – associated with the former Lake Iroquois shoreline deposits), Halton Aquitard, Oak Ridges Aquifer, Newmarket Aquitard, Thorncliffe Aquifer Complex, Sunnybrook Aquitard, and Scarborough Aquifer Complex.

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) is primarily horizontal with a minor vertical component to deeper units or discharge zones (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 to flow direction changes depending on proximity to surface watercourses/ water bodies and subsurface geology.

The surficial/shallow groundwater system within the Study Area is influenced by surface topography and likely flows to the creek valleys (i.e., Don River, Don River West Branch, and Wilket Creek). Regionally, the groundwater flow is expected to be to the south towards Lake Ontario.

3.2.4.3 Groundwater Resources

Source Water Protection

The Ministry of the Environment, Conservation and Parks defines several source water areas/features that are of relevance to the Ontario Line North Study Area. These include:

- Intake Protection Zones
- Highly Vulnerable Aquifers
- Event Based Areas

The Ontario Line North Study Area is located within the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Region. The presence of the above areas/features within the Ontario Line North Study Area is described below and shown in **Figure 3-27** and **Figure 3-28**.

Figure 3-27: Intake Protection Zone – Ontario Line North Study Area

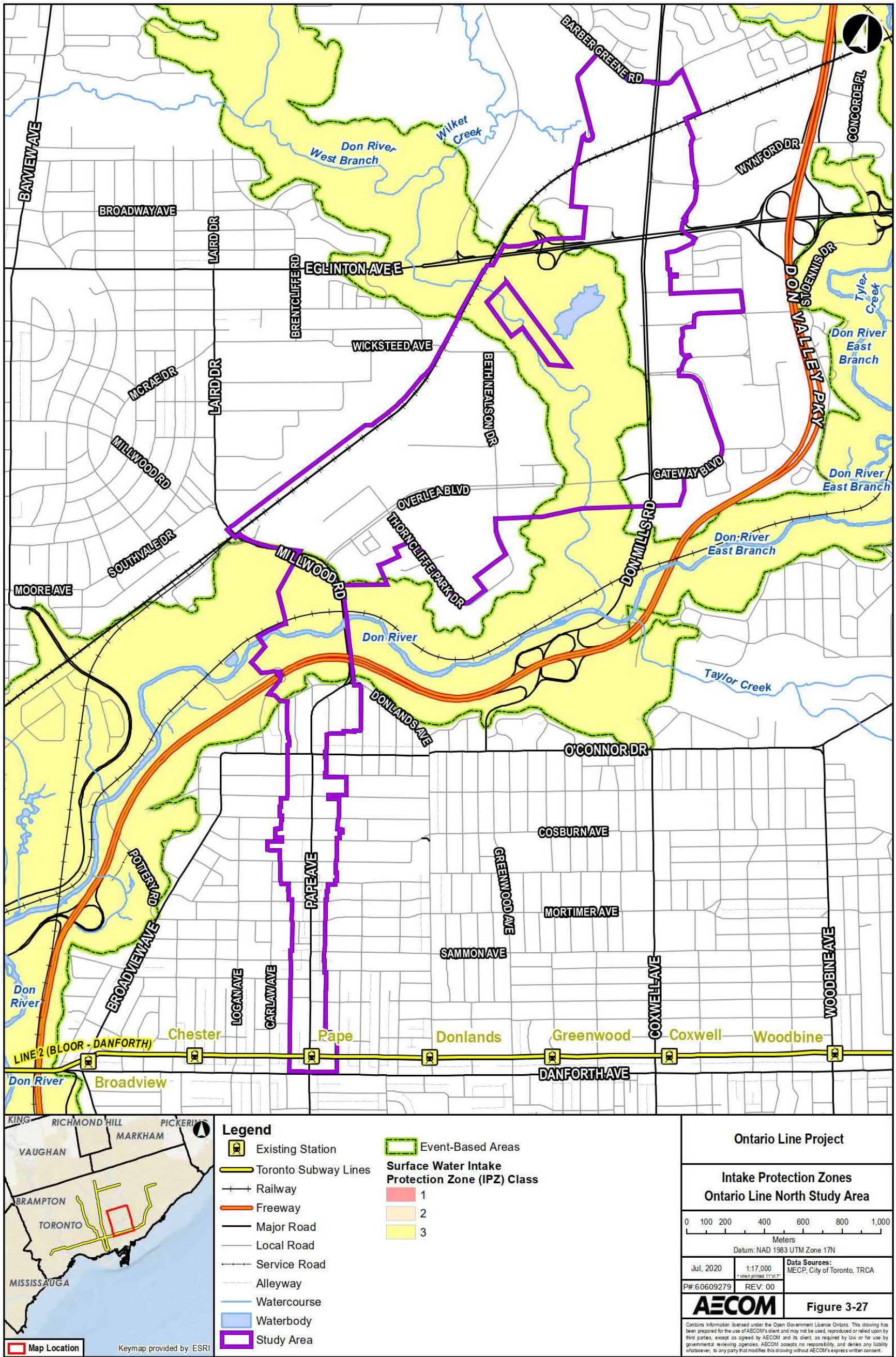
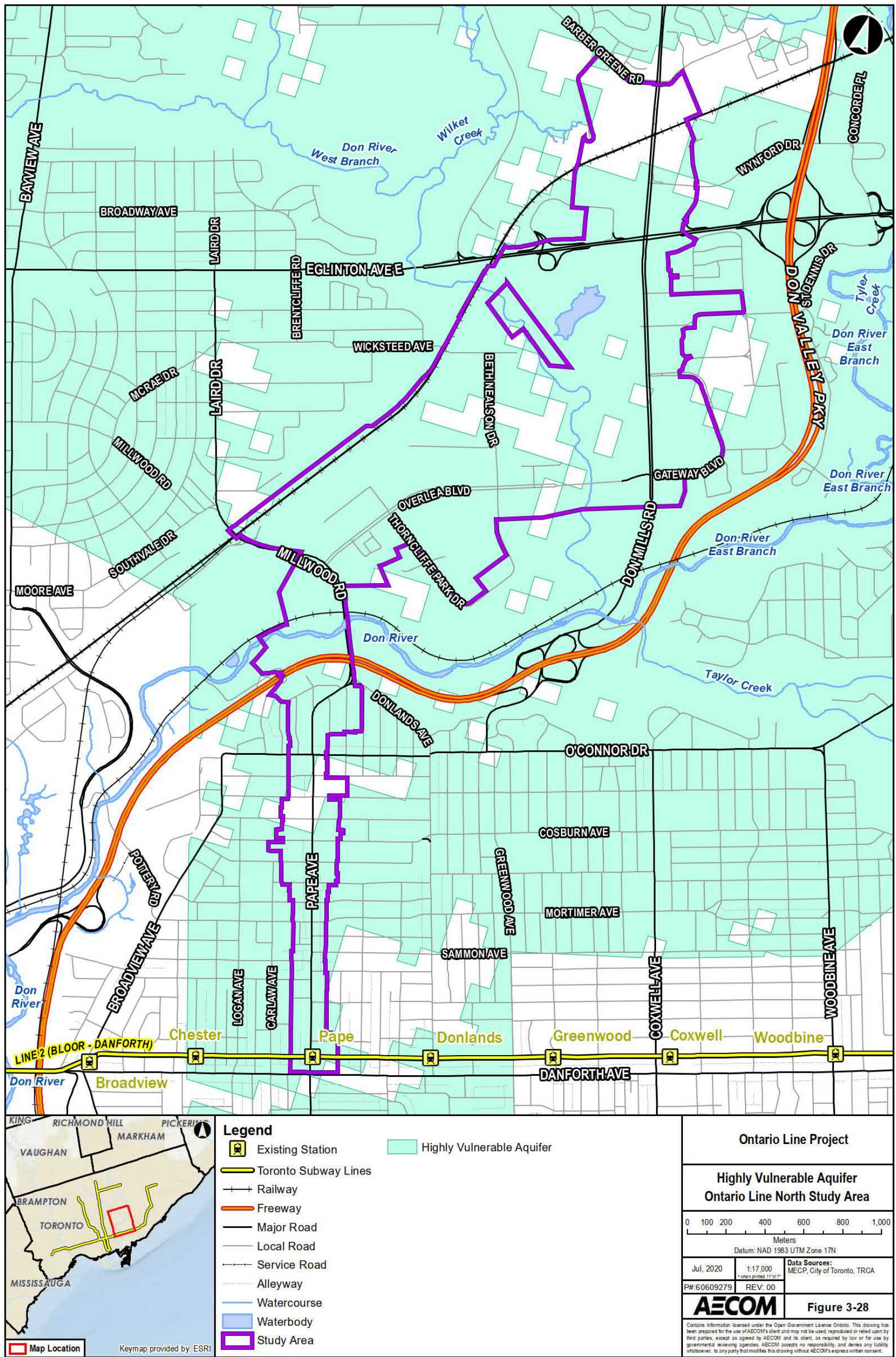


Figure 3-28: Highly Vulnerable Aquifer – Ontario Line North Study Area



A summary of source water protection details for the Ontario Line North Study Area is included in **Table 3-20**.

Table 3-20: Source Water Protection Details for the Ontario Line North Study Area

| Source Water Protection Feature | Present | Source Protection Plan Policies | 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 | - |
| Highly Vulnerable Aquifer | Yes, Highly Vulnerable Aquifer Score of 6 | Related Source Protection Plan policies: 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: 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).

Intake Protection Zone

The Ontario Line North Study Area is located within Intake Protection Zone 3.

Highly Vulnerable Aquifer

Several sections of the Ontario Line North Study Area overlap with a Highly Vulnerable Aquifer. In **Figure 3-28**, the Highly Vulnerable Aquifer is denoted by the green polygon. Gaps within this polygon, shown in white, are areas that are not considered to be Highly Vulnerable Aquifer. Therefore, the Highly Vulnerable Aquifer does not cover the full Study Area.

Event Based Area

The Ontario Line North Study Area is located within an Event Based Area for Stored/Transported Fuel/Oil Spill; Pipeline Fuel/Oil Spill; Wastewater Treatment Plant/Sanitary Sewer.

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 Ontario Line North Study Area by searching the Ministry of the Environment, Conservation and Parks Water Well Information System database. Results are shown in **Figure 3-29** along with the primary use of each well. A total of 276 water well records were found located within the Ontario Line North Study Area.

As shown in **Table 3-21**, available well records indicate that 37% of groundwater use within the Ontario Line North Study Area is for dewatering and monitoring/test hole wells. Approximately 4% of the Ministry of the Environment, Conservation and Parks water well records indicate that the well is not used, accounting for decommissioning records and dry wells, followed by other uses (less than 1%). Approximately 59% of Ministry of the Environment, Conservation and Parks water well records did not specify the well use and therefore are classified as 'Unknown'.

Table 3-21: Summary of Ontario Line North Ministry of the Environment, Conservation and Parks Water Well Record Information

| Primary Water Use | Number of Well Records | Well Depth (metres) | Primary Well Type |
|--------------------------------------------|------------------------|------------------------------|------------------------------|
| Monitoring and Test Hole/Dewatering | 101 | 3.66 to 39.60 | Information is not available |
| Other Uses | 2 | Information is not available | Information is not available |
| Not Used | 11 | 4.57 to 10.30 | 5 overburden, 6 unknowns |
| Unknown | 162 | 2.90 to 47.24 | 3 overburden, 159 unknowns |

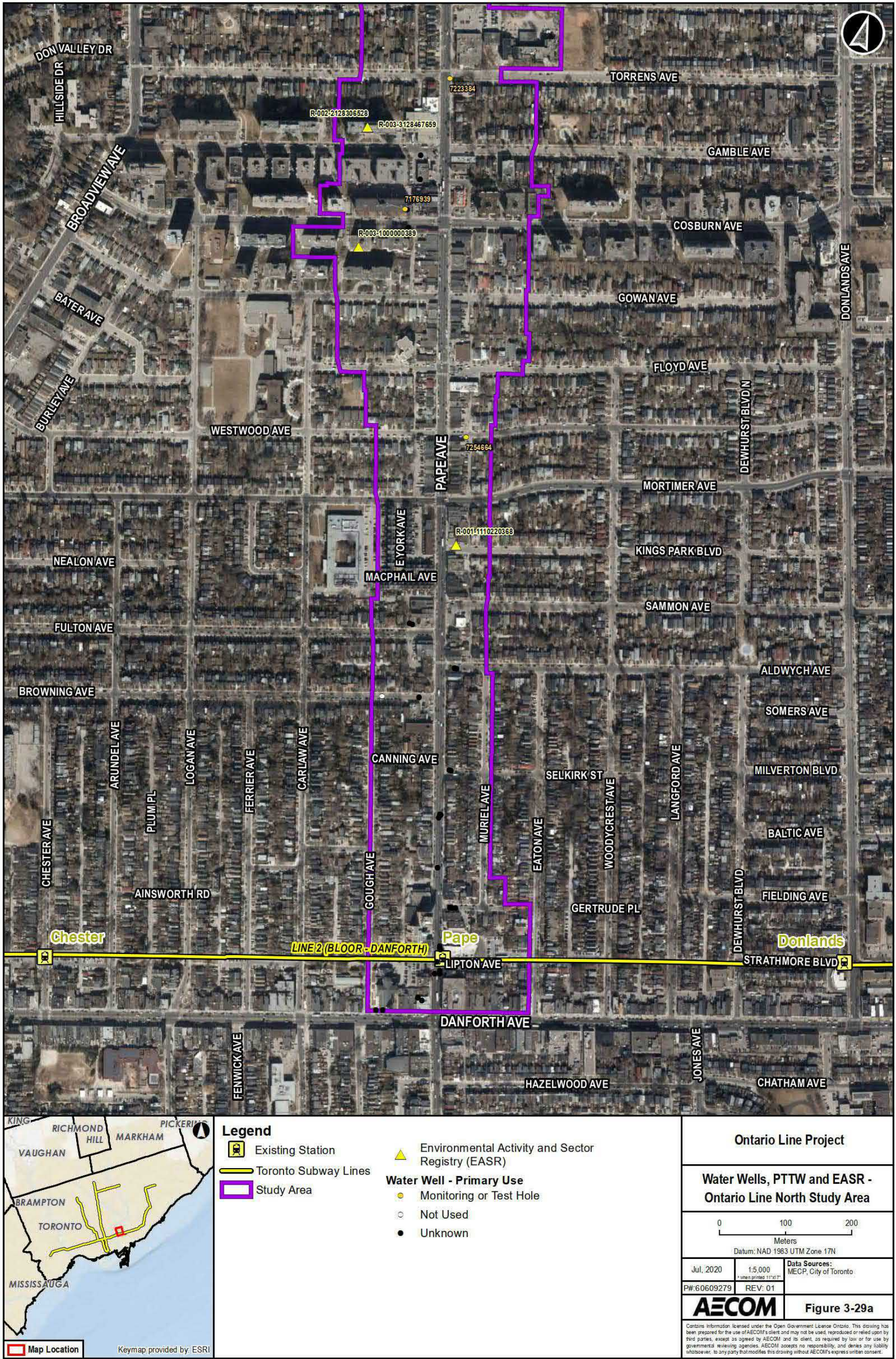
Ministry of the Environment, Conservation and Parks Permit To Take-Water and Environmental Activity and Sector Registry Summary

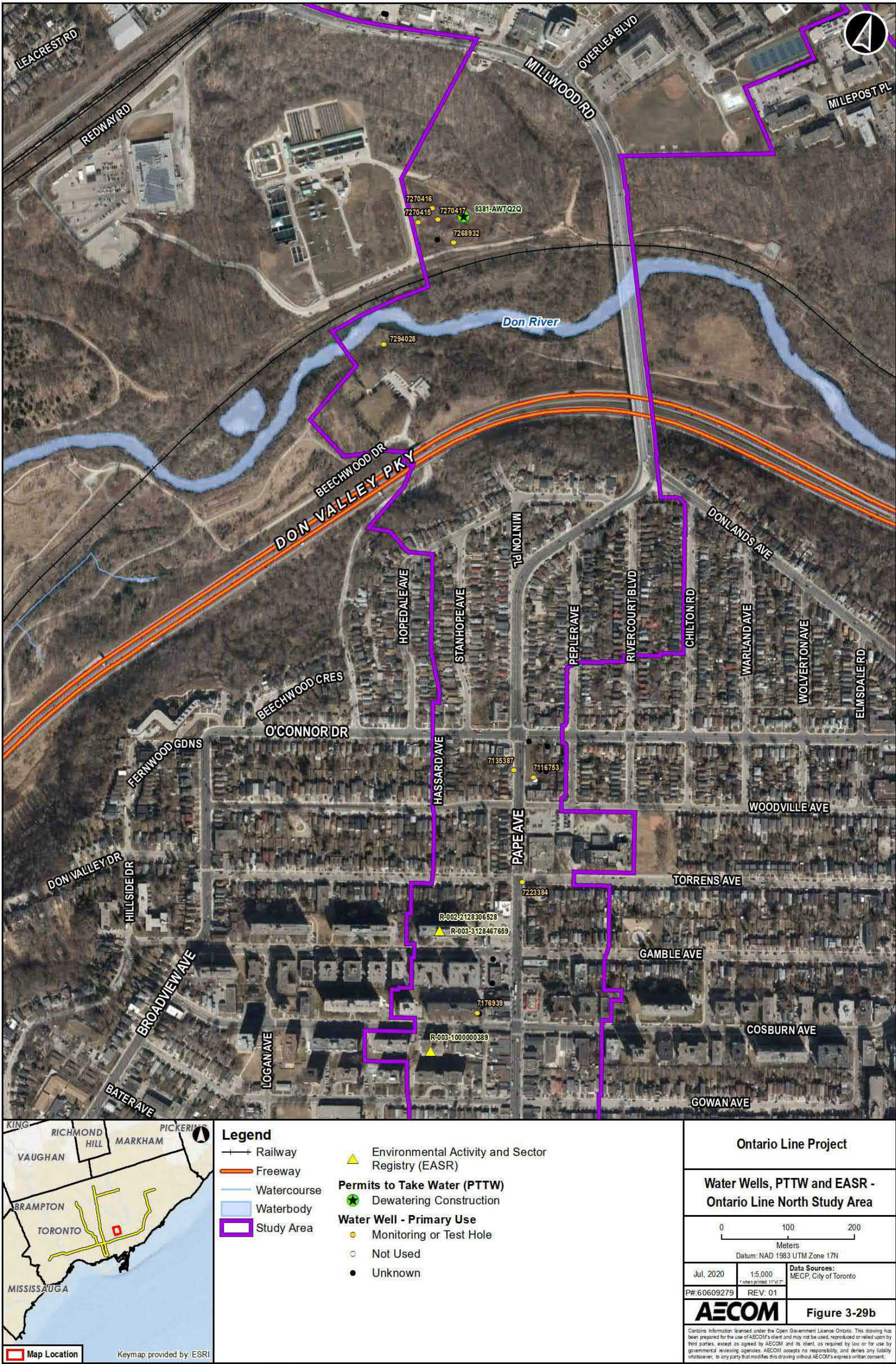
A search of the Ministry of the Environment, Conservation and Parks Permit To Take-Water database returned ten results within the Ontario Line North Study Area, all of which were expired with the exception of one active groundwater record for construction dewatering and one active surface water record for wildlife conservation.

A search of the Ministry of the Environment, Conservation and Parks Environmental Activity and Sector Registry database returned fourteen results within the Ontario Line North Study Area. One Environmental Activity and Sector Registry record was identified for construction dewatering.

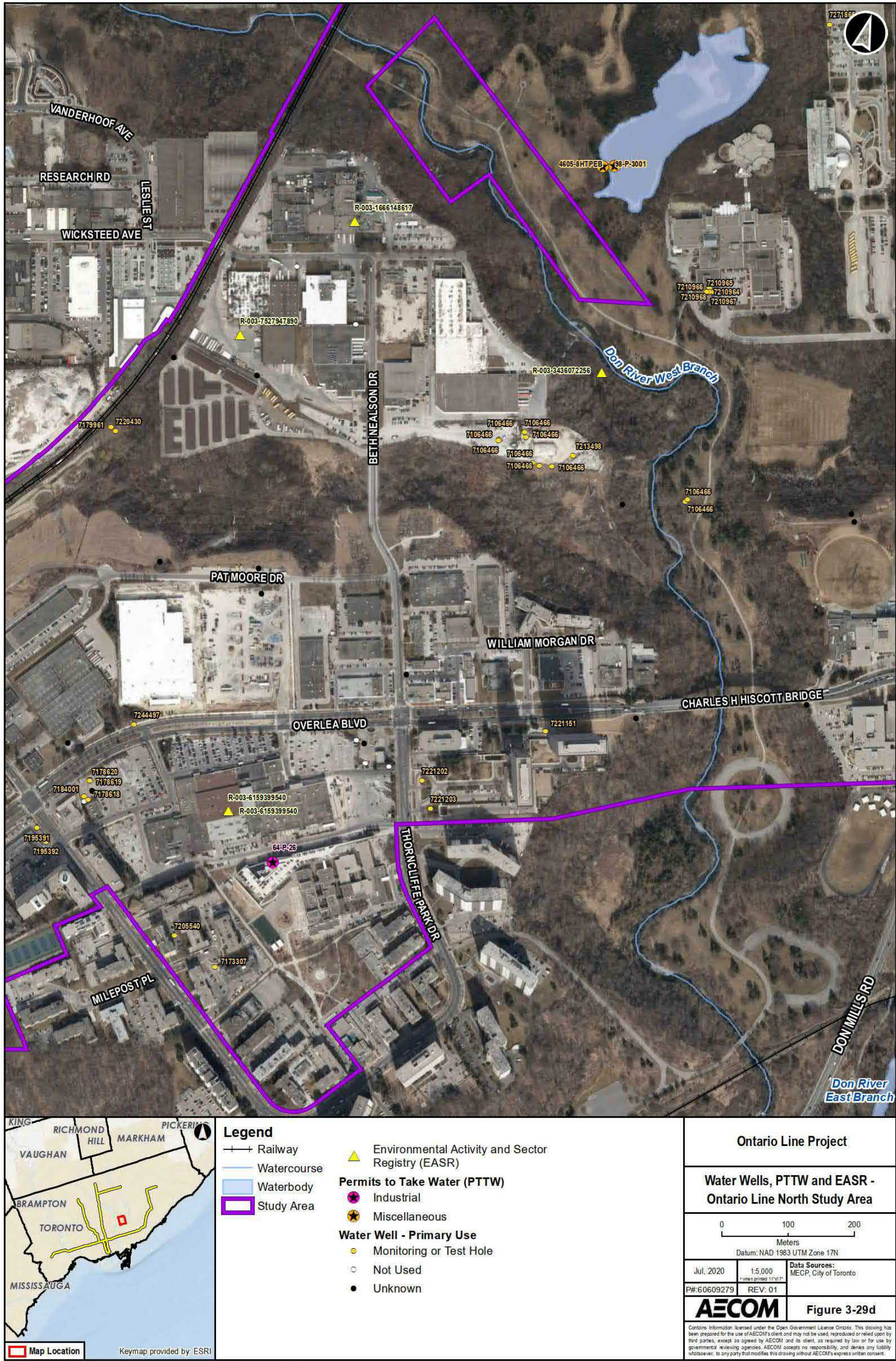
The referenced location for each Permit To Take-Water and Environmental Activity and Sector Registry within the Ontario Line North Study Area is shown in **Figure 3-29**.

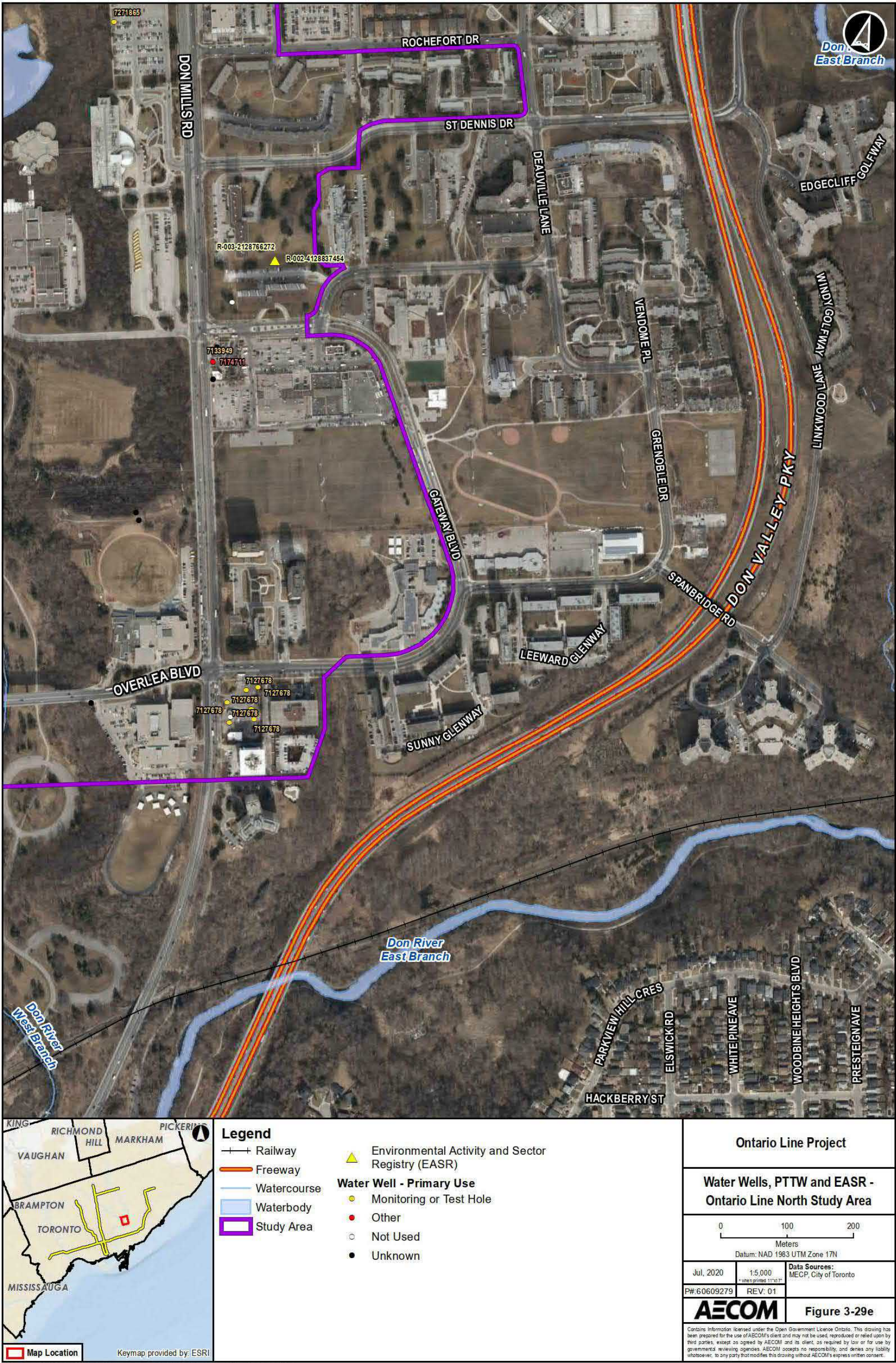
Figure 3-29: Water Wells, Permit To Take-Water and Environmental Activity and Sector Registry – Ontario Line North Study Area

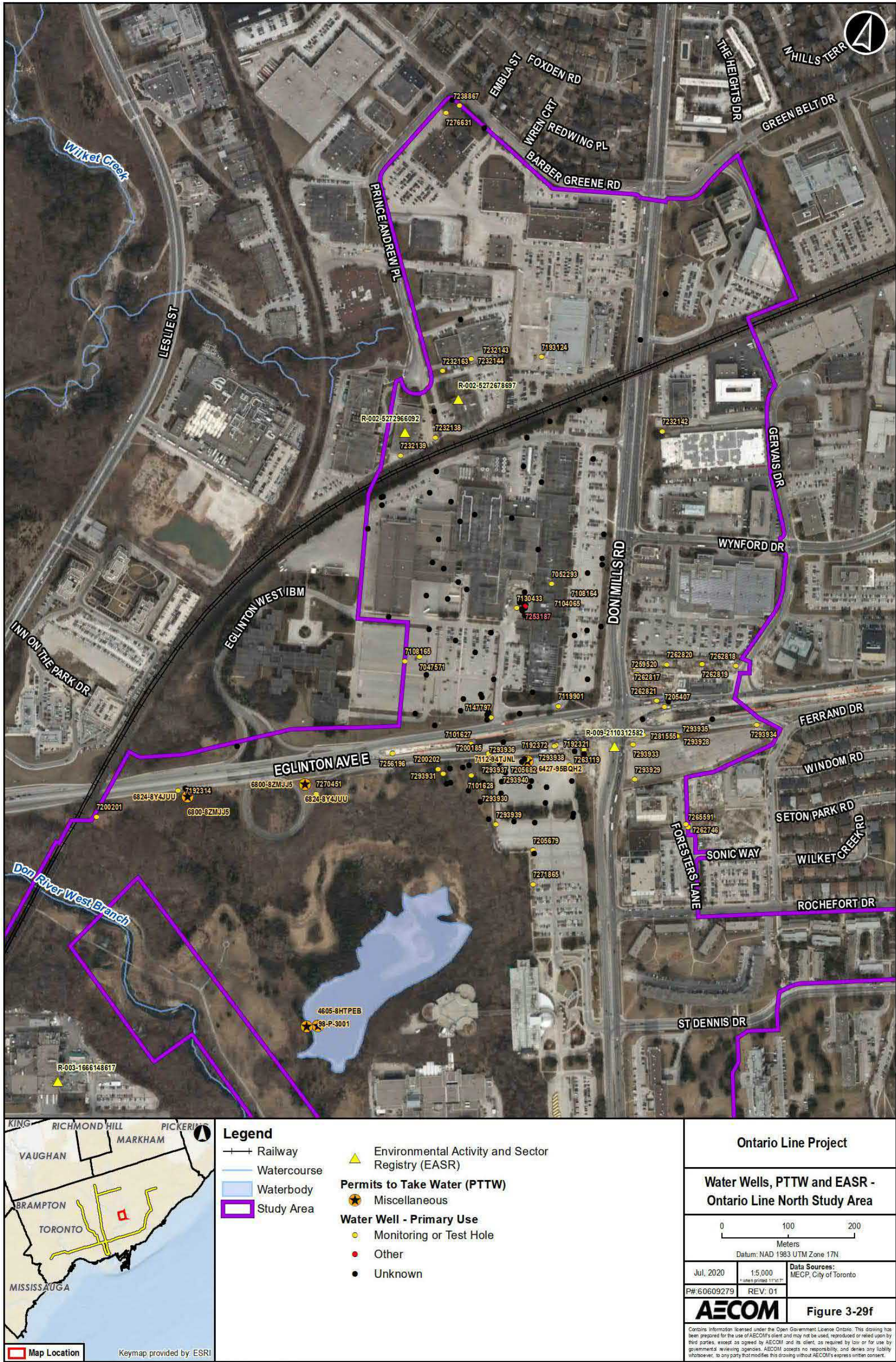












Water Level Data

A total of eight Ministry of the Environment, Conservation and Parks water well records were identified that report 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. Static water levels reported on the identified well records range between about 7.70 metres Below Ground Surface and 29.11 metres Below Ground Surface.

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

3.3 Air Quality

An Air Quality Qualitative Assessment Report was completed to document existing air quality conditions, outline the preliminary description of the potential impacts of the Ontario Line Project on ambient air quality, outline a description of potential mitigation measures to mitigate those impacts, describe potential impacts to air quality caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them, and outline a preliminary list of the potential municipal, provincial, federal or other approvals or permits associated with air quality that may be required for the Ontario Line Project.

The Air Quality Qualitative Assessment Report can be found in **Appendix B2**. Methodology is summarized in **Section 3.3.1** and the results are presented in **Section 3.3.2** (Ontario Line West), **Section 3.3.3** (Ontario Line South) and **Section 3.3.4** (Ontario Line North).

3.3.1 Methodology

A review of available information was conducted to establish existing air quality conditions within the Ontario Line Study Area (mapped in **Figure 3-30 to Figure 3-34**).

The following aspects of air quality were examined:

- Existing background conditions, including ambient air quality and meteorological conditions; and
- Existing conditions assessment, which determines contributing sources of criteria air contaminants from vehicle exhausts and greenhouse gases based on a traffic assessment, emissions inventory, and industry summary.

The Air Quality Qualitative Assessment was prepared to determine the existing levels of air quality criteria air contaminants from vehicle exhausts and greenhouse gases. All potential sources of vehicular emissions, diesel rail emissions, and industrial emissions were identified within the Ontario Line Study Area and are described in **Section 3.3.2**, **Section 3.3.3** and **Section 3.3.4** below. These sources were identified as significant air emission sources which would contribute to the overall air quality conditions within the Ontario Line Study Area.

The applicable standards for 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, 2012) and Canadian Ambient Air Quality Standards (Canadian Council of Ministers of the Environment, 2012), respectively, as shown in **Table 3-22**.

Table 3-22: Summary of Applicable Guidelines and Standards

| Criteria Air Contaminant | Source of Standard | Averaging Period | Air Quality Threshold Value ($\mu\text{g}/\text{m}^3$) |
|---------------------------------------|----------------------------------------|------------------|----------------------------------------------------------|
| NO₂ | Ambient Air Quality Criteria | One hour | 400 |
| NO₂ | Ambient Air Quality Criteria | 24 hours | 200 |
| NO₂⁽¹⁾ | Canadian Ambient Air Quality Standards | One hour (2020) | 113 |
| NO₂⁽¹⁾ | Canadian Ambient Air Quality Standards | Annual (2020) | 32 |
| NO₂⁽¹⁾ | Canadian Ambient Air Quality Standards | One hour (2025) | 78 |
| NO₂⁽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 |
| SO₂⁽²⁾ | Ambient Air Quality Criteria | 10-minute | 180 |
| SO₂⁽²⁾ | Ambient Air Quality Criteria | One hour | 100 |
| SO₂⁽²⁾ | Ambient Air Quality Criteria | Annual | 10 |
| SO₂⁽³⁾ | Canadian Ambient Air Quality Standards | One hour (2020) | 183 |
| SO₂⁽³⁾ | Canadian Ambient Air Quality Standards | Annual (2020) | 13 |
| SO₂⁽³⁾ | Canadian Ambient Air Quality Standards | One hour (2025) | 170 |
| SO₂⁽³⁾ | Canadian Ambient Air Quality Standards | Annual (2025) | 10 |
| PM₁₀⁽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 |

| Criteria Air Contaminant | Source of Standard | Averaging Period | Air Quality Threshold Value (µg/m³) |
|---------------------------------|------------------------------|-------------------------|--------------------------------------------|
| 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 |

- 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 SO₂ was updated by the Ministry of the Environment and Climate Change in March 2018 in the document Ontario Air Standards for Sulphur Dioxide (SO₂) published by the Technical Assessment and Standards Development Branch (Ministry of the Environment and Climate Change, 2018).
- (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/m³ (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 conditions were based on publicly available historical data from ambient air quality monitoring stations within Ontario. Data utilized were the most recent and complete data available at the time of the preparation of the air quality qualitative assessment⁵. The following National Air Pollution Surveillance Air Quality monitoring stations were selected as representative of the ambient air quality of the Study Areas:

- 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).

5. National Air Pollution Survey 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 averaged daily traffic.

The National Air Pollution Surveillance Air Quality monitoring stations are located nearest to the Study Areas and monitored (in combination) all relevant contaminants for the assessment, since one 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.

Detailed methodology description is provided in **Appendix B2**.

3.3.2 Ontario Line West

3.3.2.1 Existing Background Conditions

Existing Ambient Air Quality

Relevant ambient air quality data collected at the four National Air Pollution Surveillance air quality monitoring stations (Environment and Climate Change Canada, 2019a) is summarized in **Appendix B3**. Representative data for all criteria air contaminants were identified as follows for the averaging period combinations. The background concentrations for each contaminant were compared to the applicable Provincial and Federal standards for all applicable time averaging periods and percentile concentrations, as shown in **Table 3-23**.

The results show that background air quality levels are predominantly below the Provincial and Federal thresholds; however, there are significant exceedances for benzo(a)pyrene and benzene.

Meteorological Conditions

The closest representative meteorological station for the Ontario Line West 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 are expected to affect the Ontario Line West Study Area. The wind rose for the five-year meteorological period (2015-2019) showing the wind direction and wind speed is presented in **Figure 3-30**. The wind rose shows that the predominant wind direction is from the northeast.

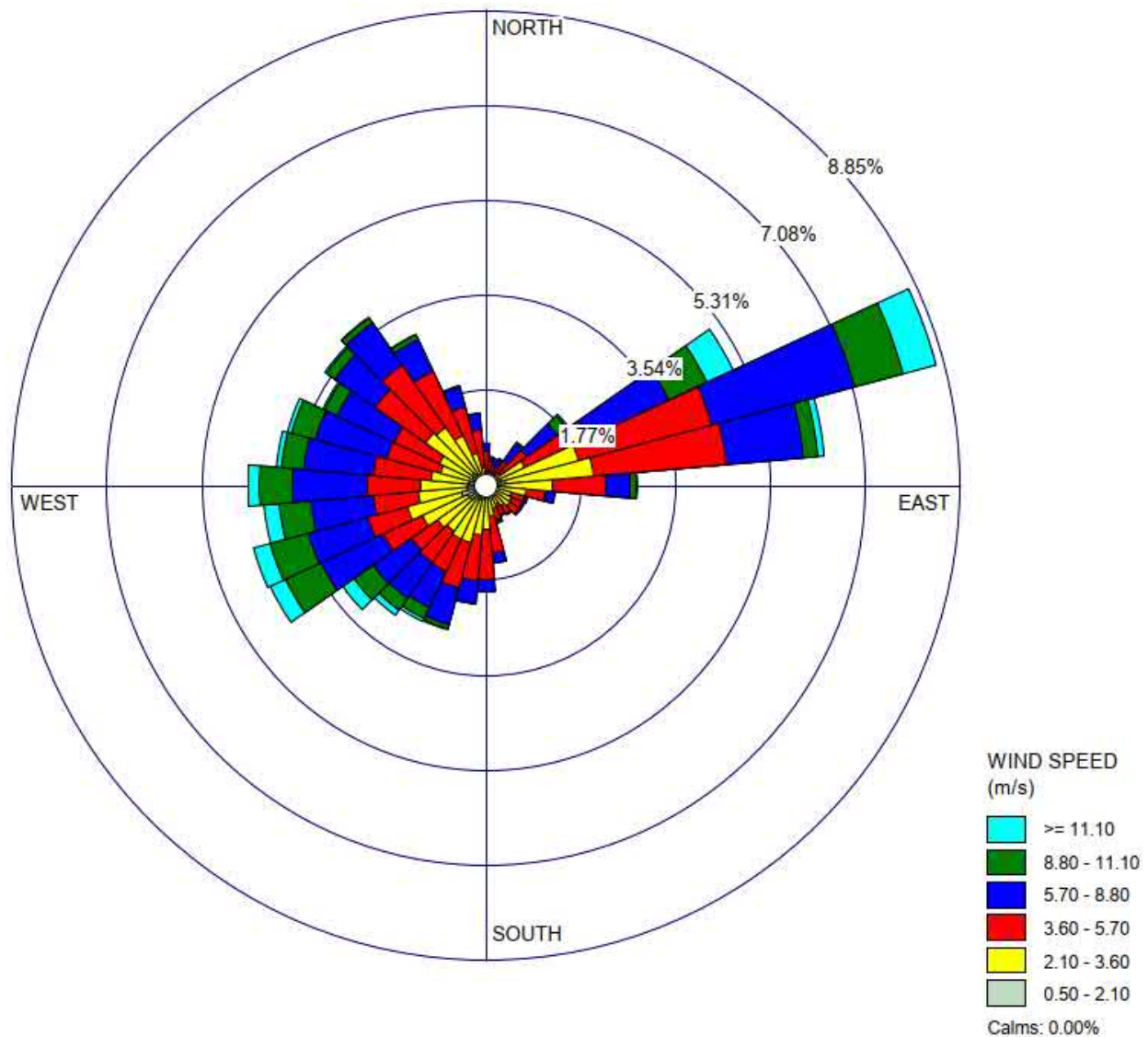
Table 3-23: Comparison of Background Ambient Air Quality Data to Standards

| Criteria Air Contaminant | Station ID | Averaging Period | Years | Average of Background Data ($\mu\text{g}/\text{m}^3$) | Statistical Measure | Standard Threshold ($\mu\text{g}/\text{m}^3$) | Standard Source | % of Standard Threshold |
|---------------------------------|------------------------|------------------|------------------|---------------------------------------------------------|-----------------------------------|-------------------------------------------------|----------------------------------------|-------------------------|
| NO ₂ | 60433 | One hour | 2013-2017 | 49.50 | 90 th Percentile | 400 | Ambient Air Quality Criteria | 12% |
| NO ₂ | 60433 | One hour | 2013-2017 | 49.50 | 90 th Percentile | 113 | Canadian Ambient Air Quality Standards | 44% |
| NO ₂ | 60433 | 24 hours | 2013-2017 | 41.75 | 90 th Percentile | 200 | Ambient Air Quality Criteria | 21% |
| NO ₂ | 60433 | Annual | 2013-2017 | 26.68 | Mean | 32 | Canadian Ambient Air Quality Standards | 83% |
| CO | 60430 | One hour | 2013-2017 | 446 | 90 th Percentile | 36,200 | Ambient Air Quality Criteria | 1% |
| CO | 60430 | 8 hours | 2013-2017 | 419 | 90 th Percentile | 15,700 | Ambient Air Quality Criteria | 3% |
| SO ₂ ⁽²⁾ | 60430 | 30-min. | 2013-2017 | 6.70 | 90 th Percentile | 180 | Ambient Air Quality Criteria | 4% |
| SO ₂ | 60430 | One hour | 2013-2017 | 5.51 | 90 th Percentile | 100 | Ambient Air Quality Criteria | 6% |
| SO ₂ | 60430 | Annual | 2013-2017 | 1.84 | Mean | 10 | Canadian Ambient Air Quality Standards | 18% |
| PM ₁₀ ⁽³⁾ | 60433 | 24 hours | 2013-2017 | 25.78 | 90 th Percentile | 50 | Ambient Air Quality Criteria | 51% |
| PM _{2.5} | 60433 | 24 hours | 2013-2017 | 13.89 | 90 th Percentile | 27 | Canadian Ambient Air Quality Standards | 51% |
| PM _{2.5} | 60433 | Annual | 2013-2017 | 7.94 | Mean | 8.8 | Canadian Ambient Air Quality Standards | 90% |
| Acetaldehyde ⁽⁴⁾ | 60439 | 30-min. | 2014-2017 | 5.00 | 90 th Percentile | 500 | Ambient Air Quality Criteria | 1% |
| Acetaldehyde | 60439 | 24 hours | 2014-2017 | 1.69 | 90 th Percentile | 500 | Ambient Air Quality Criteria | 0% |
| Acrolein ⁽⁵⁾ | 60439 | One hour | 2014-2017 | 0.17 | 90 th Percentile | 4.5 | Ambient Air Quality Criteria | 4% |
| Acrolein | 60439 | 24 hours | 2014-2017 | 0.07 | 90 th Percentile | 0.4 | Ambient Air Quality Criteria | 17% |
| Benzene | 60435 | 24 hours | 2011-2014 | 0.92 | 90 th Percentile | 2.3 | Ambient Air Quality Criteria | 40% |
| Benzene | 60435 | Annual | 2011-2014 | 0.61 | 90th Percentile | 0.45 | Ambient Air Quality Criteria | 134% |
| Benzo(a)-pyrene | 60427 60439 | 24 hours | 2011-2015 | 1.21E-04 | 90th Percentile | 0.00005 | Ambient Air Quality Criteria | 242% |
| Benzo(a)-pyrene | 60427 60439 | Annual | 2011-2015 | 6.72E-05 | 90th Percentile | 0.00001 | Ambient Air Quality Criteria | 672% |
| 1,3-Butadiene | 60435 | 24 hours | 2011-2014 | 0.10 | 90 th Percentile | 10 | Ambient Air Quality Criteria | 1% |
| 1,3-Butadiene | 60435 | Annual | 2011-2014 | 0.06 | 90 th Percentile | 2 | Ambient Air Quality Criteria | 3% |
| Formaldehyde | 60439 | 24 hours | 2014-2017 | 3.16 | 90 th 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 (SO₂) are measured on an hourly basis, background concentrations for the 30-minute averaging period have been converted using the Ministry of the Environment, Conservation and Parks' conversion factor where $C_{0.5\text{hr}} = C_{1\text{hr}} \times (1\text{hr}/0.5\text{hr})^{0.28}$.
- (3) PM₁₀ was not included in National Air Pollution Surveillance air quality monitoring station measurements, and therefore was estimated using PM_{2.5} measurements, assuming a ratio of 1 $\mu\text{g}/\text{m}^3$ PM₁₀ per 0.54 $\mu\text{g}/\text{m}^3$ of PM_{2.5} 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 $C_{0.5\text{hr}} = C_{24\text{hr}} \times (24\text{hr}/0.5\text{hr})^{0.28}$.
- (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 $C_{1\text{hr}} = C_{24\text{hr}} \times (1\text{hr}/24\text{hr})^{0.28}$.

Figure 3-30: Wind Rose Representative of Meteorological Conditions – Ontario Line West and Ontario Line South Study Areas



3.3.2.2 Existing Conditions Assessment

Traffic Assessment

Main traffic flow through the Ontario Line West Study Area followed Queen Street West, Spadina Avenue, King Street West, Bathurst Road, Liberty Street, Dufferin Street, Lakeshore Blvd. and the Queensway Expressway. Traffic within the Study Area was divided into 37 distinct road segments. Annual average daily traffic volumes for each individual traffic source are presented in **Appendix B2**.

Turning movement counts data from intersections within the Ontario Line West Study Area were provided by Metrolinx. The Turning movement counts data was used to estimate Annual average daily traffic volumes for the road segments within the Study Area. Annual average daily traffic data was standardized to 2019, with prior year data being scaled to 2019 based on a 1% annual growth rate.

The traffic data for the Queensway Expressway was taken from the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018).

Bus traffic through the Ontario Line West Study Area was assessed by examination of the 2019 Toronto Transit Commission service summary and existing GO Service bus schedules. Ten Toronto Transit Commission bus routes travel through the Ontario Line South Study Area and four GO bus routes travel through the Ontario Line West Study Area via the Queensway Expressway.

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

Existing GO Service train schedules were sourced from GO Transit and used to develop a daily GO rail service within the Ontario Line West Study Area (GO Transit, 2020).

Appendix B2 provides a summary of GO Service raw data including the scheduling data which was used for the assessment. Rail Daily Travel Summary for Ontario Line West is summarized in **Appendix B2**.

Emissions Inventory

Traffic Emissions

The emission rates of criteria air contaminants from the Ontario Line West Study Area were derived from MOVES output in grams per vehicle kilometre travelled combined with the number of vehicles travelling daily on a given road and the distance travelled for that particular road segment.

The daily representative vehicle counts for each traffic segment and the daily emissions from traffic for each traffic segment are shown in **Appendix B2**.

The summary of all traffic emission sources contributes the following daily emissions of criteria air contaminants:

- 103,658 grams per day of NO_x;
- 657,269 grams per day of CO;

- 703 grams per day of SO₂; and
- 21,889 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Bus Emissions

The emission rates of criteria air contaminants from the Ontario Line West Study Area were derived from MOVES output in grams per vehicle kilometre travelled combined with the number of busses travelling per day on a given road and the distance travelled for that particular road segment.

The transit schedules and daily bus volumes for each bus route and the daily emissions from each bus route are shown in **Appendix B2**.

The summary of all bus route emission sources contributes the following daily emissions of criteria air contaminants:

- 4,174 grams per day of NO_x;
- 1,762 grams per day of CO;
- 6.78 grams per day of SO₂; and
- 483 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Rail Emissions

The emission rates of criteria air contaminants from the Ontario Line West Study Area were derived from the United States Environmental Protection Agency Tier 2 Line Haul emission standards (§1033.101) for locomotives (gram per brake horsepower-hour) combined with notch-specific engine output for each locomotive travelling along the rail corridors within the Ontario Line West Study Area.

The transit schedules used to determine the rail volumes presented in each source and the daily emissions from each bus route are shown in **Appendix B2**.

The summary of all rail emission sources contributes the following daily emissions of criteria air contaminants:

- 29,114 grams per day of NO_x;
- 6,675 grams per day of CO; and
- 229 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Annual Ontario Line West Emissions

Annual emissions of both criteria air contaminants and greenhouse gases were calculated for the Ontario Line West Study Area. The daily traffic, bus, and rail volumes were conservatively multiplied for each day of the year to determine the annual emission from all sources. The annual emissions of criteria air contaminants and greenhouse gas emissions are shown in **Table 3-24**.

Table 3-24: Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line West

| Emission Source | Greenhouse Gases (CO₂e) (tonnes/ year) | NO_x (tonnes/ year) | CO (tonnes/ year) | SO₂ (tonnes/ year) | HC⁽¹⁾ (tonnes/ year) | PM⁽²⁾ (tonnes/ year) |
|------------------------|----------------------------------------------------------|--------------------------------------|--------------------------|--------------------------------------|----------------------------------------|----------------------------------------|
| Traffic | 37,273 | 37.8 | 240 | 0.257 | - | 7.99 |
| Bus | 305 | 1.52 | 0.643 | 0.002 | - | 0.176 |
| Rail | 6,302 | 10.6 | 2.44 | - | 0.200 | 0.084 |
| Total | 43,880 | 50.0 | 243 | 0.259 | 0.200 | 8.25 |

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.

(2) PM represents a combination of PM₁₀ and PM_{2.5} emissions from both rail, bus, and traffic engine combustion.

Industry Summary

In addition to the emission inventory outlined in **Appendix B2**, the industries surrounding and within the Ontario Line West Study Area were identified to be able to understand the larger sources of industrial emission which impact the local air quality. It is assumed that the monitored ambient air quality levels reflect the contribution of local industry impacts within the wider Toronto airshed for all Ontario Line Study Areas, therefore individual identified industries within and near the Ontario Line West Study Area are not included within the emission inventory.

Table 3-25 displays the existing industry within and near to the Ontario Line West Study Area, obtained from the NPRI database (Environment and Climate Change Canada, 2020a). The location of these industries relative to the Ontario Line South Study Area presented in **Figure 3-31**.

Table 3-25: NPRI Listing of Industry – Ontario Line West

| Industry ID | Company | Address | Criteria Air Pollutants (release to air) |
|--------------------|----------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------|
| N1 | City of Toronto | 1116 King Street West | PM _{2.5} , PM ₁₀ , TSP |
| N2 | Enwave Energy Corporation | 0 – 120 Pearl Street | PM _{2.5} , PM ₁₀ , CO, NO _x |
| N3 | Redpath Sugar Ltd | 95 Queen's Quay East | PM _{2.5} , PM ₁₀ , TSP, CO, NO _x , SO ₂ , VOCs, Isopropyl Alcohol |
| N4 | Enwave Energy Corporation | 0 – 95 Walton Street | PM _{2.5} , PM ₁₀ , CO, NO _x |
| N5 | The Governing Council of the University of Toronto | 27 King's College Circle Road | PM _{2.5} , PM ₁₀ , CO, NO _x |
| N6 | Mondelez Canada Inc | 277 Gladstone Ave | PM _{2.5} , PM ₁₀ |
| N7 | Ontario Redimix | 8 Unwin Avenue | PM ₁₀ |
| N8 | National Rubber Technologies Corp | 99 Commissioners Street | Zinc |
| N9 | City of Toronto | 433 Eastern Avenue | PM _{2.5} , PM ₁₀ , TSP |
| N10 | Portlands Energy Centre LP | 470 Unwin Avenue | PM _{2.5} , PM ₁₀ , CO, NO _x |
| N11 | City of Toronto | 400 Commissioners Street | PM _{2.5} , PM ₁₀ , TSP |
| N12 | THESL | 500 Commissioners Street | Lead |
| N13 | Canroof Corporation Inc. | 560 Commissioners Street | PM _{2.5} , PM ₁₀ , CO |
| N14 | Dufferin Concrete | 650 Commissioners Street | PM ₁₀ |
| N15 | City of Toronto | 843 Eastern Avenue | PM _{2.5} , PM ₁₀ , TSP |
| N16 | Nestle Canada Inc., STERLING ROAD FACTORY | 72 Sterling Road | PM _{2.5} , PM ₁₀ |
| N17 | John E. Goudey Mfg. Ltd. | 21 Primrose Avenue | Volatile Organic Compounds, Isopropyl alcohol, Methanol, MEK, Toluene, Xylene |
| N18 | KN Rubber LLC | 35 Cawthra Ave | Zinc |

Note: (1) Industrial sources are located within 5 kilometres of each Study Area for large emitters (i.e., listed within the National Pollutant Release Inventory) to capture general contribution to the local airshed. Ontario Ministry of the Environment, Conservation and Parks defines the required modelling area for industrial facilities to be 5 kilometres from the nearest point of emission.

Figure 3-31: Surrounding Industry – Ontario Line West Study Area

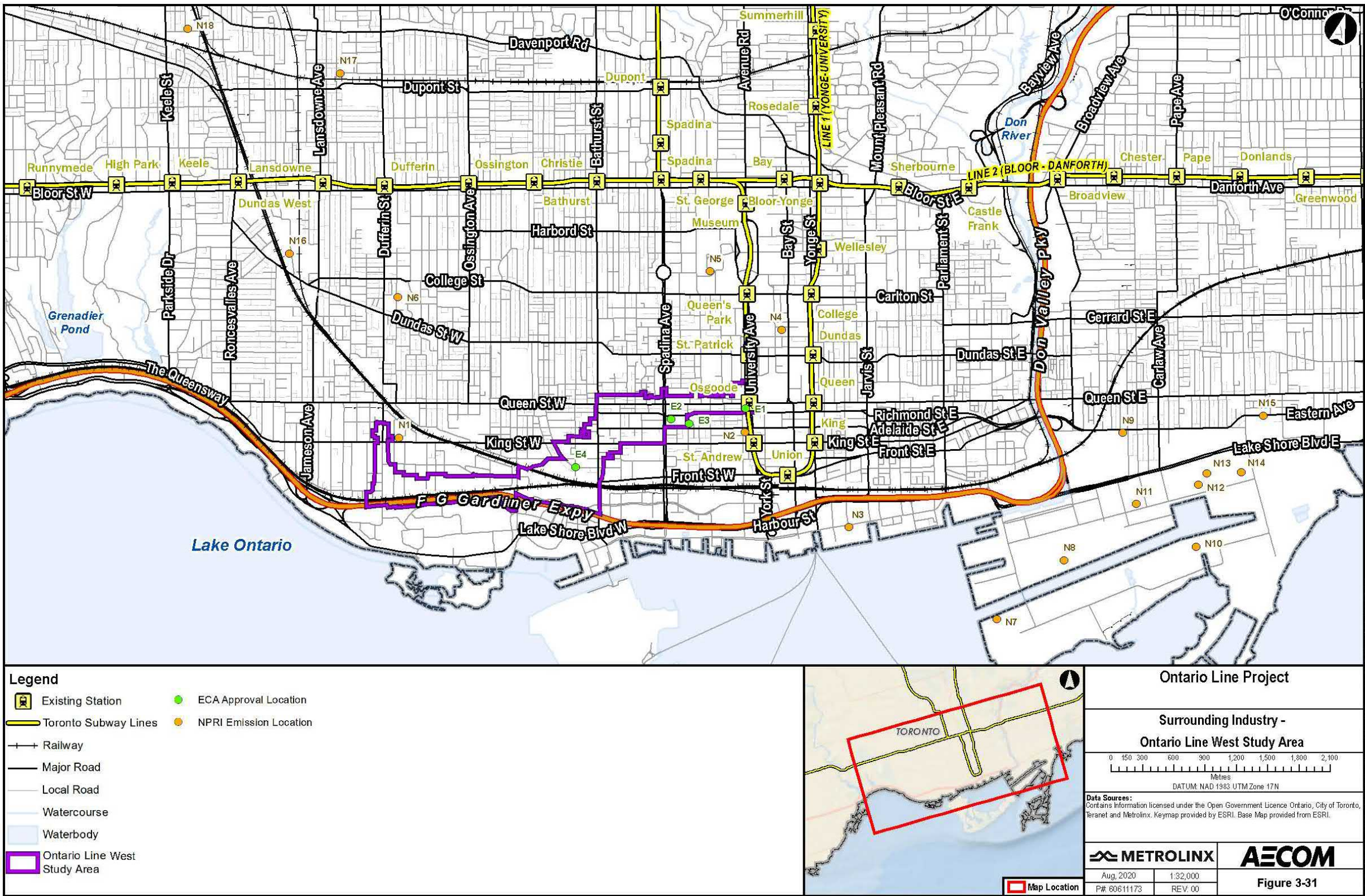


Table 3-26 shows the existing Ministry of the Environment, Conservation and Parks Environmental Compliance Approvals listings for air quality sources from industry within the Ontario Line West Study Area. **Figure 3-31** displays the location of the industries listed within **Table 3-25** and **Table 3-26**.

Table 3-26: Environmental Compliance Approvals Listing of Industry – Ontario Line West

| Industry ID | Company | Address | Description of Operations |
|-------------|---------------------------------------------|-----------------------------|----------------------------------------|
| E1 | Dominium Diamond Marketing Corporation | 250 University Avenue | Wet scrubber (acids, sodium hydroxide) |
| E2 | Open Studio | 401 Richmond Street West | Chewing gum manufacturing (VOCs) |
| E3 | Technicolor Creative Services Ontario Inc. | 111 Peter Street, Suite 900 | Spray mixing operations (VOCs) |
| E4 | Quality Meat Packers Limited ⁽¹⁾ | 2 Tecumseth Street | Wet scrubber (VOCs) |

Note: (1) Quality Meat Packers Limited closed in 2014, no longer contributing VOCs to airshed.

3.3.3 Ontario Line South

3.3.3.1 Existing Background Conditions

Existing Ambient Air Quality

The representative data for all Critical Air Contaminants (**Table 3-23**) and comparison of background ambient air quality data to applicable Provincial and Federal standards (**Table 3-24**), as provided in **Section 3.3.2.1**, are also applicable to the Ontario Line South Study Area.

The results show that background air quality levels are predominantly below the Provincial and Federal thresholds; however, there are significant exceedances for benzo(a)pyrene and benzene.

Meteorological Conditions

The closest representative meteorological station for the Ontario Line South 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 are

expected to affect the Ontario Line South Study Area. The wind rose for the five-year meteorological period (2015-2019) showing the wind direction and wind speed is presented in **Figure 3-30**. The wind rose shows that the predominant wind direction is from the northeast.

3.3.3.2 Existing Conditions Assessment

Traffic Assessment

The Ontario Line South Study Area comprised 81 unique road traffic sources. Notable vehicle sources included those from Lakeshore Blvd., Gardiner Expressway, Parliament Street, Sherbourne Street, Jarvis Street, Adelaide Street, Queen Street and Richmond Street West. These traffic sources were comprised of a mixture between passenger vehicles and heavy truck vehicles. The annual average daily traffic volumes for each individual traffic source are presented in **Appendix B2**.

Turning movement count data from multiple prominent intersections within the Study Area were provided by Metrolinx. The turning movement count data was recorded in 15-minute intervals primarily from 8:00-17:00, between 2017-2019. Data obtained prior to 2019 was integrated with a 1% conversion factor representing a conservative annual growth rate. In addition, 24-h turning movement count data from two key intersections were used to estimate relative traffic volumes for road networks during times when traffic data was missing or incomplete (e.g., late evening and overnight). The traffic data for the Queensway Expressway was taken from the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment (AECOM, 2018).

Existing conditions of the Ontario Line South Study Area bus traffic sources were assessed. Prominent bus routes included Route 72, Route 75, Route 121, and Route 142. Existing Toronto Transit Commission Service Summary data from 2019 was provided and used to determine the number of buses travelling per day along the defined routes within the Study Area. The bus service data are available in **Appendix B2**. The annual average daily traffic for each bus route is provided in **Appendix B2**.

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to be able to estimate appropriate annual averaged daily traffic volumes from AM peak and post meridiem peak service volumes as provided within the Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

Three GO Transit rail routes were included within the Ontario Line South Study Area: the Lakeshore East, Richmond Hill, and Stouffville GO lines. Train data gathered from the GO Transit website was used to determine the number of rail trips per day along the

Lines (GO Transit, 2020). Input provided by Metrolinx for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018) for non-revenue rail trips along all three corridors was also included. It is important to note that adjusted operations were in place during the assessment of the rail lines; it was assumed that adjusted routes made by buses would represent GO train rail trips.

The daily train travel per day for the GO Transit Lakeshore East, Richmond Hill, and Stouffville GO lines are presented in **Appendix B2**.

Emission Inventory

Traffic Emissions

The emission rates of criteria air contaminants from the Ontario Line South Study Area were derived from MOVES output in grams per vehicle kilometre travelled combined with the number of vehicles travelling daily on a given road and the distance travelled for that particular road segment.

The daily representative vehicle counts for each traffic segment and the daily emissions from traffic for each traffic segment are shown in **Appendix B2**.

The summary of all traffic emission sources contributes the following daily emissions of criteria air contaminants:

- 101,994 grams per day of NO_x;
- 649,077 grams per day of CO;
- 713 grams per day of SO₂; and
- 34,567 grams per day of PM₁₀ + PM_{2.5}.

Bus Emissions

The emission rates of criteria air contaminants from the Ontario Line South Study Area were derived from MOVES output in grams per vehicle kilometre travelled combined with the number of busses travelling per day on a given road and the distance travelled for each road segment.

The transit schedules and daily bus volumes for each bus route and the daily emissions from each bus route are shown in **Appendix B2**.

The summary of all bus route emission sources contributes the following daily criteria air contaminants:

- 3,039 grams per day of NO_x;
- 1,280 grams per day of CO;
- 4.77 grams per day of SO₂; and
- 456 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Rail Emissions

The emission rates of criteria air contaminants from the Ontario Line South Study Area were derived from the United States Environmental Protection Agency Tier 4 Line Haul emission standards (§1033.101) for locomotives (gram per brake horsepower-hour) combined with notch-specific engine output for each locomotive travelling along the rail corridors within the Ontario Line South Study Area.

The transit schedules used to determine the rail volumes presented in each source are described in **Appendix B2**.

The summary of all rail emission sources contributes the following daily emissions of criteria air contaminants:

- 77,523 grams per day of NO_x;
- 6,100 grams per day of CO; and
- 1,489 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Annual Ontario Line South Emissions

Annual emissions of both criteria air contaminants and greenhouse gases were calculated for the Ontario Line South Study Area. The daily traffic, bus, and rail volumes were conservatively multiplied for each day of the year to determine the annual emission from all sources. The annual emissions of criteria air contaminants and greenhouse gases are shown in **Table 3-27**.

Table 3-27: Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line South

| Emission Source | Greenhouse Gases (CO₂e) (tonnes/ year) | NO_x (tonnes/ year) | CO (tonnes/ year) | SO₂ (tonnes/ year) | HC⁽¹⁾ (tonnes/ year) | PM⁽²⁾ (tonnes/ year) |
|------------------------|----------------------------------------------------------|--------------------------------------|--------------------------|--------------------------------------|----------------------------------------|----------------------------------------|
| Traffic | 43,246 | 37.2 | 237 | 0.260 | - | 12.6 |
| Bus | 215 | 1.11 | 0.467 | 0.002 | - | 0.166 |
| Rail | 3,430 | 28.3 | 2.23 | - | 0.784 | 0.544 |
| Total | 46,891 | 66.6 | 240 | 0.262 | 0.784 | 13.33 |

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.

(2) PM represents a combination of PM₁₀ and PM_{2.5} emissions from both rail, bus, and traffic engine combustion

Industry Summary

In addition to the emission inventory outlined in **Appendix B2**, the industries within close proximity to the Ontario Line South Study Area were identified to understand the larger sources of industrial emission which impact the local air quality. It is assumed that the monitored ambient air quality levels reflect the contribution of local industry impacts within the wider Toronto airshed for all Ontario Line Study Areas, therefore individual identified industries within and near the Ontario Line South Study Area are not included within the emission inventory.

Table 3-28 displays the existing industry within and near to the Ontario Line South Study Area, as per the National Pollution Release Inventory (Environment and Climate Change Canada, 2020a). The location of these industries relative to the Ontario Line South Study Area presented in **Table 3-28**.

Table 3-29 shows the existing Ministry of the Environment, Conservation and Parks Environmental Compliance Approvals listings for air quality sources from industry within the Ontario Line South Study Area. Any facilities emitting combustion products from comfort heating, emergency generators, or boilers under 10,000,000 kilojoules per hour were excluded from this list. **Figure 3-32** displays the location of the industries listed within **Table 3-29**.

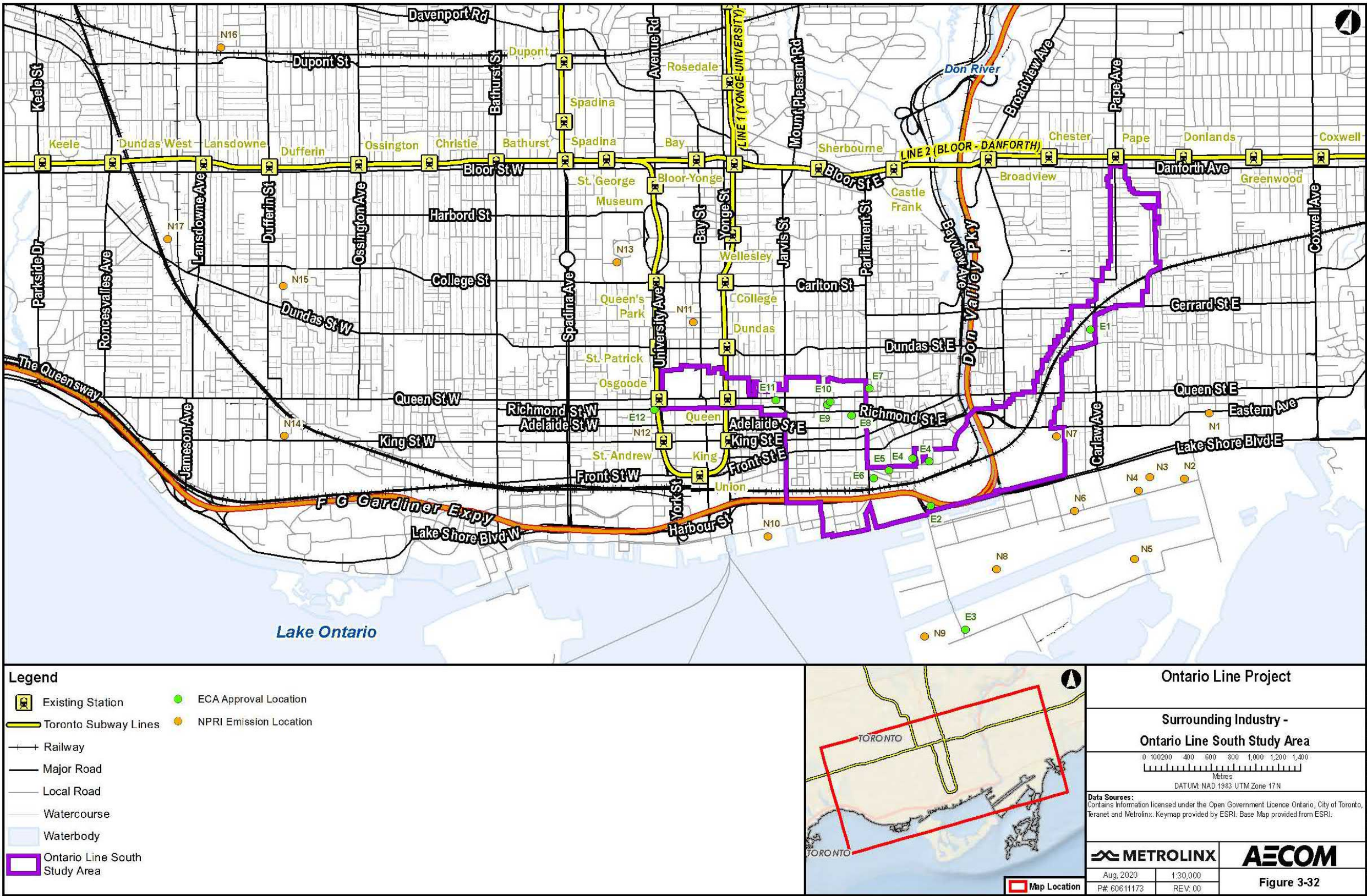
Table 3-28: NPRI Listing of Industries – Ontario Line South

| Industry ID | Company | Address | Criteria Air Pollutants (release to air) |
|--------------------|----------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------|
| N1 | City of Toronto | 843 Eastern Ave | PM _{2.5} , PM ₁₀ , TSP |
| N2 | Dufferin Concrete | 650 Commissioners Street | PM ₁₀ |
| N3 | Canroof Corporation Inc. | 560 Commissioners Street | PM _{2.5} , PM ₁₀ and carbon monoxide |
| N4 | THESL | 500 Commissioners Street | Lead |
| N5 | Portlands Energy Centre LP | 470 Unwin Avenue | PM _{2.5} and PM ₁₀ , Carbon monoxide, nitrogen oxides (expressed as nitrogen dioxide) |
| N6 | City of Toronto | 400 Commissioners Street | PM _{2.5} , PM ₁₀ , TSP |
| N7 | City of Toronto | 433 Eastern Avenue | PM _{2.5} , PM ₁₀ and total |
| N8 | National Rubber Technologies Corp. | 99 Commissioners Street | Zinc |
| N9 | Ontario Redimix | 8 Unwin Avenue | PM ₁₀ |
| N10 | Redpath Sugar Ltd | 95 Queen's Quay East | Hydrochloric Acid, Isopropyl Alcohol |
| N11 | Enwave Energy Corporation | 0 - 95 Walton Street | PM _{2.5} , PM ₁₀ , CO, NO _x |
| N12 | Enwave Energy Corporation | 0 - 120 Pearl Street | PM _{2.5} , PM ₁₀ , CO, NO _x |
| N13 | The Governing Council of the University of Toronto | 27 King's College Circle Road | PM _{2.5} , PM ₁₀ , CO, NO _x |
| N14 | City of Toronto | 1116 King Street West | PM _{2.5} , PM ₁₀ , TSP |
| N15 | Mondelez Canada Inc | 277 Gladstone Ave | PM _{2.5} , PM ₁₀ |
| N16 | John E. Goudey Mfg. Ltd. | 21 Primrose Ave | VOCs, Isopropyl alcohol, Methanol, MEK, Toluene, Xylene |
| N17 | Nestle Canada Inc., Sterling Road Factory | 72 Sterling Road | PM _{2.5} , PM ₁₀ |

Table 3-29: Environmental Compliance Approvals Listing of Industry – Ontario Line South

| Industry ID | Company | Address | Description of Operations |
|--------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| E1 | JMAC Productions Ltd. | 388 Carlaw Avenue | Spray paint operations (Volatile Organic Compounds) |
| E2 | Toronto Waterfront Revitalization Corporation – Cherry Street Stormwater Facility | 480 Lake Shore Boulevard East | Soil vapour mitigation system (Volatile Organic Compounds) |
| E3 | 2018500 Ontario Inc “Battlefield Equipment Rentals” | 151 Cherry Street Toronto, Ontario M5A 3K8 | Spray paint operations (Volatile Organic Compounds) |
| E4 | EllisDon Ledcor PAAV Inc. | 170 Mill Street Building #3 of Block 11, West Donlands | Soil vapour mitigation system (Volatile Organic Compounds) |
| E4 | EllisDon Ledcor PAAV Inc. | 425 Cherry Street Building #2 of Block 14, West Donlands | Soil vapour mitigation system (Volatile Organic Compounds) |
| E5 | Balzac’s Coffee Ltd. | 55 Mill Street | Coffee Roasting (combustion, Volatile Organic Compounds) |
| E6 | 4073720 Canada Inc. operating as DD Autobahn Collision Centre | 37 Parliament Street, No. 2 | Spray paint operations (Volatile Organic Compounds) |
| E7 | Sobeys Ontario | 197 Front Street | Mold/casting operations, metal work & soldering, and Spray paint operations (heavy metals, Volatile Organic Compounds) |
| E8 | Double D Cup | 102 Berkley Street / 53 Ontario Street | Spray paint operations (Volatile Organic Compounds) |
| E9 | Centre Auto Collision | 354 Richmond Street East and 12 Brigden Place | Spray paint operations (Volatile Organic Compounds) |
| E10 | Downtown Collision Centre | 257 Queen Street East | Spray paint operations (Volatile Organic Compounds) |
| E11 | Publicis Toronto Inc | 111 Queen Street East | Spray paint operations (Volatile Organic Compounds) |
| E12 | Dominion Diamond Marketing Corporation | 250 University Avenue | Wet scrubber (acids, sodium hydroxide) |

Figure 3-32: Surrounding Industry – Ontario Line South Study Area



3.3.4 Ontario Line North

3.3.4.1 Existing Background Conditions

Existing Ambient Air Quality

The representative data for all Critical Air Contaminants (**Table 3-23**) and comparison of background ambient air quality data to applicable Provincial and Federal standards (**Table 3-24**), as provided in **Section 3.3.2.1**, are also applicable to the Ontario Line North Study Area.

The results show that background air quality levels are predominantly below the Provincial and Federal thresholds; however, there are significant exceedances for benzo(a)pyrene and benzene.

Meteorological Conditions

The secondary representative meteorological station for this Project was identified as the station located at Toronto Pearson International Airport (Station ID 61587). This station captures the meteorological effects from further inland within the Toronto area, expected to affect the Ontario Line North Study Area. The wind rose for the five-year meteorological period (1996-2000) sourced from the Ministry of the Environment, conservation and Parks pre-processed AERMET output files for the Toronto Urban area is presented in **Figure 3-33**. The wind rose shows that the predominant wind direction is from the northwest, and the west. It also shows a low-windspeed predominance from the southwest.

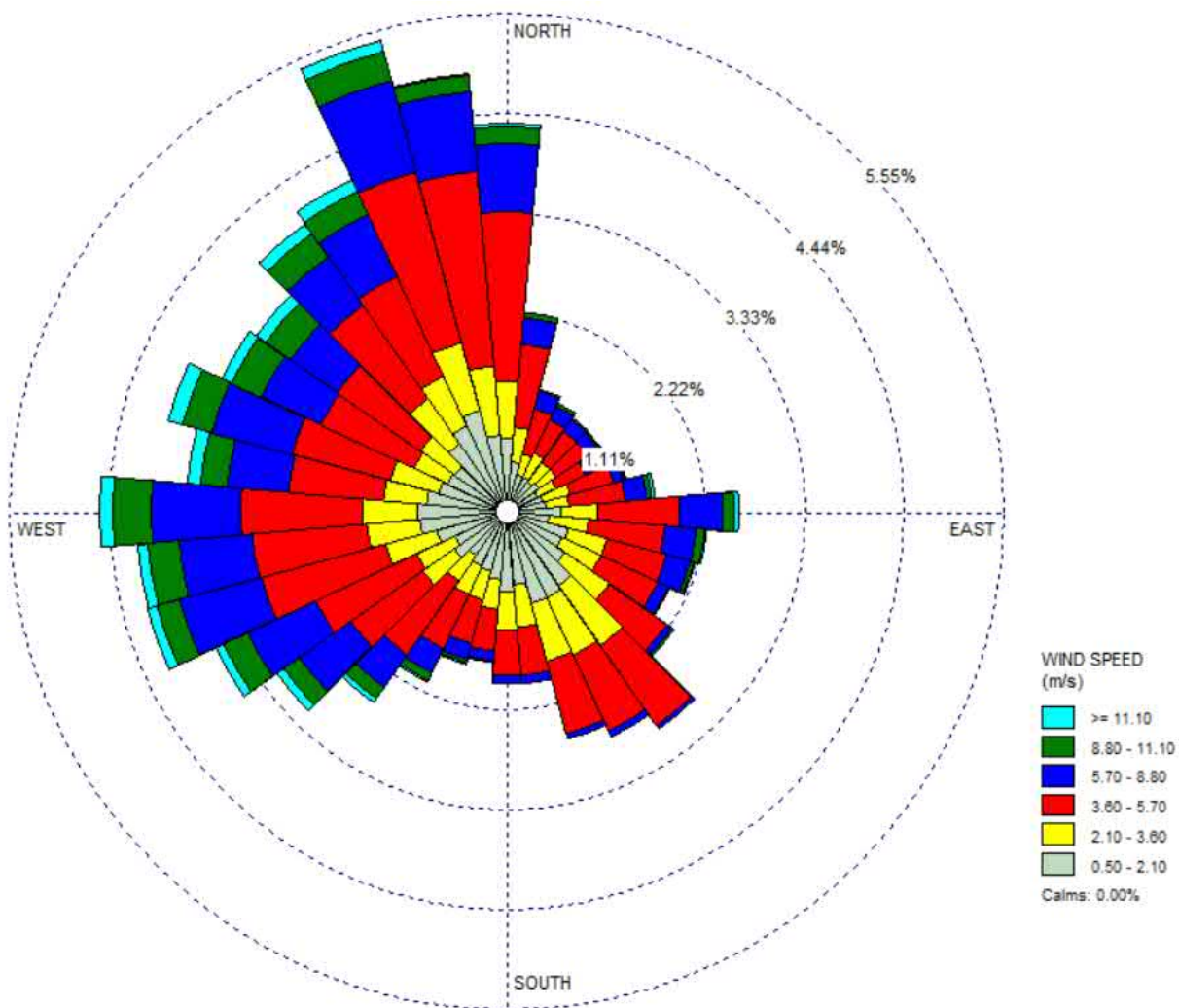
3.3.4.2 Existing Conditions Assessment

Traffic Assessment

Main traffic flow through the Ontario Line North Study Area followed Don Mills Road south of the Green Belt Drive/ Barber Greene road interchange to Overlea Boulevard, Overlea Boulevard to west to Millwood Road, Millwood Road south to Pape Avenue and Pape Avenue south to Danforth Avenue. Traffic within the Study Area was divided into 29 distinct road segments. The annual average daily traffic volumes for each individual traffic source are presented in **Appendix B2**.

Turning movement counts data from intersections within the Ontario Line North Study Area were provided by Metrolinx. The turning movement counts data was used to estimate annual average daily traffic volumes for the road segments within the Study Area. Annual average daily traffic data was standardized to 2019, with prior year data being scaled to 2019 based on a 1% annual growth rate. Data for the intersection of Don Mills Road and Overlea Boulevard was available from 2020 and was used without adjustment.

Figure 3-33: Wind Rose Representative of Meteorological Conditions – Ontario Line North Study Area



The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to be able to estimate appropriate annual averaged daily traffic volumes from AM Peak and PM Peak service volumes as provided within the turning movement counts.

Bus traffic through the Ontario Line North Study Area was assessed by examination of the 2019 Toronto Transit Commission Service Summary. Ten bus routes travel through the Study Area. The annual average daily traffic volume for each bus route is provided in **Appendix B2**.

The Ontario Traffic Manual Book 12 – Traffic Signals (Ministry of Transportation, 2012) was referenced to be able to estimate appropriate annual averaged daily traffic volumes

from AM Peak and PM Peak service volumes as provided within the Toronto Transit Commission service levels (Toronto Transit Commission, 2019).

The Richmond Hill GO Transit rail line was included in the assessment of the Ontario Line North Study Area. Train data gathered from the GO Transit website was used to determine the number of rail trips per day along the Richmond Hill GO line (GO Transit, 2020). Input provided by Metrolinx for the Union Station Rail Corridor East Enhancements Transit Project Assessment Process Air Quality Assessment Report (AECOM, 2018) for non-revenue rail trips along the Richmond Hill GO line was also included. It is important to note that adjusted operations were in place during the assessment of the rail lines; it was assumed that adjusted routes made by buses would represent GO train rail trips.

Emission Inventory

Traffic Emissions

The emission rates of criteria air contaminants from the Ontario Line North Study Area were derived from MOVES output in grams per vehicle kilometre travelled combined with the number of vehicles travelling daily on a given road and the distance travelled for that particular road segment.

The daily representative vehicle counts for each traffic segment and the daily emissions from traffic for each traffic segment are shown in **Appendix B2**.

The summary of all traffic emission sources contributes the following daily emissions of criteria air contaminants:

- 41,314 grams per day of NO_x;
- 173,060 grams per day of CO;
- 221 grams per day of SO₂; and
- 12,510 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Bus Emissions

The emission rates of criteria air contaminants from the Ontario Line North Study Area were derived from MOVES output in grams per vehicle kilometre travelled combined with the number of busses travelling per day on a given road and the distance travelled for that particular road segment.

The transit schedules and daily bus volumes for each bus route and the daily emissions from each bus route are shown in **Appendix B2**.

The summary of all bus route emission sources contributes the following daily emissions of criteria air contaminants:

- 8,158 grams per day of NO_x;
- 3,499 grams per day of CO;
- 13.2 grams per day of SO₂; and
- 1,174 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Rail Emissions

The emission rates of criteria air contaminants from the Ontario Line North Study Area were derived from the United States Environmental Protection Agency Tier 2 Line Haul emission standards (§1033.101) for locomotives (gram per bhp-hr) combined with notch-specific engine output for each locomotive travelling along the rail corridors within the Ontario Line North Study Area. These emission standards are aligned under Canada's federal Locomotive Emissions Regulations (SOR/2017-121). Emissions of sulphur dioxide were calculated assuming a 15 ppm diesel fuel sulphur content, as per Sulphur in Diesel Fuel Regulations (SOR/2002-254).

The transit schedules used to determine the rail volumes presented in each source are shown in **Appendix B2**.

The summary of all rail emission sources contributes the following daily emissions of criteria air contaminants:

- 1,085 grams per day of NO_x;
- 85 grams per day of CO;
- 0.002 grams per day of SO₂; and
- 21 grams per day of particulate matter (PM₁₀ + PM_{2.5}).

Annual Ontario Line North Emissions

Annual emissions of both criteria air contaminants and greenhouse gases were calculated for the Ontario Line North Study Area. The daily traffic, bus, and rail volumes were conservatively multiplied for each day of the year to determine the annual emission from all sources. The annual emissions of criteria air contaminants and greenhouse gases are shown in **Table 3-30**.

Table 3-30: Annual Emissions of Criteria Air Contaminants and Greenhouse Gases from Ontario Line North

| Emission Source | Greenhouse Gases (CO _{2e}) (tonnes/year) | NO _x (tonnes/year) | CO (tonnes/year) | SO ₂ (tonnes/year) | HC ⁽¹⁾ (tonnes/year) | PM ⁽²⁾ (tonnes/year) |
|-----------------|----------------------------------------------------|-------------------------------|------------------|-------------------------------|---------------------------------|---------------------------------|
| Traffic | 11,219 | 15.1 | 63.1 | 0.081 | - | 4.56 |
| Bus | 597 | 2.98 | 1.28 | 0.005 | - | 0.429 |
| Rail | - | - | - | - | - | - |
| Total | 11,816 | 18.1 | 64.4 | 0.086 | - | 4.99 |

Notes: (1) HC represents hydrocarbons emitted from rail activities. These emissions may encompass any volatile organics or other carbon-based emissions from diesel locomotive combustion.

(2) PM represents a combination of PM₁₀ and PM_{2.5} emissions from both rail, bus, and traffic engine combustion.

Industry Summary

In addition to the emission inventory outlined in **Appendix B2** the industries surrounding and within the Ontario Line North Study Area were identified to understand the larger sources of industrial emission which impact the local air quality. It is assumed that the monitored ambient air quality levels reflect the contribution of local industry impacts within the wider Toronto airshed for all Ontario Line Study Areas, therefore individual identified industries within and near the Ontario Line North Study Area are not included within the emission inventory.

Table 3-31 displays the existing industry within and near to the Ontario Line North Study Area, as per the National Pollution Release Inventory (Environment and Climate Change Canada, 2020a). The location of these industries relative to the Ontario Line North Study Area presented in **Figure 3-34**.

Table 3-31: NPRI Listing of Industry – Ontario Line North

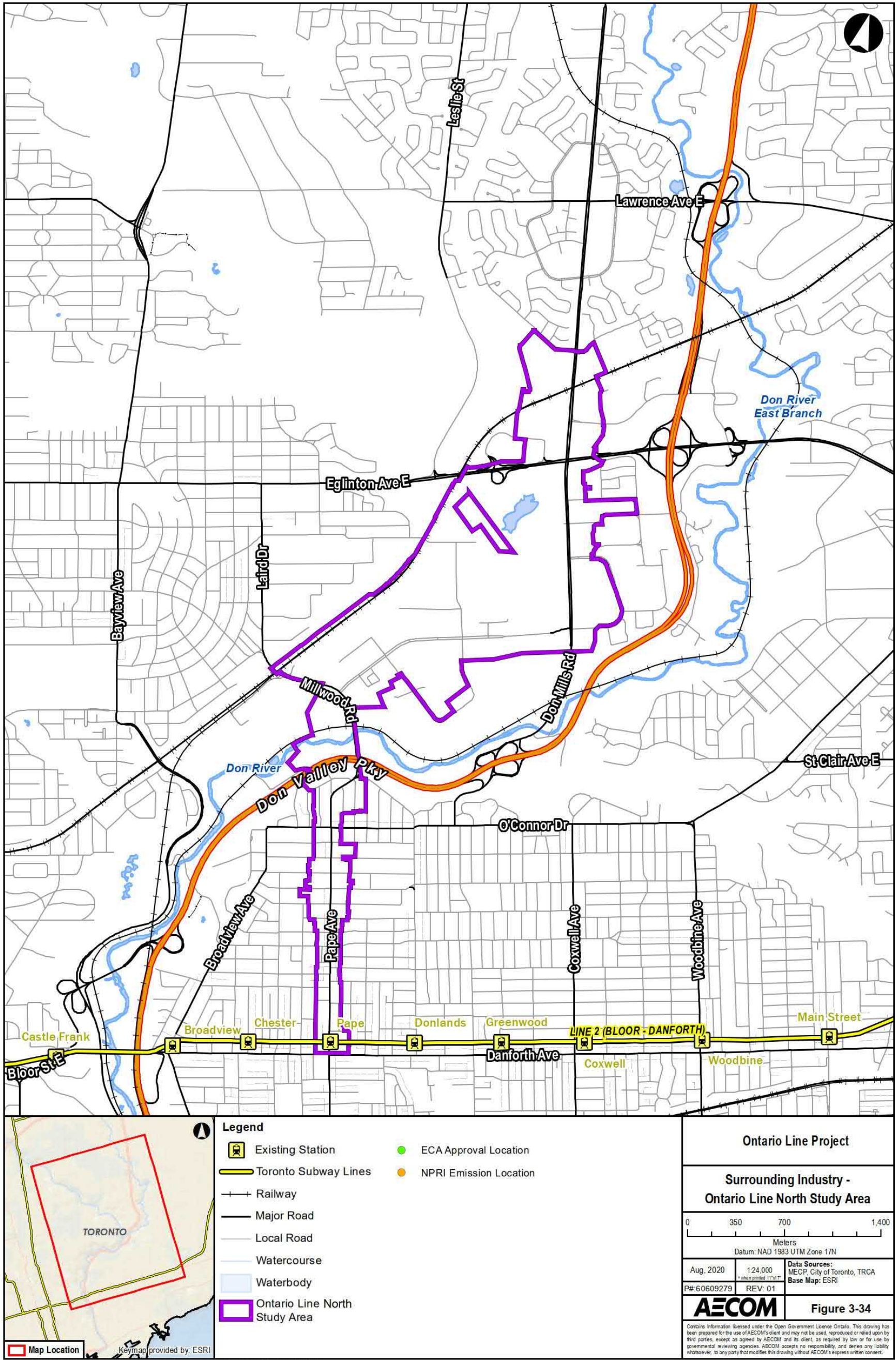
| Industry ID | Company | Address | Criteria Air Pollutants (release to air) |
|-------------|------------------------|------------------------|---------------------------------------------------------|
| N1 | Celestica Toronto Site | 844 Don Mills Road | Lead |
| N2 | WESCAM – APS | 17 Prince Andrew Place | Chromium, lead, manganese, nickel and trichloroethylene |
| N3 | RR Donnelley – MIL | 180 Bond Avenue | Volatile organic compounds |

Table 3-32 shows the existing Ministry of the Environment, Conservation and Parks Environmental Compliance Approvals listings for air quality sources from industry within the Ontario Line North Study Area. Any facilities emitting combustion products from comfort heating, emergency generators, or boilers under 10,000,000 kilojoules per hour were excluded from this list. **Figure 3-34** displays the location of the industries listed within **Table 3-32**.

Table 3-32: Environmental Compliance Approvals Listing of Industry – Ontario Line North

| Industry ID | Company | Address | Description of Operations |
|--------------------|--------------------------------------------------|------------------------|----------------------------------------------------------------------------------------|
| E1 | Imperial Oil Limited | 90 Wynford Drive | Fuel storage (Volatile Organic Compounds) |
| E2 | Optium Inc. | 58 Prince Andrew Place | Printing operations (Volatile Organic Compounds) |
| E3 | Wrigley Canada Inc. | 1123 Leslie Street | Chewing gum manufacturing (Volatile Organic Compounds) |
| E4 | The Centennial Centre for Science and Technology | 770 Don Mills Road | Spray paint operations (Volatile Organic Compounds) |
| E5 | RPM Canada Investment Company | 20 Wicksteed Avenue | Caulking, waterproofing, coating operations (Volatile Organic Compounds) |
| E6 | Siltech Corporation | 225 Wicksteed Avenue | Fumehoods, combustion, storage tanks (combustion products, Volatile Organic Compounds) |
| E7 | Innocon Inc. | 45 Beth Neilson Drive | Ready mix concrete batching (Particulates, Volatile Organic Compounds) |
| E8 | De Beers Canada Inc. | 65 Overlea Boulevard | Rock cutting and coating (Particulates, Volatile Organic Compounds) |
| E9 | Teamirage Inc. | 115 Thorncliffe Drive | Printing operations (Volatile Organic Compounds) |

Figure 3-34: Surrounding Industry – Ontario Line North Study Area



3.4 Noise and Vibration

A Noise and Vibration Report was completed to document existing noise and vibration levels, outline the preliminary description of the potential impacts of the Ontario Line Project on noise and vibration levels, outline a description of potential mitigation measures to mitigate those impacts, describe potential impacts to noise and vibration levels caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them, and outline a preliminary list of the potential municipal, provincial, federal or other approvals or permits associated with noise and vibration that may be required for the Ontario Line Project.

The Noise and Vibration Report can be found in **Appendix B3**. Methodology is summarized in **Section 3.4.1** and the results are presented in **Section 3.4.2** (Ontario Line West), **Section 3.4.3** (Ontario Line South) and **Section 3.4.4** (Ontario Line North).

3.4.1 Methodology

Field investigations were conducted to establish existing noise and vibration levels within the Ontario Line Study Area.

The following aspects of noise and vibration were examined:

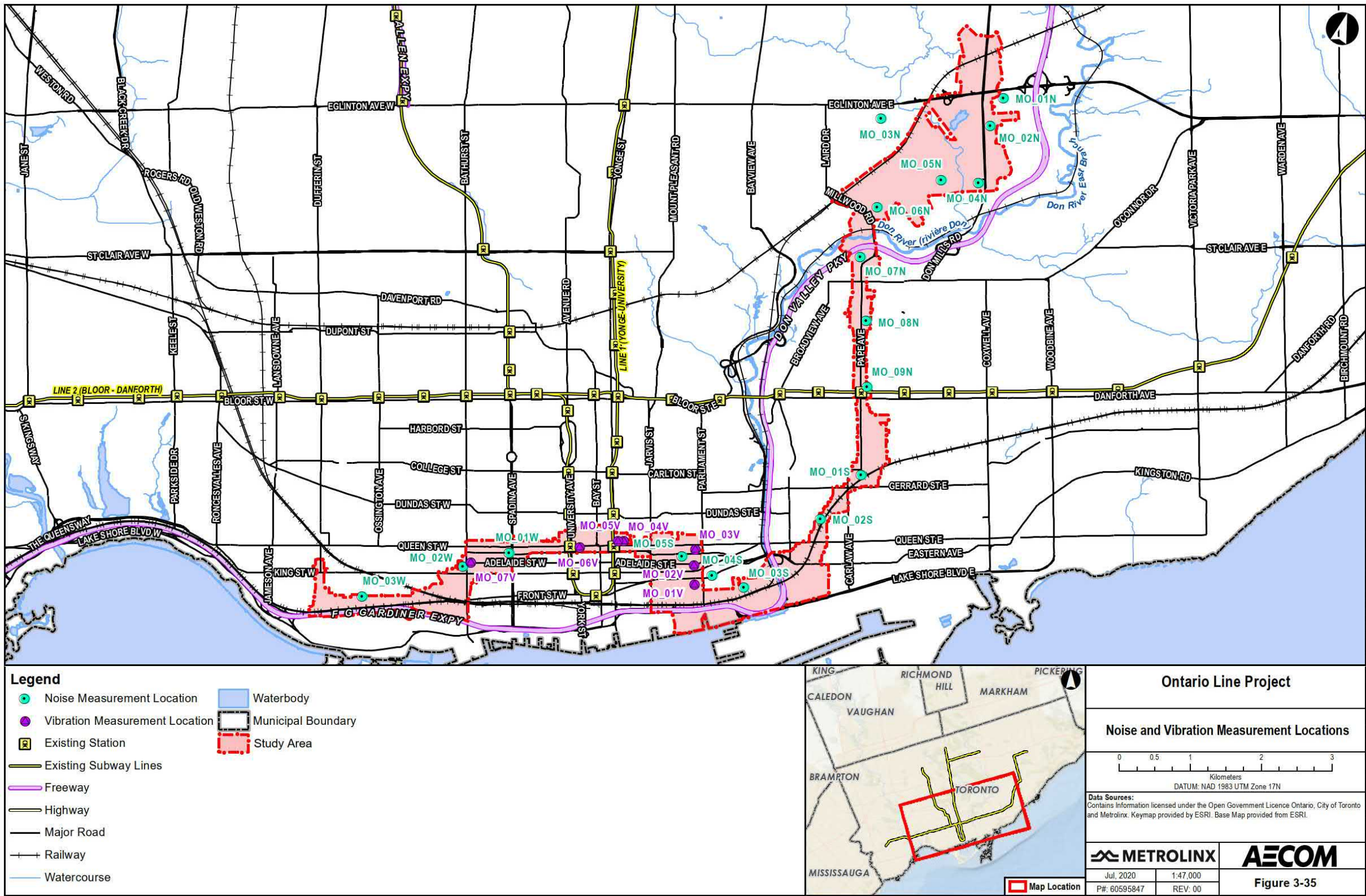
- Existing ambient noise levels based on sensitive receptors; and
- Existing ambient vibration levels based on sensitive receptors.

Noise measurements were collected at 16 locations representative of noise sensitive receptors within the Ontario Line Study Area. These measurement locations are shown in **Figure 3-35**. These locations were selected based on proximity to at-grade and elevated sections of the representative alignment and potential facility locations as presented in the Ontario Line Initial Business Case (Metrolinx and Infrastructure Ontario, 2019).

Vibration measurements were collected at seven locations representative of vibration sensitive receptors within the Ontario Line Study Area. These measurement locations are shown in **Figure 3-35**. These locations – theatres, a recording studio and a hospital – were selected because they accommodate spaces and equipment that are potentially more sensitive to ground-borne noise and vibration than typical residential buildings.

The monitoring locations identified in this Report are not intended to be a comprehensive list of all noise and vibration sensitive receptors that will require a future impact assessment relating to the Ontario Line Project. This Report intends to provide a reference for existing noise levels in the Ontario Line Study Area, and to provide baseline vibration levels at vibration sensitive locations that do not have prescribed limits under Ontario guidelines (i.e., recording studios, hospitals, theatres).

Figure 3-35: Noise and Vibration Measurement Locations



Detailed methodology description is provided in **Appendix B3**.

3.4.2 Ontario Line West

Table 3-33 summarizes the results of the noise measurements within the Ontario Line West Study Area. The full noise measurement data set, and prevailing weather conditions during the measurement are provided in **Appendix B3**.

Note that evening period (7:00 PM to 11:00 PM) data were not measured at location MO_01W due to access restraints.

Data that could be used to represent areas without measured data are highlighted in blue within the result tables. These representative data have been selected from locations and time periods where ambient noise levels are expected to be similar to or lower than the noise levels at the locations without measured data. The representative data has been selected based on alternative locations or time periods where ambient noise levels are expected to be similar or lower.

Table 3-34 summarizes the results of the vibration measurements within the Ontario Line West Study Area. The entire measured and processed one-hour data block results are attached in **Appendix B3**.

3.4.3 Ontario Line South

Table 3-35 summarizes the results of the noise measurements within the Ontario Line South Study Area. The full noise measurement data set, and prevailing weather conditions during the measurement are provided in **Appendix B3**.

Note that evening period (7:00 PM to 11:00 PM) data were not measured at location MO_05S due to access restraints. The daytime period measurements for the Rolling Mills Road/Mill Street location (MO_03S) were excluded as well due to significant daytime construction near the monitor.

Data that could be used to represent areas without measured data are highlighted in blue within the result tables. These representative data have been selected from locations and time periods where ambient noise levels are expected to be similar to or lower than the noise levels at the locations without measured data. The representative data has been selected based on alternative locations or time periods where ambient noise levels are expected to be similar or lower.

Table 3-36 summarizes the results of the vibration measurements within the Ontario Line South Study Area. The entire measured and processed 1-hour data block results are attached in **Appendix B3**.

Table 3-33: Noise Measurement Locations and Results – Ontario Line West

| Monitor ID | Location | 7 am to 7 pm (Daytime ¹) Min. L _{eq,1hr} (dBA) | 7 am to 7 pm (Daytime ¹) Max. L _{eq,1hr} (dBA) | 7 am to 7 pm (Daytime ¹) Avg. L _{eq,1hr} (dBA) | 7 pm to 11 pm (Evening ²) Min. L _{eq,1hr} (dBA) | 7 pm to 11 pm (Evening ²) Max. L _{eq,1hr} (dBA) | 7 pm to 11 pm (Evening ²) Avg. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) Min. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) Max. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) Avg. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) L _{eq,8hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) L _{eq,16hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) Min. L _{eq,1hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) Max. L _{eq,1hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) Avg. L _{eq,1hr} (dBA) |
|---------------------|----------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| MO_01W ⁵ | Richmond Street West | 67 | 67 | 67 | 59 | 64 | 61 | 59 | 64 | 61 | 61 | 66 | 59 | 67 | 66 |
| MO_02W | Adelaide Street West | 61 | 72 | 66 | 61 | 71 | 64 | 58 | 69 | 62 | 62 | 65 | 61 | 72 | 65 |
| MO_03W | Hanna Avenue | 58 | 67 | 62 | 61 | 63 | 62 | 54 | 64 | 59 | 59 | 63 | 58 | 67 | 63 |

- Notes:
- 1. Daytime period as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013).
 - 2. Evening period as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013).
 - 3. Night-time period as per as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013), MOEE/GO Transit Draft Protocol (MOEE/GO, 1995), and MOEE/Toronto Transit Commission Protocol (MOEE/Toronto Transit Commission, 1993).
 - 4. Daytime period as per MOEE/GO Transit Draft Protocol (MOEE/GO, 1995), and MOEE/Toronto Transit Commission Protocol (MOEE/Toronto Transit Commission, 1993).
 - 5. Overnight attended measurement. Evening noise data not measured due to access restraints. Levels assumed to be represented by night-time data. L_{eq,16h} calculated using this assumption. In addition, only two hours of day-time data collected due to access restraints.
 - 6. Blue highlighted cells indicate where measured data was not available and therefore representative data was selected.

Table 3-34: Vibration Measurement Results – Ontario Line West

| Monitor ID | Location | Measurement Point | RMS Velocity (millimetres per second) ¹ 95 Percentile | RMS Velocity (millimetres per second) ¹ 98 Percentile | RMS Velocity (millimetres per second) ¹ Max. 1 sec. Energy Average | RMS Velocity (millimetres per second) ¹ Dominant Frequency (Hertz) |
|------------|-----------------|-----------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| MO_07V | Factory Theatre | Outdoor – near old entrance | 0.0120 | 0.0159 | 0.0122 | 16 |

- Notes:
- 1. Maximum amplitudes during the entire measurement period are summarized in the table. Refer **Appendix B3** for each one-hour data block results.

Table 3-35: Noise Measurement Locations and Results – Ontario Line South

| Monitor ID | Location | 7 am to 7 pm (Daytime ¹) Min. L _{eq,1hr} (dBA) | 7 am to 7 pm (Daytime ¹) Max. L _{eq,1hr} (dBA) | 7 am to 7 pm (Daytime ¹) Avg. L _{eq,1hr} (dBA) | 7 pm to 11 pm (Evening ²) Min. L _{eq,1hr} (dBA) | 7 pm to 11 pm (Evening ²) Max. L _{eq,1hr} (dBA) | 7 pm to 11 pm (Evening ²) Avg. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) Min. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) Max. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) Avg. L _{eq,1hr} (dBA) | 11 pm to 7 am (Night-time ³) L _{eq,8hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) L _{eq,16hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) Min. L _{eq,1hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) Max. L _{eq,1hr} (dBA) | 7 am to 11 pm (16-hour Daytime ⁴) Avg. L _{eq,1hr} (dBA) |
|---------------------|--------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| MO_01S | Pape Avenue | 59 | 73 | 65 | 56 | 60 | 58 | 47 | 62 | 53 | 55 | 64 | 56 | 73 | 63 |
| MO_02S | Wardell Street | 61 | 66 | 64 | 59 | 63 | 62 | 43 | 63 | 52 | 56 | 64 | 59 | 66 | 63 |
| MO_03S ⁵ | Rolling Mills Road/Mill Street | 63 | 65 | 64 | 63 | 65 | 64 | 50 | 66 | 58 | 60 | 63 | 63 | 64 | 64 |
| MO_04S | Erin Street | 61 | 69 | 64 | 61 | 67 | 62 | 55 | 63 | 58 | 59 | 64 | 61 | 69 | 64 |
| MO_05S ⁶ | Richmond Street East | 66 | 66 | 66 | 55 | 65 | 58 | 55 | 65 | 58 | 60 | 65 | 55 | 66 | 64 |

- Notes:
- 1. Daytime period as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013).
 - 2. Evening period as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013).
 - 3. Night-time period as per as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013), MOEE/GO Transit Draft Protocol (MOEE/GO, 1995), and MOEE/Toronto Transit Commission Protocol (MOEE/Toronto Transit Commission, 1993).
 - 4. Daytime period as per MOEE/GO Transit Draft Protocol (MOEE/GO, 1995), and MOEE/Toronto Transit Commission Protocol (MOEE/Toronto Transit Commission, 1993).
 - 5. Daytime noise data considered invalid due to nearby construction. Levels assumed to be represented by evening data.
 - 6. Overnight attended measurement. Evening noise data not measured due to access restraints. Levels assumed to be represented by night-time data. L_{eq,16h} calculated using this assumption. In addition, only two hours of day-time data collected due to access restraints.
 - 7. **Blue** highlighted cells indicate where measured data was not available and therefore representative data was selected.

Table 3-36: Vibration Measurement Results – Ontario Line South

| Monitor ID | Location | Measurement Point | RMS Velocity (millimetres per second) ¹ 95 Percentile | RMS Velocity (millimetres per second) ¹ 98 Percentile | RMS Velocity (millimetres per second) ¹ Max. 1 sec. Energy Average | RMS Velocity (millimetres per second) ¹ Dominant Frequency (Hertz) |
|------------|-----------------------------------------|----------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| MO_01V | Canadian Stage Theatre | Ground Level – Main Stage | 0.0170 | 0.0574 | 0.0644 | 16 - 25 |
| MO_01V | Canadian Stage Theatre | Basement Level – Storage Room | 0.0041 | 0.0048 | 0.0108 | 20 - 50 |
| MO_02V | Alumnae Theatre Company | Ground Level – Entrance | 0.0051 | 0.0068 | 0.0261 | 16 - 20 |
| MO_02V | Alumnae Theatre Company | Basement Level – Costume Storage | 0.0041 | 0.0048 | 0.0067 | 16 - 20 |
| MO_03V | Super Sonics Post Production | Outdoor – Walkway | 0.0175 | 0.0295 | 0.0826 | 16 |
| MO_04V | St. Michael's Hospital | Basement Level (B2) – MRI Room | 0.0111 | 0.0127 | 0.0164 | 20 |
| MO_04V | St. Michael's Hospital | Basement Level (B2) – Data Centre | 0.0183 | 0.0247 | 0.0097 | 31.5 |
| MO_04V | St. Michael's Hospital | 5 th Floor – Operation Room | 0.0088 | 0.0095 | 0.0197 | 10 and 80 |
| MO_05V | Elgin Winter Garden Theatre Centre | Ground Level – Emergency Entrance | 0.0138 | 0.0174 | 0.0276 | 12.5 - 16 |
| MO_05V | Elgin Winter Garden Theatre Centre | Basement Level – Water-heater Room | 0.0119 | 0.0135 | 0.0240 | 16 - 20 |
| MO_06V | Four Seasons Centre for Performing Arts | Ground Level – Education Centre | 0.0056 | 0.0091 | 0.0181 | 10 - 16 |
| MO_06V | Four Seasons Centre for Performing Arts | Basement Level – Mechanical Room (P3) | 0.0119 | 0.0152 | 0.0426 | 10 - 12.5 |

Notes: 1. Maximum amplitudes during the entire measurement period are summarized in the table. Refer **Appendix B1** for each one-hour data block results.

3.4.4 Ontario Line North

Table 3-37 summarizes the results of the noise measurements within the Ontario Line North Study Area. The full noise measurement data set, and prevailing weather conditions during the measurement are provided in **Appendix B3**.

The ambient noise at the Windom Road (MO_01N) location was assumed to be represented by measured data from the MO_06N location as it is similarly adjacent to a busy roadway and commercial/institutional activities, has access roads with expected similar traffic, and has a similar amount of noise shielding from road, mechanical equipment, or human activity noise. This is likely a conservative assumption as Eglinton Boulevard and Don Mills Road (near MO_01N) are likely subject to more traffic than Leaside Park Drive or Overlea Boulevard (near MO_06N).

The ambient levels at the planned Overlea Boulevard (MO_04N) monitoring location were assumed to have levels represented by MO_05N data, as these locations are in close proximity to each other. This is a conservative assumption as traffic noise from Don Mills Road will likely be perceptible at the MO_04N location, but not at the MO_05N location.

No vibration-sensitive receptors with special requirements beyond residential sensitivity were identified in the Ontario Line North Study Area; therefore, no vibration measurements were obtained in this segment.

Table 3-37: Noise Measurement Locations and Results – Ontario Line North

| Monitor ID | Location | 7 am to 7 pm (Daytime ¹) Min. Leq,1hr (dBA) | 7 am to 7 pm (Daytime ¹) Max. Leq,1hr (dBA) | 7 am to 7 pm (Daytime ¹) Avg. Leq,1hr (dBA) | 7 pm to 11 pm (Evening ²) Min. Leq,1hr (dBA) | 7 pm to 11 pm (Evening ²) Max. Leq,1hr (dBA) | 7 pm to 11 pm (Evening ²) Avg. Leq,1hr (dBA) | 11 pm to 7 am (Night-time ³) Min. Leq,1hr (dBA) | 11 pm to 7 am (Night-time ³) Max. Leq,1hr (dBA) | 11 pm to 7 am (Night-time ³) Avg. Leq,1hr (dBA) | 11 pm to 7 am (Night-time ³) Leq,8hr (dBA) | 11 pm to 7 am (16-hour Daytime ⁴) Leq,16hr (dBA) | 11 pm to 7 am (16-hour Daytime ⁴) Min. Leq,1hr (dBA) | 11 pm to 7 am (16-hour Daytime ⁴) Max. Leq,1hr (dBA) | 11 pm to 7 am (16-hour Daytime ⁴) Avg. Leq,1hr (dBA) |
|---------------------|----------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|
| MO_01N ⁵ | Windom Road | 53 | 63 | 59 | 54 | 61 | 58 | 48 | 60 | 53 | 53 | 58 | 53 | 63 | 58 |
| MO_02N | St. Dennis Drive | 61 | 69 | 67 | 65 | 67 | 66 | 56 | 65 | 60 | 61 | 67 | 61 | 69 | 67 |
| MO_03N | Vanderhoof Avenue | 59 | 70 | 67 | 63 | 67 | 64 | 55 | 70 | 59 | 60 | 67 | 59 | 70 | 66 |
| MO_04N ⁶ | Don Mills Road/Overlea Boulevard | 57 | 68 | 63 | 60 | 64 | 62 | 53 | 63 | 58 | 58 | 64 | 57 | 68 | 63 |
| MO_05N | William Morgan Drive | 57 | 68 | 63 | 60 | 64 | 62 | 53 | 63 | 58 | 58 | 64 | 57 | 68 | 63 |
| MO_06N | Leaside Park Drive | 53 | 63 | 59 | 54 | 61 | 58 | 48 | 60 | 53 | 53 | 58 | 53 | 63 | 58 |
| MO_07N | Minton Place/Hopedale Avenue | 55 | 70 | 59 | 53 | 65 | 57 | 46 | 57 | 51 | 52 | 59 | 53 | 70 | 59 |
| MO_08N | Gowan Avenue | 53 | 71 | 57 | 50 | 57 | 53 | 44 | 68 | 50 | 51 | 59 | 50 | 71 | 56 |
| MO_09N | Gertrude Place | 48 | 60 | 53 | 48 | 52 | 51 | 45 | 54 | 49 | 49 | 53 | 48 | 60 | 53 |

Notes:

1. Daytime period as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013).

2. Evening period as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013).

3. Night-time period as per as per Ministry of the Environment, Conservation and Parks noise guideline NPC-300 (Ministry of the Environment, Conservation and Parks, 2013), Ministry of the Environment and Energy/GO Transit Draft Protocol (MOEE/GO, 1995), and Ministry of the Environment and Energy /Toronto Transit Commission Protocol (MOEE/Toronto Transit Commission, 1993).

4. Daytime period as per Ministry of the Environment and Energy/GO Transit Draft Protocol (MOEE/GO, 1995), and Ministry of the Environment and Energy/Toronto Transit Commission Protocol (MOEE/Toronto Transit Commission, 1993).

5. Noise levels assumed to be represented by MO_06N.

6. Noise levels assumed to be represented by MO_05N.

Blue highlighted cells indicate where measured data was not available and therefore representative data was selected.

3.5 Socio-Economic and Land Use Characteristics

A Socio-Economic and Land Use Characteristics Report was completed to document existing socio-economic environment and land use, outline the preliminary description of the potential impacts of the Ontario Line Project on the socio-economic environment and land use, outline a description of potential mitigation measures to mitigate those impacts, describe potential impacts to the socio-economic environment and land use caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them, and outline a preliminary list of the potential municipal, provincial, federal or other approvals or permits associated with socio-economic environment and land use that may be required for the Ontario Line Project.

The Socio-Economic and Land Use Characteristics Report can be found in **Appendix B4**. Methodology is summarized in **Section 3.5.1** and the results are presented in **Section 3.5.2** (Ontario Line West), **Section 3.5.3** (Ontario Line South) and **Section 3.5.4** (Ontario Line North), with the exception of provincial and municipal planning policy, which is provided in **Section 2.2**.

3.5.1 Methodology

A review of available information and field investigations were conducted to establish socio-economic environment existing conditions within the Ontario Line Study Area (mapped in **Figure 3-36 to Figure 3-41**).

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 Ontario Line West, Ontario Line South, and Ontario Line North Study Areas were further divided into sub-areas with common land use and urban landscapes due to the

large size of the Study Area segments. **Table 3-38** lists the socio-economic and land use sub-areas within each Study Area segment.

Table 3-38: Ontario Line Study Area Segments and Sub-Areas

| Study Area Segment | Sub-Area |
|--------------------|-------------------------------------------------------------------------------------------------------------|
| Ontario Line West | Liberty Village/Fort York Sub-Area Downtown West Sub-Area |
| Ontario Line South | Downtown East Sub-Area West Don Lands/Industrial Sub-Area East End Residential Sub-Area |
| Ontario Line North | Pape Sub-Area Thornccliffe Employment Sub-Area Thornccliffe Park Sub-Area Flemingdon Park Sub-Area |

Socio-economic features and land use characteristics within the Ontario Line Study Area were identified and characterized through a desktop review of provincial and municipal documents and policies, online data sources such as the City of Toronto Open Data Portal and associated databases/mapping tools. The background research was supplemented with site visits.

Neighbourhood demographics information (summarized in **Section 3.5.2.7**, **Section 3.5.3.7** and **Section 3.5.4.7**) includes the following demographic and employment data for the Census neighbourhoods in each Study Area compared with the City of Toronto:

- Population growth from 2011 to 2016;
- Population percentage by age group in 2016;
- Population percentage by gender in 2016;
- Education attainment in 2016;
- Percentage of immigrant and recent immigrant population in 2016;
- Top five languages spoken at home (excluding English and French) by percentage in 2016;
- Average household size in 2011 and 2016;
- Mean (average) and median household incomes in 2016;
- Dwelling tenure in 2016;
- Employment and unemployment population percentages in 2016;
- Employment and unemployment rates in 2016;

- Employment by sector in 2016; and
- Commuting patterns by transportation mode by household in 2016.

Future development (summarized in **Section 3.5.2.8**, **Section 3.5.3.8**, and **Section 3.5.4.8**) includes recent, ongoing, and proposed development within each Study Area and is based on active development applications available in the City of Toronto's online database (as of June 25, 2020).

Detailed methodology description is provided in **Appendix B4**.

3.5.2 Ontario Line West

3.5.2.1 Land Use Designations

The following subsections characterize the pattern of these designations within the Study Area. Each land use designation is defined in Section 3.2.1.2 of **Appendix B4**.

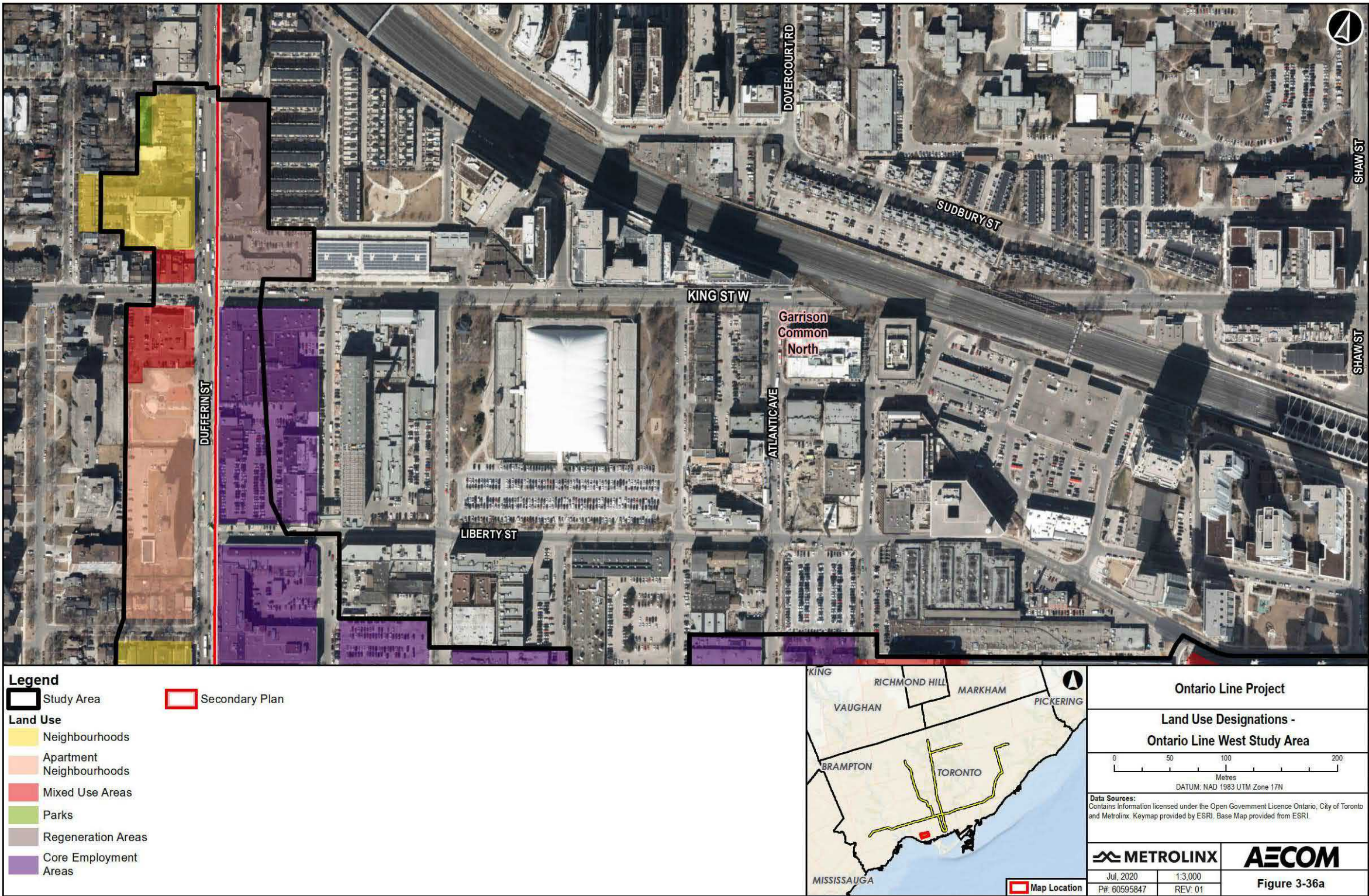
Liberty Village/Fort York Sub-Area

The Liberty Village/Fort York Sub-Area describes the area from the west extent of the Study Area, Springhurst Avenue and Dufferin Street, to the rail corridor south of Wellington Street. The west extent of this Sub-Area, west of Dufferin Street, is primarily designated as Neighbourhoods and Apartment Neighbourhoods. East of Dufferin Street is predominantly designated as Core Employment Areas within Liberty Village, with some Mixed-Use Areas surrounding Strachan Avenue. East of Strachan Avenue is designated as Parks and Other Open Space Areas between the south rail corridor and the Gardiner Expressway. The area between the two rail corridors is designated as Mixed-Use Areas and Parks (**Figure 3-36**).

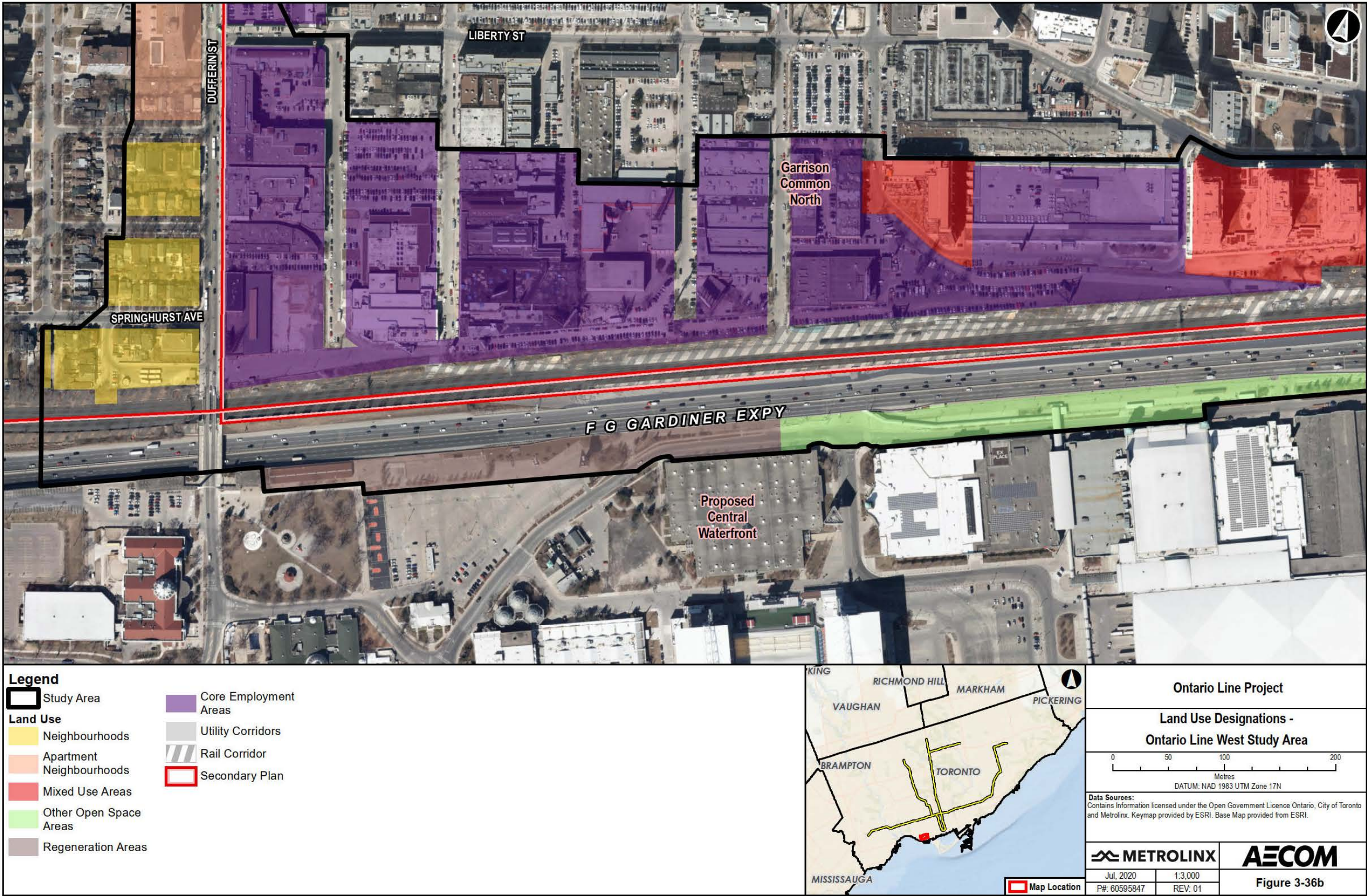
Downtown West Sub-Area

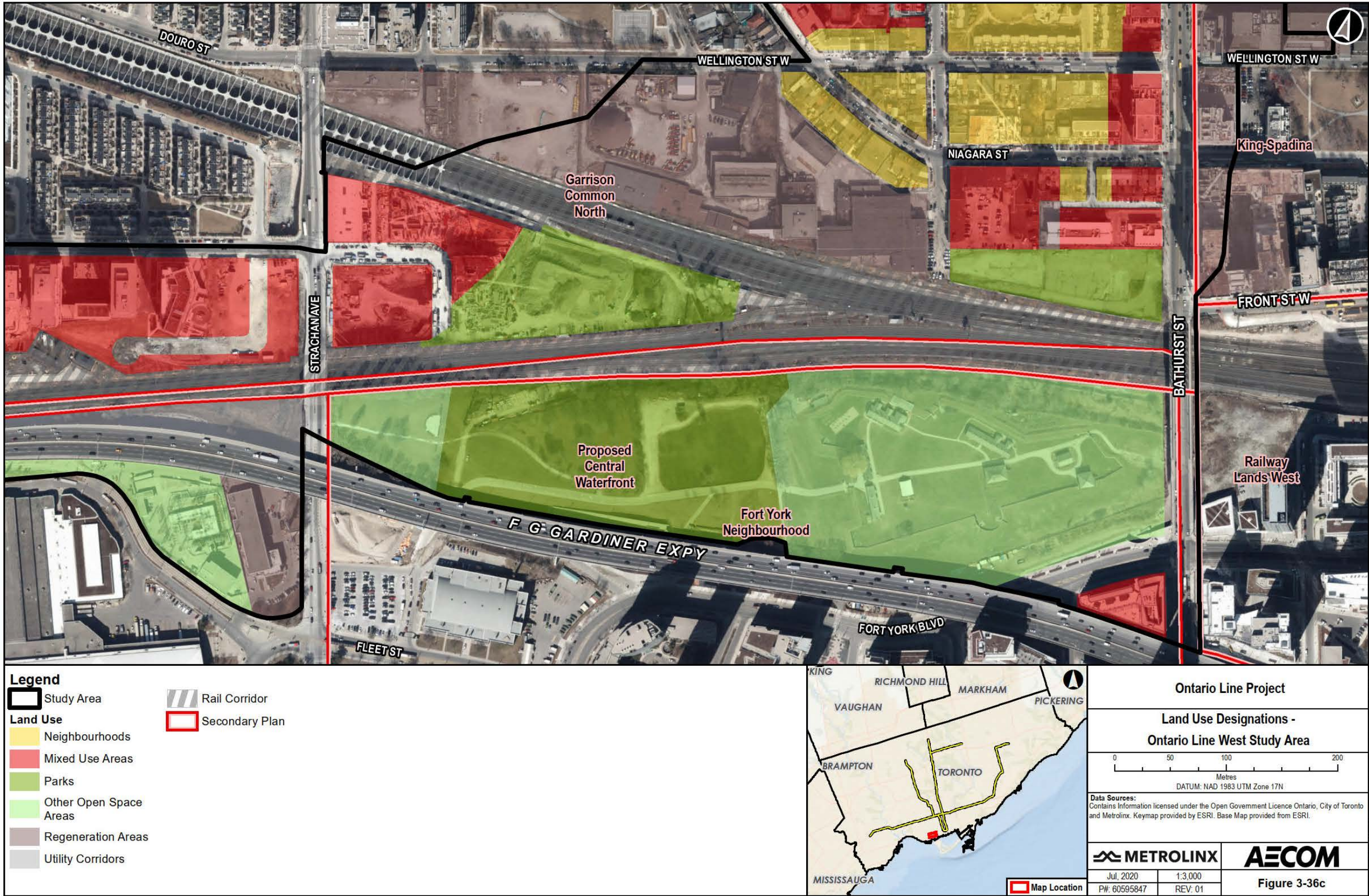
The Downtown West Sub-Area describes the area from the north rail corridor to Osgoode Station. The area between the north tracks and Wellington Street is designated as Regeneration Areas, with a small area designated Neighbourhoods. The lands between Bathurst Street and Spadina Avenue are also characterized as primarily Regeneration Areas, with small parcels of Parks. The Queen Street West corridor is designated as Mixed-Use Areas (**Figure 3-36**).

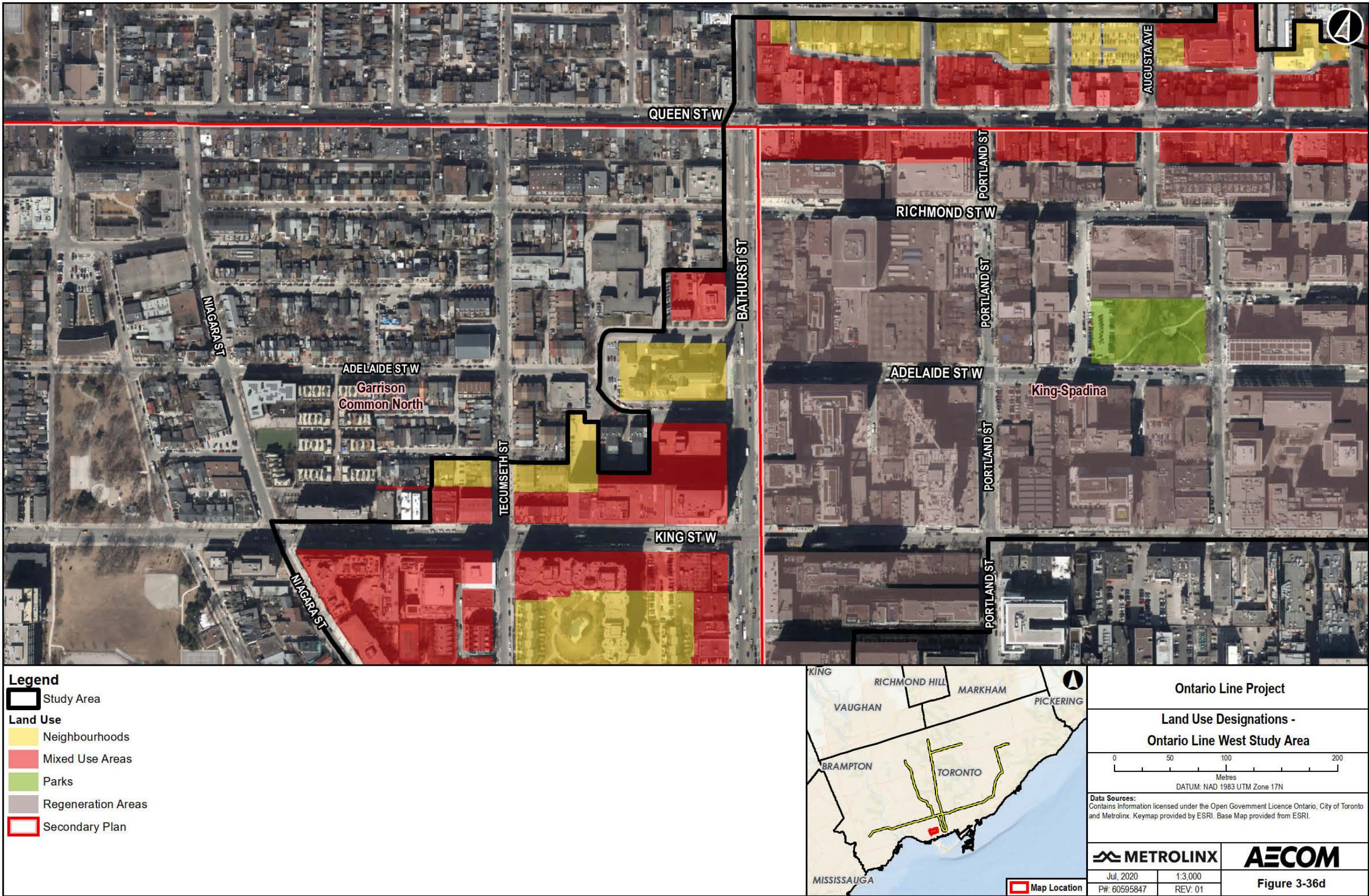
Figure 3-36: Land Use Designations – Ontario Line West Study Area⁶

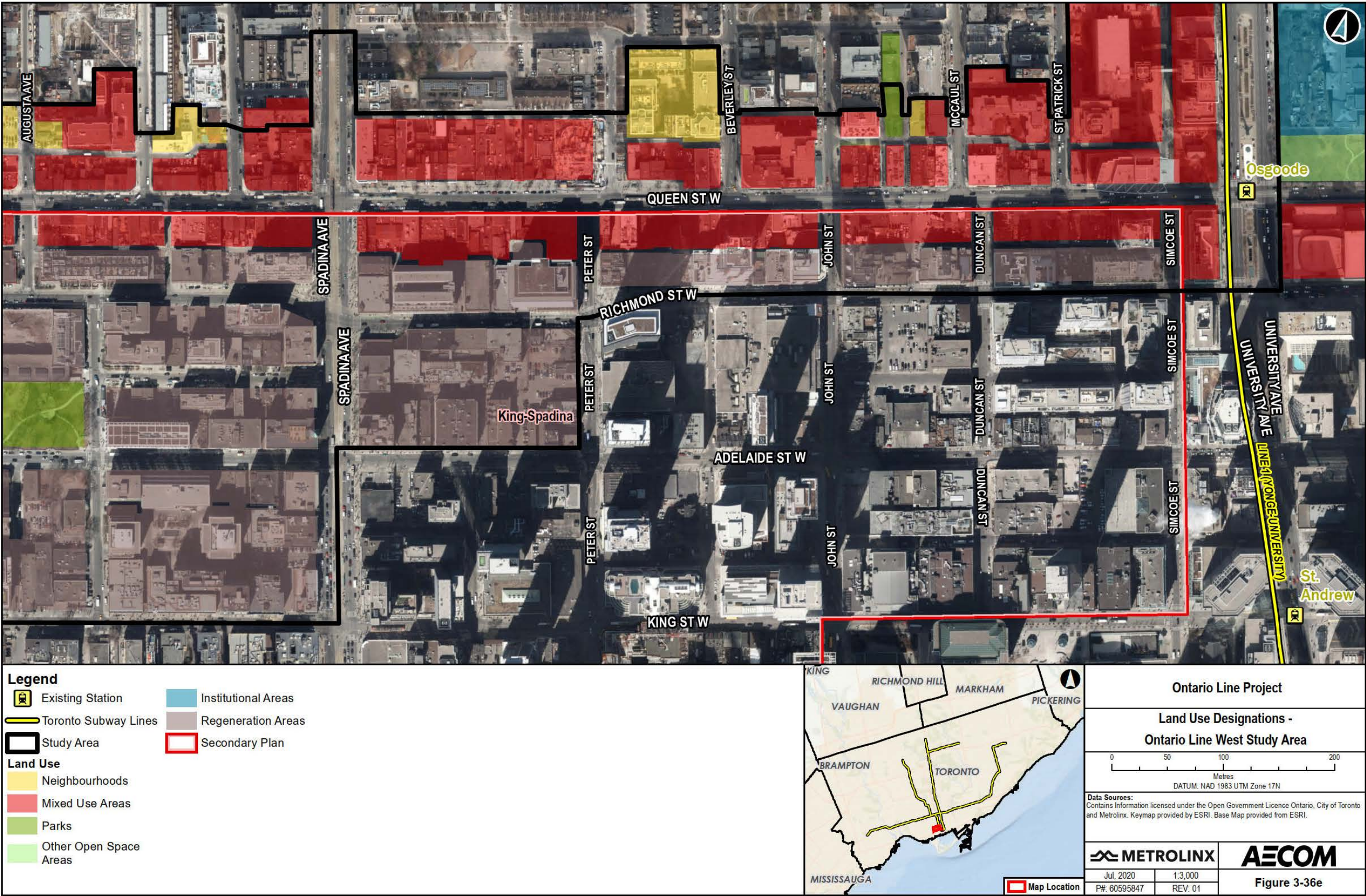


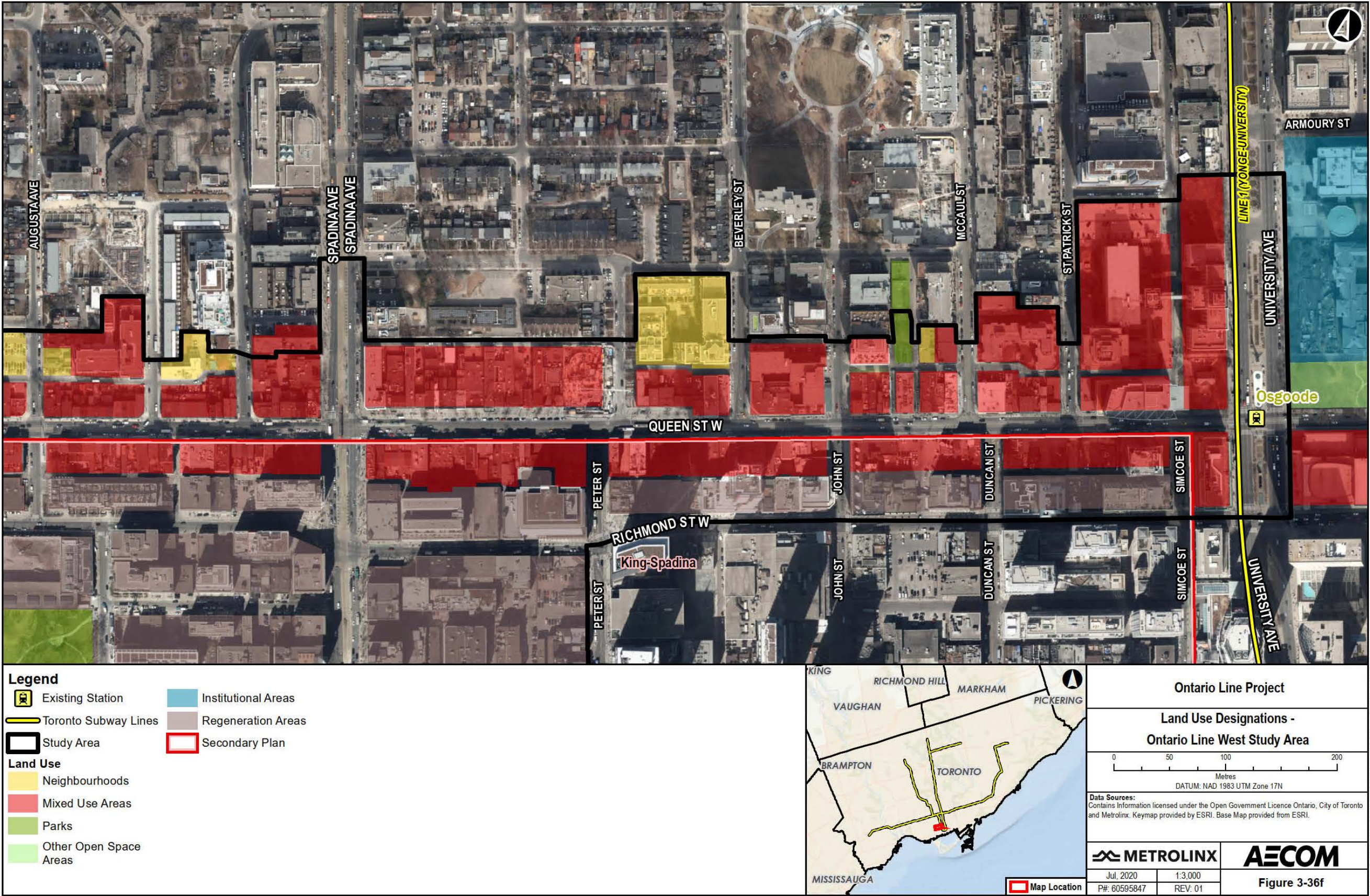
6. Source of land use designations: City of Toronto, 2019. Official Plan – Map 18 Land Use Plan. Available: https://www.toronto.ca/wp-content/uploads/2017/11/97fe-cp-official-plan-Map-18_LandUse_AODA.pdf











Applicability to the Project

The Ontario Line West Study Area has a large portion of residential neighbourhoods. The Project will provide more frequent and reliable transit to these residences and will support further growth in the area, which is targeted in the Growth Plan, especially with new development concentrated in Liberty Village.

Parks and Natural Areas must also be carefully considered during detailed design to mitigate potential impacts to their natural and social functionality within the context of the environment.

3.5.2.2 Secondary Plans

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. All the policies of the Official Plan apply to the areas subject to Secondary Plans contained in Chapter 6, except in the case of a conflict, where the Secondary Plan policy will prevail. The following sections list the Secondary Plans within the Study Area and their applicability to the Project.

The following Secondary Plans are applicable to the Ontario Line West Study Area:

- Central Waterfront;
- Fort York;
- Garrison Common North; and
- King-Spadina.

Central Waterfront Secondary Plan

The Central Waterfront Secondary Plan, the guiding policy document for the ongoing revitalization of Toronto's waterfront, intersects the Ontario Line West Study Area at the Wilson Yard Layover Facility and north towards the West Don Lands. Within the Ontario Line West Study Area, the Central Waterfront Secondary Plan has two precincts undergoing zoning changes: East Bayfront and North Keating. These precincts extend east from the foot of Lower Jarvis Street to Cherry Street and south from approximately Lakeshore Boulevard East to Lake Ontario. They contain private and public lands. The City and Waterfront Toronto have been working closely with private landowners/developers within the two precincts.

The CWSP includes policies that promote waterfront renewal. The development of this area focuses mainly on lands categorized as commercial, residential, industrial, park and open space, and institutional uses. The four core principles of the CWSP include:

- Removing Barriers/Making Connections;
- Building a Network of Spectacular Waterfront Parks and Public Spaces;
- Promoting a Clean and Green Environment; and
- Creating Dynamic and Diverse New Communities.

The Central Waterfront Secondary Plan was adopted by City Council in 2003 as Official Plan Amendment 257 and has since been under appeal. OPA 257 was further approved in part as modified for the West Don Lands in 2005 by Ontario Municipal Board Decision/Order No. 3227. OPA 257 was further approved in part as modified for the First Waterfront Place lands in 2007 by Ontario Municipal Board Decision/Order No. 1905. In 2016, the City initiated revisions to OPA 257, mainly related to the addition of the Port Lands area (Official Plan Amendment 257). Official Plan Amendment 257 was appealed to the Local Planning Appeal Tribunal in 2017. The next Local Planning Appeal Tribunal Hearing related to these revisions is scheduled for September 1, 2020.

Fort York Secondary Plan

The Fort York Secondary Plan area is bounded by Metrolinx rail tracks to the north, Strachan Avenue to the west, Bathurst Street to the east and Lakeshore Boulevard to the south.

Some of the key Plan objectives include:

- Develop as a vital mixed-use neighbourhood and make use of the large areas of existing open space and waterfront setting;
- Significance of Fort York and Fort York Heritage Conservation District will be recognized in the redevelopment of the Fort York Neighbourhood;
- Improved transit will be implemented, including a new system of streets, bicycle and pedestrian routes; and
- Particular regard for the context provided for redevelopment in the Fort York Neighbourhood by public and private initiatives in the larger Garrison Common North and Railway Lands West areas, in order to ensure its integration into this larger area and to promote the creation of a larger system of linked public open spaces.

Garrison Common North Secondary Plan

The Garrison Common North Secondary Plan area is bounded by Queen Street to the north, Dufferin Street to the west, Bathurst Street to the east and Metrolinx track/Gardiner Expressway to the south.

Some of the key Plan objectives for new developments include:

- Be integrated into the established city fabric in terms of streets and blocks, uses and density patterns;
- Enhance the public open space system;
- Include a variety of land use and densities including community services and facilities;
- Provide a range of housing types; and
- Be sensitive to and protect industrial, communications and media operations.

King-Spadina Secondary Plan

The King-Spadina Secondary Plan area is bounded by Queen Street West to the north, Bathurst Street to the west, Simcoe and John Streets to the east and Front Street to the south.

Some of the key Plan objectives include:

- New investment will be attracted to King-Spadina;
- Provide a mixture of compatible land uses;
- Retention and promotion of commercial and light industrial uses;
- Commercial activity, including retail service industry will be provided for to ensure the necessary services for new residents and businesses in the area; and
- Heritage buildings will be retained, restored and re-used.

3.5.2.3 Physical Neighbourhood Composition

Land Use and Built Form Patterns

The Ontario Line West Study Area is located within the neighbourhoods of South Parkdale, Niagara, and Waterfront Communities-The Island. These neighbourhoods are primarily residential and commercial. Some of the notable local landmarks in the South Parkdale, Niagara, and Waterfront Communities-The Islands neighbourhoods include:

- Budapest Park;
- Marilyn Bell Park;

- Canadian National Exhibit Fairgrounds;
- Ontario Place;
- Enercare Centre;
- BMO Field;
- Coronation Park; and
- Fort York National Historic Site.

Liberty Village/Fort York Sub-Area

The Liberty Village/Fort York Sub-Area is a culturally significant area of Toronto with a true mix of land use and built form. This Sub-Area is known for unique built landscapes such as the Fort York Historic Site and the mix of land use and built form in Liberty Village. The street fabric generally follows an urban grid pattern (i.e., Dufferin, King, Strachan) with Fort York Boulevard as an east-west winding road at the southern side of Fort York Historic Site.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

Downtown West Sub-Area

The Downtown West Sub-Area is a distinguished part of the city with some of the main arterial roads in west of Yonge Street (i.e., King West, Queen West, Spadina, Bathurst). This Sub-Area also has a mix of uses and architecture types, with building heights ranging from single storey to high-rise, constructed over more than a century and still growing. The main arterials are characterized as intensified corridors that maintain their character, having mixed-use buildings with ground-level commercial and residential in the storeys above.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

3.5.2.4 Transit and Transportation Network

Transit

Existing

The Ontario Line West Study Area is served by both local and regional transit networks through a range of train, subway, streetcar, and bus options. All transit routes that can be accessed within the Ontario Line West Study Area are described in **Table 4-1** of **Appendix B4**.

Planned

The King-Liberty SmartTrack station on the Metrolinx Kitchener Rail Corridor will be a focal point for a dense urban neighbourhood that has developed over the past 15 years, providing local residents fast and frequent transit access to downtown Toronto. The station itself will bridge the divide between the north and south sides of the rail corridor, by completing missing links in the pedestrian and cycling networks. Pedestrians and cyclists will also be able to use these links to access the station itself. There will be integration with existing 504 King, 501 Queen, 508 Long Branch streetcars, as well as 63 Ossington and 29 Dufferin bus routes. Enhanced connections to the existing Exhibition GO Station are also planned to provide an important link between SmartTrack and the Metrolinx Lakeshore West Rail Corridor.

The Spadina-Front GO Station on the Metrolinx Barrie Rail Corridor is expected to be a busy destination station, surrounded by existing and proposed office and residential towers, and integrated with the 510 Spadina and 504 King Streetcars. Planning and design of the station is being co-ordinated with the City's proposed Rail Deck Park to be built above the rail corridor, with station access from the park above to the station platforms below. The main station entrance is planned for the intersection of Spadina Avenue and Front Street West.

In April 2019, the City of Toronto and Toronto Transit Commission decided to proceed with procurement and construction for a streetcar connection between Exhibition Loop and Dufferin Gate Loop to serve as the first part of a future Waterfront West LRT (a proposed streetcar route) (City of Toronto, 2019b).

As part of the GO Expansion program, Metrolinx is undertaking improvements at Exhibition GO Station. The upgrades to the station will include extended platform canopies, the installation of new tracks for future use, the completion of the north entrance building, and new tunnels to get in and out of the Exhibition Grounds. The expected completion for this upgrades is 2023. The upgrades to Exhibition GO Station are being completed in the following three phases:

- Investment Package A includes improvements to the central tunnel and connecting public realm on both the north side and south sides of the corridor to support access, enhance wayfinding and improve pedestrian flow.
- Investment Package B involves a new western tunnel to improve access to employment areas on the west side of Liberty Village, connect users to the western BMO field bleachers and connect with the key pedestrian connections linking the station south to Ontario Place. This new tunnel is intended to reduce pressure from the existing tunnel during major events.

- Investment Package C will include a new eastern tunnel to improve connections to the station for residents of Liberty Village and support access to the Ricoh Coliseum and Exhibition Place. This new entrance would also support access and transfers between the station and streetcar services.

Pedestrian and Cycling Network

Existing

In addition to transit, the Ontario Line West Study Area contains both on-street cycling facilities and trails. The Downtown West Sub-Area contains a significant east-west cycling corridor along Richmond and Adelaide, allowing cyclists and pedestrians dedicated corridors to travel across the downtown core. This network supports access to the main-street retail uses as well as amenities throughout the neighbourhoods.

The Liberty Village/Fort York Sub-Area pedestrian and cycling network is primarily served by trails⁷ spanning through the Fort York Historical Site and crossing under the Gardiner Expressway and over the Metrolinx rail tracks. These trails play a pivotal role in the connectivity of Fort York residents to the rest of the downtown core, providing access to retail and services. Moving west, Liberty Village does not have any dedicated cycling facilities but does have a wide network of roadways and pathways to allow for cycling and pedestrian access.

Planned

In terms of the planned cycling network, a study is underway for a cycling network adjacent to the Metrolinx rail tracks (City of Toronto, 2019c). Planned cycling connections within the Ontario Line West Study Area include new on-street facilities on Niagara Street, Douro Street, Sudbury Street, and Palmerston Boulevard and renewed on-street facilities on Richmond Street and Adelaide Street (City of Toronto, 2019c).

3.5.2.5 Public Realm Characteristics

Liberty Village/Fort York Sub-Area

This Sub-Area can be characterized by three main public realms: Liberty Village, Exhibition Place, and Fort York and Garrison Common.

Liberty Village

Liberty Village is a former brownfield site that was redeveloped into a fast-growing, mixed-use community located between Dufferin Street and Strachan Avenue, with King Street West to the north and Exhibition Place to the south.

7. A trail, as opposed to a multi-use pathway, is a destination or an attraction itself. (City of Toronto, 2020).

Exhibition Place

Exhibition Place is a 192-acre property in Toronto, established in 1879 and known as one of Canada's largest entertainment venues as a leading destination for trade and consumer shows, including the Canadian National Exhibition. Exhibition Place attracts more than 5.5 million visitors per year (Exhibition Place, n.d.).

In 2019, a Cultural Heritage Landscape Assessment was completed for Exhibition Place, which includes recommendations for rehabilitation of the public realm. The Cultural Heritage Landscape Assessment also recommended that Exhibition Place be identified as a significant cultural heritage landscape in the City's Official Plan with a specific Conservation Plan and Urban Design Guidelines recommended for the site.

Fort York and Garrison Common

Fort York and Garrison Common is a historical site that has developed a public realm centred on the Fort York National Historic Site with connections from Bathurst Street to Strachan Avenue under the Gardiner Expressway.

Downtown West Sub-Area

This Sub-Area can be characterized by two main public realms: King Street West and Queen Street West.

As a result of the TOcore initiative, there is also a current proposal for Rail Deck Park to be built over the rail corridor between Bathurst Street and Blue Jays Way.

King Street Transit Priority Corridor Pilot Project

In 2017, the City of Toronto initiated the King Street Transit Priority Corridor Pilot Project, which originated from TOcore. The Project prioritizes the needs of pedestrians, cyclists, and transit users in the King West area. As part of the Project, new raised transit stop platforms were installed on King Street at Portland Street and Peter Street. Platforms of this type are the first in Canada and are considered an international best practice for transit stops, improving safety for cyclists, streetcar riders and drivers along King Street. The other benefits of raised transit stop platforms include:

- Improved accessibility by making it easier to board/exit streetcars;
- Eliminates drainage/water pooling issues in the waiting zone; and
- Clearly marked zones for cyclists and pedestrians.

Rail Deck Park

The City reviewed its parks and public realm as part of the TOcore initiative and the development of the Downtown Plan in 2014 to identify where needs and opportunities exist to expand and enhance parkland. This study identified a need for expanded parkland in the Downtown to serve growing populations and maintain livability. In 2016, Council endorsed a proposal for a new major park, known as Rail Deck Park, to be built over the rail corridor between Bathurst Street and Blue Jays Way with the objective of transforming the unused air space into a new gathering space for recreation, culture, and celebration.

Queen Street West

Queen Street West is one of the most travelled corridors in Toronto, by residents and visitors. With a world-class commercial district, Queen Street is in the heart of downtown and is well known to locals and tourists. This corridor is one of the most highly developed areas of the city with a mature and established public realm that is not a priority for improvements in the city, based on the lack of focused planning initiatives in the area. The street is characterized by wide sidewalks to accommodate constant pedestrian activity with street trees that provide shade and aesthetic features.

3.5.2.6 Community Amenities

Existing Services and Facilities

Institutional Uses

There are two schools and two places of worship located in the Ontario Line West Study Area (**Table 3-39**, **Figure 3-37**).

Table 3-39: Institutional Uses within the Ontario Line West Study Area

| Feature Type | Map ID | Feature Name | Address |
|------------------|--------|------------------------------------|--------------------------|
| School | 17 | ALPHA Alternative Junior School | 20 Brant Street |
| School | 18 | Oasis Alternative Secondary School | 20 Brant Street |
| Place of Worship | 15 | St. Mary's Church | 588 Adelaide Street West |
| Place of Worship | 16 | St. Stanislaus Kostka Church | 12 Denison Avenue |

Figure 3-37: Community Amenities – Ontario Line West Study Area



Recreational Uses, Parks and Open Spaces

Parks and open spaces within the Ontario Line West Study Area are of various sizes and provide a range of services and facilities for these neighbourhoods **Table 3-40, Figure 3-37**).

Table 3-40: Recreational Uses, Parks and Open Spaces within the Ontario Line West Study Area

| Feature Type | Map ID | Feature Name | Address |
|----------------------|--------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Parks and Open Space | 7 | Melbourne Avenue Parkette | 7 Melbourne Avenue |
| Parks and Open Space | 6 | Dufferin and King Park | 256 Dufferin Street |
| Parks and Open Space | 11 | Ordnance Park | N/A – east side of Strachan Avenue, between the Metrolinx Milton/Kitchener rail corridor and Metrolinx Lakeshore West rail corridor |
| Parks and Open Space | 9 | Garrison Common | 100 Garrison Road |
| Parks and Open Space | 4 | Old Fort York | 250 Fort York Boulevard |
| Parks and Open Space | 2 | Old Fort York | 250 Fort York Boulevard |
| Parks and Open Space | 12 | Alex Wilson Community Garden | 556 Richmond Street West |
| Parks and Open Space | 13 | St. Andrew's Playground | 450 Adelaide Street West |
| Parks and Open Space | 5 | St. Patrick's Square | 14 St. Patrick's Square |
| Parks and Open Space | 10 | Sir William Campbell House Museum | 160 Queen Street West |
| Parks and Open Space | 1 | The Bentway | 250 Fort York Boulevard |

The most notable parks and open spaces, in size and history, include the Old Fort York and Garrison Common. Metrolinx recognizes that parks and open spaces in the community are well-used by the community.

Community Groups and Resources

Community resources within the Ontario Line West Study Area provide a range of services and assistance, from daycare to housing assistance to medical support (**Table 3-41, Figure 3-37**).

Table 3-41: Community Groups and Resources within the Ontario Line West Study Area

| Library | Map ID | Feature Name | Address |
|-------------------------------------|--------|-------------------------------------------------------|--------------------------|
| Daycare | 22 | Brant Street Daycare- Alpha | 20 Brant Street |
| Daycare | 23 | Blue Butterfly Montessori School | 300 Richmond Street West |
| Daycare | 23 | Kinder College Early Learning Centre | 218 Richmond Street West |
| Daycare | 25 | City Kids Early Learning and Child Care Centre | 34 Bathurst Street |
| Housing | 19 | Fort York Residence | 38 Bathurst Street |
| Housing | 20 | Niagara Neighbourhood Housing Co-operative | 180 Niagara Street |
| Housing | 21 | Portland Place Non-Profit Housing | 163 Portland Street |
| Community Resources | 22 | Queen West – Central Toronto Community Health Centres | 168 Bathurst Street |
| Community Resources | 14 | Evangel Hall Mission | 552 Adelaide Street West |
| Community Resources | 26 | Friends of Fort York | 250 Fort York Boulevard |
| BIAs and Neighbourhood Associations | 23 | Liberty Village BIA | 67 Mowat Avenue #104 |
| BIAs and Neighbourhood Associations | - | Liberty Village Residents' Association (LVRA) | N/A |

There are three daycares within the Ontario Line West Study Area. These daycares are within the Downtown West Sub-Area.

There are also three housing co-operatives within the Downtown West Sub-Area. These are non-profit organizations that range from homeless shelters to subsidized housing.

Evangel Hall Mission is a Toronto-based charity that helps homeless and socially isolated individuals find a safe haven from the streets.

Central Toronto Community Health Centre (Queen West) is a publicly funded community-based health clinic located at the corner of Queen Street West and Bathurst Street. The Centre offers a broad range of services, including primary health care, dental care, harm reduction, health promotion, counselling, and community development programming.

The following community groups operate within the Ontario Line West Study Area:

- Liberty Village BIA;
- Liberty Village Residents' Association; and
- Evangel Hall Mission.

The Liberty Village BIA and Liberty Village Residents Association work closely together to improve the Liberty Village public realm and future development.

Planned Services and Facilities

There are no plans for new services and facilities, nor upgrades to existing services and facilities within the Ontario Line West Study Area.

3.5.2.7 Neighbourhood Demographics

The Ontario Line West Study Area contains three Census neighbourhoods:

- South Parkdale,
- Niagara, and
- Waterfront Communities-The Island.

As mentioned in **Section 3.5.1**, these Census neighbourhoods were considered individually, as well as collectively, in comparison with overall Toronto demographics. This information is summarized in the subsections below. Detailed neighbourhood demographics information is provided in **Appendix B4**.

Demographic Profile

The City of Toronto experienced a total population growth of approximately 4.5% between 2011 and 2016. In contrast to the neighbourhoods within the Ontario Line West Study Area, the population has increased at a substantially greater rate in Niagara and Waterfront Communities-The Island, which approximately doubled in size. South Parkdale experienced a minor population increase (less than the city's overall growth), and only amongst working adults.

In 2016, the 25 to 64 age group formed the largest proportion of the population with more than half of the total population in the Ontario Line West Study Area neighbourhoods. When compared to the entire city, these neighbourhoods have less individuals in the 0 to 14, 15 to 24 and 65+ age groups.

The population within the Ontario Line West Study Area is divided relatively evenly between females and males, which is consistent within the trend in each neighbourhood as well as in the City of Toronto.

Compared with the entire city, the Ontario Line West Study Area residents have generally attained a higher education, especially in Waterfront Communities-The Island and Niagara. South Parkdale is generally lower than the city's average in attainment of Bachelors' degrees and higher.

The average household size in the Ontario Line West Study Area neighbourhoods is lower than the average household size in the City of Toronto. Like Toronto, the neighbourhoods have on average experienced a decrease in housing size, except for the Waterfront Communities-The Island, which has experienced a very minor increase. South Parkdale has seen the most significant decrease, more than double that of the City's household size decrease.

While Niagara and Waterfront Communities-The Island are very similar to the average and median in Toronto, South Parkdale has a significantly lower average household income (almost half that of Toronto and the other two neighbourhoods).

Economic Profile

Employment

Three quarters of the population of this segment are employed and one fifth are not in the labour force. The highest percentage of employed population is within the Niagara neighbourhood, and all three neighbourhoods exceed the City's employment rate. Although the entire Ontario Line West Study Area shares a similar percentage of unemployed population, the percentage of people not in the labour force is consistently lower than the City's average across all neighbourhoods.

Commuting Patterns

Considering the data related to household commute patterns, this segment has a large dependency on public transit and active transportation, far outpacing the automobile. The Ontario Line West Study Area has the same public transit usage as the City as a whole, but only about half of the automobile use, and almost triple the active transportation (walking and cycling). Trends vary between the three neighbourhoods, with South Parkdale largely dependent on public transit, Niagara being evenly split between automobile, public transit and active transportation, and Waterfront-The Island Communities largely dependent on active transportation.

3.5.2.8 Future Development

There were 46 active development applications within the Ontario Line West Study Area as of June 25, 2020. These applications are mostly for residential and commercial uses, which range from low/medium/high rise towers to medium-density townhomes across a spectrum of tenure.

The majority of these developments (39 of 46) are located in the Downtown West Sub-Area and are primarily for residential (condominium) development. These applications are heavily concentrated in the between Bathurst Street and Spadina Avenue. These

developments, if constructed, will contribute to the continuous intensification of King Street West and surrounding streets over the coming years, which is consistent with the Growth Plan's targets for Downtown Toronto.

There are six developments located within the Liberty Village/Fort York Sub-Area, which range from recreation centre improvements to medium/high rise condominium developments.

Of the 46 applications within the Ontario Line West Study Area, 9 have been approved. The approved applications vary from condominium to hotel to commercial developments.

The complete list of active development applications is provided in **Appendix B4**.

3.5.3 Ontario Line South

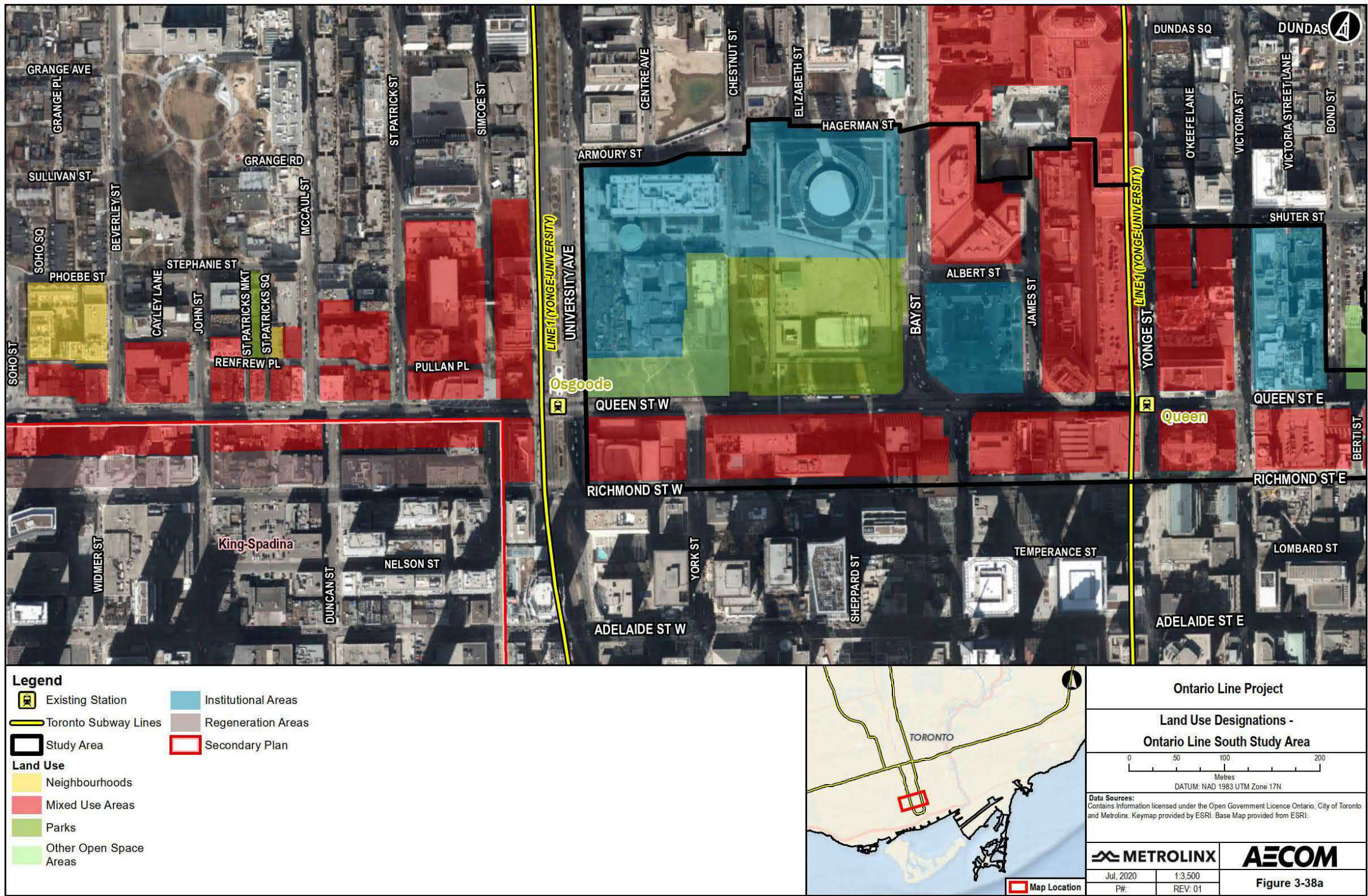
3.5.3.1 Land Use Designations

The following subsections characterize the pattern of these designations within the Study Area. Each land use designation is defined in Section 3.2.1.2 of **Appendix B4**.

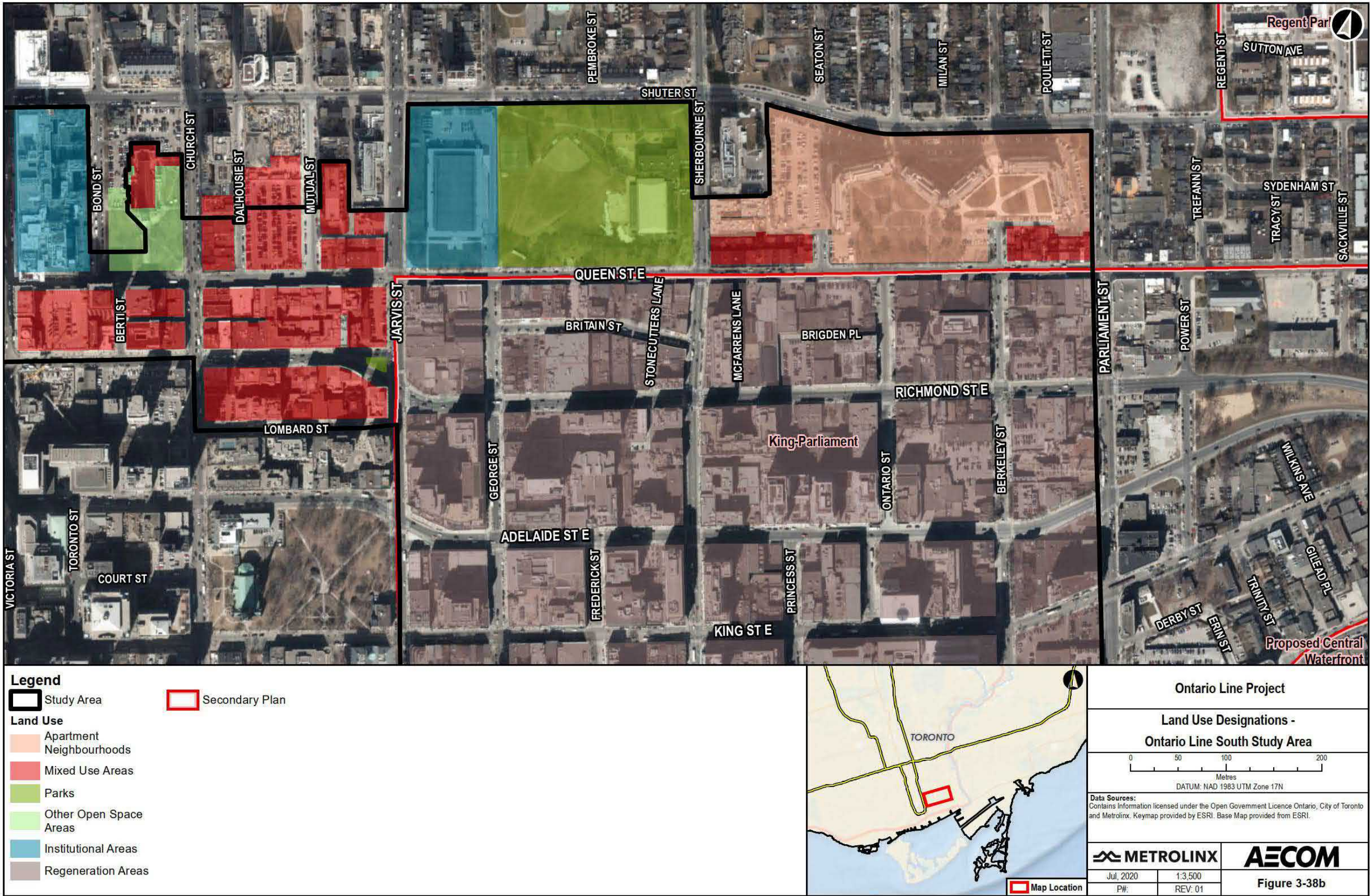
Downtown East Sub-Area

The Downtown East Sub-Area stretches from the Line 1 Osgoode Station along Queen Street and extends south between Jarvis Street and Parliament Street to its southern extend of the Metrolinx rail tracks. Properties along the Downtown East Sub-Area are primarily designated Mixed-Use Areas and Regeneration Areas, with pockets of Institutional Areas, Apartment Neighbourhoods in the Sub-Area. There are pockets of Parks and Open Spaces throughout the Sub-Area. Due to the density of this Sub-Area, the corridor will be fully underground for this segment (**Figure 3-38**).

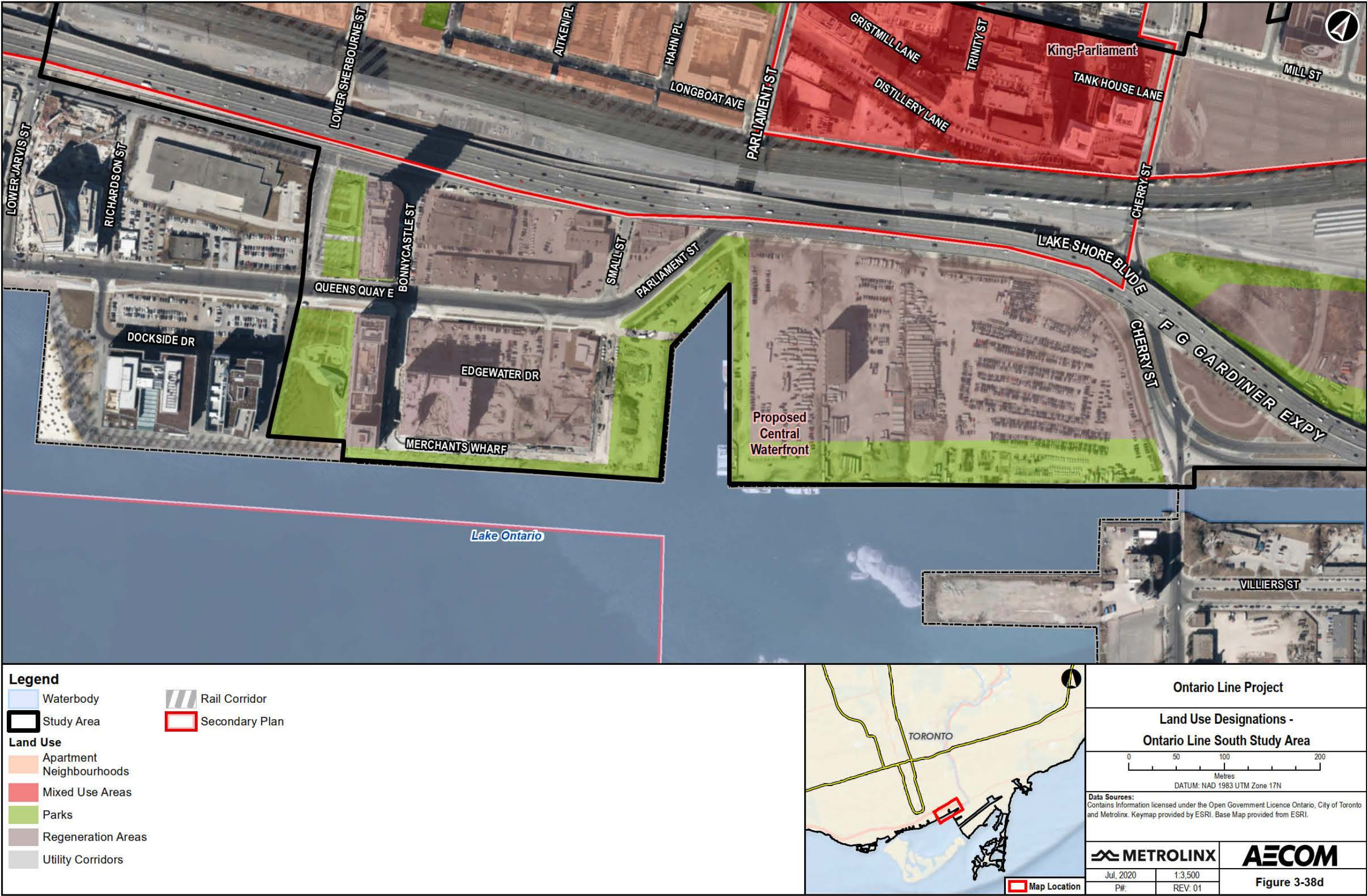
Figure 3-38: Land Use Designations – Ontario Line South Study Area⁸

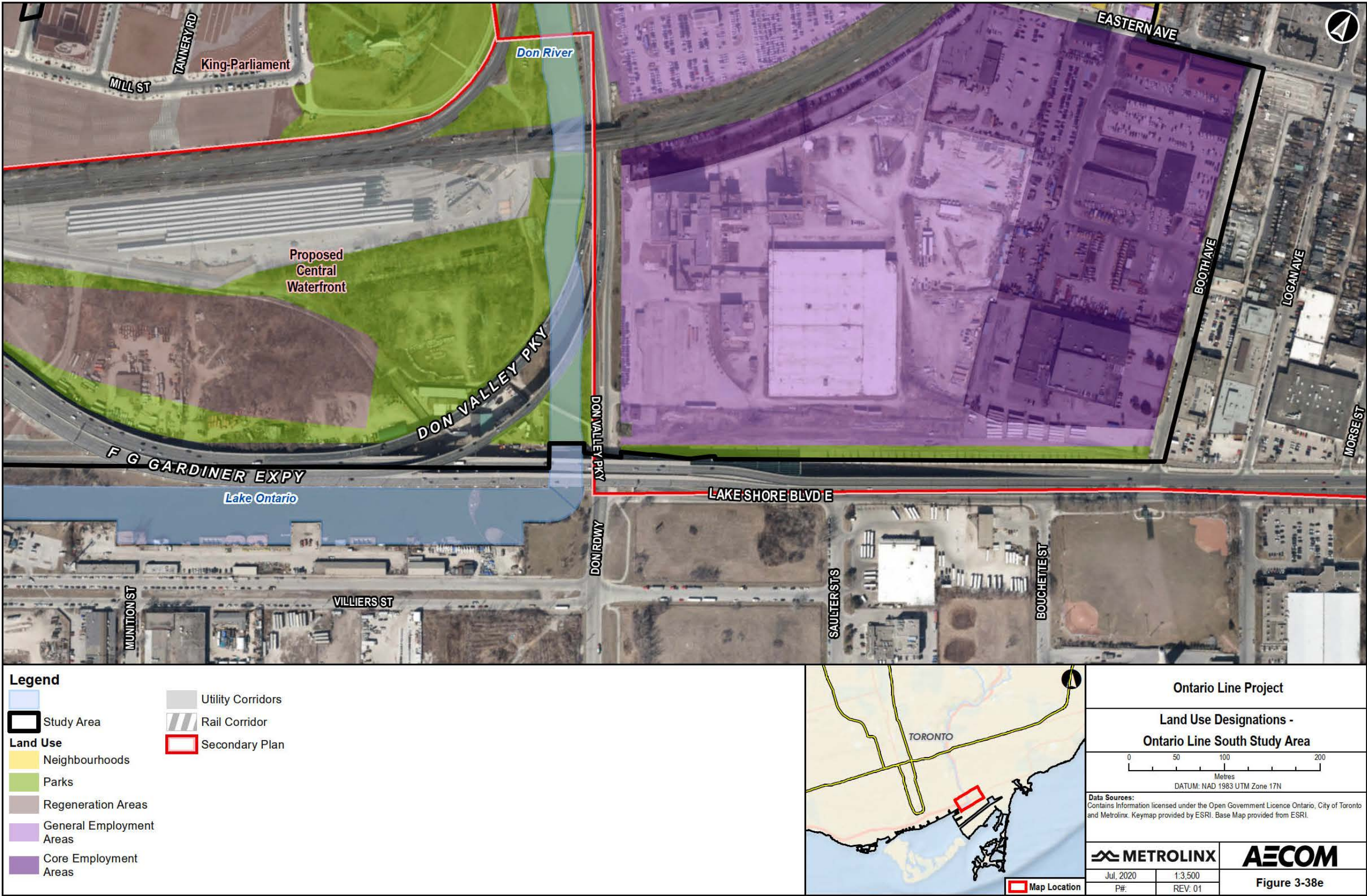


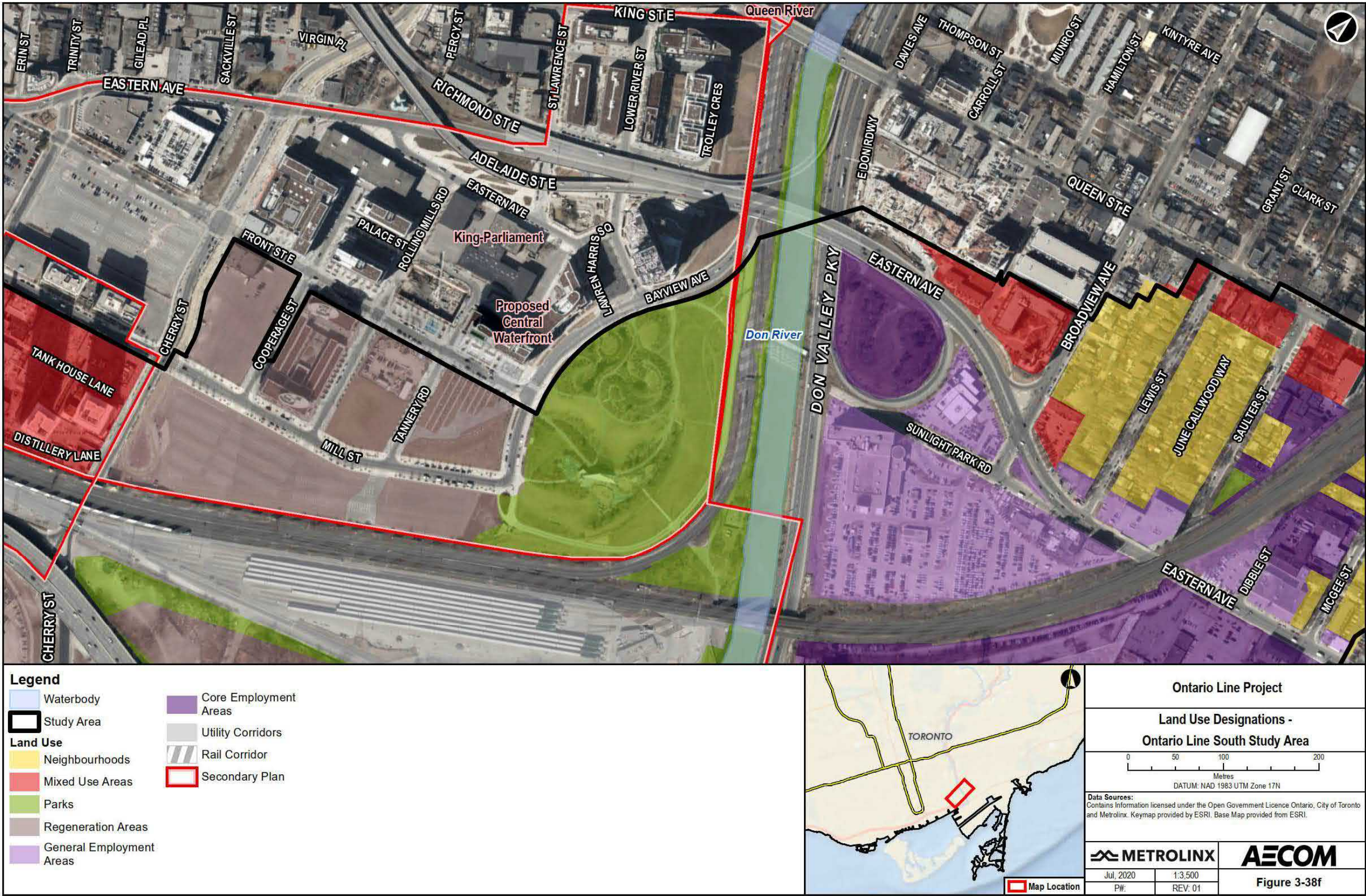
8. Source of land use designations: City of Toronto, 2019. Official Plan – Map 18 Land Use Plan. Available: https://www.toronto.ca/wp-content/uploads/2017/11/97fe-cp-official-plan-Map-18_LandUse_AODA.pdf



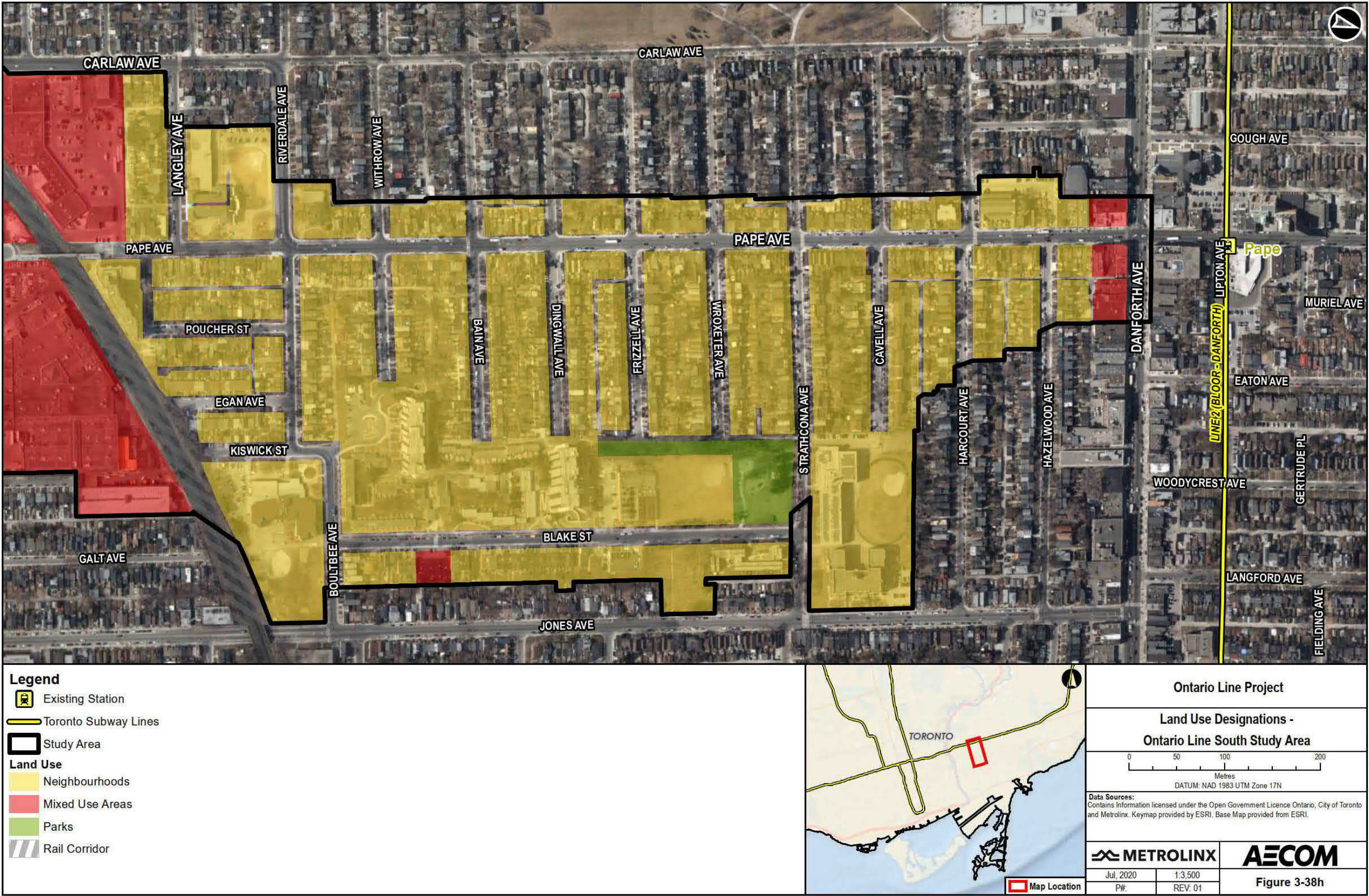












West Don Lands/Industrial Sub-Area

The West Don Lands/Industrial Sub-Area is comprised of lands east of Parliament Street, south of Queen Street, and west of Logan Avenue, extending until Lakeshore Boulevard. Most of the lands within this Sub-Area are designated as Regeneration Areas, General Employment and Core Employment, with a small pocket of Neighbourhoods and Mixed-Use Areas near Queen Street. There are small pockets of parks throughout the Sub-Area, as well as a larger portion of land designated for Parkland splitting the Sub-Area, which corresponds with the Don River and its associated natural features. A Hydro Corridor runs through the parkland along the Don River (**Figure 3-38**).

East End Residential Sub-Area

The Lower Don Residential Sub-Area is bound by Queen Street East in the south and Pape Station in the north, between Boulton Avenue at the most western extent and Jones Avenue in the most western extent. The majority of lands within this Sub-Area are designated as Neighbourhoods, with a General Employment Area along Carlaw Avenue between Queen Street and Gerrard Street, and Mixed-Use Areas along Queen Street and Gerrard Street. Jimmie Simpson Park, which is located north of Queen Street and south of Dundas Street between Wardell Street and Booth Avenue, is a popular park and recreation centre and a prominent feature in this Sub-Area. Smaller-sized parks are distributed throughout the Sub-Area (**Figure 3-38**).

Applicability to the Project

The Ontario Line South Study Area contains a diverse range of land use designations, with mixed-use and commercial focused more in the Downtown East Sub-Area, and residential neighbourhoods and parks focused in the West Don Lands / Industrial Sub-Area and East End Residential Sub-Area. These land uses will benefit from increased transit accessibility, with special attention to historic neighbourhoods to ensure that heritage attributes and character are preserved. Parks and Natural Areas must also be carefully considered during detailed design to mitigate potential impacts to their natural and social functionality within the context of the environment.

3.5.3.2 Secondary Plans

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. All the policies of the Official Plan apply to the areas subject to Secondary Plans contained in Chapter 6, except in the case of a conflict, where the

Secondary Plan policy will prevail. The following sections list the Secondary Plans within the Study Area and their applicability to the Project.

The following Secondary Plans are applicable to the Ontario Line South Study Area:

- Central Waterfront; and
- King-Parliament.

Central Waterfront Secondary Plan

Refer to **Section 3.5.2.2** for information related to Central Waterfront Secondary Plan.

King-Parliament Secondary Plan

The King-Parliament Secondary Plan area is bounded by Queen Street East to the north, Jarvis Street to the west, the Don River to the east and the Metrolinx rail tracks to the south.

The City currently undergoing a review of the King-Parliament Secondary Plan to build on the planning framework of the Downtown Plan and provide specific direction on built form, heritage, and the public realm.

Key objectives of the King-Parliament Secondary Plan include:

- New investment will be attracted to King-Parliament;
- Growth of commercial, institutional, industrial, light industrial, entertainment, recreational, residential and live/work activities;
- The retention and re-use of existing buildings, specifically heritage buildings;
- Creation of good quality working and living environments; and
- Retaining the physical character, including structure of its public streets and open spaces.

The King-Parliament Secondary Plan is currently under review since its original adoption in 1996. In October 2019, the City considered a Proposed Secondary Plan amendment for the King-Parliament Secondary Plan which builds on the framework of the Downtown Plan (Official Plan Amendment 406) adopted by City Council in May 2018. Following the recommendation for further public and stakeholder consultation, a recommended Secondary Plan and Zoning By-law will be considered by City Council adoption by the end of 2020. The following objectives may supersede those of the current King-Parliament Secondary Plan, if approved:

- Support and enhance the employment cluster in the King-Parliament area;
- Conserve heritage properties;

- Improve and expand park and the public realm; and
- Simplify interpretation of overlapping policy frameworks.

3.5.3.3 Physical Neighbourhood Composition

Land Use and Built Form Patterns

The Ontario Line South Study Area is located within the neighbourhoods of Bay Street Corridor, Church-Yonge Corridor, Moss Park, South Riverdale, North Riverdale, and Blake-Jones. The neighbourhoods are primarily residential and commercial, with the exception of South Riverdale being primarily industrial.

Some of the notable local landmarks in the Bay Street Corridor, Church-Yonge Corridor, and Moss Park neighbourhoods include:

- Nathan Phillips Square;
- City Hall;
- Osgoode Hall;
- Moss Park;
- Corktown Common;
- Massey Hall;
- Metropolitan United Church;
- Distillery District;
- Lower Don Trail;
- Jimmie Simpson Park; and
- Withrow Park.

Downtown East Sub-Area

The Downtown East Sub-Area is similar to Downtown West with respect to the street pattern and mix of uses, although this Sub-Area is generally not as dense as Downtown West. East of Yonge Street, densities begin to drop and there are more areas of single-storey commercial with surface parking (e.g., Staples at King Street East and Berkeley Street).

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

West Don Lands/Industrial Sub-Area

The West Don Lands/Industrial Sub-Area includes the Distillery District, the West Don Lands and Lower Don Trail within the Don Valley. Unlike the other sub-areas, this Sub-Area includes a large open space feature: The Don Valley. The Don Valley is a historic natural landscape that has been altered over the last century to accommodate Toronto's urbanization and large population. Surrounding the Don River and the Don Valley, the Don Valley Parkway was constructed in 1961 as a municipal expressway connecting the Gardiner Expressway and Highway 401.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

East End Residential Sub-Area

The East End Residential Sub-Area is characterized as having mainly medium-density housing, such as townhouses, and single-storey retail plazas with surface parking. Queen Street East is known for its quaint, small town aesthetic as a gateway into the old East York community.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

3.5.3.4 Transit and Transportation Network

Transit Network

Existing

The Ontario Line South Study Area is served by primarily a local transit network through a range of subway, streetcar, and bus options. While the Metrolinx Lakeshore East, Stouffville and Richmond Hill rail corridors are present within the Ontario Line South Study Area, there are no stations located within the Ontario Line South Study Area. Subway Line 1 can be accessed directly via Osgoode Station and Queen Station and Line 2 can be accessed directly via Pape Station. All transit routes that can be accessed within the Ontario Line South Study Area are described in Table 4-2 of **Appendix B4**.

Planned

In November 2017, Metrolinx received Notice to Proceed with the Lakeshore East Rail Corridor Expansion (Don River to Scarborough Station) Transit Project Assessment Process which involves addition of a fourth rail track and other improvements to support increasing service and maintaining service reliability between the Don River Bridge and Scarborough GO Station.

The Gerrard-Carlaw SmartTrack Station on the Metrolinx Lakeshore East/Stouffville Rail Corridor, located in the heart of historic Leslieville, is being planned as an interchange station, including shared entrances to easily access connecting transit lines. A well-connected interchange station will provide transit riders with options to access destinations in downtown and to the north and east. The main station access is planned to be located at the intersection of Gerrard Street East and Carlaw Avenue. There are plans for additional entrances on both sides of the corridor, north and south of Gerrard to provide an important linkage to the Carlaw-Dundas area which has been transforming into a vibrant mid-use creative and cultural hub (City of Toronto and Metrolinx, 2018a).

The East Harbour SmartTrack Station is located on the Metrolinx Lakeshore East/Stouffville Rail Corridors with planned pedestrian/cycling crossing over the Don River, providing new connections between two important emerging districts: the Unilever Precinct on the east side of the river, and the West Don Lands/Keating Precinct on the west side (City of Toronto and Metrolinx, 2018b). Station planning is being integrated with the Unilever Precinct Planning Study.

Waterfront East Light Rail Transit (previously studied as the East Bayfront Light Rail Transit) is a proposed Toronto Transit Commission streetcar line that would run along Queens Quay East from Bay Street to Parliament Street, connecting Union Station to the East Bayfront area. In June 2020, the Toronto Transit Commission Board approved spending \$15,000,000 over three years on design work for the expansion of the streetcar platforms at Union and Queens Quay stations and a new tunnel and portal for the East Bayfront line (Toronto Transit Commission, 2020). The Toronto Transit Commission is also considering connecting the line to Distillery Loop (Toronto Transit Commission, 2020).

Pedestrian and Cycling Network

Existing

The Ontario Line South Study Area has a range of existing pedestrian and cyclist infrastructure (i.e., bike lanes, cycle track, multi-use pathways, etc.). The Downtown East Sub-Area provides a significant east-west cycling corridor with cycle track⁹ on Richmond Street and Adelaide Street, allowing cyclists and pedestrians dedicated travel through the downtown core. Sherbourne Street has cycle track for safe north-south travel. In the Ontario Line South Study Area are also many side streets containing roadways or paths suitable for cycling and pedestrians. This network supports access to the main-street retail uses as well as amenities throughout the neighbourhoods.

9. Cycle tracks are separate (protected) lanes for bicycles that are adjacent to the roadway but separated from vehicular traffic. (City of Toronto, 2020).

The West Don Lands/Industrial Sub-Area provides an extensive network of east-west cycling infrastructure, including major and minor multi-use pathways¹⁰ along Lakeshore Boulevard, as well as a signed route along the Esplanade/Mill Street. The Lower Don Trail provides a pedestrian/cyclist crossing over the Don River, south of the GO Transit Don Yard and north of the Gardiner Expressway. Cherry Street provides direct Waterfront Trail access.

Planned

Planned cycling connections within the Ontario Line South Study Area include new and renewed on-street facilities along Richmond Street, Adelaide Street, The Esplanade, and Lakeshore Boulevard, and the Don River trails (City of Toronto, 2020).

3.5.3.5 Public Realm Characteristics

Downtown East Sub-Area

This Sub-Area can be characterized by two main public realms: Queen Street West and St. Lawrence Market Neighbourhood.

Queen Street West

On the north side of Queen Street West between University Avenue and Bay Street, the public realm includes Nathan Phillips Square, a large block of public space as the civic gateway to Toronto City Hall. Nathan Phillips Square is an urban plaza with a water feature that transforms into a public skating rink during the winter months. Nathan Phillips Square is used regularly for art exhibits, concerts, rallies, and other ceremonies.

St. Lawrence Market Neighbourhood

The St. Lawrence Market Neighbourhood is located between Yonge Street and Parliament Street, with Front Street East to the north and Lakeshore Boulevard East to the south. This neighbourhood is another historic district within Toronto, home to the St. Lawrence Market which was founded in 1803. St. Lawrence Market currently has over 200 food vendors.

West Don Lands/Industrial Sub-Area

This Sub-Area can be characterized by two main public realms: Distillery District and West Don Lands.

10. Major multi-use pathways connect different parts of the city and collect traffic from minor pathways. Minor multi-use pathways are local connections. (City of Toronto, 2020).

Distillery District

The Distillery District, similar to St. Lawrence Market, is comprised of historic industrial buildings that have been re-purposed into commercial uses with ample public space. The once derelict collection of Victorian industrial buildings was transformed from historic sites into one of the most unique and vibrant villages within the city – with art galleries, restaurants, breweries, event spaces, and businesses.

West Don Lands

The West Don Lands has been undergoing a transformation from the former brownfield into a sustainable, mixed-use, pedestrian-friendly community surrounding Corktown Common park 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 opened in 2015. Development of the community has been accelerated because a portion of the site was developed for use as the Athletes' Village for the Toronto 2015 Pan/Parapan American Games. Five historic buildings in the West Don Lands, located on Eastern Avenue, Cherry Street, and Trinity Street, have been preserved, giving the neighbourhood a mix of old and new.

East End Residential Sub-Area

This Sub-Area is characterized as having a public realm reminiscent of small towns with a strong sense of place. The neighbourhoods east of the Don River – Riverside, Riverdale, and Leslieville – are known to Torontonians as towns within the city. These areas have active communities that aim to protect and maintain the quaint, low-rise atmosphere that exists only a few kilometres from the downtown core.

3.5.3.6 Community Amenities

Existing Services and Facilities

Institutional Uses

There are eight schools, three places of worship, four libraries, and one major hospital located in the Ontario Line South Study Area (**Table 3-42, Figure 3-39**).

Table 3-42: Institutional Uses within the Ontario Line South Study Area

| Feature Type | Map ID | Feature Name | Address |
|------------------|--------|------------------------------------------------|----------------------------------------------|
| School | 9 | Downtown Alternative School | 85 Lower Jarvis Street |
| School | 11 | Market Lane Junior and Senior Public School | 246 The Esplanade |
| School | 8 | Pape Avenue Junior Public School | 220 Langley Avenue |
| School | 6 | Blake Street Junior Public School | 21 Boulton Avenue |
| School | 7 | East Alternative School of Toronto | 21 Boulton Avenue |
| School | 5 | Earl Grey Senior Public School | 100 Strathcona Avenue |
| School | 10 | Jones Avenue Adult Centre | 540 Jones Avenue |
| School | 47 | Toronto Mandarin School – Downtown | 25 Adelaide Street East #504 |
| Place of Worship | 45 | Metropolitan United Church | 56 Queen Street East |
| Place of Worship | 46 | Mother of God of Proussa Greek Orthodox Church | 461 Richmond Street East |
| Place of Worship | 44 | Church in the City | 152 The Esplanade |
| Place of Worship | 48 | St. Stephen's Chapel | 360 Bay Street #200 |
| Library | 2 | Pape/Danforth | 701 Pape Avenue |
| Library | 1 | City Hall | Nathan Phillips Square 100 Queen Street West |
| Library | 4 | St. Lawrence | 171 Front Street East |
| Library | 3 | Queen Saulter | 765 Queen Street East |
| Hospital | 12 | St. Michael's Hospital | 30 Bond Street |

Recreational Uses, Parks and Open Spaces

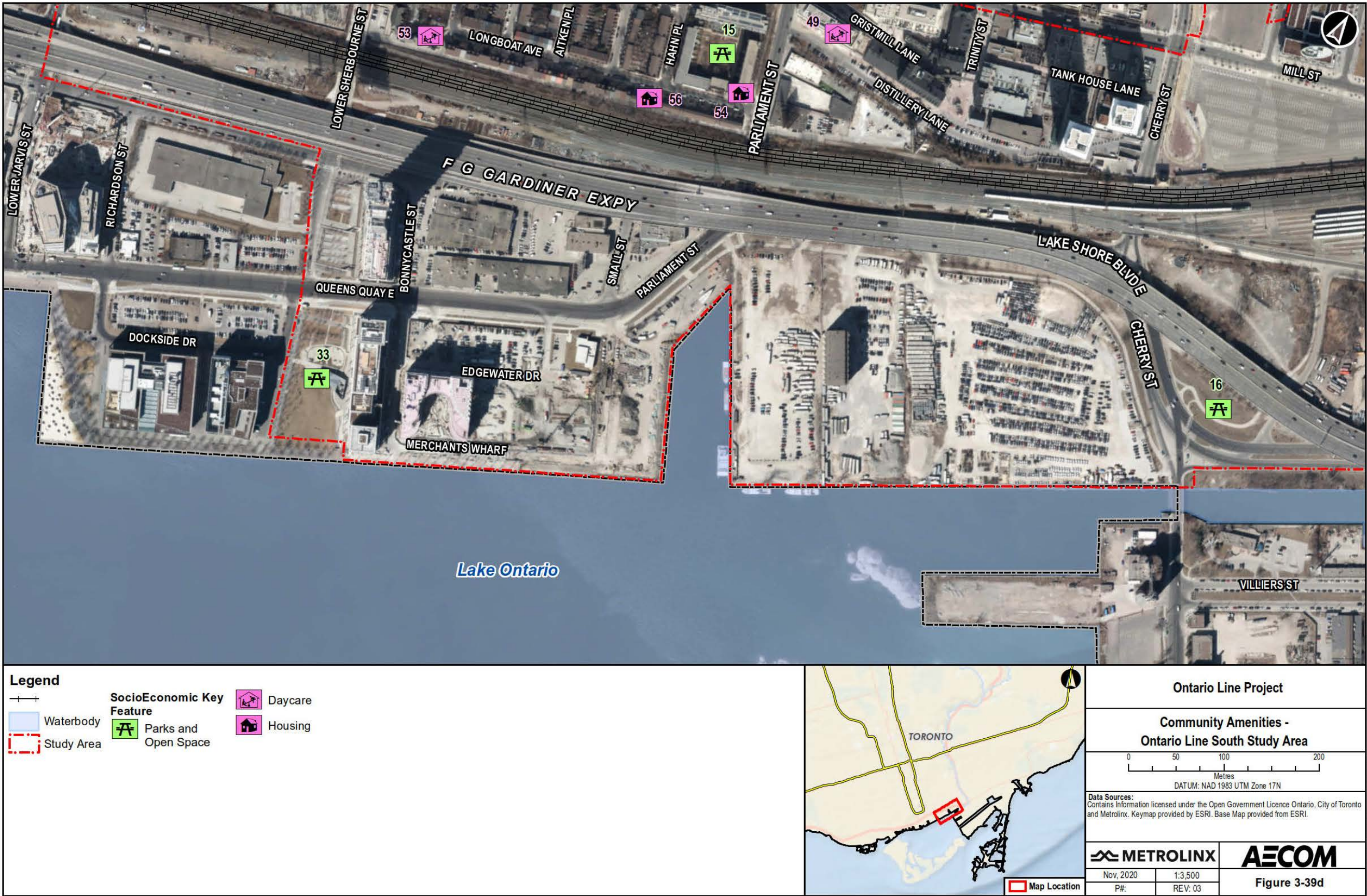
Parks and open spaces within the Ontario Line South Study Area are of various sizes and provide a range of services and facilities for these neighbourhoods (**Table 3-43, Figure 3-39**).

Figure 3-39: Community Amenities – Ontario Line South Study Area











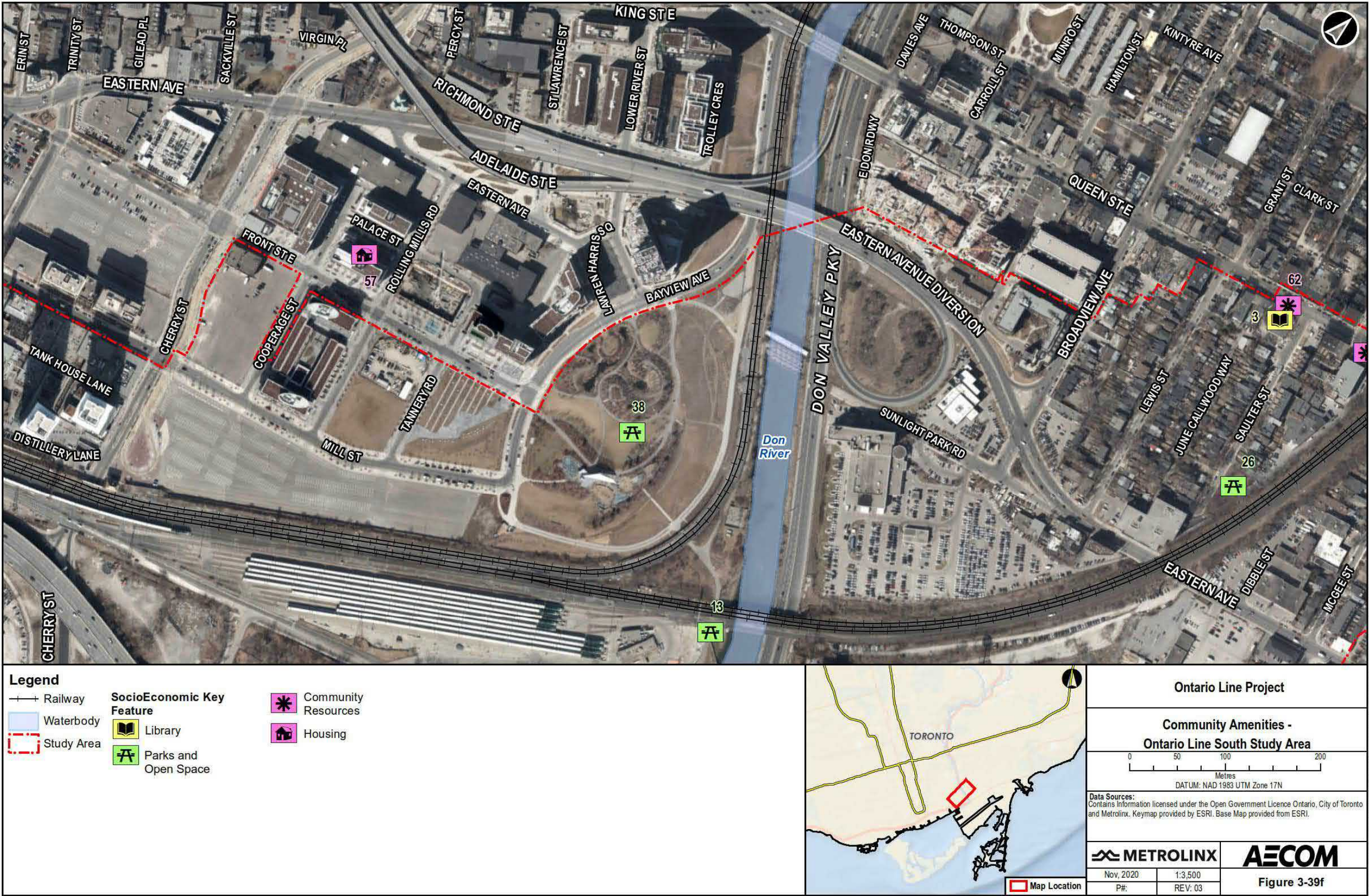






Table 3-43: Recreational Uses, Parks and Open Spaces within the Ontario Line South Study Area

| Feature Type | Map ID | Feature Name | Address |
|----------------------|--------|---------------------------------------------|----------------------------------------------------------------------------------|
| Parks and Open Space | 63 | Osgoode Hall open space | 130 Queen Street West |
| Parks and Open Space | 37 | Jones Avenue Cemetery | 462 Jones Street |
| Parks and Open Space | 43 | Kempton Howard Park | 150 Blake Street |
| Parks and Open Space | 42 | McCleary Playground | 75 McGee Street |
| Parks and Open Space | 23 | Jimmie Simpson Park | 870 Queen Street East |
| Parks and Open Space | 34 | Bruce Mackey Park | 55 Wardell Street |
| Parks and Open Space | 28 | Tiverton Avenue Parkette | 45 Tiverton Avenue |
| Parks and Open Space | 39 | Gerrard-Carlaw Parkette | 855 Gerrard Street East |
| Parks and Open Space | 27 | Open Space | N/A – southeast corner of Gerrard Street East and Carlaw Avenue |
| Parks and Open Space | 38 | Corktown Common | 155 Bayview Avenue |
| Parks and Open Space | 13 | Lower Don River Trail | N/A – west of the Don River, south of the Metrolinx Lakeshore East rail corridor |
| Parks and Open Space | 26 | Saulter Street Parkette | 25 Saulter Street |
| Parks and Open Space | 21 | Lower Don River Trail | N/A |
| Parks and Open Space | 20 | Lower Don River Trail | N/A |
| Parks and Open Space | 14 | Lower Don River Trail | N/A |
| Parks and Open Space | 18 | Lower Don River Trail | N/A |
| Parks and Open Space | 17 | Lower Don River Trail | N/A |
| Parks and Open Space | 40 | Lower Don River Trail | N/A |
| Parks and Open Space | 41 | Morse Street Playground | 76 Morse Street |
| Parks and Open Space | 15 | Courtyard at Centres D'accueil Heritage Les | 33 Hahn Place |
| Parks and Open Space | 33 | Sherbourne Common | 5 Lower Sherbourne Street |
| Parks and Open Space | 16 | Lower Don River Trail | N/A |
| Parks and Open Space | 22 | David Crombie Park | 131 The Esplanade |
| Parks and Open Space | 25 | Princess Street Park | 18 Princess Street |
| Parks and Open Space | 24 | David Crombie Park | 131 The Esplanade |
| Parks and Open Space | 32 | Courtyard Open Space | N/A – northwest corner of Berkeley Street and The Esplanade |
| Parks and Open Space | 31 | Parliament Square Park | 44 Parliament Street |
| Parks and Open Space | 29 | Metropolitan United Church Park | 56 Queen Street East |
| Parks and Open Space | 30 | Moss Park | 150 Sherbourne Street |
| Parks and Open Space | 35 | Campbell House Museum | 160 Queen Street West |
| Parks and Open Space | 36 | Nathan Philips Square | 100 Queen Street West |
| Parks and Open Space | 19 | Toronto Old City Hall | 60 Queen Street West |

The most notable parks and open spaces, based on size, significance, and usage include:

- Nathan Philips Square (Downtown East Sub-Area);
- Moss Park (Downtown East Sub-Area);
- Lower Don Trail (West Don Lands / Industrial Sub-Area);
- Corktown Common (West Don Lands / Industrial Sub-Area); and
- Jimmie Simpson Park (East End Residential Sub-Area).

Metrolinx recognizes that parks and open spaces in the community are well-used by the community.

Community Groups and Resources

Community resources within the Ontario Line South Study Area provide a range of services and assistance, from daycare to housing assistance to community centres (Table 3-44, Figure 3-39).

Table 3-44: Community Groups and Resources within the Ontario Line South Study Area

| Feature Type | Map ID | Feature Name | Address |
|-----------------------------------|--------|-----------------------------------------------------|-------------------------------|
| Daycare | 49 | Distillery District Early Learning Centre | 8 Distillery Lane |
| Daycare | 50 | Richmond Adelaide Child Care Centre | 130 Adelaide Street West |
| Daycare | 51 | Hester How Daycare | 100 Queen Street West |
| Daycare | 52 | Brant Street Daycare | 85 Lower Jarvis Street |
| Daycare | 53 | St. Lawrence Co-op Daycare | 2 Princess Street |
| Housing | 54 | Harmony B Housing Co-operative | 150 Longboat Avenue |
| Housing | 55 | OWN Housing Co-op | 115 The Esplanade |
| Housing | 56 | Caroline Co-operative | 93 Longboat Avenue |
| Housing | 57 | Wigwamen Housing | 75 Cooperage Street |
| Community Resources | 56 | Ontario Federation of Indigenous Friendships Centre | 219 Front Street |
| Community Resources | 58 | New Visions Toronto | 222 The Esplanade #10 |
| Community Resources | 59 | Eastview Neighbourhood Community Centre | 86 Blake Street |
| Community Resources | 62 | Ralph Thornton Community Centre | 765 Queen Street East |
| Community Resources | 63 | Mustard Seed – Fontbonne Ministries | 791 Queen Street East |
| BIAs & Neighbourhood Associations | 61 | St. Lawrence Market Neighbourhood BIA | 258 Adelaide Street East #403 |
| BIAs & Neighbourhood Associations | - | SLNA | N/A |

There are five daycares in the Ontario Line South Study Area; two are located in the Downtown East Sub-Area, and three are located in the West Don Lands / Industrial Sub-Area.

There are also four housing co-operatives and two human services organizations within the Ontario Line South Study Area. These services provide shelter and housing support to the disadvantaged and homeless population in the area.

Two community centres are located within the Ontario Line South Study Area, Eastview Neighbourhood and Ralph Thornton in the East End Residential Sub-Area serving Leslieville and South Riverdale neighbourhoods.

The following community groups operate within the Ontario Line South Study Area:

- St. Lawrence Market Neighbourhood BIA; and
- SLNA.

Planned Services and Facilities

The Parks and Recreation Facilities Master Plan 2019-2038 (City of Toronto, 2017b) recommended repurposing of Kempton Howard Park's splash pad and wading pool in the short-term.

The Toronto Public Library Facilities Master Plan (City of Toronto, 2019d) identified all 3 libraries as Named Projects within the Ontario Line South Study Area (City Hall, St. Lawrence, and Queen Saulter) in the TPL 2019-2028 Capital Plan. St. Lawrence and Queen Saulter are funded projects and City Hall is currently unfunded. St. Lawrence and City Hall both ranked within the top 10 on the prioritization list for neighbourhood libraries, ranking third and seventh, respectively.

3.5.3.7 Neighbourhood Demographics

The Ontario Line South Study Area contains 6 Census neighbourhoods:

- Bay Street Corridor;
- Church-Yonge Corridor;
- Moss Park;
- South Riverdale;
- North Riverdale; and
- Blake-Jones.

As mentioned in **Section 3.5.1**, these Census neighbourhoods were considered individually, as well as collectively, in comparison with overall Toronto demographics. This information is summarized in the subsections below. Detailed neighbourhood demographics information is provided in **Appendix B4**.

Demographic Profile

On average, the Ontario Line South Study Area neighbourhoods have experienced a greater population increase between 2011 and 2016, especially in the Bay Street Corridor and Moss Park which grew by one third and one quarter, respectively. Only North Riverdale and Blake-Jones experienced a decrease in population, which was relatively minor in both neighbourhoods. One of the most notable findings is that the population aged 15 to 24 grew by 81.9%. This growth could be attributed to post-secondary students and young professionals entering downtown Toronto's work force.

In 2016, the 25 to 64 age group formed the largest proportion of the population with more than half of the total population in the Ontario Line South Study Area neighbourhoods. North Riverdale and Blake-Jones have a higher population of children than the City-wide average.

The proportion of females and males within the Ontario Line South Study Area neighbourhoods is divided relatively equal, which is consistent within the trend in each neighbourhood as well as the City of Toronto. Church-Yonge Corridor and Moss Park have approximately 5% more males in each neighbourhood.

Compared with the entire city, all six neighbourhoods within the Ontario Line South Study Area have generally attained a higher education, especially in Bay Street Corridor.

The average household size in this area is lower than the average household size in the City of Toronto. In all Ontario Line South Study Area neighbourhoods, there has been slight increases and decreases within the six neighbourhoods, with the most notable difference being a 2.7% household size decrease in South Riverdale.

On average, household income within the Ontario Line South Study Area neighbourhoods is comparable to the average household income across the city. Within the Ontario Line South Study Area, the Church-Yonge Corridor is the lowest earning neighbourhood and North Riverdale is the highest earning neighbourhood.

Economic Profile

Additional details on the economic profile metrics described below are available in **Appendix B4**.

Employment

Two thirds of the population of this segment are employed and approximately one third are not in the labour force. The highest percentage of employed population is within the North Riverdale neighbourhood. Most of the neighbourhoods are relatively similar in terms of employment, all exceeding the City's employment rate, with the exception of the Bay Street Corridor. Although the entire Ontario Line South Study Area shares a similar percentage of unemployed population, the percentage of people not in the labour force is slightly lower than the City's average across all neighbourhoods, with the exception of the Bay Street Corridor.

Commuting Patterns

Looking at household commute patterns, this segment has a large dependency on public transit and active transportation. The Ontario Line South Study Area has the same public transit usage as the City as a whole (within 1%), but about half of the automobile use, and almost triple the active transportation (walking and cycling). Trends vary between the six neighbourhoods, with Bay Street Corridor, Church-Yonge Corridor and Moss Park having relatively low automobile usage, and high active transportation usage; whereas South Riverdale, North Riverdale and Blake-Jones have relatively high automobile usage and low active transportation usage. This speaks to the relative location of the neighbours to job locations.

3.5.3.8 Future Development

There were 54 active development applications within the Ontario Line South Study Area as of June 25, 2020. Similar to the Ontario Line West Study Area, most of these development proposals are for residential and commercial uses. The active applications are mostly concentrated around King Street East, Adelaide Street East, and Richmond Street East in the Downtown East Sub-Area, and at the Gardiner Expressway-Lakeshore Boulevard East and Don Valley Parkway ramps in the West Don Lands / Industrial Sub-Area. The majority of these developments are located in the Downtown East and West Don Lands / Industrial Sub-Areas, as opposed to the East End Residential Sub-Area which only has five current applications.

Like the applications within the Downtown West Sub-Area, proposed development in the Downtown East and West Don Lands / Industrial Sub-Areas is expected as Downtown Toronto is the most populous "urban growth centre" in Ontario.

There are five proposed developments located within the East End Residential Sub-Area, comprised of low-rise residential developments such as modifications to houses and apartment buildings under 5 storeys.

Of the 54 applications within the Ontario Line South Study Area, 11 have been approved.

The complete list of active development applications is provided in **Appendix B4**.

3.5.4 Ontario Line North

3.5.4.1 Land Use Designations

The following subsections characterize the pattern of these designations within the Study Area. Each land use designation is defined in Section 3.2.1.2 of **Appendix B4**.

Pape Sub-Area

The Pape Sub-Area stretches from the Danforth mixed-use corridor to just north of the Don River. Properties along the corridor south of Gamble Avenue are designated Mixed-Use Areas and the rear lot lines are immediately adjacent to lands designated Neighbourhoods. An exception to this pattern exists where the corridor crosses Cosburn Avenue which is designated Apartment Neighbourhoods from Donlands Avenue West to Broadview Avenue. North of Gamble Avenue the corridor is designated Neighbourhoods. There are small pockets of parks throughout the Sub-Area, as well as a larger portion of land designated Natural Areas at the northern edge of the Sub-Area, which corresponds with the Don River and its associated natural features (**Figure 3-40**).

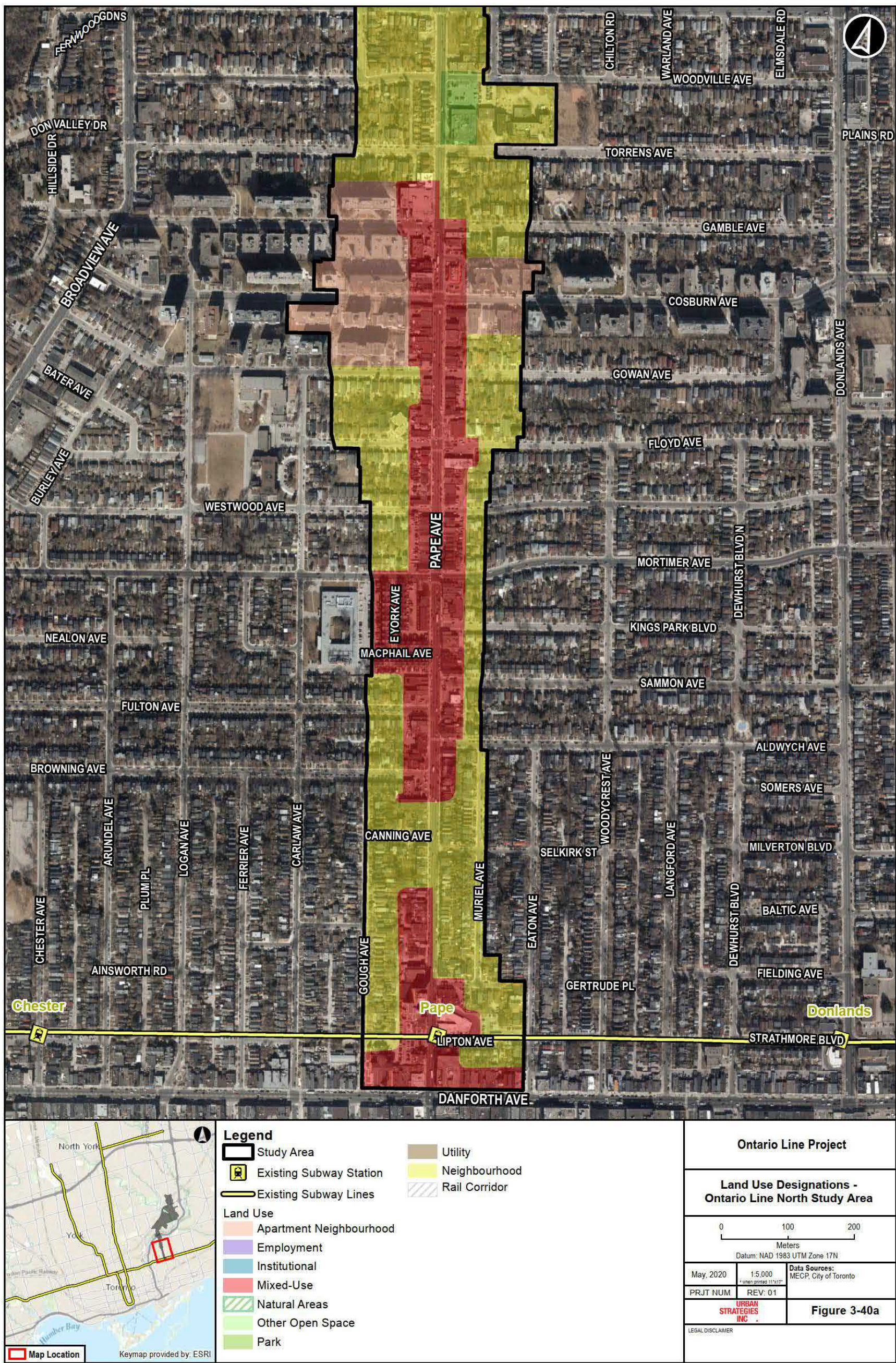
Thorncliffe Employment Sub-Area

The Thorncliffe Employment Sub-Area is comprised of lands north of Overlea Boulevard, between Millwood Road and the Charles H. Hiscott Bridge. The majority of lands within this Sub-Area are designated Employment Area and Utility Corridor, with pockets of Natural Areas throughout. The Employment Area runs along the majority of Overlea Boulevard and Beth Nelson Drive, and backs onto both the Utility Corridor and Natural Areas associated with the Don River West Branch and E.T. Seton Park (**Figure 3-40**).

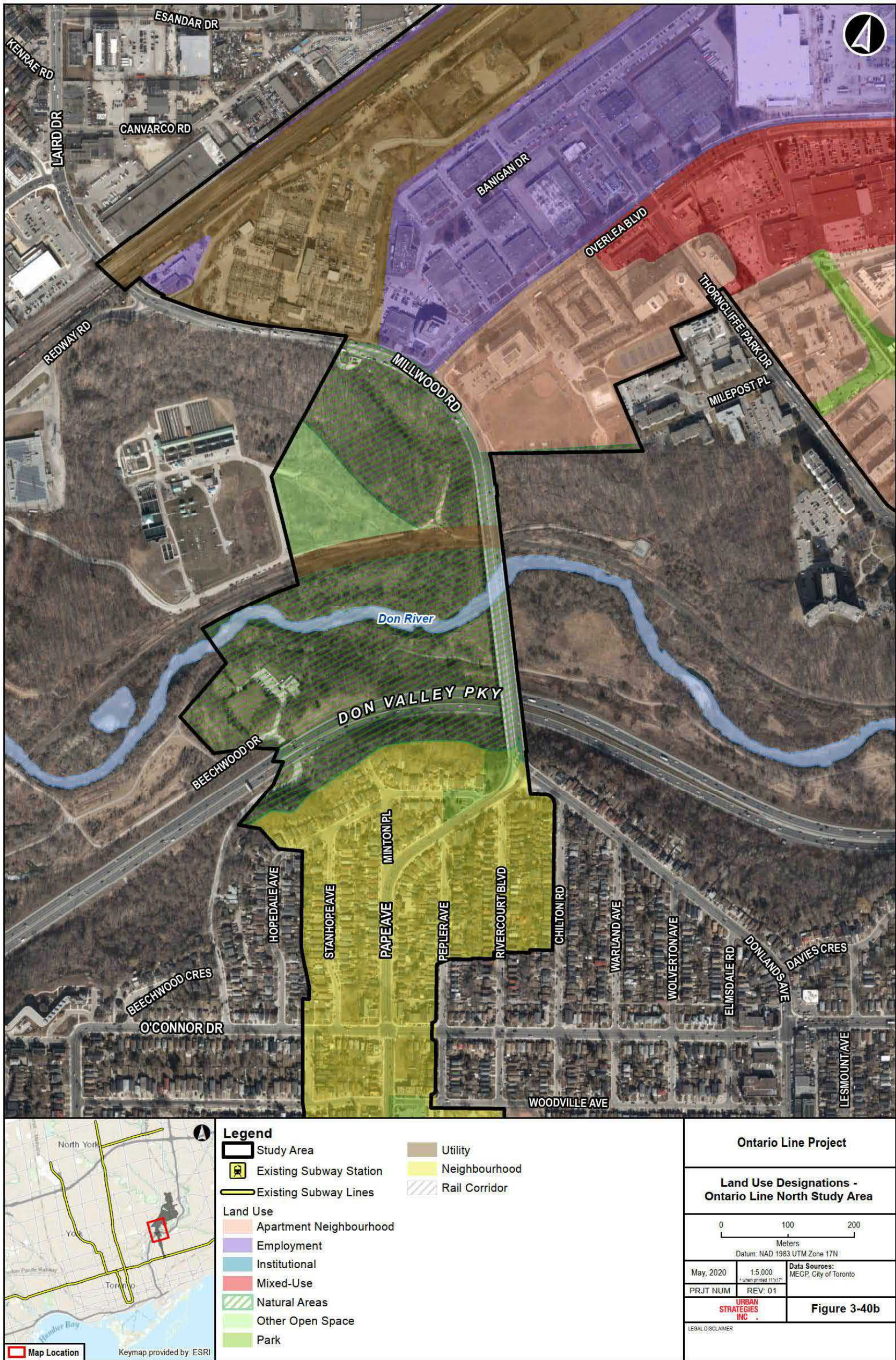
Thorncliffe Park Sub-Area

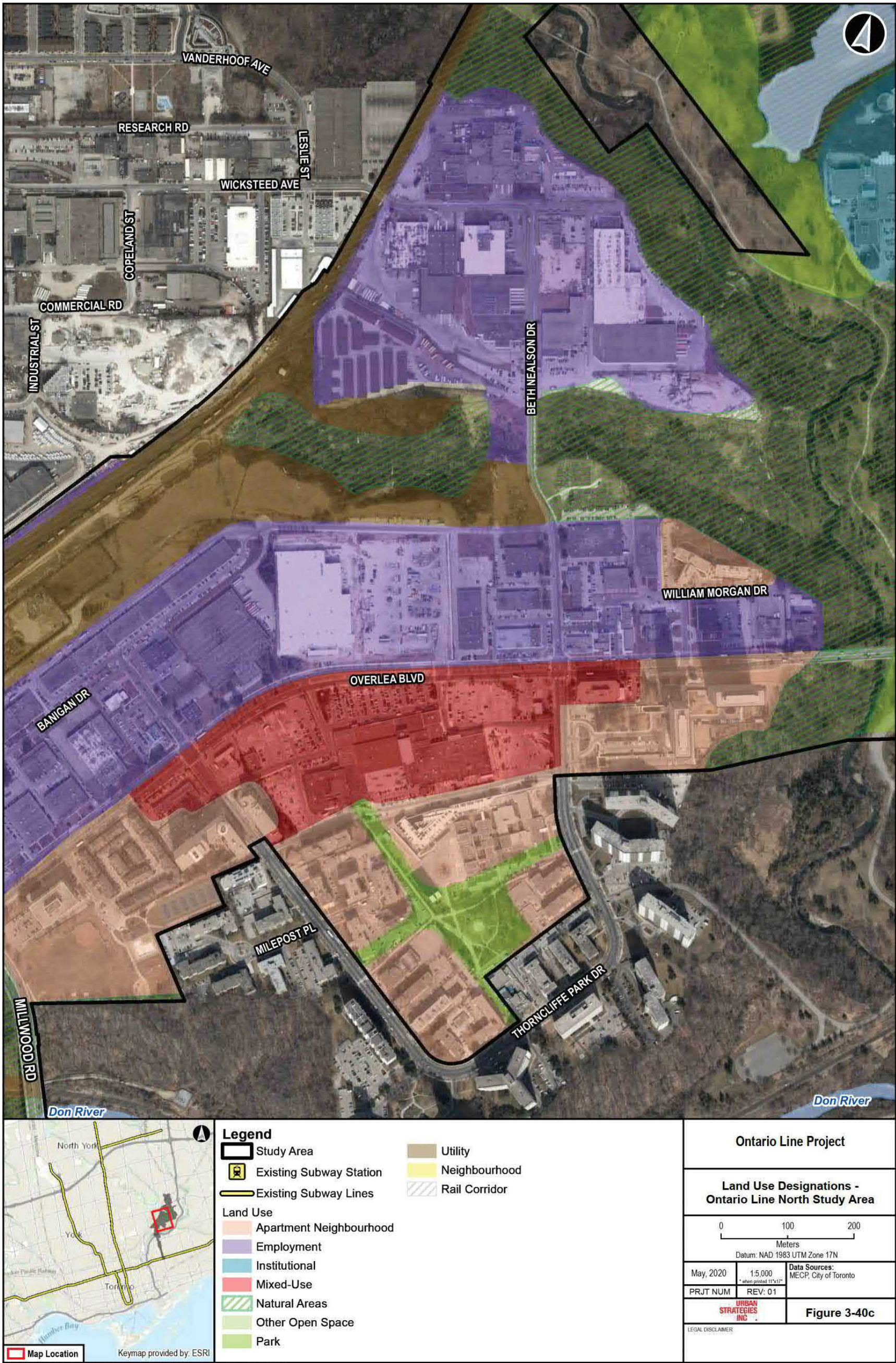
On the south side of Overlea Boulevard is the Thorncliffe Park Sub-Area, which also stretches from Millwood Road to Charles H. Hiscott Bridge. This Sub-Area is comprised mainly of land designated as Apartment Neighbourhoods with a cluster of Mixed-Use Areas fronting Overlea Boulevard. Several large parks are designated towards the centre and western edges of the neighbourhood. The neighbourhood is bound to the west, south and east by Natural Areas of the Don River Valley (**Figure 3-40**).

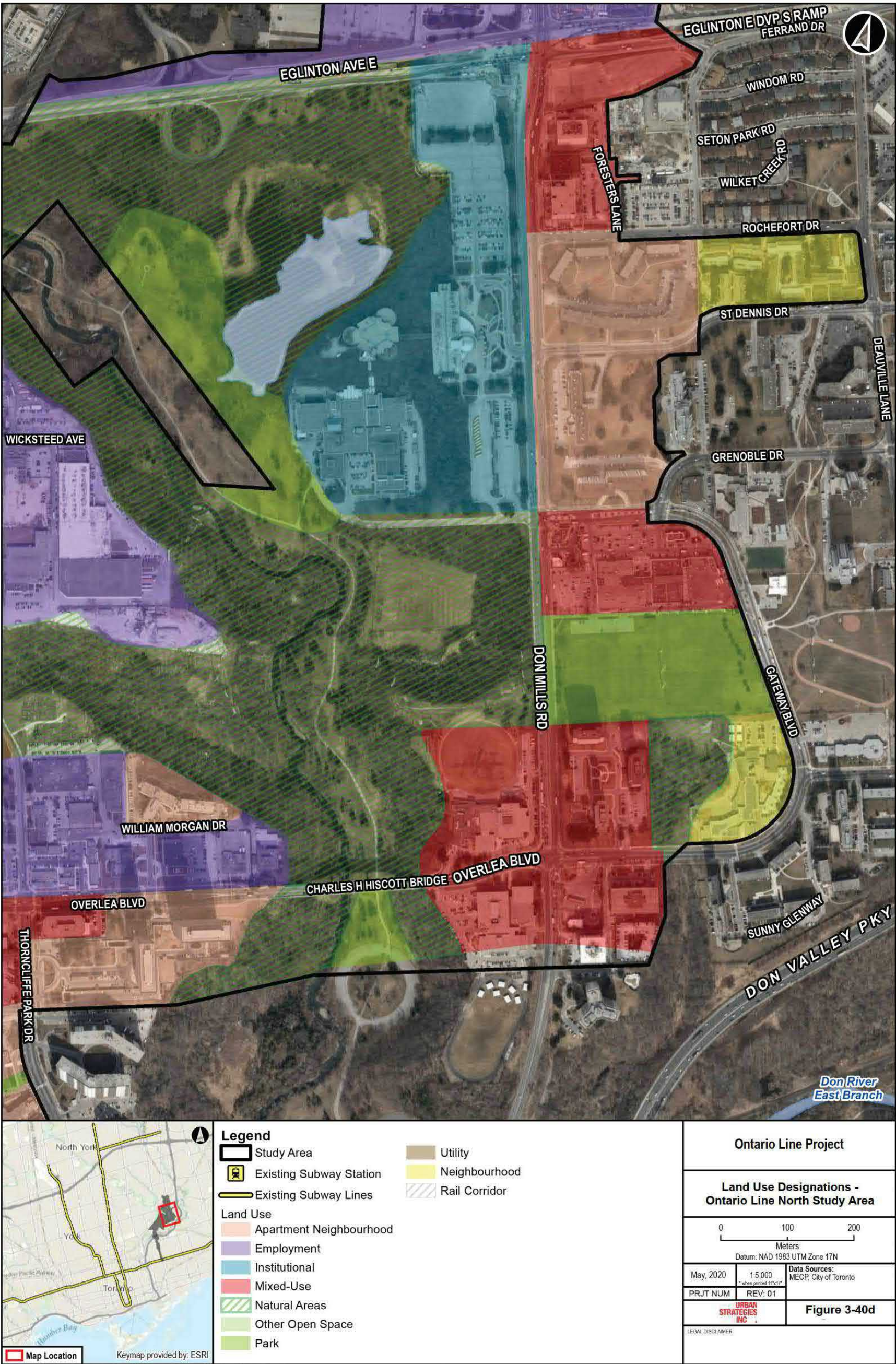
Figure 3-40: Land Use Designations – Ontario Line North Study Area¹¹

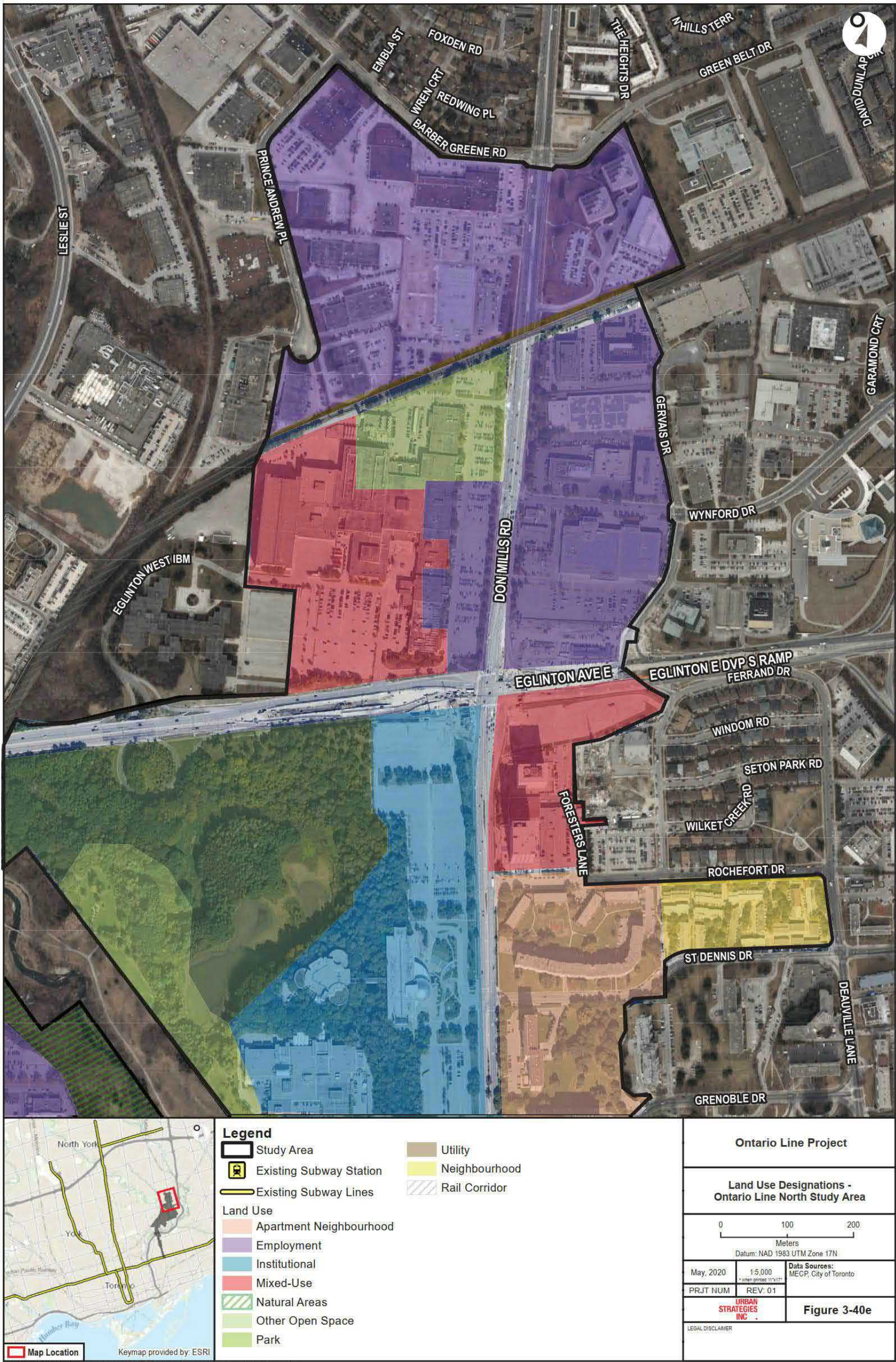


11. Source of land use designations: City of Toronto, 2019. Official Plan – Maps 17 and 20 Land Use Plan. Available: https://www.toronto.ca/wp-content/uploads/2017/11/978e-cp-official-plan-Map-17_LandUse_AODA.pdf, https://www.toronto.ca/wp-content/uploads/2017/11/9070-cp-official-plan-Map-20_LandUse_AODA.pdf









Flemingdon Park Sub-Area

The Flemingdon Park Sub-Area is bound by the Don River valley to the west and south, and the Don Valley Parkway to the east. This Sub-Area is situated along Don Mills Road, from Gateway Boulevard to the south, reaching north about a block past Eglinton Avenue East. The lands south of Eglinton Avenue East within this Sub-Area contain a mix of land use designations, including Neighbourhoods and Apartment Neighbourhoods, Mixed-Use Areas, Institutional Areas, and Parks and Natural Areas. The portion of land north of Eglinton Avenue East is designated as an Employment Area, which extends beyond the Study Area boundary. However, the Don Mills Crossing Secondary Plan amended the Official Plan to introduce Mixed-Use designations both at the southwest corner of Eglinton Avenue East and Don Mills Road, and on the northwest side of this intersection, tucked behind the Don Mills Road frontage. This Secondary Plan also re-designated the area just north of Wynford Drive and west of Don Mills Road from an Employment Area to Parks. This northwest quadrant also contains land designated Utility Corridor, being the rail line, which extends north from the Thorncliffe Employment Sub-Area (**Figure 3-40**).

Applicability to the Project

The Ontario Line North Study Area contains a diverse range of land use designations, intended for different degrees of growth and change. The Project will support the desired density and growth in Mixed-Use Areas and Employment Areas, while also supporting existing higher-density Apartment Neighbourhoods and the planned mixed-use community at the Eglinton Avenue East and Don Mills Road extension. Neighbourhoods and Institutional Areas will also benefit from increased transit accessibility provided through this Project. However, change within residential areas should be carefully managed to mitigate impacts on these stable areas and ensure these neighbourhoods can continue to thrive. Furthermore, recognizing the various Parks and Natural Areas which abut and intersect with the Project, detailed design of the alignment will need to mitigate impact on these features and ecosystems.

3.5.4.2 Secondary Plans

Don Mills Crossing Secondary Plan

The Don Mills Crossing Secondary Plan¹² was adopted by City Council as Amendment 404 to the Official Plan in April 2019. The Don Mills Crossing Secondary Plan is generally in the vicinity of the intersection of Don Mills Road and Eglinton Avenue East,

12. The City of Toronto Official Plan website notes that the

bound by the CP Rail Corridor, Don Mills Road, Wynford Drive, Gervais Drive, Ferrand Drive, Rochefort Drive, and a portion of the west branch of the Don River Valley.

The Don Mills Crossing Secondary Plan was prepared as a result of the Don Mills Crossing Planning Study, which was a three-phase project initiated by the City in 2016 to examine ways to focus anticipated growth and maintain connections to natural heritage around the intersection of Don Mills Road and Eglinton Avenue East anchored by the Eglinton Crosstown LRT. The Don Mills Crossing Planning Study integrated the lands identified by the Eglinton Connects Planning Study (2014) with the lands northwest of the Don Mills Road and Eglinton Avenue East intersection (Celestica Lands), to create a 52-hectare Core Study Area as a focus for new policies to facilitate changes and guide new development. Beyond the Core Study Area, the City also studied larger areas of influence related to transportation, municipal servicing, community infrastructure, heritage, and public realm.

The Don Mills Crossing Secondary Plan's vision is informed by the following Guiding Principles:

- Create a vibrant mixed-use community;
- Connect with nature and build resiliency;
- Enhance mobility choice, comfort, and connectivity; and
- Support for inclusive city building.

3.5.4.3 Physical Neighbourhood Composition

Land Use and Built Form Patterns

The Ontario Line North Study Area contains four diverse communities from the former municipalities of East York and North York, as described by the sub-areas below. These communities contain a variety of existing uses, from residential and commercial, to office and industrial, and a network of institutional uses and open spaces. The land use and built form of these communities reflect the eras in which they were developed, varying in terms of density and built form characteristics. While Employment Areas are relatively homogenous in form, there is a great degree of variety in residential development which ranges from row housing and townhomes to high-rise apartments.

Some of the notable local landmarks in the various neighbourhoods include:

- Ontario Science Centre;
- Leaside Bridge;
- Charles H. Hiscott Bridge;

- East York Town Centre;
- Flemingdon Park Shopping Centre;
- Lower Don Valley;
- Leaside Park;
- ET Seaton Park; and
- Don River West Branch.

Pape Sub-Area

The Pape Avenue Corridor was developed in the first half of the 20th century across a grid of streets with a fine-grained pattern of generally uniform lots. The corridor is characterised by its small-scale, main street retail and service uses, some of which are provided in a mixed-use format with residential uses on the upper storeys. These buildings are about 2-3 storeys in height and line the majority of Pape Avenue with little setback, providing direct frontage and orientation onto the street. The main-street, mixed-use pattern is broken at several points along the corridor including between Lipton Avenue and Browning Avenue and north of Gamble Avenue which are comprised of mainly low-rise residential forms. While the houses between Lipton Avenue and Browning Avenue maintain limited setbacks found across much of the corridor, houses north of O'Connor Drive have greater setbacks, driveways and landscaping which separate the building frontage from the street.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

Thornccliffe Employment Sub-Area

The Thornccliffe Employment Sub-Area is situated to the north of Overlea Boulevard, between Millwood Road and Don Mills Road. This area contains predominately employment uses, ranging from more industrial uses such as electric power distribution, storage and manufacturing facilities, to low-rise industrial offices and business parks; examples include the Costco development and integration of the former Coca Cola headquarters heritage building on the site. These employment uses are primarily contained within 1-2 storey buildings built in the 1960s and 1970s on larger lots. The majority of buildings have large footprints, are set back from Overlea Boulevard and oriented along a network of side and secondary streets. Commercial and retail uses are dispersed throughout the area to support the employment uses.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

Thornccliffe Park Sub-Area

The Thornccliffe Park Sub-Area is characterised by a mix of larger-scale commercial, residential, and institutional uses developed between the late 1950s and late 1970s. The largest development within the Sub-Area is the East York Town Centre. This mall and associated plaza are situated in the centre of the neighbourhood and comprise a large portion of the Overlea Boulevard frontage within the Ontario Line North Study Area. The Mall is set back from the street and surrounded by large areas of surface parking.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

Flemingdon Park Sub-Area

The Flemingdon Park Sub-Area is situated along Don Mills Road and comprised of residential, commercial, and institutional uses developed for the most part in the 1960s and 1970s. The neighbourhood is connected to Thornccliffe Park by Charles H. Hiscott Bridge, which passes over the Don River West Branch. This river valley open space system comprises much of the western edge of this neighbourhood, and is backed onto by the Marc Garneau Collegiate Institute, Valley Park Middle School and the Ontario Science Centre. A portion of the open space network has direct frontage onto Don Mills Road. The neighbourhood is divided into northern and southern sections by the large hydro corridor, which crosses Don Mills Road from the Don River Valley to the west and runs east towards the Don Valley Parkway. The land within the corridor is used for a range of recreational uses including playing fields, running tracks, ball diamonds and outdoor seating areas.

Land use and built form patterns for this Sub-Area are described in further detail in **Appendix B4**.

3.5.4.4 Transit and Transportation Network

Transit Network

Existing

The Ontario Line North Study Area is served by primarily a local transit network through subway and bus options. While the Richmond Hill GO corridor is present within the Ontario Line North Study Area, there are no stations located within the Ontario Line North Study Area. Subway Line 2 can be accessed directly via Pape Station, and many of the buses operating within the Ontario Line North Study Area connect to Line 2 at

various stations. All transit routes that can be accessed within the Ontario Line North Study Area are described in **Appendix B4**.

Planned

The Ontario Line North Study Area provides a key connection to the future ECLRT. The ECLRT is planned to open as “Line 5 Eglinton” in 2021. It will provide significant improvements to regional transit connectivity with connections east to Kennedy Station and west to Mount Dennis Station. The ECLRT West Extension is currently being planned and will connect the Ontario Line North Study Area west of Mount Dennis to Mississauga and Toronto Pearson International Airport.

Pedestrian and Cycling Network

Existing

In addition to transit, the Ontario Line North Study Area contains both on-street cycling facilities (cycle tracks and bike lanes) and trails. The Pape Corridor Sub-Area contains a significant east-west cycling corridor along Cosburn Avenue. To the north, cycling facilities exist on the Leaside Bridge, Thorncliffe Park Drive, Gateway Boulevard, Grenoble Drive, St. Dennis Drive and Eglinton Avenue East. These facilities service the neighbourhoods they run through, but are disconnected from the central Don Mills corridor.

The Don River Valley and associated open space system contains the Lower Don Trail, which is a multi-use trail that runs alongside the Don River, providing a continuous pedestrian and cycling connection throughout the Ontario Line North Study Area, from Broadview Avenue and Mortimer Avenue in the south, to Eglinton Avenue East in the north. This trail also provides access to the Downtown through connections to other cycling facilities and recreational trails, such as the Beltline Trail, Bayview Multi-Use Trail, Don Valley Brick Works Park, Riverdale Park, and Corktown Common.

The on-street pedestrian network varies throughout the Ontario Line North Study Area based on the size of blocks and types of uses within the different neighbourhoods. The Pape Sub-Area is characterized by a fine grain street and block network, lined with a complete sidewalk network throughout. This network supports access to the main-street retail uses as well as amenities throughout the neighbourhoods. While both the Thorncliffe Park and Flemingdon Park neighbourhoods are supported by a network of sidewalks lining their streets, large lot and block sizes reduce pedestrian connectivity in these sub-areas. Improved connectivity is delivered in these areas through secondary mid-block path connections which break up larger blocks and improve connectivity between local destinations. In contrast, the Thorncliffe Employment Sub-Area contains large blocks with a discontinuous network of sidewalks, resulting in poor pedestrian connectivity. This is largely due to the industrial nature of the area.

The Don River multi-use trail also provides pedestrian connections throughout the Ontario Line North Study Area and into other neighbourhoods to the south.

Planned

A new on-street cycling route is planned for Eglinton Avenue East with a targeted 2021 completion date, complementing the ECLRT. Other planned cycling connections within the Ontario Line North Study Area include new and renewed on-street facilities along Cosburn Avenue and Sammon Avenue, connecting to the Pape Avenue corridor. A study is also required for a major cycling route along Don Mills Road from Overlea Boulevard to the northern extent of the Ontario Line North Study Area¹³.

The Don Mills Crossing Study also plans for new cycling connections within the Flemingdon Park Sub-Area, including for cycling infrastructure (cycle tracks, bike lanes and multi-use trails) along various streets in and around the Don Mills Road and Eglinton Avenue East intersection¹⁴. More specifically, a new multi-use trail is planned for the Don River West Branch / ET Seton Park, which extends north of Eglinton Avenue East along the rail corridor and parts of the future western extension of Wynford Drive. In addition, new on-street bike lanes are planned for Rochefort Drive and its proposed extension west of Don Mills Road, which connects to a new north-south street running alongside the valley and extending north of Eglinton Avenue East along a new street to connect with cycling facilities on Wynford Drive.

3.5.4.5 Public Realm Characteristics

Pape Sub-Area

The Pape Sub-Area is characterized by a well-defined public realm with buildings oriented toward the street with consistent street setbacks.

Despite more tree-lined neighbourhood streets, Pape Avenue itself lacks street trees. This lack of street trees is the result of buildings having been developed at or close to the lot line with limited 3-4 metre setbacks from the curb and the presence of overhead utilities which restrict tree growth. However, this pattern along Pape Avenue changes north of Gamble Avenue, where there is a more residential characteristic with larger setbacks. Sidewalk space along Pape Avenue is limited with little or no room for street furnishings.

13. Major City-wide Cycling Routes (June 2019)
<https://www.toronto.ca/legdocs/mmis/2019/ie/bgrd/backgroundfile-134915.pdf>

14. Map 40-11 Cycling Interchanges, Don Mills Crossing Secondary Plan (March 2019)
<https://www.toronto.ca/legdocs/bylaws/2019/law0589.pdf>

Thornccliffe Employment Sub-Area

Public realm conditions within the Thornccliffe Employment Sub-Area reflect the nature of employment uses and industrial activity that characterize the area. Although buildings are oriented toward the street, they are often set back 10-15 metres from the street edge or sidewalk (when present) and separated from the street by landscaping or parking lots. These large setbacks contribute to the streetscape in some instances by supporting tree planting on private front yards along Millwood Road and Overlea Boulevard; they are left unplanted along other streets within the Sub-Area.

Thornccliffe Park Sub-Area

Similar to the Thornccliffe Employment area, the majority of buildings in this Sub-Area are oriented toward the street yet largely set back from the right-of-way by landscaping or parking lots. Setbacks are larger along Overlea Boulevard than they are along Thornccliffe Park Drive. The East York Town Centre is set back by large parking areas along most of its Overlea Boulevard frontage. The townhouse complex at Overlea Boulevard and Leaside Park Drive has the smallest setback from Overlea Boulevard. The complex is separated from the street by a fence which lines most of the frontage. Additionally, some residential uses along Thornccliffe Park Drive are oriented internally off of cul-de-sacs or driveways, creating courtyard-like spaces between buildings.

Flemingdon Park Sub-Area

The Flemingdon Park Sub-Area is situated along Don Mills Road, a six-lane arterial road with a central landscaped median along certain portions of the corridor and a 3-metre, tree-lined landscape strip running mostly along both sides of the road. Unlike the other sub-areas, most buildings are not oriented toward this central corridor but instead are oriented internally around secondary connections, driveways, parking areas, and plazas. In several areas, buildings do orient towards the corridor – these include Marc Garneau Collegiate Institute, Valley Park Middle School and a few commercial / office buildings. In these areas, buildings frame the street but provide less room for street furnishing. Bus stops, garbage / recycling bins, and lamp posts are provided but are less common than in Thornccliffe Park.

3.5.4.6 Community Amenities

Existing Services and Facilities

Institutional Uses

A range of schools, libraries, places of worship, and emergency services (ambulance and police facilities) are located within the Ontario Line North Study Area (**Table 3-45, Figure 3-41**).

Table 3-45: Institutional Uses within the Ontario Line North Study Area

| Feature Type | Map ID | Feature Name | Address |
|---------------------|---------------|---------------------------------------------|----------------------------|
| School | 1 | William Burgess Elementary School | 100 Torrens Avenue |
| School | 2 | Valley Park Middle School | 130 Overlea Boulevard |
| School | 3 | Marc Garneau Collegiate Institute | 135 Overlea Boulevard |
| School | 4 | Thornccliffe Park Public School | 80 Thornccliffe Park Drive |
| School | 5 | Fraser Mustard Early Learning Academy | 82 Thornccliffe Park Drive |
| School | 6 | Gateway Public School | 55 Gateway Boulevard |
| Library | 7 | Todmorden Room | 1081 Pape Avenue |
| Library | 8 | Flemingdon Park Library | 29 St. Dennis Drive |
| Library | 9 | Thornccliffe Library | 48 Thornccliffe Park Drive |
| Place of Worship | 10 | Don Mills United Church | 126 O Connor Drive |
| Place of Worship | 11 | Calvary Church | 740 Pape Avenue |
| Place of Worship | 12 | Bethany Baptist Church | 1041 Pape Avenue |
| Place of Worship | 13 | Chua Xa Loi | 152 Floyd Avenue |
| Place of Worship | 14 | Chapel in The Park | 16 Thornccliffe Park Drive |
| Place of Worship | 15 | Canadian Christian College | 50 Gervais Drive |
| Place of Worship | 16 | St Andrew Kim Korean Catholic | 849 Don Mills Road |
| Place of Worship | 17 | Masonic Temple | 1100 Millwood Road |
| Place of Worship | 18 | Pape Avenue Gospel Hall | 871 Pape Avenue |
| Place of Worship | 19 | Holy Name Church | 606 Danforth Avenue |
| Place of Worship | 20 | Macedonian Orthodox Church | 76 Overlea Boulevard |
| Place of Worship | 21 | Greek Orthodox Archdiocese | 86 Overlea Boulevard |
| Place of Worship | 22 | Mission of T.F.A.R.S. Radio | 50 Gervais Drive |
| Place of Worship | 23 | Greek Orthodox Mission | 846A Pape Avenue |
| Place of Worship | 24 | The Salvation Army | 2 Overlea Boulevard |
| Place of Worship | 25 | Westminster Presbyterian Church | 152 Floyd Avenue |
| Place of Worship | 26 | Don Mills Jamat Khanan | 80 Overlea Boulevard |
| Place of Worship | 27 | Toronto Orthodox Academy | 86 Overlea Boulevard |
| Place of Worship | 28 | Masjid Dar Al Salam | 4 Thornccliffe Park Drive |
| Place of Worship | 29 | The Thornccliffe Mosque | 4 Thornccliffe Park Drive |
| Place of Worship | 30 | The Church Army | 50 Gervais Drive |
| Emergency Services | 31 | Ambulance Station 41 | 1300 Pape Avenue |
| Emergency Services | 32 | Lower Don Parklands Police Service Facility | 44 Beechwood Drive |

Recreational Uses, Parks and Open Spaces

The parks and community centres within the Ontario Line North Study Area are of various sizes and provide a range of services and facilities for these neighbourhoods (**Table 3-46, Figure 3-41**).

Table 3-46: Recreational Uses, Parks and Open Spaces within the Ontario Line North Study Area

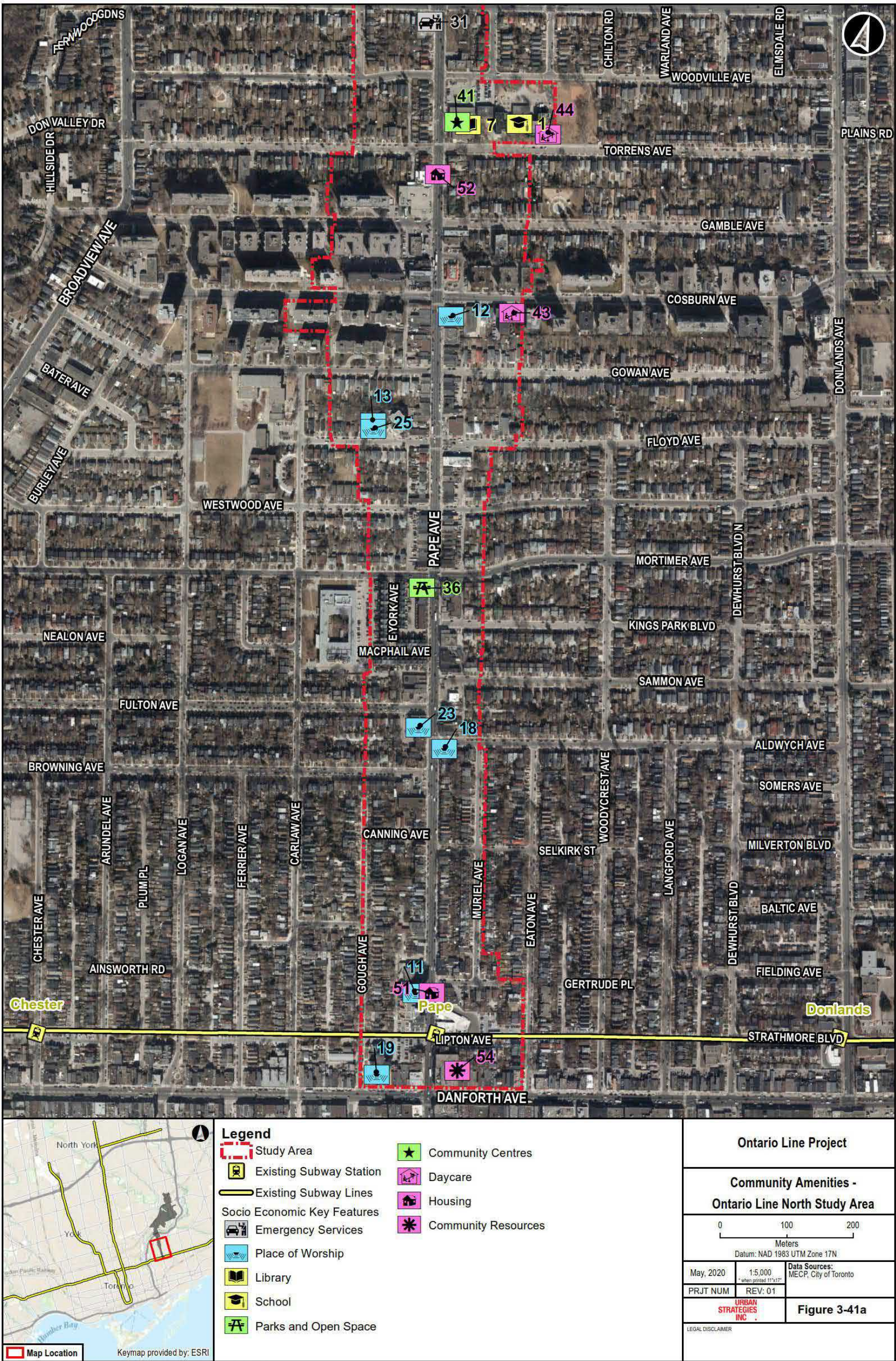
| Feature Type | Map ID | Feature Name | Address |
|-----------------------------|---------------|------------------------------------|---------------------------|
| Parks and Open Space | 33 | Flemingdon Park | 150 Grenoble Drive |
| Parks and Open Space | 34 | Leaside Park | 5 Leaside Park Drive |
| Parks and Open Space | 35 | Kiwanis Parkette | 1410 Pape Avenue |
| Parks and Open Space | 36 | Agnes MacPhail Square | 900 Pape Avenue |
| Parks and Open Space | 37 | R.V. Burgess Park | 46 Thorncliffe Park Drive |
| Parks and Open Space | 38 | Lower Don Parklands | 44 Beechwood Drive |
| Parks and Open Space | 39 | E.T. Seton Park | 73 Thorncliffe Park Drive |
| Parks and Open Space | 40 | Arthur Dyson Parkette | 1404 Pape Avenue |
| Community Centres | 41 | East York Community Centre | 1081 Pape Avenue |
| Community Centres | 42 | Dennis R. Timbrell Resource Centre | 29 St. Dennis Drive |

The most notable parks within the Ontario Line North Study Area based on size, significance, and usage include are Flemingdon Park, Leaside Park, E.T. Seton Park, and Lower Don Parklands. Metrolinx recognizes that parks and open spaces in the community are well-used by the community.

Community Groups and Resources

A variety of community groups and resources, from daycares and supportive housing to non-profit organizations and business associations, are located within the Ontario Line North Study Area (**Table 3-47, Figure 3-41**).

Figure 3-41: Community Amenities – Ontario Line North Study Area









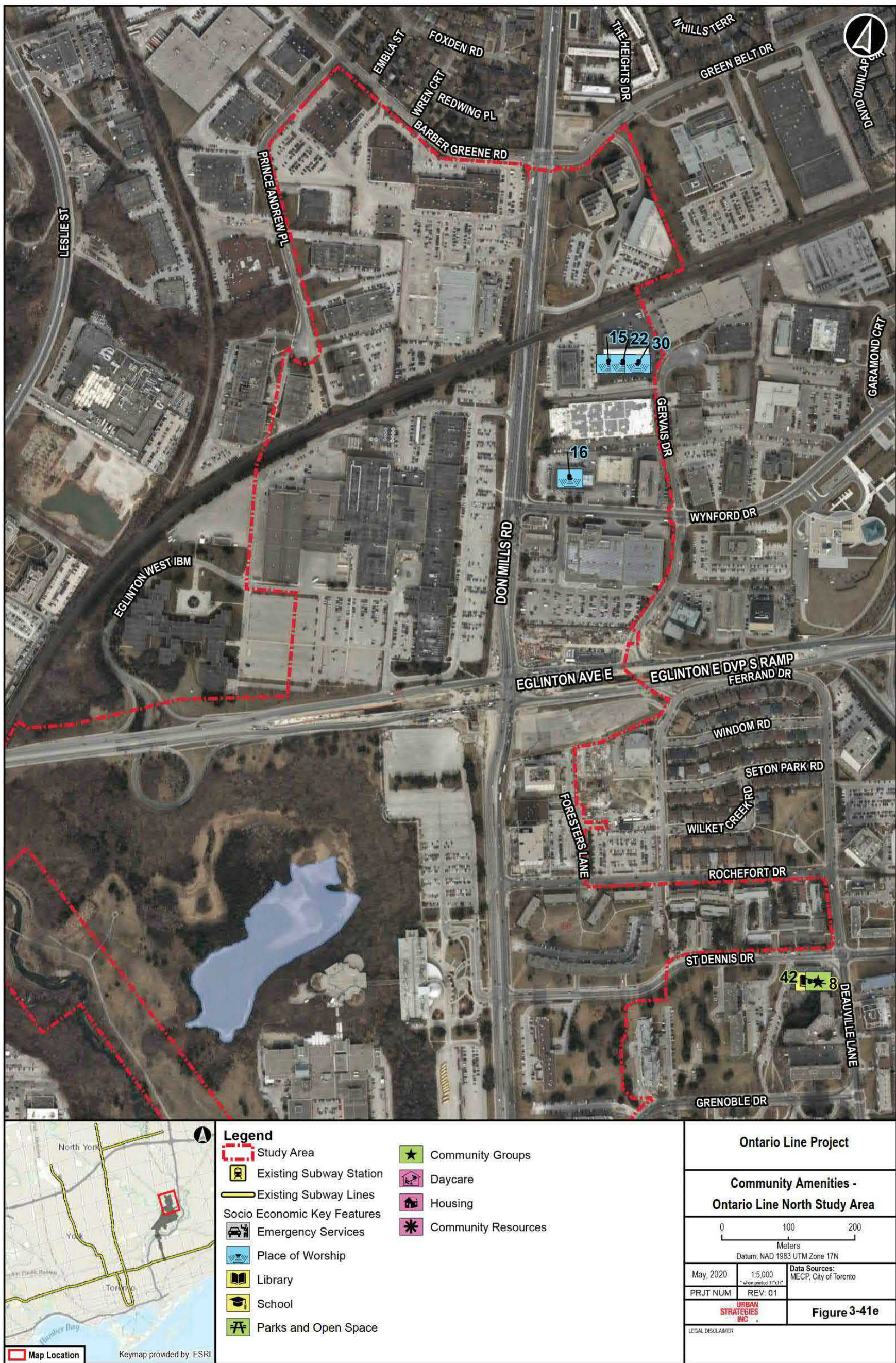


Table 3-47: Community Groups and Resources within the Ontario Line North Study Area

| Feature Type | Map ID | Feature Name | Address |
|---------------------|--------|------------------------------------------------------|---------------------------|
| Daycare | 43 | Child's Nest Infant Day Care Centre | 121 Cosburn Avenue |
| Daycare | 44 | William Burgess Jr YMCA | 100 Torrens Avenue |
| Daycare | 45 | Petite Maison Montessori | 126 O Connor Drive |
| Daycare | 46 | Thorncliffe Park School Age Day Care Centre | 80 Thorncliffe Park Drive |
| Daycare | 47 | Red Apple Day Care | 135 Overlea Boulevard |
| Daycare | 48 | Pride In Heritage Children's Centre – North York | 55 Gateway Boulevard |
| Housing | 49 | Flemingdon Park | 58 Grenoble Drive |
| Housing | 50 | The Overlea | 12 Thorncliffe Park Drive |
| Housing | 51 | Nisbet Lodge | 740 Pape Avenue |
| Housing | 52 | Touchstone Youth Shelter | 1076 Pape Avenue |
| Community Resources | 53 | Afghan Women's Organization | 747 Don Mills Road |
| Community Resources | 54 | Co-operative Housing Federation of Toronto | 658 Danforth Avenue |
| Community Resources | 55 | The Neighbourhood Organization | 18 Thorncliffe Park Drive |
| Community Resources | 56 | The Neighbourhood Organization | 1 Leaside Park Drive |
| Community Resources | 57 | The Neighbourhood Organization | 10 Gateway Boulevard |
| Community Resources | 58 | The Neighbourhood Organization | 45 Overlea Boulevard |
| Community Resources | 59 | Overlea Language Instruction for Newcomers to Canada | 14 Overlea Boulevard |

Planned Services and Facilities

According to the City of Toronto's list of New Parks & Facilities, the City is proposing a new recreation facility – Don Mills Community Recreation Facility – located at Eglinton Avenue East and Don Mills Road. The City has completed the public engagement phase and will be reporting to Council on the results and a recommended approach. Once the type of facility is selected and approved by Council, the City will move forward on recreation facility design, targeted for 2020.

The Parks and Recreation Facilities Master Plan 2019-2038 (City of Toronto, 2017b) recommends evaluating and pursuing the revitalization or replacement of Dennis R. Timbrell Resource Centre, amongst 10 other community centres throughout the City. Unless outcomes of the evaluation suggest otherwise, the replacement facility will be similar in size to the existing facility. Additionally, the Master Plan also recommends evaluating the replacement of the Leaside Outdoor Pool and associated buildings to

support anticipated population growth, invest in high needs areas and address aging infrastructure.

The Toronto Public Library Facilities Master Plan (City of Toronto, 2019d) identifies both Flemingdon Park and Todmorden Room to be in poor condition, however, neither has been identified as a named project for improvement in the capital budget. The former was identified as a short or near-term priority but not included within the TPL capital budget. The Master Plan states that TPL should assess the business case for investment in the Flemingdon Park branch as a named project in the 2020 capital budget and plan. The latter was classified as having a poor condition but not identified for major capital renovation.

3.5.4.7 Neighbourhood Demographics

The Ontario Line North Study Area contains portions of 14 census tracts, which have been grouped into three sub-areas for the purpose of this analysis. Although other sections of this Report assess the Ontario Line North Study Area within four sub-areas, this analysis combines the Thorncliffe Employment and Thorncliffe Park Sub-Areas to accommodate for census tract boundaries. Therefore, this portion of the analysis refers to these areas as:

- Pape neighbourhood;
- Thorncliffe neighbourhood (which encompasses the Thorncliffe Employment Sub-Area and Thorncliffe Park Sub-Area); and
- Flemingdon Park neighbourhood.

As mentioned in **Section 3.5.1**, these Census neighbourhoods were considered individually, as well as collectively, in comparison with overall Toronto demographics. This information is summarized in the subsections below. Detailed neighbourhood demographics information is provided in **Appendix B4**.

Demographic Profile

The City of Toronto experienced a population growth rate of approximately 4% between 2011 and 2016. The census areas within the Ontario Line North Study Area also experienced growth, but at a lower rate of 2.6%. Both the Pape and Thorncliffe neighbourhoods experienced the increase, although the latter increased at a rate higher than even the City of Toronto (12.3%). In contrast, the Flemingdon Park neighbourhood experienced a decrease in population of 1.5%. The age group with the highest rate of population growth is generally those 65+, with the exception of the Pape neighbourhood where it was the 15 to 24 age group.

In 2016, the 25 to 64 age group formed the largest proportion of the population, with more than half of the total population for census areas within the Ontario Line North Study Area. The smallest proportion of the population belonged to the 15 to 24 age group within the Ontario Line North Study Area neighbourhoods. These trends are consistent across each neighbourhood, as well as the City of Toronto. Of note, the Pape and Flemingdon Park neighbourhoods had a higher percentage of people aged 65+, while the Thorncliffe neighbourhood had a higher percentage of people between the ages of 0 to 14.

In terms of gender, the proportion of females and males is relatively equal within the Ontario Line North Study Area neighbourhoods, which is consistent with the trend in each neighbourhood as well as the City of Toronto.

The proportion of educational attainment for the City of Toronto and the census areas within the Ontario Line North Study Area was relatively unchanged between 2011 and 2016. Just over half of the population in the census areas within the Ontario Line North Study Area neighbourhoods obtained a post-secondary degree, which is consistent with the trend observed throughout the City. Similarly, almost the same percentage of the population within the Ontario Line North Study Area neighbourhoods and the City had a secondary school certificate or did not hold a certificate. These trends are generally consistent within each neighbourhood, though there is a slightly lower proportion of post-secondary degree holders within the Thorncliffe neighbourhood than the Ontario Line North Study Area and the City as a whole.

The 2016 average household size in the Ontario Line North Study Area was slightly smaller than the City of Toronto average. This was consistent within the neighbourhoods, with the exception of the Thorncliffe neighbourhood which contained the largest households within the Ontario Line North Study Area, consistent with the City average. In contrast, the Pape neighbourhood contained the smallest households, falling below this Ontario Line North Study Area's average size. While the average size decreased within the City between census periods, it increased or remained the same within the Ontario Line North Study Area and the associated sub-areas.

In 2016, the average household incomes in the census areas within the Ontario Line North Study Area were lower than the City of Toronto average by almost \$40,000. The Thorncliffe neighbourhood had the lowest average household income relative to the other sub-areas (\$46,001), falling more than \$50,000 below the City's average. In contrast, the Pape neighbourhood has the highest average income relative to the other neighbourhoods and the Ontario Line North Study Area as a whole. The average household income increased between census periods for both the City of Toronto (by 12%) and census areas in the Ontario Line North Study Area (by 13%), as well as each individual neighbourhood area: the largest increase was observed in the Pape

neighbourhood (+\$9,851, 15%), while the smallest increase occurred in the Flemington Park neighbourhood (+\$4,722, 9%).

Economic Profile

Additional details on the economic profile metrics described below are available in **Appendix B4**.

Employment

In 2016, over half of the population of this Study Area were employed, with almost 40% not in the labour force. The highest percentage of employed population was within the Pape neighbourhood, which exceeded the City's employment rate. Although census areas in the Ontario Line North Study Area shared a similar percentage of unemployed population, the Thorncliffe Park neighbourhood had the highest unemployment rate (10.8).

Commuting Patterns

Across the census areas within the Ontario Line North Study Area, there was almost an even split between households that commuted by transit and those that commuted by car. However, this pattern was not consistent within each neighbourhood.

Approximately 8% more households commuted by transit in the Pape and Thorncliffe Park neighbourhoods while 8% more households commuted by car in the Flemington Park neighbourhood.

With regard to active transportation, census areas in the Ontario Line North Study Area had slightly less commutes by this mode than the City as a whole. It shared the same percentage of cycling trips (3%) but had fewer walking trips than observed throughout Toronto. The Pape neighbourhood had the highest percentage of commutes by active transportation (both cycling and walking); although walking is approximately the same percentage across all neighbourhoods, this neighbourhood surpassed the other neighbourhoods, and even the City, with the percentage of cycling commutes.

3.5.4.8 Future Development

There were eight active development applications within the Ontario Line North Study Area as of June 25, 2020. These applications are mostly for residential uses, which range from townhomes to condominiums across a spectrum of tenure, including purpose-built rental and long-term care facilities as well as two Housing Now sites¹⁵.

15. Housing Now is an initiative to activate City-owned sites for the development of affordable housing within mixed-income, mixed-use, transit-oriented communities.

Other proposed and approved uses include retail and office developments as well as daycares and parks. Note that three of these applications are located immediately outside of the Ontario Line North Study Area boundary, and thus have been included in this analysis.

The majority of the proposed developments in the Ontario Line North Study Area are located in the Flemingdon Park neighbourhood, in close proximity to Don Mills Road and Eglinton Avenue East. Development activity here has been influenced and positively impacted by the introduction of the ECLRT. They are larger in scale than other applications throughout this Study Area, spanning multiple blocks and propose a mix of new uses, public parks, pedestrian paths, and Privately-Owned Public Spaces¹⁶. These new developments have the potential to significantly transform this part of the Study Area with thousands of new residents and employees and include two CreateTO Housing Now sites which will introduce affordable housing in the area, in proximity to major transit infrastructure.

There are no active applications in the Thorncliffe neighbourhoods and only two within the Pape Sub-Area, both of which are a smaller scale (1-2 storeys). Of the eight applications within the entire Ontario Line North Study Area, only the two larger developments at Eglinton Avenue East and Don Mills Road are fully approved; another two have received approval for an Official Plan Amendment, Zoning By-law Amendment, and/or Draft Plan of Subdivision, but still have Site Plan applications under review.

Of the eight applications within the Ontario Line North Study Area, three have been approved.

The complete list of active development applications is provided in **Appendix B4**.

3.6 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (herein referred to as the Cultural Heritage Report) was completed to identify existing built heritage resources and cultural heritage landscapes, including an historical summary of the development of the Study Area, and an inventory of all known, previously identified or potential built heritage resources and cultural heritage

16. A Privately-Owned Public Space is a specific type of open space which the public is welcome to enjoy but remains privately owned. The City often negotiates with private developers to include these as part of the development application and review process, in order to provide open space within Toronto's dense urban landscape (City of Toronto, 2014).

landscapes within the Ontario Line Study Area, and provide a preliminary impact assessment on those built heritage resources and cultural heritage landscapes, including Heritage Conservation Districts, with proposed measures to mitigate potential negative effects.

Identify existing baseline cultural heritage conditions within the Ontario Line Study A

The Cultural Heritage Report can be found in **Appendix B5**. Methodology is summarized in **Section 3.6.1** and the results are presented in **Section 3.6.2** (Ontario Line West), **Section 3.6.3** (Ontario Line South) and **Section 3.6.4** (Ontario Line North).

3.6.1 Methodology

A review of available information and field investigations were conducted to establish existing built heritage resources and cultural heritage landscapes within the Ontario Line Study Area (mapped in **Figure 3-42 to Figure 3-44**).

The following aspects of built heritage resources and cultural heritage landscapes were examined:

- Neighbourhood histories; and
- Known, previously identified and potential built heritage resources and cultural heritage landscapes.

The Cultural Heritage Report was completed in accordance with Ontario Regulation 341/20: Ontario Line Project. In addition, the approach to the technical study and analysis, reporting, and review process of this Cultural Heritage Report was developed in consultation with the Ministry of Heritage, Sport, Tourism and Culture Industries and Metrolinx for the Ontario Line Project.

The Ontario Line Study Area includes known built heritage resources or cultural heritage landscapes that have an existing level of municipal, provincial, or federal heritage protection, designation, or recognition and previously identified properties of cultural heritage value or interest, those that have that have been identified in previous studies or for previous projects as having potential cultural heritage value or interest.

The Cultural Heritage Report (**Appendix B5**):

- Identify existing baseline cultural heritage conditions within the Ontario Line Study Area, including an historical summary of the development of the Study Area, and an inventory of all known, previously identified or potential built heritage resources and cultural heritage landscapes, including Heritage Conservation Districts, in the Ontario Line Study Area; and

- Complete a preliminary impact assessment on those built heritage resources and cultural heritage landscapes, including Heritage Conservation Districts, with proposed measures to mitigate potential negative impacts.

The Cultural Heritage Report describes the cultural heritage environment relevant to the Project through the preliminary background research and data collection, field review, and screening tasks typically undertaken for a Cultural Heritage Report. The report considers built heritage resources and cultural heritage landscapes over 40 years old and including those that have already been identified by heritage inventories or earlier cultural heritage reports. In addition to the 40-year rule, the Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes, a Checklist for the Non-Specialist, field reviews and professional judgement were also applied to screen for potential built heritage resources and cultural heritage landscapes within the Study Area. Detailed methodology description is provided in **Appendix B5**.

3.6.2 Ontario Line West

The Ontario Line Cultural Heritage Report process undertaken for the Ontario Line West Study Area identified a total of 139 built heritage resources and cultural heritage landscapes. All known, previously identified, and potential built heritage resources/cultural heritage landscapes within the Ontario Line West Study Area are presented in **Figure 3-42**. Within the Ontario Line West Study Area, a total of nine built heritage resources/cultural heritage landscapes (eight properties and one streetscape) are determined to meet or potentially meet the criteria outlined in Ontario Regulation 10/06 under the Ontario Heritage Act, and thereby may be considered provincial heritage properties of provincial significance. A summary of built heritage resources and cultural heritage landscapes identified within the Ontario Line West Study Area is provided in **Table 3-48**.

Table 3-48: Summary of Built Heritage Resources and Cultural Heritage Landscapes – Ontario Line West Study Area

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-001 | Residential | 310-312 Dufferin Street | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLW-002 | Residential | 324-338 Dufferin Street | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLW-003 | Commercial | 1211 King Street West | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLW-004 | Industrial | 1195-1209 King Street West and 259 Dufferin Street | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLW-005 | Industrial | 189-221 Dufferin Street and 24 Mowat Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLW-006 | Commercial | 171 Dufferin Street | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLW-007 | Commercial | 153 Dufferin Street | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLW-008 | Industrial | 7-19 Fraser Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLW-009 | Commercial | 24 Jefferson Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLW-010 | Commercial | 32 Atlantic Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLW-011 | Commercial | 1 Atlantic Avenue | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscape | No |
| OLW-012 | Commercial | 3 Mowat Avenue | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscape | No |
| OLW-013A | Cultural Heritage Landscape- Exhibition Place | 2 Strachan Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscapeProvincial Heritage Property of Provincial Significance(21 buildings and structures on the City of Toronto Heritage Register, 5 buildings commemorated as National Historic Sites) | Yes (includes OLW-013, OLW-014, OLW-015) |
| OLW-013 | Public | 45 Manitoba Drive | <ul style="list-style-type: none">Designated Part IV | Yes (within OLW-013A) |
| OLW-014 | Public | 10 Nova Scotia Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage Register | Yes (within OLW-013A) |
| OLW-015 | Monument | Exhibition Place Dufferin Gate | <ul style="list-style-type: none">Listed on Municipal Heritage Register | Yes (within OLW-013A) |
| OLW-016 | Bridge | Dufferin Street Bridge | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLW-017 | Institutional | 70, 75, 0 East Liberty Street (formerly 20 Strachan Avenue) | <ul style="list-style-type: none">Designated Part IVCity of Toronto Heritage Easement Agreement | No |
| OLW-018 | Fort York- Cultural Heritage Landscape (Heritage Conservation District) | 250 Fort York Boulevard | <ul style="list-style-type: none">National Historic SiteDesignated Part VListed on Canadian Register | Yes |
| OLW-019 | Bridge | Bathurst Street Bridge | <ul style="list-style-type: none">Listed on Municipal Heritage Register Provincial Heritage Property of Provincial Significance | Yes |
| OLW-020 | Residential | 135-163 Niagara Street | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLW-021 | Industrial | 89-109 Niagara Street | <ul style="list-style-type: none">Designated Part IV | No |

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-022 | Industrial | 2 Tecumseth Street | <ul style="list-style-type: none">■ Potential built heritage resource/cultural heritage landscape■ Identified during field review | No |
| OLW-023 | Residential | 642-652 Wellington Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLW-024 | Industrial | 677 Wellington Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLW-025 | Industrial | 47-49 Bathurst Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-026 | Cultural Heritage Landscape- Heritage Conservation District | King-Spadina Heritage Conservation District | <ul style="list-style-type: none">■ Designated Part V under appeal | No |
| OLW-027 | Commercial | 51 Bathurst Street | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal■ City of Toronto Heritage Easement Agreement | No |
| OLW-028 | Commercial | 667 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLW-029 | Residential | 46-56 Stewart Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-030 | Commercial | 60 Stewart Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-031 | Commercial | 663-665 King Street West, 69-71 Bathurst Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Intention to Designate Part IV Designated Part V under appeal | No |
| OLW-032 | Commercial | 647-647A King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V under appeal | No |
| OLW-033 | Commercial | 619 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V under appeal | No |
| OLW-034 | Residential | 615 - 617 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V under appeal | No |
| OLW-035 | Commercial | 613 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V under appeal | No |
| OLW-036 | Commercial | 603 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V under appeal | No |
| OLW-037 | Place of Worship | 124 Bathurst Street | <ul style="list-style-type: none">■ Designated Part IV■ Listed on Ontario Heritage Trust Places of Worship Inventory | Yes (includes OLW-038) |
| OLW-038 | Institutional | 9 and 11 Portugal Square | <ul style="list-style-type: none">■ Designated Part IV | Yes (includes OLW-037) |
| OLW-039 | Institutional | 668 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-040 | Commercial | 662 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V under appeal | No |
| OLW-041 | Commercial | 642 King Street West (including entrance addresses at 2 and 4 Adelaide Place) | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-042 | Commercial | 626-628 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-043 | Commercial | 624 King Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|-------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-044 | Commercial | 602-606 King Street West | <ul style="list-style-type: none">▪ Designated Part IV▪ Designated Part V under appeal | No |
| OLW-045 | Residential | 98 and 102 Portland Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-046 | Commercial | 487 Adelaide Street West | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-047 | Residential | 1-11 Adelaide Place | <ul style="list-style-type: none">▪ Designated Part IV▪ Designated Part V under appeal | No |
| OLW-048 | Residential | 509-511 Adelaide Street West | <ul style="list-style-type: none">▪ Designated Part IV▪ Designated Part V under appeal | No |
| OLW-049 | Residential | 505-507 Adelaide Street West | <ul style="list-style-type: none">▪ Designated Part IV▪ Designated Part V under appeal | No |
| OLW-050 | Residential | 497-499 Adelaide Street West | <ul style="list-style-type: none">▪ Designated Part IV▪ Designated Part V under appeal | No |
| OLW-051 | Residential | 125 Bathurst Street | <ul style="list-style-type: none">▪ Designated Part IV▪ Designated Part V under appeal | No |
| OLW-052 | Residential | 512-514 Adelaide Street West | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-053 | Commercial/ Residential | 506 Adelaide Street West | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-054 | Commercial | 504 Adelaide Street West, 116 Portland Street West | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-055 | Residential | 129-131 Bathurst Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-056 | Residential | 133-135 Bathurst Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-057 | Residential | 137-139 Bathurst Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-058 | Commercial | 141 Bathurst Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V, under appeal | No |
| OLW-059 | Residential | 124-130 Portland Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-060 | Commercial | 579-583 Richmond Street West | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-061 | Residential | 159 -161 Bathurst Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |
| OLW-062 | Commercial | 620-622 Richmond Street West, 165 and 167 Bathurst Street | <ul style="list-style-type: none">▪ Listed on Municipal Heritage Register▪ Designated Part V under appeal | No |

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-063 | Commercial | 183 Bathurst Street | <ul style="list-style-type: none">■ Potential built heritage resource/cultural heritage landscape■ Identified during field review | No |
| OLW-064 | Residential | 600-602 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-065 | Cultural Heritage Landscape- Heritage Conservation District | Queen Street West Heritage Conservation District | <ul style="list-style-type: none">■ Designated Part V | No |
| OLW-066 | Commercial | 500-504 Queen Street West | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V | No |
| OLW-067 | Residential | 530-538 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-068 | Residential | 540-542 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-069 | Residential | 544 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-070 | Residential | 474-478 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-071 | Commercial | 460 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-072 | Residential | 139-145 Portland Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal■ 145 Portland Intent to Designate under Part IV | No |
| OLW-073 | Residential | 135 Portland Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-074 | Commercial | 127 Portland Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-075 | Commercial | 490 Adelaide Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-076 | Commercial | 20 Maud Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-077 | Industrial | 497, 505 and 511 Richmond Street West, 60 Brant Street, 17 Maud Street | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part under appeal■ City of Toronto Heritage Easement | No |
| OLW-078 | Industrial | 473 Adelaide Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-079 | Residential | 105-107 Portland Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |

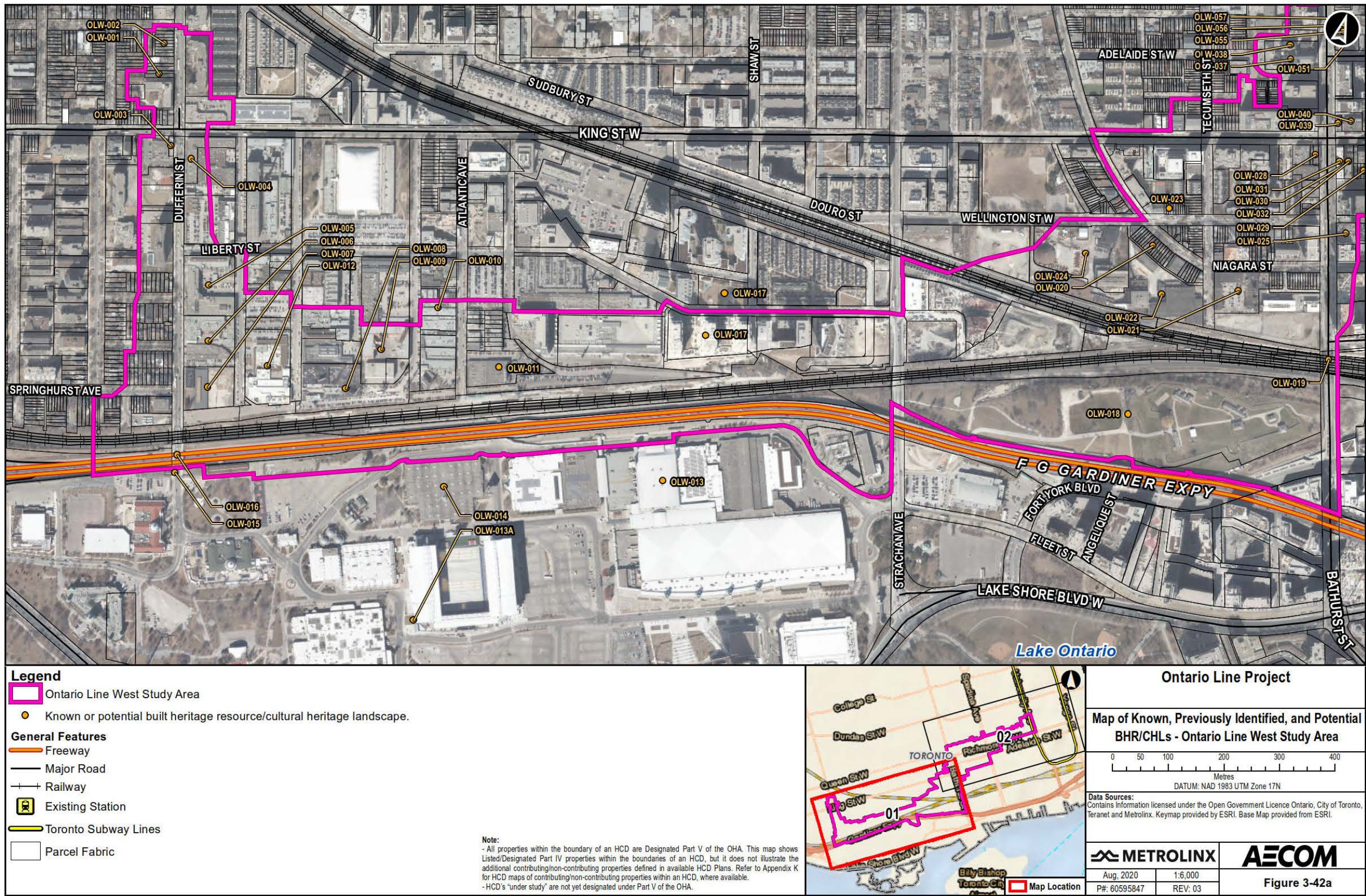
| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-080 | Commercial | 600 King Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-081 | Commercial | 582-592 King Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-082 | Commercial | 578-580 King Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-083 | Industrial | 570 (572) King Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V under appealCity of Toronto Heritage Easement Agreement | No |
| OLW-084 | Residential | 447-453 Adelaide Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-085 | Residential | 445 Adelaide Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-086 | Commercial | 544 King Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-087 | Institutional | 20 Brant Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-088 | Industrial | 494-522 King Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V, under appeal | No |
| OLW-089 | Commercial | 468-474 King Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-090 | Commercial | 72-76 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-091 | Commercial | 80-82 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal) | No |
| OLW-092 | Commercial | 25 Brant Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-093 | Commercial | 379-381 Adelaide Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V under appeal | No |
| OLW-094 | Commercial | 383 (and 385) Adelaide Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V under appeal | No |
| OLW-095 | Commercial | 96-104 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appealIntention to Designate Part IV | No |
| OLW-096 | Commercial | 110-112 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-097 | Commercial | 116 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |

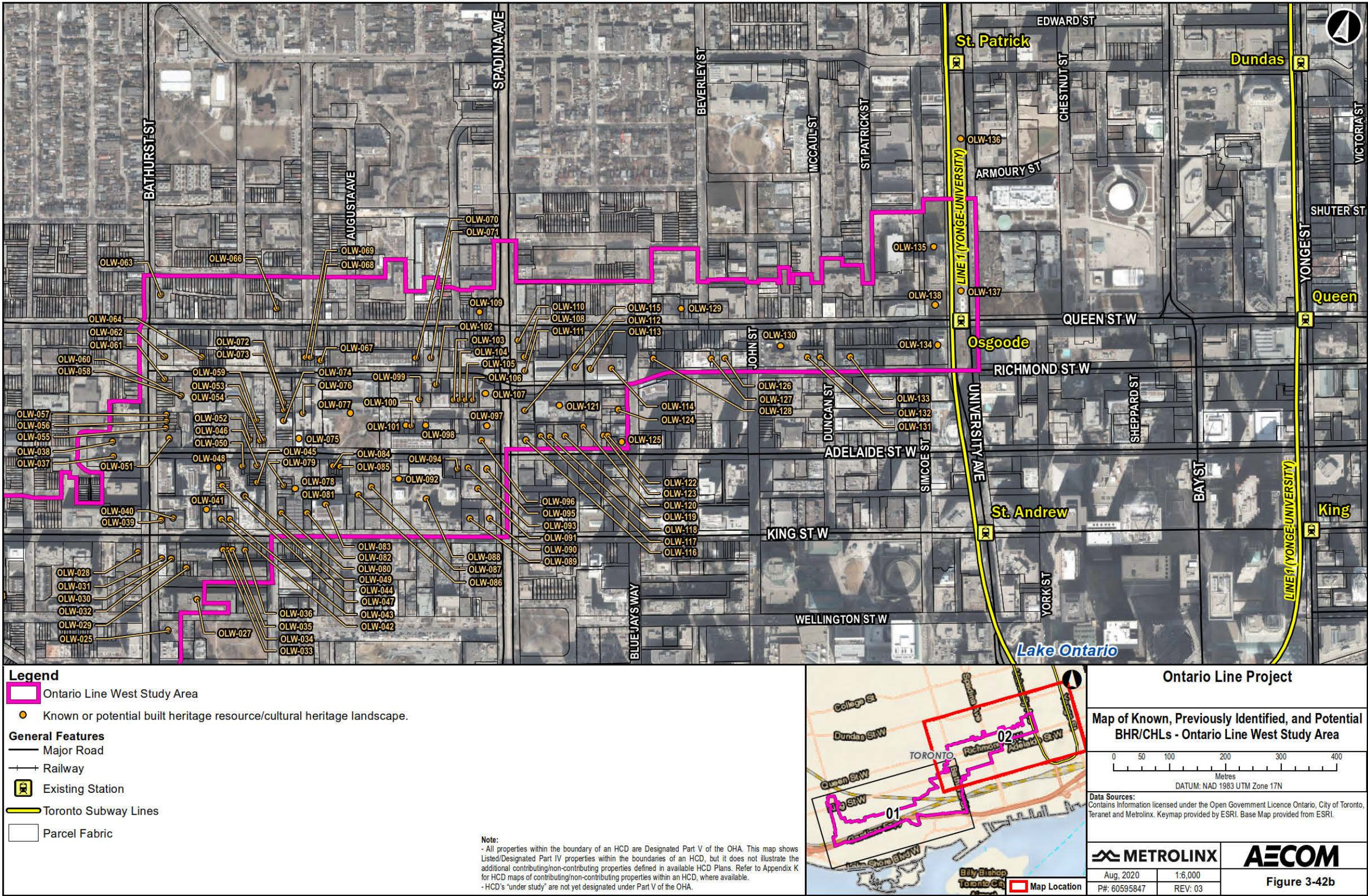
| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-098 | Commercial | 35 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-099 | Commercial | 38-40 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-100 | Commercial | 45 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-101 | Commercial | 47 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-102 | Commercial | 457 Richmond Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-103 | Commercial | 20 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-104 | Residential | 18 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-105 | Commercial | 12 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-106 | Commercial | 8 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V, under appeal | No |
| OLW-107 | Commercial | 126-140 Spadina Avenue, 425 Richmond Street West and 2 Camden Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-108 | Commercial/ Former Place of Worship | 161 Spadina Avenue | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field reviewDesignated Part V, under appeal | No |
| OLW-109 | Commercial | 388-396 Queen Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V | No |
| OLW-110 | Commercial | 441 Queen Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part VCity of Toronto Heritage Easement Agreement | No |
| OLW-111 | Commercial | 147 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-112 | Commercial | 372 Richmond Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-113 | Commercial | 364 and 370 Richmond Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-114 | Commercial | 134 Peter Street | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|----------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-115 | Commercial | 129 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-116 | Commercial | 119-121 Spadina Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | Yes |
| OLW-117 | Commercial | 384 Adelaide Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-118 | Commercial | 380 Adelaide Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-119 | Industrial | 366 Adelaide Street West | <ul style="list-style-type: none">Listed on the Municipal Heritage Register (May 2005)Designated Part V of the <i>Ontario Heritage Act</i> (By-Law #1241-2017, under appeal) | No |
| OLW-120 | Commercial | 358-360 Adelaide Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-121 | Industrial | 401 Richmond Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V under appeal | No |
| OLW-122 | Commercial | 350 Adelaide Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V under appealCity of Toronto Heritage Easement Agreement | No |
| OLW-123 | Commercial | 352 Adelaide Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V under appealCity of Toronto Heritage Easement Agreement | No |
| OLW-124 | Residential | 118 Peter Street | <ul style="list-style-type: none">Designated Part IVDesignated Part V under appealCity of Toronto Heritage Easement Agreement #AT4839370 | No |
| OLW-125 | Commercial/ Residential | 342 Adelaide Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-126 | Commercial | 296 Richmond Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-127 | Residential | 304 Richmond Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-128 | Commercial | 340 Richmond Street West | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V under appeal | No |
| OLW-129 | Commercial/ Residential | 280 Queen Street West | <ul style="list-style-type: none">Designated Part IVDesignated Part V | No |
| OLW-130 | Institutional | 295-299 Queen Street West | <ul style="list-style-type: none">Designated Part IVListed on Canadian RegisterDesignated Part VCity of Toronto Heritage Easement Agreement | Yes |

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLW-131 | Industrial | 260 Richmond Street West | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal | No |
| OLW-132 | Commercial | 250 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-133 | Commercial | 240 Richmond Street West | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLW-134 | Institutional | 250 University Avenue | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V | No |
| OLW-135 | Commercial | 330 University Avenue | <ul style="list-style-type: none">■ Designated Part IV | Yes (includes OLW-138, within OLW-136) |
| OLW-136 | Streetscape | University Avenue, east and west side, Front Street West, north to Queen's Park | <ul style="list-style-type: none">■ Potential built heritage resource/cultural heritage landscape■ Identified during field review | Yes |
| OLW-137 | Civic | Cenotaph, North side of Queen Street West at University Avenue (within OLW-137) | <ul style="list-style-type: none">■ Previously Identified built heritage resource/cultural heritage landscape | Yes (within OLW-136) |
| OLW-138 | Residential | 160 Queen Street West | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V | Yes (includes OLW-135, within OLW-136) |

Figure 3-42: Known, Previously Identified, and Potential Built Heritage Resources/Cultural Heritage Landscapes – Ontario Line West Study Area





3.6.3 Ontario Line South

The Ontario Line Cultural Heritage Report process undertaken for the Ontario Line South Study Area identified a total of 121 built heritage resources and cultural heritage landscapes, including four Heritage Conservation Districts. All known, previously identified, and potential built heritage resources/cultural heritage landscapes within the Ontario Line South Study Area are presented in **Figure 3-43**. Within the Ontario Line South Study Area, a total of 17 built heritage resources/cultural heritage landscape were determined to meet or potentially meet Ontario Regulation 10/06 under the Ontario Heritage Act, and thereby hold potential to be provincially significant heritage properties. A summary of built heritage resources and cultural heritage landscapes identified within the Ontario Line South Study Area is provided in **Table 3-49**.

Table 3-49: Summary of Built Heritage Resources and Cultural Heritage Landscapes – Ontario Line South Study Area

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLS-001 | Place of Worship | 660-662 Pape Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscapeListed on Ontario Heritage Trust Places of Worship Inventory | No |
| OLS-002 | Residential | 450 Pape Avenue | <ul style="list-style-type: none">Designated Part IV | No |
| OLS-003 | Cemetery | 462 Jones Avenue | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLS-004 | Institutional | 540 Jones Avenue | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLS-005 | Commercial | 638 Pape Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-006 | Residential Streetscape | 619-685 Pape Avenue 634-664 Pape Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-007 | Residential | 560 Pape Avenue | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLS-008 | Institutional | 701 Pape Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-009 | Commercial | 705-707 Pape Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-010 | Residential | 498 Pape Avenue | <ul style="list-style-type: none">Potential BHL/CHLIdentified during field review | No |
| OLS-011 | Institutional | 220 Langley Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-012 | Streetscape | 229-243 Langley Avenue | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-013 | Institutional | 840 Gerrard Street East | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-014 | Bridge | Carlaw Avenue Subway /Gerrard Street East Subway | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscapeMetrolinx Provincial Heritage Property | No |
| OLS-015 | Industrial | 400 Carlaw Avenue | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLS-016 | Industrial | 1 Dickens Street | <ul style="list-style-type: none">Potential built heritage resource/cultural heritage landscapeIdentified during field review | No |
| OLS-017 | Cultural Heritage Landscape-Heritage Conservation District | Riverdale Heritage Conservation District | <ul style="list-style-type: none">Designated Part V | No |
| OLS-018 | Cultural Heritage Landscape | Queen Street East – Riverside Heritage Conservation District | <ul style="list-style-type: none">Heritage Conservation District, under study | No |
| OLS-019 | Commercial/ Residential | 737 Queen Street East | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-020 | Institutional | 765-769 Queen Street East | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-021 | Industrial | 415 Eastern Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-022 | Industrial | 433 Eastern Avenue | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-023 | Institutional | 409 Front Street East, 425 Cherry Street | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-024 | Industrial | 385 Cherry Street | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscapeMetrolinx Provincial Heritage Property of Provincial Significance | Yes |
| OLS-025 | Bridge | Cherry Street Subway | <ul style="list-style-type: none">Previously Identified BHL/CHLMetrolinx Provincial Heritage Property | No |

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLS-026 | Bridge | Parliament Street Subway | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscapeMetrolinx Provincial Heritage Property | No |
| OLS-027 | Bridge | Lower Sherbourne Street Subway | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscapeMetrolinx Provincial Heritage Property | No |
| OLS-028 | Bridge | Lower Jarvis Street Subway | <ul style="list-style-type: none">Previously Identified built heritage resource/cultural heritage landscapeMetrolinx Provincial Heritage Property | No |
| OLS-029 | Cultural Heritage Landscape-Heritage Conservation District | Distillery District Heritage Conservation District | <ul style="list-style-type: none">National Historic SiteHeritage Conservation District Under StudyListed on the Canadian RegisterCity of Toronto Heritage Easement Agreement CA397773, CA397771, CA397781, CA397779, CA397777, CA397775, CA397783, AT228498. | OLS-029 (includes OLS-030, OLS-031, OLS-032) |
| OLS-030 | Former Industrial/ Residential | 390 Cherry Street | <ul style="list-style-type: none">Designated Part IVPart of the National Historic Site (1988)Listed on the Canadian RegisterCity of Toronto Heritage Easement Agreement | OLS-030 (within OLS-029) |
| OLS-031 | Industrial | 2 Trinity Street | <ul style="list-style-type: none">Designated Part IVPart of the National Historic Site (1988)Listed on the Canadian RegisterCity of Toronto Heritage Easement Agreement | OLS-031 (within OLS-029) |
| OLS-032 | Industrial | 55 Mill Street | <ul style="list-style-type: none">Designated Part IVPart of the National Historic Site (1988)Listed on the Canadian RegisterCity of Toronto Heritage Easement Agreement | OLS-032 (within OLS-029) |
| OLS-033 | Industrial | 369 Lake Shore Boulevard East | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-034 | Civic | 265, 269, 271 Front Street East, 25 Berkeley Street | <ul style="list-style-type: none">Designated Part IVDesignated Part V, under appeal | Yes |
| OLS-035 | Cultural Heritage Landscape - Heritage Conservation District | St. Lawrence Neighbourhood Heritage Conservation District | <ul style="list-style-type: none">Designated Part V, under appeal | No |
| OLS-036 | Residential/ Former Industrial | 2 Berkeley Street, 248, 250, 252, 254, 256, 258, 260, 262, and 264 The Esplanade | <ul style="list-style-type: none">Designated Part IVCity of Toronto Heritage Easement AgreementDesignated Part V under appeal | No |
| OLS-037 | Industrial | 26 Berkeley Street | <ul style="list-style-type: none">Designated Part IVDesignated Part V, under appeal | No |
| OLS-038 | Residential/ Former Industrial | 227 Front Street East (formerly 223 and 251 Front Street East) | <ul style="list-style-type: none">Designated Part IVCity of Toronto Heritage Easement AgreementDesignated Part V under appeal | No |
| OLS-039 | Commercial | 219 and 221 Front Street East | <ul style="list-style-type: none">Listed on Municipal Heritage RegisterDesignated Part V, under appeal | No |
| OLS-040 | Residential/ Former Industrial | 54 Berkeley Street, 359, 361 King Street East | <ul style="list-style-type: none">Designated Part IVCity of Toronto Heritage Easement AgreementDesignated Part V under appeal | No |
| OLS-041 | Residential/ Commercial | 302-306 King Street East | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |
| OLS-042 | Residential | 53-79 Berkeley Street, 535 Adelaide Street East | <ul style="list-style-type: none">Listed on Municipal Heritage Register | No |

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLS-043 | Commercial | 93-95 Berkeley Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement | No |
| OLS-044 | Residential | 111 Berkeley Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLS-045 | Residential | 115 Berkeley Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLS-046 | Civic | 525 Adelaide Street East, 70 Berkeley Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLS-047 | Commercial/ Residential | 56 Berkeley Street, 298, 300 King Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLS-048 | Commercial | 345 Queen Street East | <ul style="list-style-type: none">■ Designated, Part IV | No |
| OLS-049 | Institutional and Park | 150 Sherbourne Street (including structure address at 140 Sherbourne Street) | <ul style="list-style-type: none">■ Previously Identified built heritage resource/cultural heritage landscape■ Designated Part V under appeal | No |
| OLS-050 | Commercial | 263-265 Queen Street East | <ul style="list-style-type: none">■ Designated Part IV | No |
| OLS-051 | Commercial | 244-246 Queen Street East | <ul style="list-style-type: none">■ Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-052 | Commercial | 250 Queen Street East | <ul style="list-style-type: none">■ Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-053 | Commercial | 225 Queen Street East | <ul style="list-style-type: none">■ Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-054 | Industrial | 411 Richmond Street East | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement | No |
| OLS-055 | Commercial | 25 Ontario Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V under appeal | No |
| OLS-056 | Industrial | 427, 435 Adelaide Street East, 254, 256, 260, 266 King Street East, 157 Princess Street | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal | No |
| OLS-057 | Commercial | 237, 241, 243 Queen Street East | <ul style="list-style-type: none">■ Designated Part IV | No |
| OLS-058 | Industrial | 65, 69 and 75 Sherbourne Street, 366 Adelaide Street East | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V under appeal | No |
| OLS-059 | Residential | 363-365 Adelaide Street East | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V under appeal | No |
| OLS-060 | Commercial | 234, 236 King Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLS-061 | Commercial | 230 King Street East | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V under appeal | No |
| OLS-062 | Commercial | 251 King Street East | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal | No |
| OLS-063 | Cultural Heritage Landscape-Heritage Conservation District | Garden District Heritage Conservation District | <ul style="list-style-type: none">■ Designated Part V under appeal | No |
| OLS-064 | Commercial | 227-229 Queen Street East (Formerly 134-136 Sherbourne Street) | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |

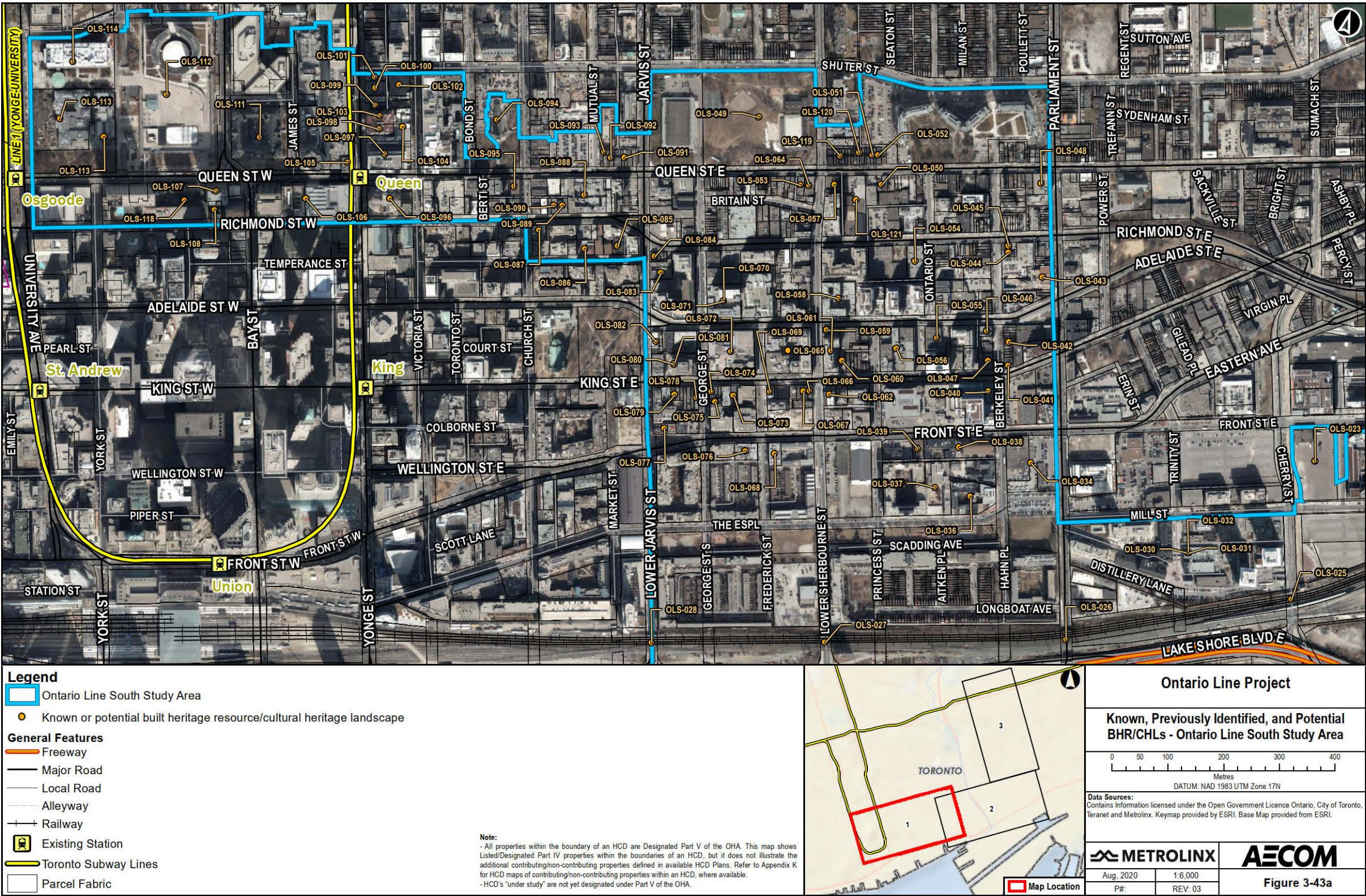
| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLS-065 | Commercial | 204, 210, 214 King Street East, 185 Frederick Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V, under appeal | No |
| OLS-066 | Commercial | 245-247 King Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLS-067 | Commercial | 241- 243 King Street East | <ul style="list-style-type: none">■ Listed on Municipal■ Designated Part V under appeal | No |
| OLS-068 | Commercial | 165 Front Street East | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal | No |
| OLS-069 | Industrial | 215 King Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLS-070 | Commercial | 252-258 Adelaide Street East, 97-99 George Street | <ul style="list-style-type: none">■ National Historic Site of Canada■ Designated Part IV■ Ontario Heritage Trust Easement Agreement■ City of Toronto Heritage Easement Agreement■ Designated Part V, under appeal■ Listed on the Canadian Register | Yes |
| OLS-071 | Commercial | 260-264 Adelaide Street East | <ul style="list-style-type: none">■ National Historic Site of Canada■ Designated Part IV■ Ontario Heritage Trust Easement Agreement■ Designated Part V under appeal■ Listed on the Canadian Register | Yes |
| OLS-072 | Industrial | 200 King Street East | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal | No |
| OLS-073 | Commercial | 197 King Street East | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal | No |
| OLS-074 | Commercial | 187 King Street East | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V under appeal | No |
| OLS-075 | Commercial | 65 George Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register■ Designated Part V under appeal | No |
| OLS-076 | Commercial | 139-145 Front Street East | <ul style="list-style-type: none">■ Designated Part IV■ Designated Part V under appeal | No |
| OLS-077 | Commercial | 100 Front Street East (includes properties formerly known as 94 and 98 Front Street East, 29 Jarvis Street),11 Jarvis Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V under appeal | No |
| OLS-078 | Commercial | 185 King Street East, 60-68 George Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V, under appeal | No |
| OLS-079 | Commercial | 167-179 King Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register Designated Part V, under appeal | No |

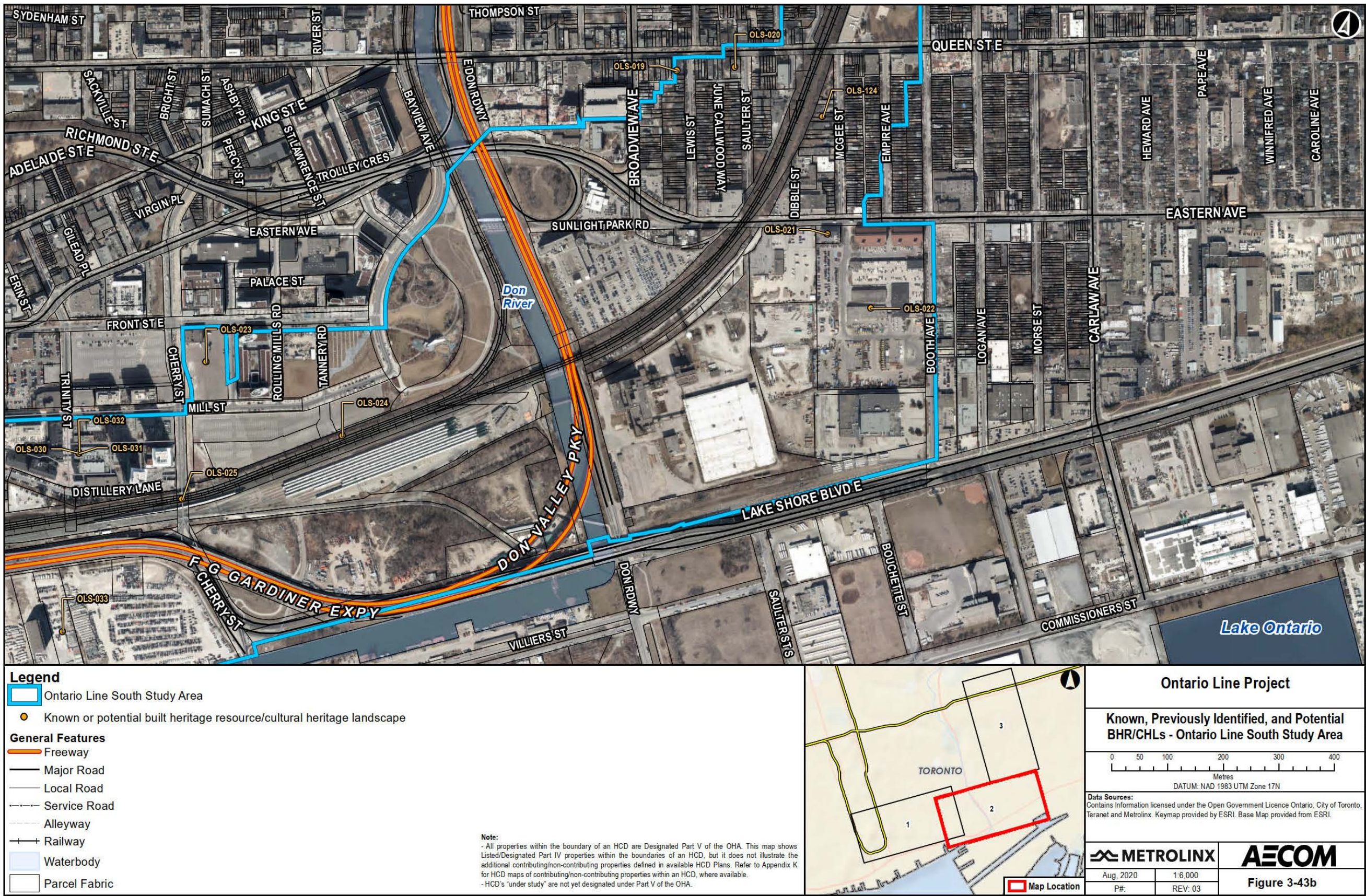
| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLS-080 | Commercial | 172 King Street East | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V, under appeal | No |
| OLS-081 | Commercial | 150-154 King Street East, 53-55 Jarvis Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V under appeal | No |
| OLS-082 | Commercial | 61-75 Jarvis Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement■ Designated Part V, under appeal | No |
| OLS-083 | Commercial | 99 Jarvis Street | <ul style="list-style-type: none">■ Designated Part IV | No |
| OLS-084 | Residential | 111-113 Jarvis Street, 155-157 Richmond Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | Yes |
| OLS-085 | Civic | 110 Lombard Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement | No |
| OLS-086 | Commercial | 86 Lombard Street | <ul style="list-style-type: none">■ Designated Part IV | No |
| OLS-087 | Commercial | 103 Church Street (includes 101 and 105 Church St and 65 Richmond Street) | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement | No |
| OLS-088 | Industrial | 114 Richmond Street East (Includes 94, 98, 100 and 110 Richmond Street East and 99, 107, 109, 111, 115, 123 Queen Street East) | <ul style="list-style-type: none">■ Designated Part IV | No |
| OLS-089 | Commercial | 90 Richmond Street East (Includes 86 and 88 Richmond Street East) | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLS-090 | Residential | 82-84 Richmond Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLS-091 | Commercial | 100-114 Queen Street East | <ul style="list-style-type: none">■ Previously Identified built heritage resource and cultural heritage landscape | No |
| OLS-092 | Commercial | 98 Queen Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLS-093 | Commercial | 3 Mutual Street | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLS-094 | Place of Worship | 56 Queen Street East, 51, 51 A, 53, 57 Shuter Street, 51 and 55 Bond Street, 174 Church Street | <ul style="list-style-type: none">■ Designated Part IV■ Listed on Ontario Heritage Trust Places of Worship Inventory | Yes |
| OLS-095 | Commercial | 79 Queen Street East | <ul style="list-style-type: none">■ Listed on Municipal Heritage Register | No |
| OLS-096 | Commercial | 8, 10, 12, 20, 22, 26 Richmond Street East, 106 Victoria Street, 157, 159 Yonge Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement | No |
| OLS-097 | Commercial | 173 Yonge Street | <ul style="list-style-type: none">■ Designated Part IV■ City of Toronto Heritage Easement Agreement | No |
| OLS-098 | Commercial | 193, 195 Yonge Street | <ul style="list-style-type: none">■ Designated Part IV | No |
| OLS-099 | Commercial | 205 Yonge Street | <ul style="list-style-type: none">■ Designated Part IV■ Ontario Heritage Trust Easement Agreement | Yes |
| OLS-100 | Commercial | 211-219 Yonge Street | <ul style="list-style-type: none">■ Listed on the Municipal Heritage Register | No |
| OLS-101 | Commercial | 221, 223 Yonge Street, 5 and 7 Shuter Street | <ul style="list-style-type: none">■ Listed on the Municipal Heritage Register | No |
| OLS-102 | Public | 15 Shuter Street, 178 and 180 Victoria Street | <ul style="list-style-type: none">■ Designated Part IV | Yes |

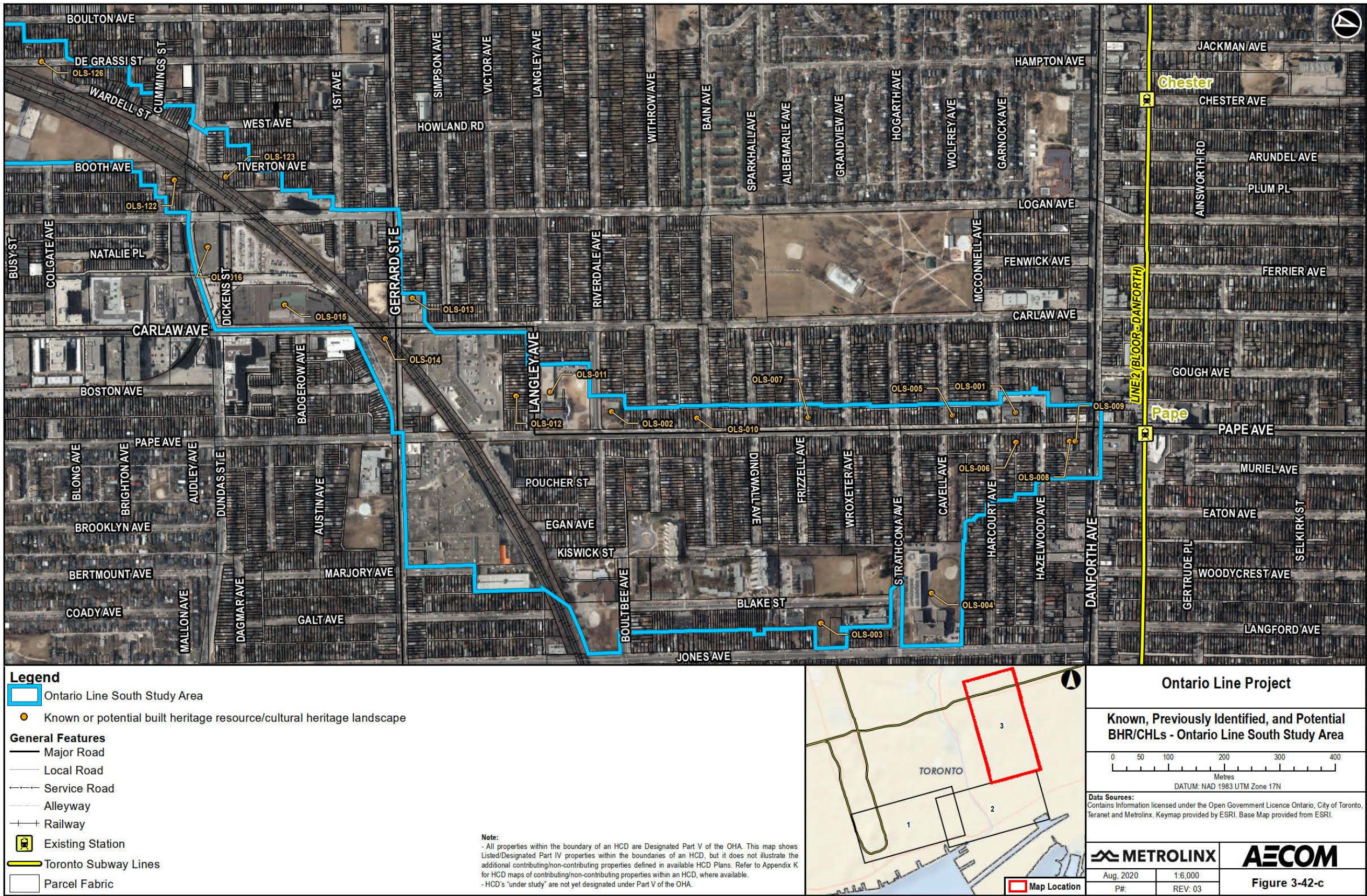
| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLS-103 | Commercial | 197, 197R, 201, Yonge Street, 170 and part of 160 Victoria Street, Related to 15 Shuter Street (49-2015) | ■ Designated Part IV | Yes |
| OLS-104 | Commercial | 189 Yonge Street, 146, 148 Victoria Street | ■ National Historic Site ■ Designated Part IV ■ Listed on the Canadian Register | Yes |
| OLS-105 | Commercial | 2 Queen Street West | ■ Designated Part IV ■ City of Toronto Heritage Easement Agreement | No |
| OLS-106 | Commercial | 176 Yonge Street, 401 Bay Street | ■ Designated Part IV | Yes |
| OLS-107 | Commercial | 65 Queen Street West | ■ Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-108 | Commercial | 80 Richmond Street West | ■ Listed on the Municipal Heritage Register | No |
| OLS-109 | Trinity Square- Cultural Heritage Landscape | Trinity Square – 6, 10, 14, 19, 24 Trinity Square | ■ Potential CHL- Identified during field review ■ Designated Part IV (6, 10, 19 Trinity Square) ■ City of Toronto Heritage Easement Agreement (6 and 10 Trinity Square) ■ Ontario Heritage Trust Places of Worship Inventory (19 Trinity Square) | Yes |
| OLS-111 ¹⁷ | Civic/Monument | 60 Queen Street West | ■ National Historic Site ■ Designated Part IV ■ Listed on the Canadian Register | Yes |
| OLS-112 | Civic | 100, 110 Queen Street West | ■ Designated Part IV | Yes |
| OLS-113 | Institutional | 130 Queen Street West | ■ National Historic Site – west part ■ Designated Part IV – east part ■ Listed on the Canadian Register – west part | Yes |
| OLS-114 | Institutional | 361 University Avenue | ■ Listed on the Municipal Heritage Register | Yes |
| OLS-118 ¹⁸ | Commercial | 123 Queen Street West | ■ Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-119 | Commercial | 216-232 Queen Street East | ■ Listed on the Municipal Heritage Register | No |
| OLS-120 | Commercial | 234-242 Queen Street East | ■ Designated Part IV | No |
| OLS-121 | Industrial | 245 Queen Street East | ■ Listed on the Municipal Heritage Register | No |
| OLS-122 | Residential | 6, 8 & 10 Paisley Avenue | ■ Previously Identified built heritage resource/cultural heritage landscape | No |
| OLS-123 | Residential | 15 and 17 Tiverton Avenue | ■ Previously identified built heritage resource/cultural heritage landscape | No |
| OLS-124 | Residential | 60 and 62 McGee Avenue | ■ Previously identified built heritage resource/cultural heritage landscape | No |
| OLS-126 ¹⁹ | Streetscape | De Grassi Street from Queen Street East to Wardell Street | ■ Potential built heritage resource/cultural heritage landscape ■ Identified during field review | No |

17. Gap in reference numbers due to amalgamation of two parcels to form OLS-109.
18. Gap in reference numbers due to change in study area boundary.
19. Gap in reference numbers due to change in study area boundary.

Figure 3-43: Known, Previously Identified, and Potential Built Heritage Resources/Cultural Heritage Landscapes – Ontario Line South Study Area







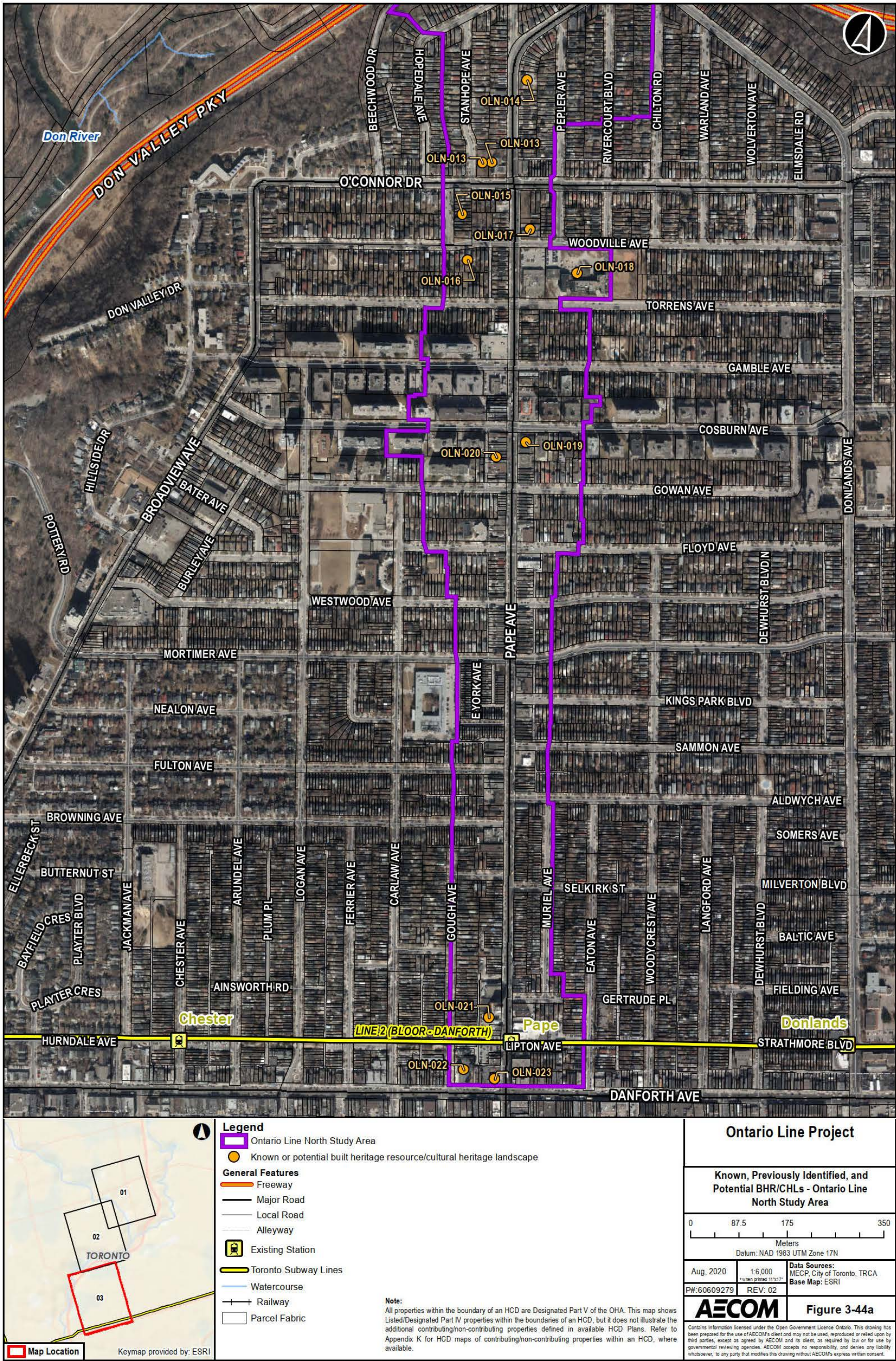
3.6.4 Ontario Line North

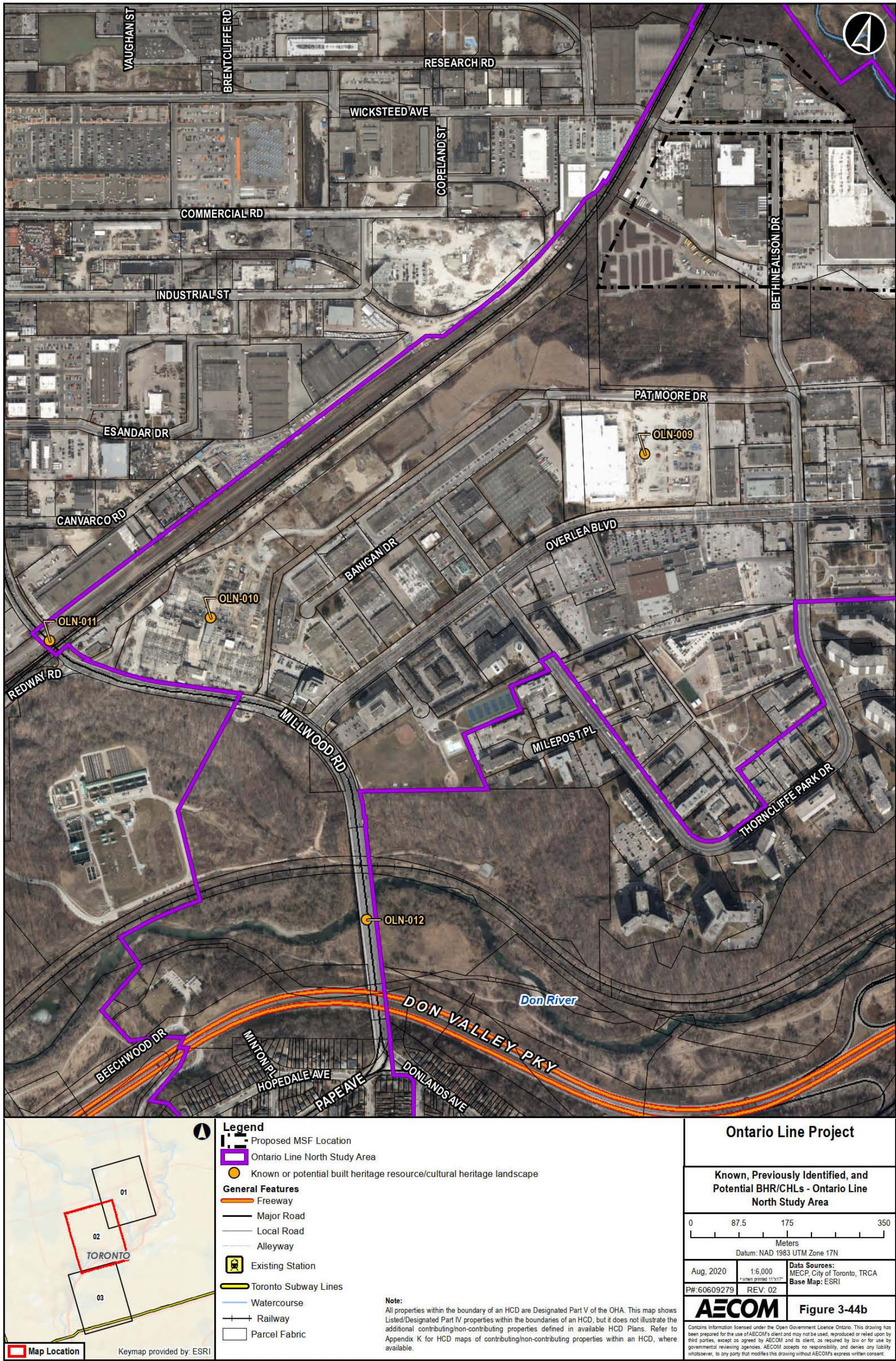
The Ontario Line Cultural Heritage Report process undertaken as part of the Ontario Line North Study Area identified a total of 23 built heritage resources and cultural heritage landscapes. All known, previously identified, and potential built heritage resources/cultural heritage landscapes within the Ontario Line North Study Area are presented in **Figure 3-44**. Within the Ontario Line North Study Area, a total of two properties, both currently Listed on the Municipal Heritage Register, were determined to meet or potentially meet Ontario Regulation 10/06 under the Ontario Heritage Act, and thereby hold potential to be provincially significant heritage properties. A summary of built heritage resources and cultural heritage landscapes identified within the Ontario Line North Study Area is provided in **Table 3-50**.

Table 3-50: Summary of Built Heritage Resources and Cultural Heritage Landscapes – Ontario Line North Study Area

| Built Heritage Resource/Cultural Heritage Landscape Ref. # | Type of Property | Location/Address | Heritage Recognition | Known or Potential Provincial Heritage Property of Provincial Significance |
|------------------------------------------------------------|---------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OLN-001 | Place of Worship | 849 Don Mills Rd. | ■ Previously Identified built heritage resources and cultural heritage landscape | No |
| OLN-002 | Commercial | 844 Don Mills Rd. | ■ Listed on Municipal Heritage Register | No |
| OLN-003 | Commercial | 1150 Eglinton Avenue | ■ Previously Identified built heritage resources and cultural heritage landscape | No |
| OLN-004 | Commercial | 789 Don Mills Road | ■ Previously Identified built heritage resources and cultural heritage landscape | No |
| OLN-005 | Institutional | 770 Don Mills Road | ■ Listed on Municipal Heritage Register | Yes |
| OLN-006 | Residential | 10-12 St Dennis Drive | ■ Listed on Municipal Heritage Register | No |
| OLN-007 | Residential | 18-22 St Dennis Drive | ■ Previously Identified built heritage resources and cultural heritage landscape | No |
| OLN-008 | Institutional | 55 Gateway Boulevard | ■ Listed on Municipal Heritage Register | No |
| OLN-009 | Commercial | 42-46 Overlea Boulevard | ■ Designated Part IV ■ City of Toronto Heritage Easement | No |
| OLN-010 | Infrastructure | 1080 Millwood Road | ■ Previously Identified built heritage resources and cultural heritage landscape ■ Provincial Heritage Property | No |
| OLN-011 | Bridge | Millwood Road Canadian Pacific Railway Overpass | ■ Potential built heritage resources and cultural heritage landscape ■ Identified during field review | No |
| OLN-012 | Bridge | Millwood Road - Leaside Bridge | ■ Listed on Municipal Heritage Register | No |
| OLN-013 | Place of Worship/Cemetery | 126 O'Connor Drive | ■ Potential built heritage resources and cultural heritage landscape ■ Identified during field review ■ Listed on Ontario Heritage Trust Places of Worship Inventory | No |
| OLN-014 | Residential | 1311 Pape Avenue | ■ Listed on Municipal Heritage Register | No |
| OLN-015 | Residential | 9-13 Hassard Avenue | ■ Listed on Municipal Heritage Register | No |
| OLN-016 | Residential | 89 Woodville Avenue | ■ Listed on Municipal Heritage Register | No |
| OLN-017 | Institutional | 1083 Pape Avenue | ■ Potential built heritage resources and cultural heritage landscape ■ Identified during field review | No |
| OLN-018 | Institutional | 100 Torrens Avenue | ■ Potential built heritage resources and cultural heritage landscape ■ Identified during field review | No |
| OLN-019 | Place of Worship | 1041 Pape Avenue | ■ Potential built heritage resources and cultural heritage landscape ■ Identified during field review ■ Listed on Ontario Heritage Trust Places of Worship Inventory | No |
| OLN-020 | Commercial Streetscape | 968-1042 Pape Avenue, 947-1031 Pape Avenue | ■ Potential built heritage resources and cultural heritage landscape ■ Identified during field review | No |
| OLN-021 | Place of Worship | 746 Pape Avenue | ■ Potential built heritage resources and cultural heritage landscape ■ Identified during field review | No |
| OLN-022 | Place of Worship | 606 Danforth Avenue | ■ Listed on Municipal Heritage Register ■ Listed on Ontario Heritage Trust Places of Worship Inventory | Yes |
| OLN-023 | Commercial | 646-650 Danforth Avenue | ■ Listed on Municipal Heritage Register | No |

Figure 3-44: Known, Previously Identified, and Potential Built Heritage Resources/Cultural Heritage Landscapes – Ontario Line North Study Area







3.7 Archaeological Resources

Three Stage 1 Archaeological Assessment Reports were completed – one for each Study Area – to document the existing archaeological resources and land use history, provide a high-level assessment of archaeological potential within each Study Area, as well as provide recommendations to assist in determining the appropriate Stage 2 archaeological assessment strategy for those areas with archaeological potential that will be impacted by the Project. This information will be used to support recommendations regarding cultural heritage values or interests as well as assessment and mitigation strategies.

The Stage 1 Archaeological Assessment Reports can be found in **Appendix B6**. Methodology is summarized in **Section 3.7.1** and the results are presented in **Section 3.7.2** (Ontario Line West), **Section 3.7.3** (Ontario Line South) and **Section 3.7.4** (Ontario Line North).

3.7.1 Methodology

A review of available information and field investigations were conducted to establish existing archaeological resources within the Ontario Line Study Area (mapped in **Figure 3-45 to Figure 3-47**).

The following aspects of archaeological resources were examined:

- Historical context (i.e., recent and historical maps of the Ontario Line Study Area);
- Previous archaeological assessments within 50 metres of the Ontario Line Study Area;
- The Ministry of Heritage, Sport, Tourism and Culture Industries Archaeological Sites Database for a listing of registered archaeological sites within a 1 kilometre radius of the Study Area;
- A visual inspection of the existing conditions of the Study Area and surroundings; and
- Archaeological management plans or other archaeological potential mapping, where available.

The Stage 1 Archaeological Assessments were conducted to meet the requirements of the Ministry of Heritage, Sport, Tourism and Culture Industries Standards and Guidelines for Consultant Archaeologists (Government of Ontario, 2011).

Detailed methodology description is provided in **Appendix B6**.

3.7.2 Ontario Line West

Based on a review of the historical, environmental, and archaeological context of the Ontario Line West Study Area, it has been determined that potential for the recovery of pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources within the study area is high based on the presence of the following features:

- Proximity to previously identified archaeological sites (44 registered sites within 1 kilometre);
- Distance to various types of water sources (Don and Humber River, Lake Ontario, Historic Garrison and Russell Creeks, and numerous smaller tributaries);
- Soil texture and drainage;
- Glacial geomorphology, elevated topography and the general topographic variability of the area;
- Resource areas including food or medicinal plants, scarce raw materials and early Euro-Canadian industry;
- Areas of early Euro- Canadian settlement and early transportation routes (City of Toronto, Fort York, Military Reserve Lands, railways, early concession roads);
- Properties listed on municipal register of properties designated under the Ontario Heritage Act (Government of Ontario, 1990b); and
- Historic landmarks or sites (Fort York, King-Spadina and Queen Street West Heritage Conservation Districts).

Certain features indicate that archaeological potential has been removed, such as land that has been subject to extensive and intensive deep land alterations that have severely damaged the integrity of any archaeological resources. This includes landscaping that involves grading below the topsoil level, building footprints, quarrying and sewage and infrastructure development (Government of Ontario, 2011). Areas of low archaeological potential within the Ontario Line West study area include 20th century subdivision and commercial developments as well as road construction. Additionally, several previous archaeological assessments have cleared various properties of archaeological concerns and these areas are considered to be cleared of further archaeological potential.

AECOM's Stage 1 background study of the Ontario Line West Study Area has determined that the potential for the recovery of archaeological resources is generally high, given the proximity of the study area to previous archaeological sites, water

sources, soil texture and drainage, topography, early Euro-Canadian industries, settlement and transportation routes, as well as properties listed on the municipal register. Archaeological potential has been removed from previously assessed and cleared areas, and there is low archaeological potential in areas determined to have been subject to deep and extensive land alterations that have significantly compromised the recovery of archaeological material. This conclusion is based on a review of previous archaeological assessments, the City of Toronto Archaeological Potential mapping, the field review completed by AECOM, and professional judgement. Areas identified as retaining archaeological potential must be subject to Stage 2 archaeological assessment.

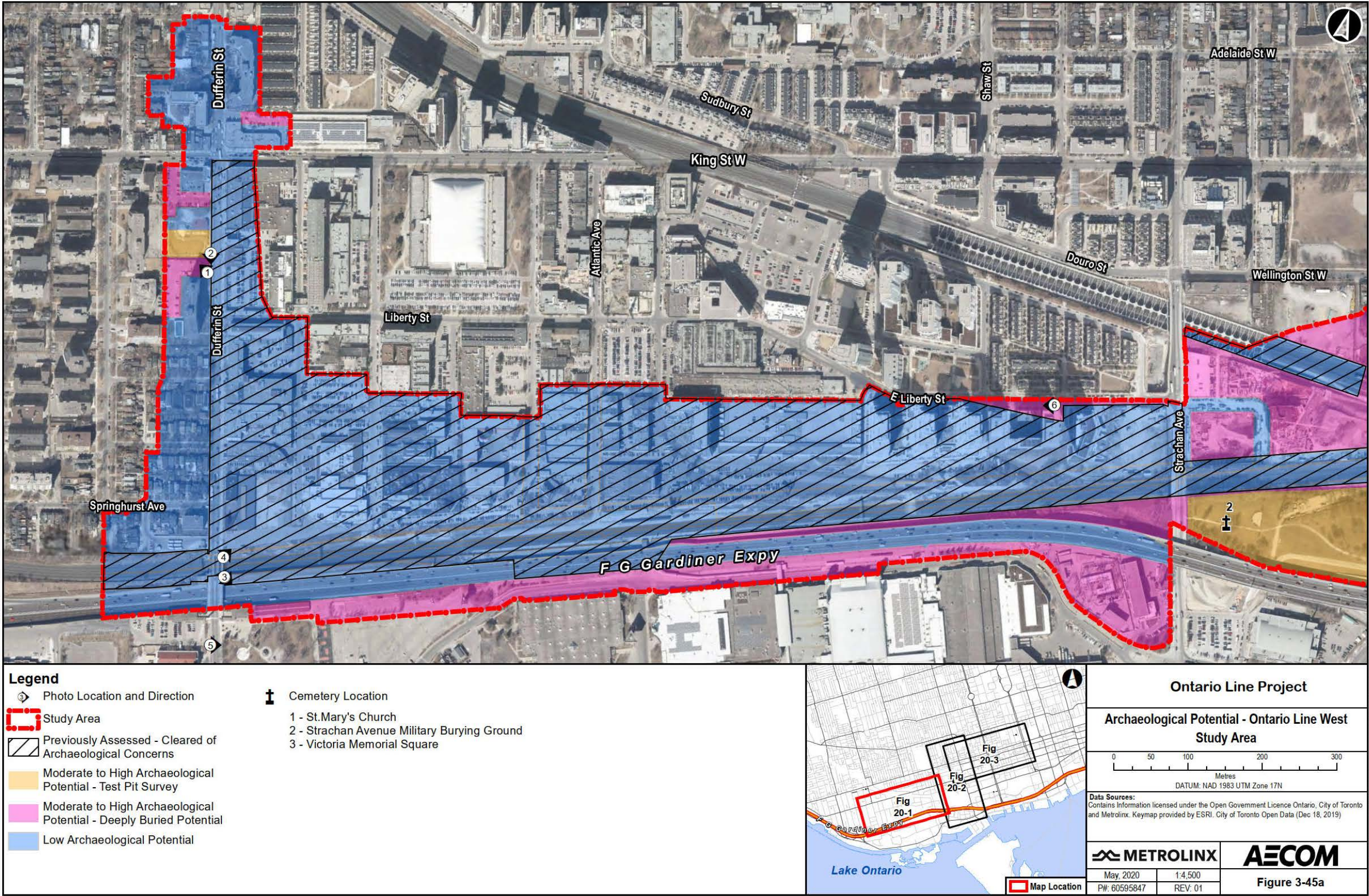
Refer to **Figure 3-45** for mapping showing the archaeological potential in the Ontario Line West Study Area.

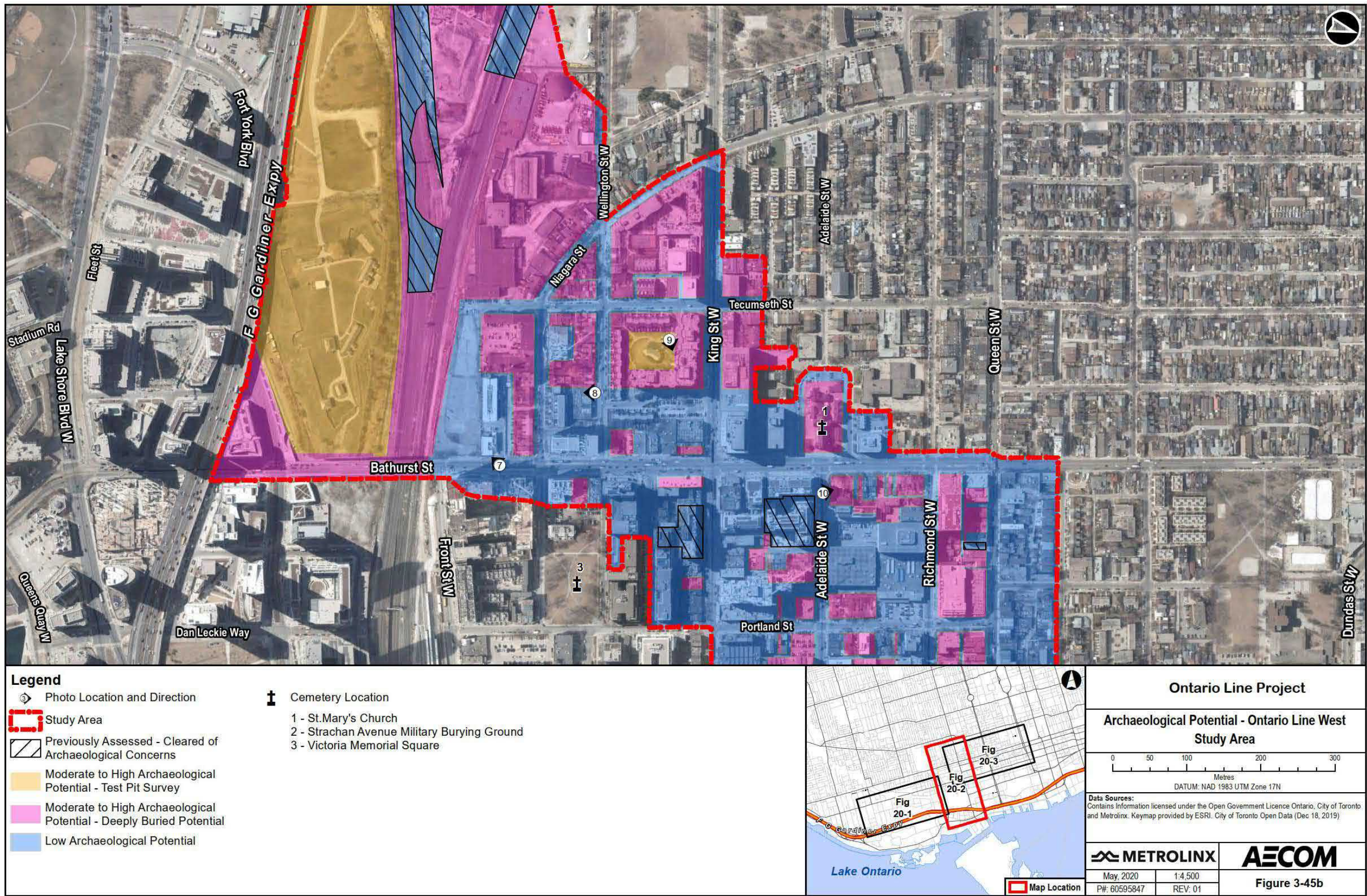
3.7.3 Ontario Line South

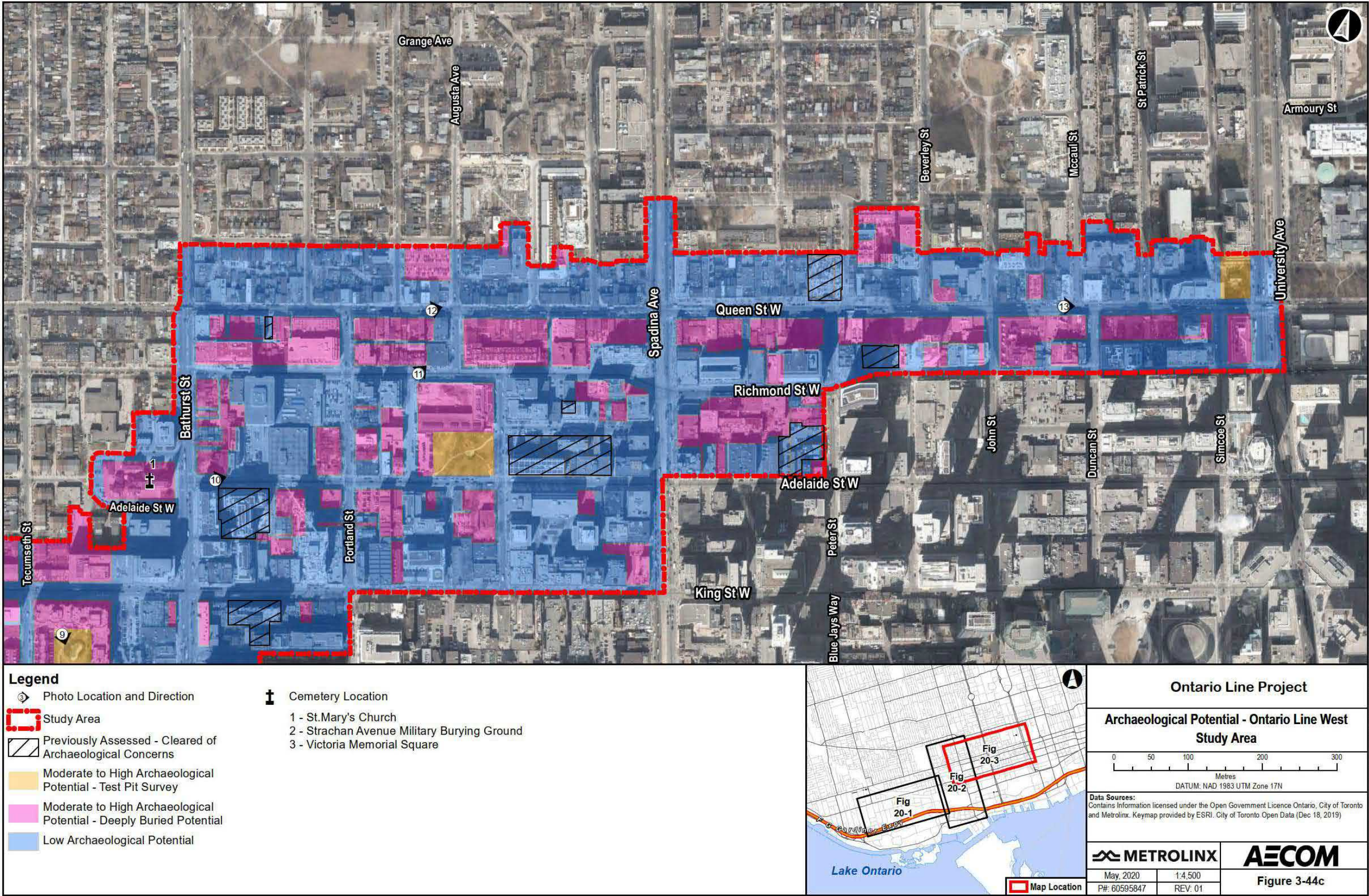
Based on a review of the historical, environmental, and archaeological context of the Ontario Line South Study Area, it has been determined that potential for the recovery of pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources within the study area is high based on the presence of the following features:

- Proximity to previously identified archaeological sites (39 registered sites, nine within the Ontario Line South Study Area);
- Distance to various types of water sources (Don River, Lake Ontario);
- Soil texture and drainage;
- Glacial geomorphology, elevated topography and the general topographic variability of the area;
- Resource areas including food or medicinal plants, scarce raw materials and early Euro-Canadian industry (William Davies Company, Gooderham and Worts Distillery, Joseph Simpson Knitting Mills);
- Areas of early Euro-Canadian settlement and early transportation routes (City of Toronto, railways, early concession roads);
- Properties listed on municipal register of properties designated under the Ontario Heritage Act (Government of Ontario, 1990b); and
- Historic landmarks or sites (Osgoode Hall, Bank of Upper Canada Building, Old Toronto City Hall and York County Court House, Fourth York Post Office, Elgin and Winter Garden Theatre, Massey Hall).

Figure 3-45: Archaeological Potential – Ontario Line West Study Area







Certain features indicate that archaeological potential has been removed, such as land that has been subject to extensive and intensive deep land alterations that have severely damaged the integrity of any archaeological resources. This includes landscaping that involves grading below the topsoil level, building footprints, quarrying and sewage and infrastructure development (Government of Ontario, 2011). Areas of low archaeological potential within the Ontario Line South Study Area include 20th century subdivision and commercial developments as well as road construction. Additionally, several previous archaeological assessments have cleared various properties of archaeological concerns and these areas are considered to be cleared of archaeological potential.

AECOM's Stage 1 background study of the Ontario Line South Study Area has determined that the potential for the recovery of archaeological resources is generally high, given the proximity of the study area to previous archaeological sites, water sources, soil texture and drainage, topography, early Euro-Canadian industries, settlement and transportation routes, as well as properties listed on the municipal register. Archaeological potential has been removed from areas determined to have been subject to deep and extensive land alterations that have significantly compromised the recovery of archaeological material. This conclusion is based on a review of previous archaeological assessments, the City of Toronto Archaeological Potential mapping, the field review completed by AECOM, and professional judgement. Areas identified as retaining archaeological potential must be subject to Stage 2 archaeological assessment.

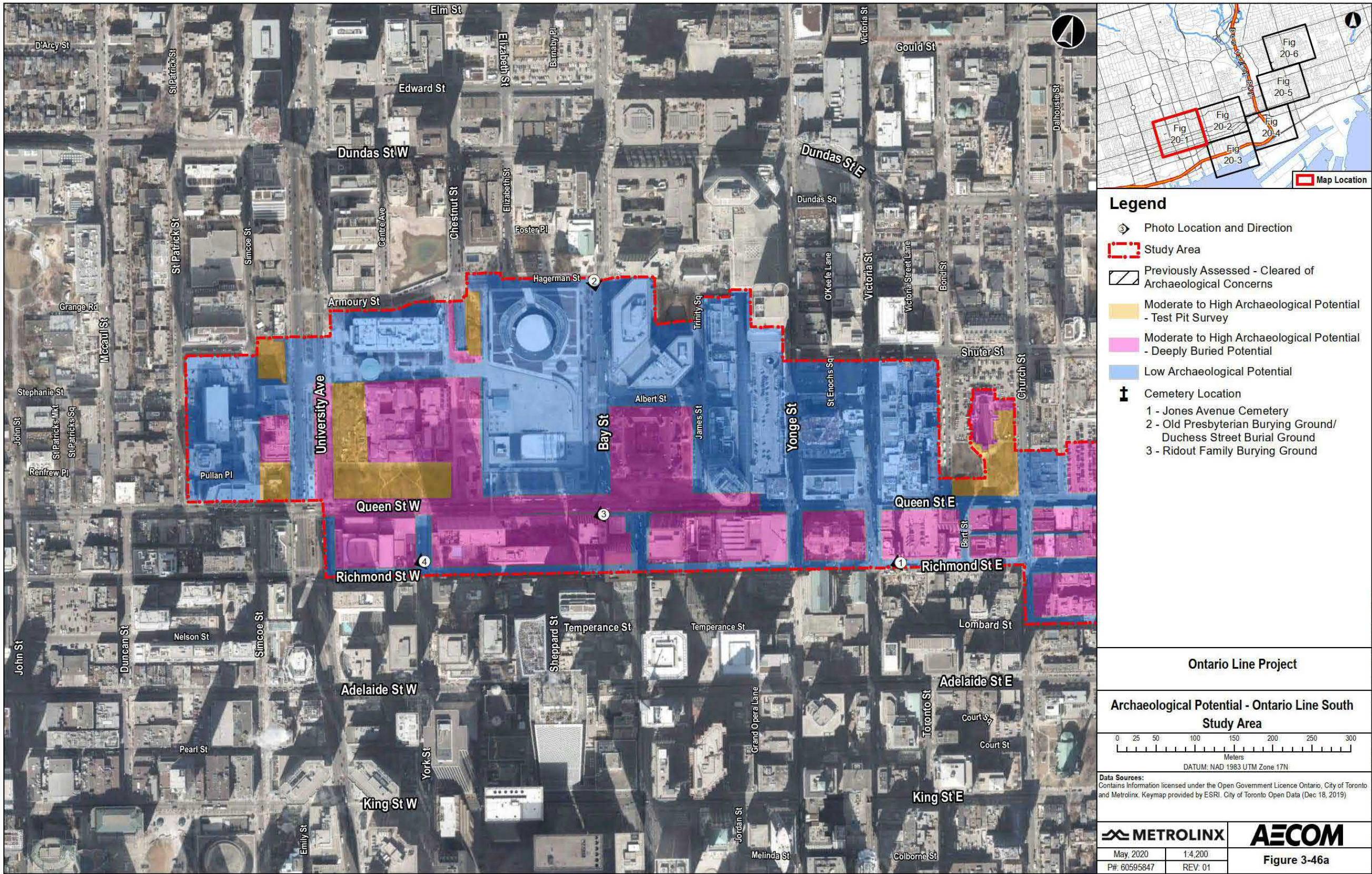
Refer to **Figure 3-46** for mapping showing the archaeological potential in the Ontario Line South Study Area.

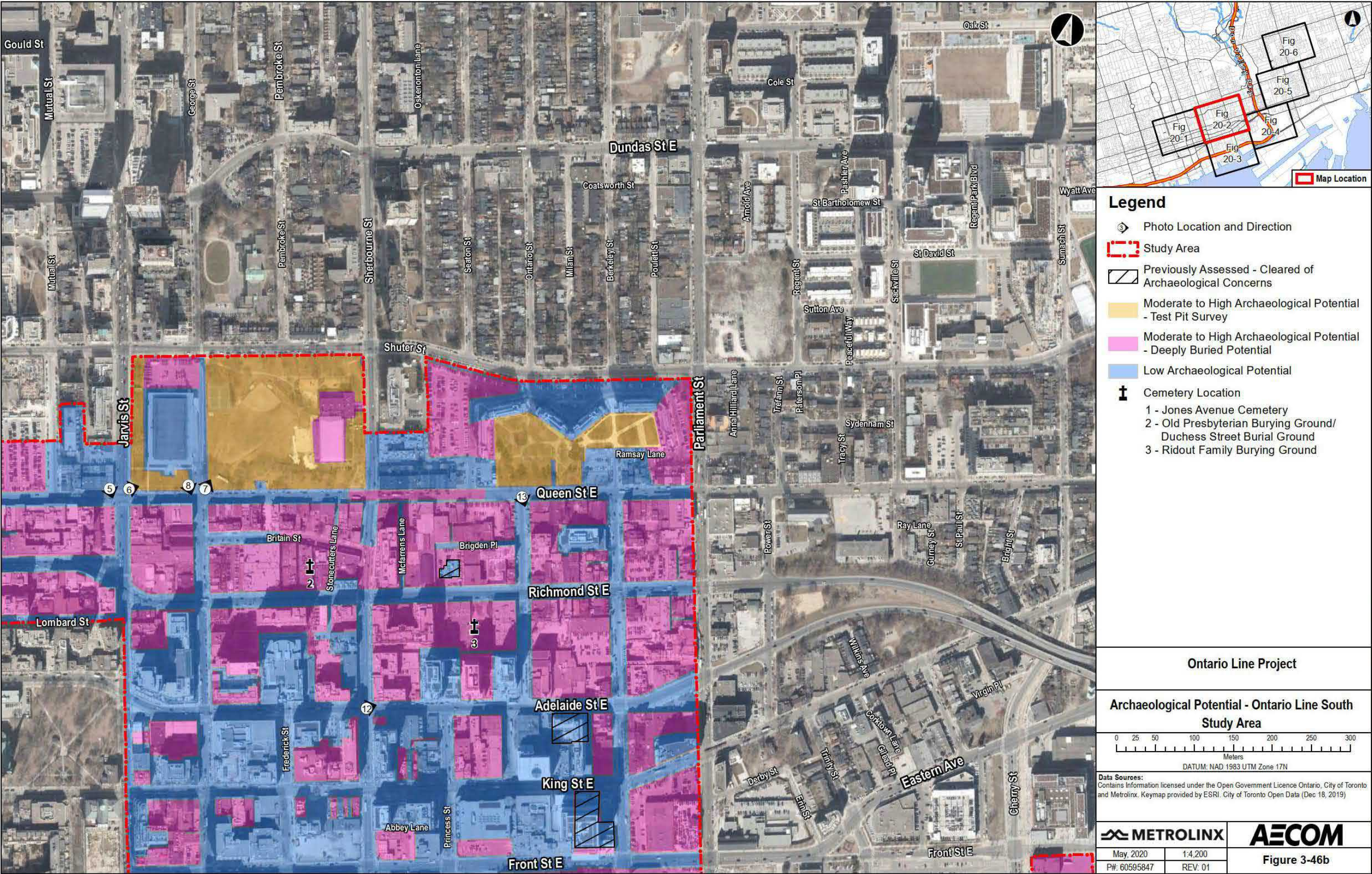
3.7.4 Ontario Line North

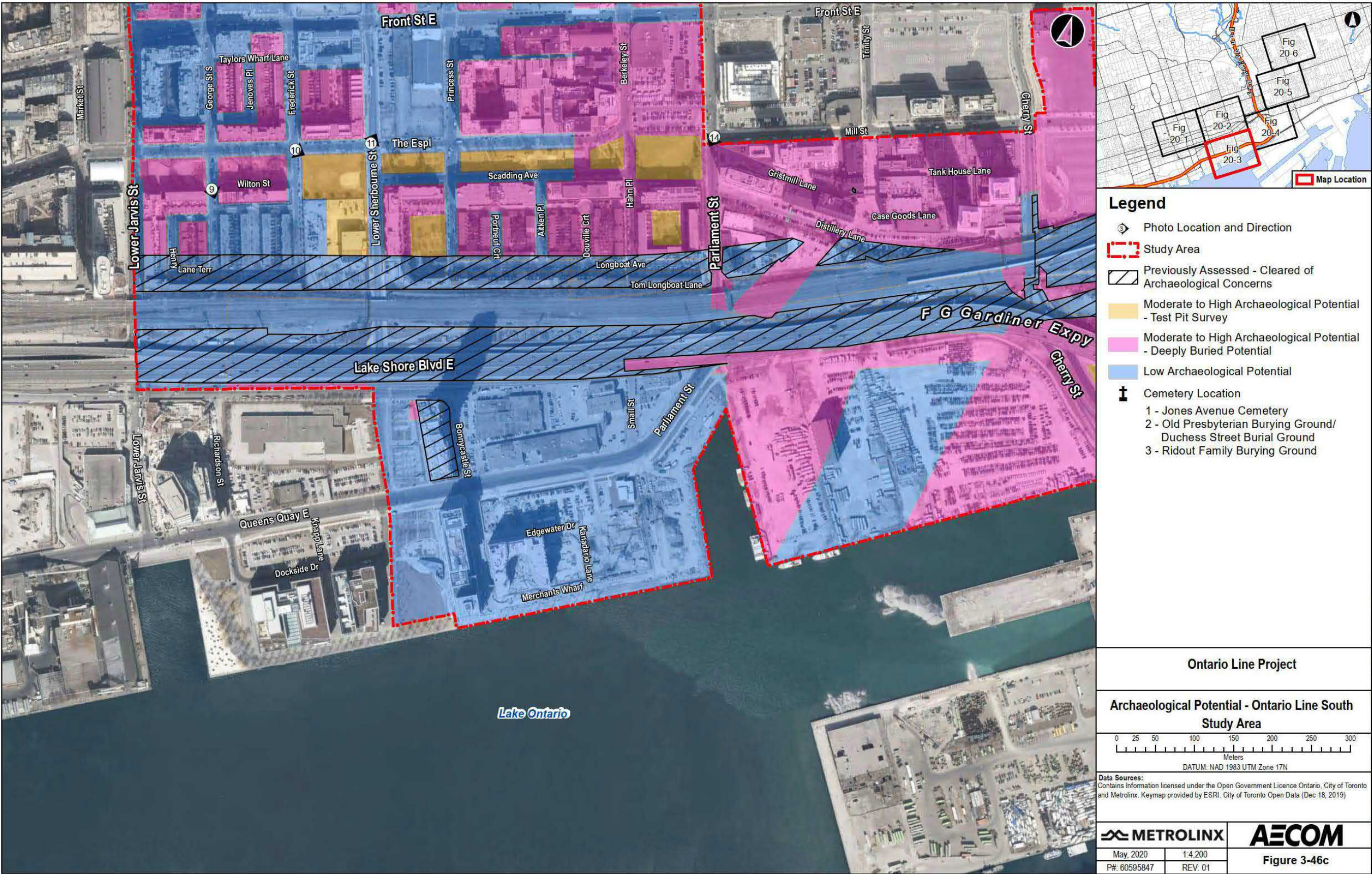
Based on a review of the historical, environmental, and archaeological context of the Ontario Line North Study Area, it has been determined that potential for the recovery of pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources within the study area is high based on the presence of the following features:

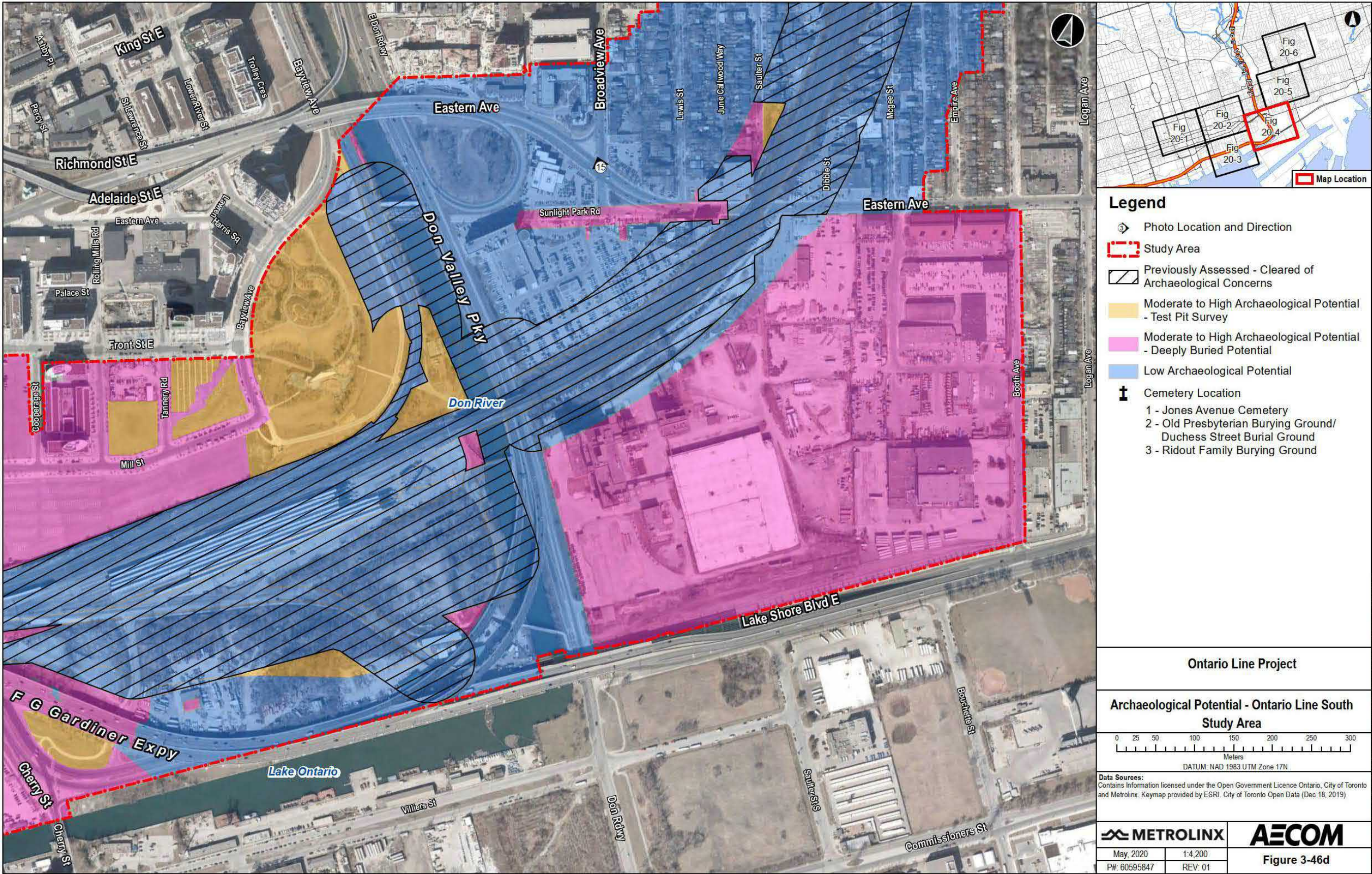
- Distance to various types of water sources (Don River, Lake Ontario, numerous smaller tributaries);
- Proximity to previously identified archaeological sites (five registered sites within 1 kilometre);
- Soil texture and drainage;

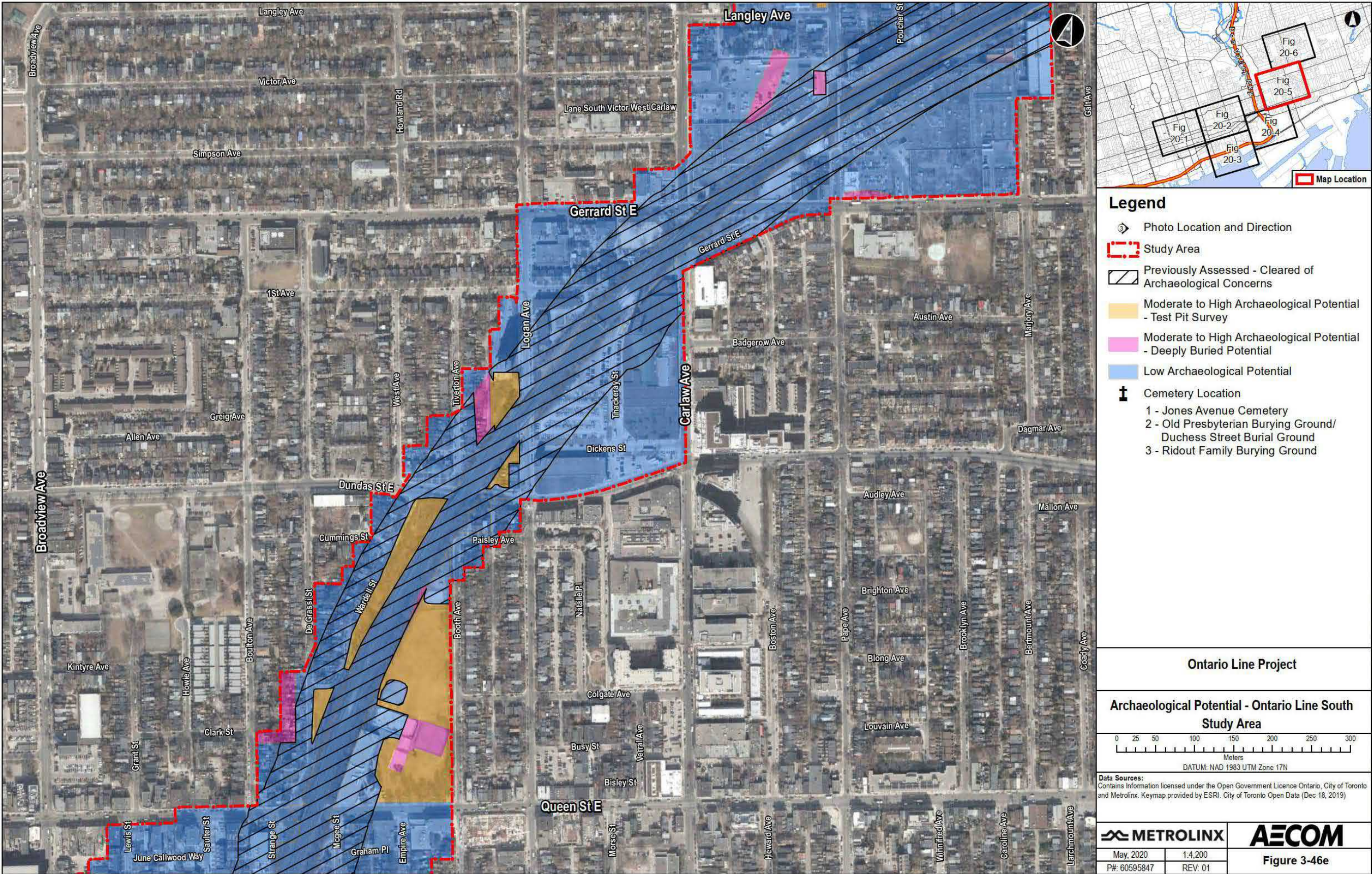
Figure 3-46: Archaeological Potential – Ontario Line South Study Area

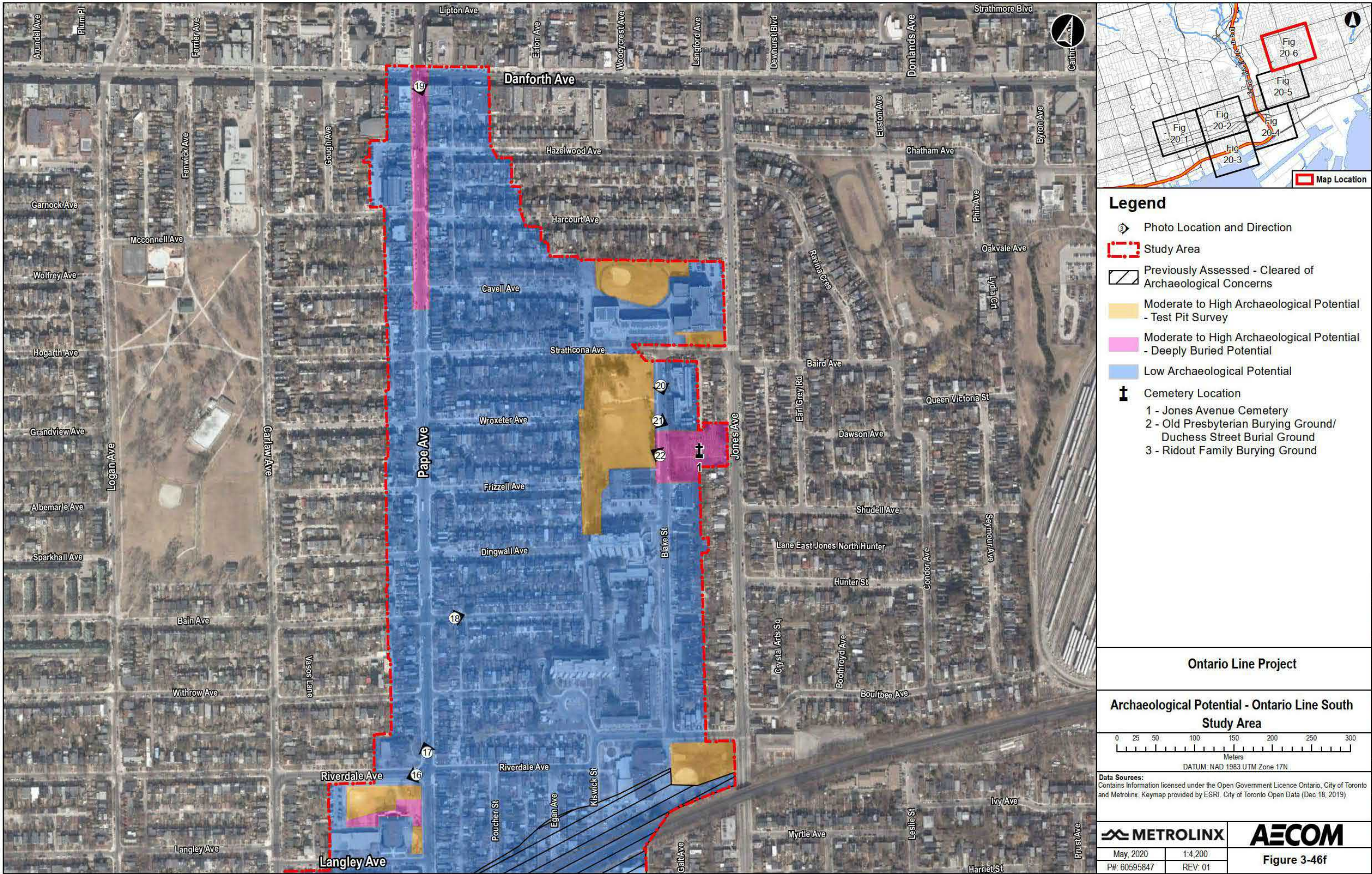












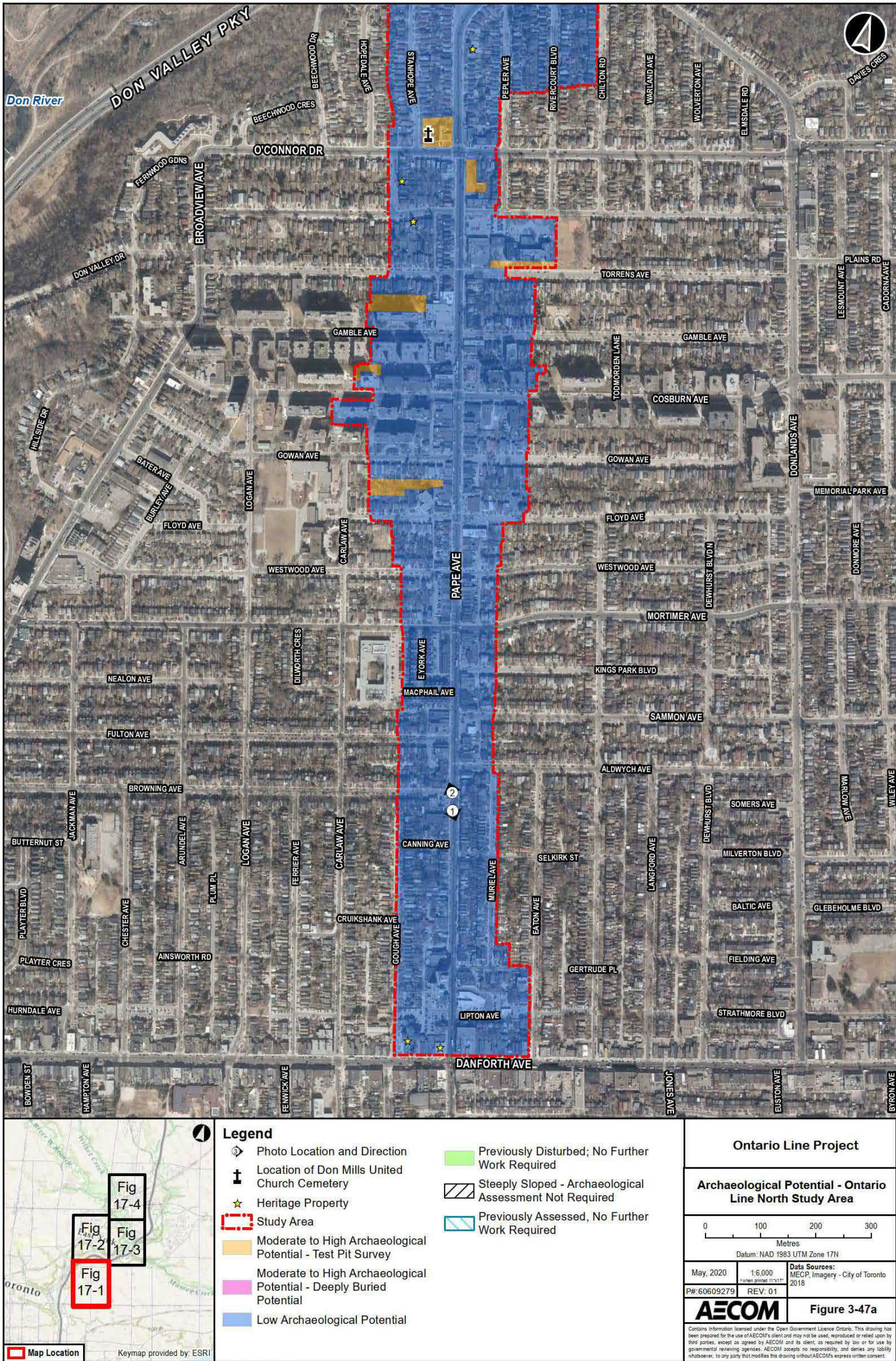
- Glacial geomorphology, elevated topography and the general topographic variability of the area;
- Resource areas including food or medicinal plants, scarce raw materials and early Euro-Canadian industry;
- Areas of early Euro- Canadian settlement and early transportation routes (Danforth Avenue, railways, early concession roads);
- Properties listed on municipal register of properties designated under the Ontario Heritage Act (Government of Ontario, 1990b); and
- Historic landmarks or sites (Don Mills United Church Cemetery).

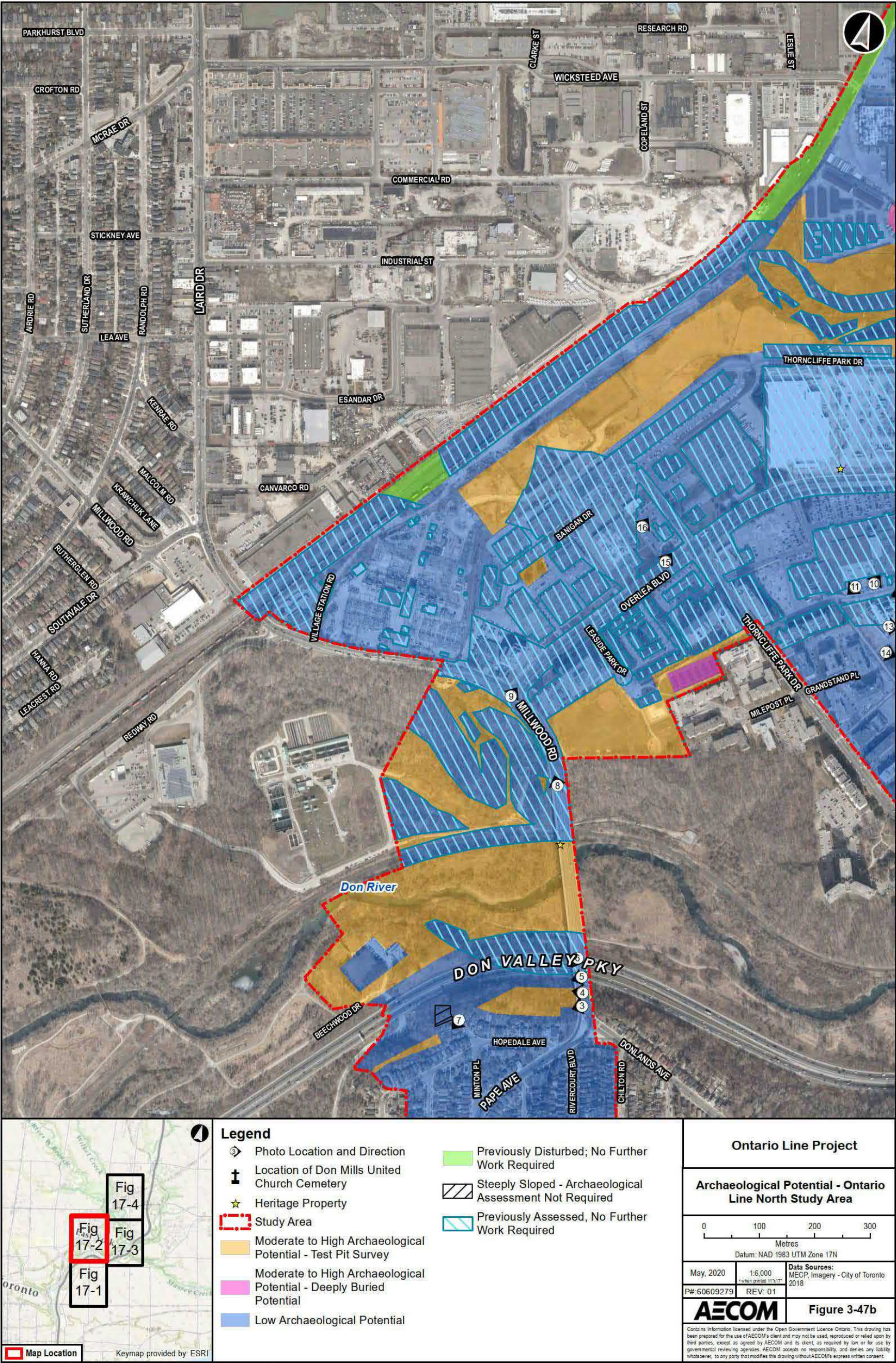
Certain features indicate that archaeological potential has been removed, such as land that has been subject to extensive and intensive deep land alterations that have severely damaged the integrity of any archaeological resources. This includes landscaping that involves grading below the topsoil level, building footprints, quarrying and sewage and infrastructure development (Government of Ontario, 2011).

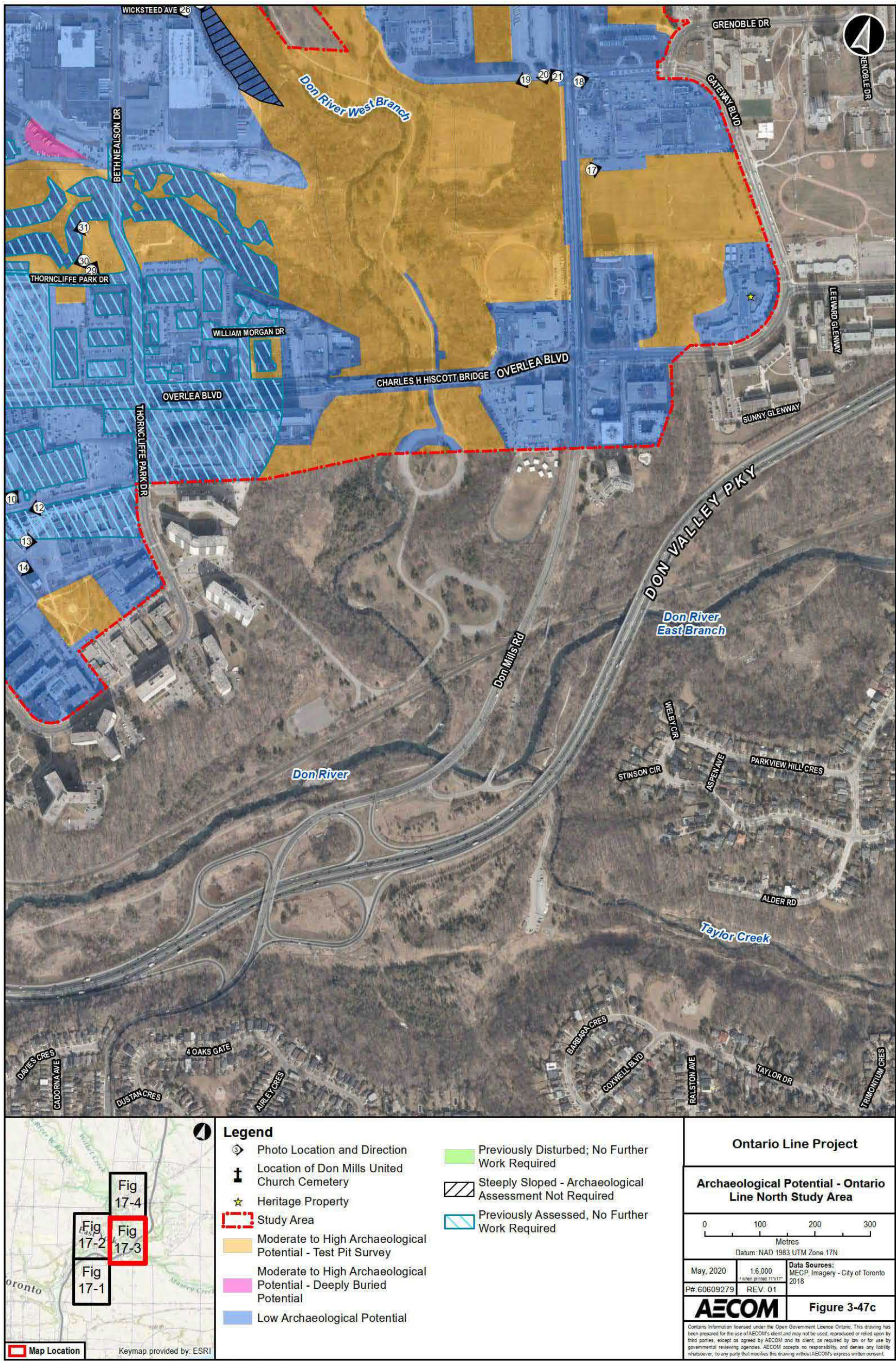
The Stage 1 archaeological assessment resulted in the finding that there is generally high potential for pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources to be present within the Ontario Line North Study Area. Based on the results of the background study and property inspection, it has been determined that archaeological potential has been removed from the southern portion of the study area as a result of extensive 20th century commercial, industrial, and residential development and associated infrastructure based on the 2004 Master Plan of Archaeological Resources for the City of Toronto: Interim Report (ASI 2004). However, some areas within the northern portion of the Ontario Line North Study Area were found to retain potential for the recovery of archaeological resources.

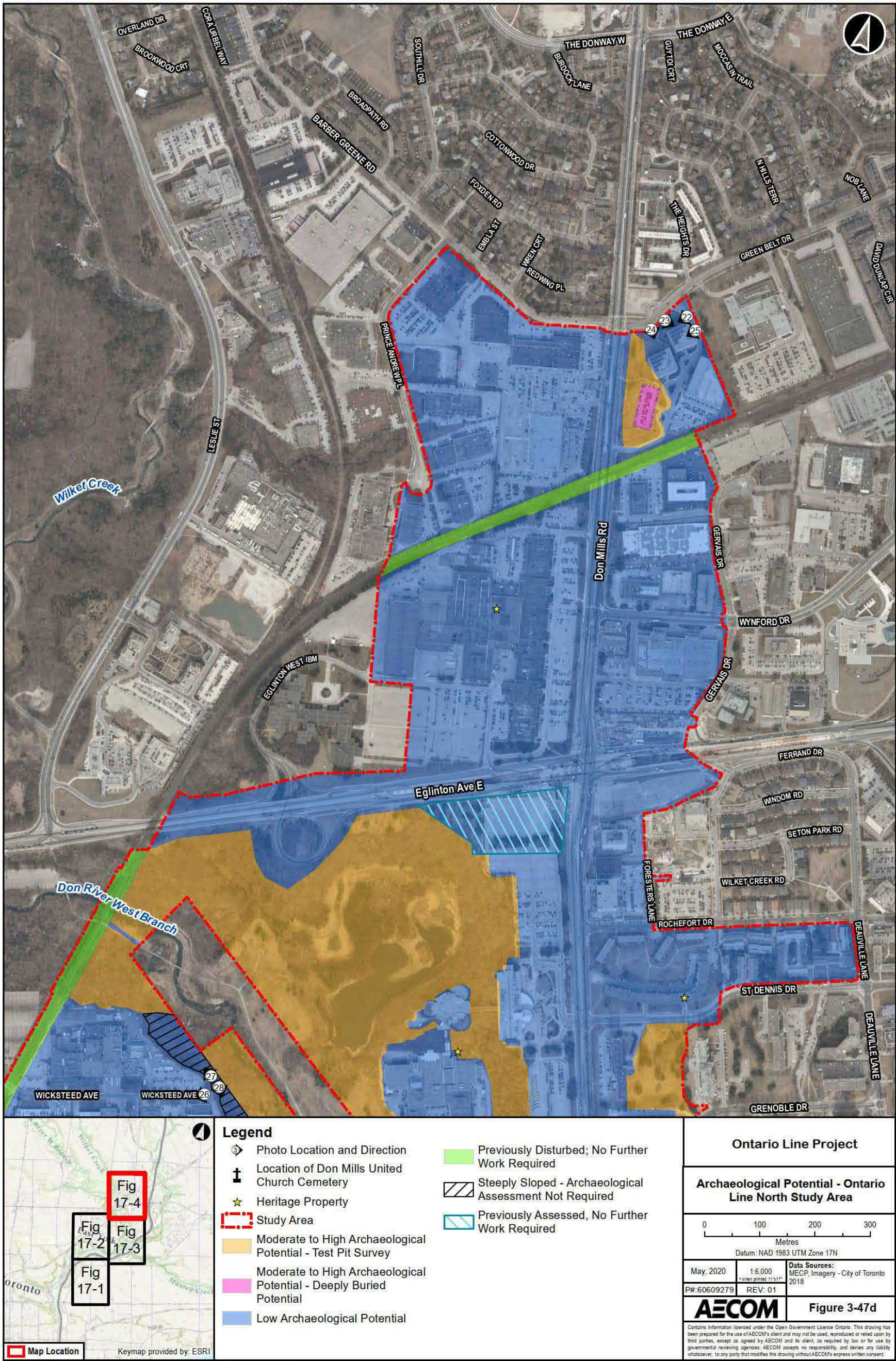
Refer to **Figure 3-47** for mapping showing the archaeological potential in the Ontario Line North Study Area.

Figure 3-47: Archaeological Potential – Ontario Line North Study Area









3.8 Traffic and Transportation

A Traffic and Transportation Report was completed to document existing traffic and transportation features, outline the preliminary description of the potential impacts of the Ontario Line Project on traffic and transportation, outline a description of potential mitigation measures to mitigate those impacts, describe potential impacts to traffic and transportation caused by the Ontario Line Project and the potential measures for mitigating any negative impacts in respect of them, and outline a preliminary list of the potential municipal, provincial, federal or other approvals or permits associated with traffic and transportation that may be required for the Ontario Line Project.

The Traffic and Transportation Report can be found in **Appendix B7**. Methodology is summarized in **Section 3.8.1** and the results are presented in **Section 3.8.2** (Ontario Line West), **Section 3.8.3** (Ontario Line South) and **Section 3.8.4** (Ontario Line North).

3.8.1 Methodology

A review of available information and field investigations were conducted to establish natural environment existing conditions within the Ontario Line Study Area (mapped in **Figure 3-48 to Figure 3-50**).

The following aspects of traffic and transportation were examined:

- Road network;
- Traffic volumes and operations (quantitative and qualitative);
- Transit network and operations;
- Pedestrian network and operations; and
- Cycling network and operations.

The Traffic and Transportation Report was prepared using both quantitative and qualitative methods based on the available Turning Movement Count (data and signal timing plans for signalized intersections. Where data was provided by the City of Toronto, a quantitative approach was followed for those intersections. The remaining intersections were assessed qualitatively.

For intersections that were assessed quantitatively, intersection capacity analyses were completed using Synchro 9 capacity analysis software in accordance with the methodologies outlined in the Highway Capacity Manual and in line with the City's Guidelines for Using Synchro 9. A Synchro model was developed to replicate traffic operations in the Study Areas under the Existing Conditions (2020) during the AM and

PM peak hours on a typical weekday. A description of the Synchro modelling parameters and assumptions is provided in **Appendix B7**.

A qualitative assessment was undertaken for the intersections within the Study Areas where the necessary traffic data to complete a quantitative assessment was not available. The qualitative assessment involved a review of lane configurations, active transportation facilities and locations, transit stops, etc. to identify any potential operational and/or safety concerns. In addition, the impact of adjacent Study Area intersections on the qualitatively assessed intersections was discussed (e.g., queue spillover).

A multi-modal level of service assessment was completed to document the current level of service for transit, pedestrians, and bicycles. Level of service criteria for signalized intersections is described by the Highway Capacity Manual 200 (Transportation Research Board, 2000) as follows:

- Level of service 'A' is described as free flow with less than 10 seconds per vehicle average control delay
- Level of service 'B' is described as stable flow (slight delays) with 10 to 20 seconds per vehicle average control delay
- Level of service 'C' is described as stable flow (acceptable delays) with 20 to 35 seconds per vehicle average control delay
- Level of service 'D' is described as approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding) with 35 to 55 seconds per vehicle average control delay
- Level of service 'E' is described as unstable flow (intolerable delay) with 55 to 80 seconds per vehicle average control delay
- Level of service 'F' is described as forced flow (congested and queues fail to clear) with over 80 seconds per vehicle average control delay

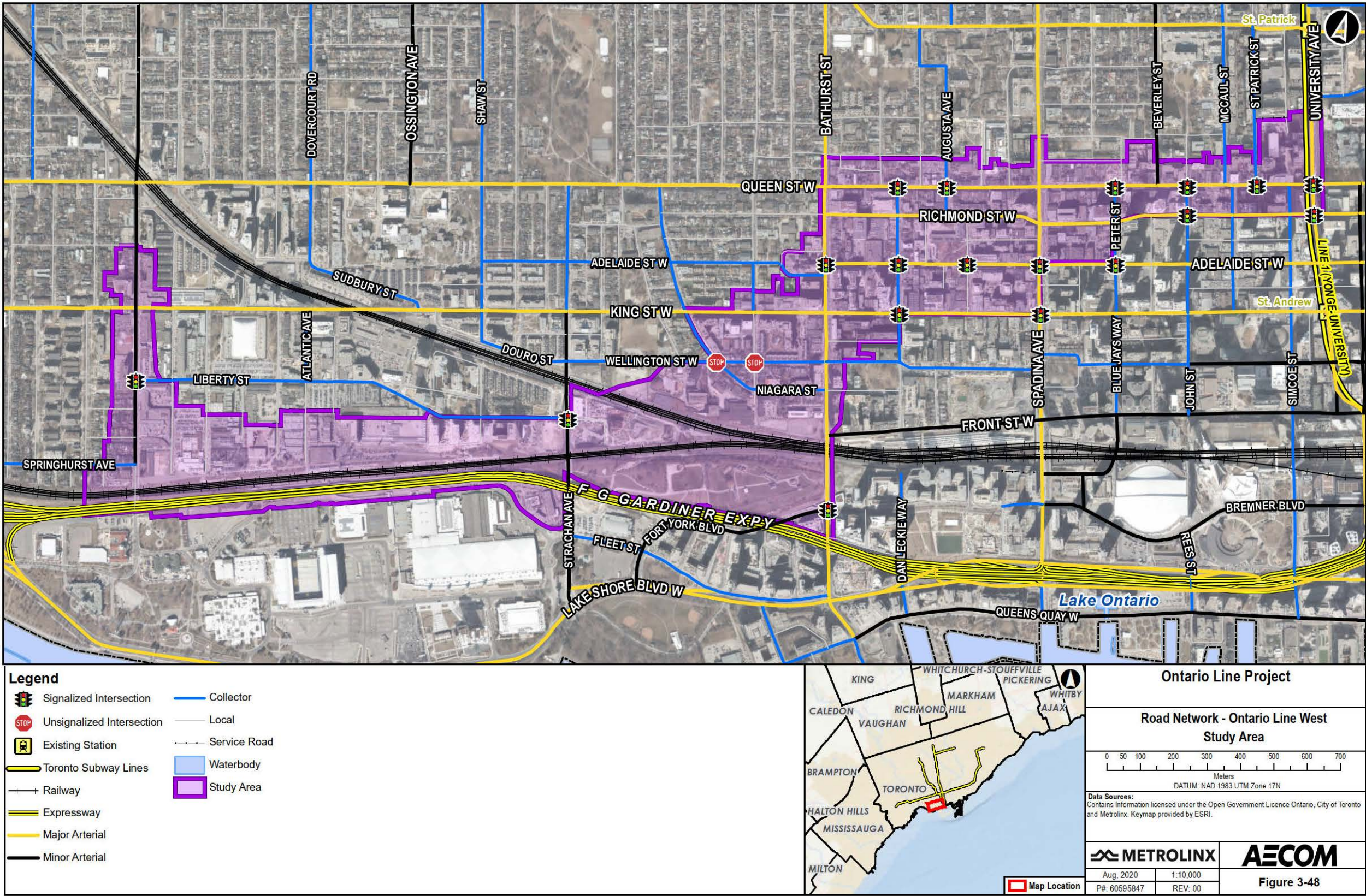
Detailed methodology description is provided in **Appendix B7**.

3.8.2 Ontario Line West

3.8.2.1 Road Network

The existing road network, road classification, and the traffic control devices of the intersections within the Ontario Line West Study Area that were quantitatively assessed are presented in **Figure 3-48**. Below is a detailed description of each road in the Ontario Line West Study Area. The roads' cross-section and speed limits are illustrated **Appendix B7**.

Figure 3-48: Road Network – Ontario Line West Study Area



Queen Street is a major east-west arterial road with a four-lane cross-section including a shared vehicular and streetcar lane running along the left-most lane of each direction. Within the Ontario Line West Study Area, Queen Street has a posted speed of 40 kilometres per hour and on-street parking is generally prohibited during the weekday peak periods along both sides.

Richmond Street is a major arterial road which runs one-way in the westbound direction. Within the Ontario Line West Study Area, Richmond Street has a three-lane cross-section and a cycle track running along the north side. Richmond Street has a posted speed of 40 kilometres per hour and on-street parking is generally prohibited during the weekday peak periods along both sides.

Adelaide Street is a major arterial road which runs one-way in the eastbound direction with a posted speed of 40 kilometres per hour. Within the Ontario Line West Study Area, Adelaide Street has a three-lane cross-section and a cycle track running along the south side. On-street parking is prohibited at all times along the south side and only during the morning peak period (7:00 AM to 9:00 AM) along the north side.

King Street is a major east-west arterial road with a four-lane cross-section. The King Street section within the Ontario Line West Study Area is a transit priority corridor which prohibits vehicles from completing through and left-turn movements at the intersections except for Toronto Transit Commission vehicles, emergency vehicles, road maintenance vehicles, and bicycles. King Street has a posted speed of 40 kilometres per hour and on-street parking is generally prohibited for regular traffic at all times along both sides, with curb lanes being utilized as loading zones and spaces for taxi idling.

University Avenue is a major north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line West Study Area, University Avenue has an eight-lane cross-section between Queen Street and Adelaide Street and a six-lane cross-section south of Adelaide Street. On-street parking is prohibited at all times along both sides between Queen Street and Front Street.

Spadina Avenue is a major north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line West Study Area, Spadina Avenue has a four-lane cross-section between Queen Street and Adelaide Street and a six-lane cross-section south of Adelaide Street. In addition, Spadina Avenue maintains a dedicated streetcar facility running in both directions along its centreline. On-street parking is generally prohibited during the weekday peak periods along both sides.

Bathurst Street is a major north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line West Study Area, Bathurst Street has a four-lane cross-section between Queen Street and Adelaide Street and a five-lane

cross-section south of Adelaide Street, including a shared vehicular and streetcar lane running along the left-most lane of each direction. On-street parking is prohibited during the afternoon peak period (4:00 PM to 6:00 PM) along the east side of the Bathurst Street section between Lakeshore Boulevard and King Street and during the morning peak period (7:00 AM to 9:00 AM) along the west side of the noted section. Parking is prohibited along both sides of Bathurst Street from King Street to Queen Street.

Fort York Boulevard is a minor east-west arterial road with a four-lane cross-section and on-street bike lanes running along either side of the street. Within the Ontario Line West Study Area, Fort York Boulevard does not have a posted speed and hence a statutory speed limit of 50 kilometres per hour is assumed. On-street parking is generally prohibited at all times along both sides of Fort York Boulevard.

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

Dufferin Street is a minor north-south arterial road with a four-lane cross-section including a shared vehicular and streetcar lane running along the left-most lane of each direction. Within the Ontario Line West Study Area, Dufferin Street has a posted speed of 50 kilometres per hour and on-street parking is prohibited during the afternoon peak period (4:00 PM to 6:00 PM) along the east side of Dufferin Street in proximity to Liberty Street and during the morning peak period (7:00 AM to 9:00 AM) along the west side of the noted section.

Strachan Avenue and **Beverley Street** are minor north-south arterial roads with two-lane cross-section and on-street bike lanes running along either side of both streets. Strachan Avenue has a posted speed of 40 kilometres per hour while Beverley Street has a posted speed of 30 kilometres per hour.

Peter Street, Portland Street, Duncan Street, Simcoe Street, and St. Patrick Street are north-south collector roads with two-lane cross-sections. Within the Ontario Line West Study Area, a statutory speed limit of 50 kilometres per hour is assumed along the noted streets due to the absence of posted speeds.

Augusta Avenue and **McCaul Street** are north-south collector roads with two-lane cross-sections and posted speeds of 40 kilometres per hour.

John Street and **Niagara Street** are north south collector roads with two-lane cross-sections and posted speeds of 30 kilometres per hour.

Wellington Street is an east-west collector road which runs one-way in the westbound direction between Portland Street and Niagara Street. Within the Ontario Line West

Study Area, it has a two-lane cross-section and has a posted speed of 30 kilometres per hour.

Liberty Street and **East Liberty Street** are east-west collector roads with two-lane cross-sections and posted speeds of 40 kilometres per hour.

Springhurst Avenue is an east-west collector road with a two-lane cross-section and a posted speed of 30 kilometres per hour.

Ace Lane, Bulwer Street, Camden Street, Fort Rouille Street, Housey Street, Ordnance Street, Oxley Street, Stewart Street, Temple Avenue, Thorburn Avenue, Western Battery Road, and Willis Street are east-west local roads with two-lane cross-sections and posted speeds of 30 kilometres per hour.

Atlantic Avenue, Brant Street, Tecumseth Street, Cameron Street, Denison Avenue, Fraser Avenue, Hanna Avenue, Jefferson Avenue, John Street, Maud Street, Morrison Street, Mowat Avenue, Pardee Avenue, Pirandello Street, Portugal Square, Ryerson Avenue, Soho Street, Vanauley Street, and Widmer Street are north-south collector roads with two-lane cross-sections and posted speeds of 30 kilometres per hour.

3.8.2.2 Intersections Analysis

Quantitative Analysis

Traffic Volumes

The Ontario Line West Study Area is comprised of specific areas designated as “Regeneration Areas” as per the City of Toronto’s Official Plan. These areas typically witness a growth in traffic as they attract investments and encourage new construction in an attempt to revitalize their underutilized areas. Hence, to capture the traffic growth between the date the Turning Movement Count data has been collected and the existing year (2020), an annual growth rate of 1% has been applied to the raw Turning Movement Count data.

Note that the traffic volume balancing was (i.e., the amount of traffic leaving one intersection was made equal to the amount of traffic arriving at the adjacent downstream intersection) conducted only between any two consecutive intersections where imbalance of traffic volumes is not justified; i.e., where there are no mid-block driveways or other access points for traffic to enter or exit the Study Area between the two consecutive intersections.

The Turning Movement Count data comparison details are provided in **Appendix B7**.

Traffic Operations

The analysis findings on traffic operations at the Ontario Line West Study Area intersections in the Existing Conditions (2020) are summarized in **Table 3-51**. The critical movements are highlighted in grey in **Table 3-51** and are defined as those operating either with a V/C ratio in excess of 0.84 or at Level of Service 'E' or 'F'. The detailed High Capacity Manual 2000 reports from Synchro pertaining to the Existing Conditions analysis are presented in **Appendix B7**.

As shown in **Table 3-51** all the Study Area intersections, where traffic data were available, operate at acceptable Level of Service 'D' or better and within capacity in both the AM and PM peak hours. However, in the AM peak hour, motorists experience relatively long average delays in making the following critical movements:

- Northbound through and southbound left-turn movements at the intersection of Spadina Avenue and Adelaide Street;
- Northbound left-turn movement at the intersection of Spadina Avenue and King Street; and
- Eastbound left-turn movement at the intersection of Bathurst Street and Fort York Boulevard.

Among the noted critical movements, the southbound left-turn movement at the intersection of Spadina Avenue and Adelaide Street has the longest average delay of 109.6 seconds representing Level of Service 'F' in the AM peak hour.

In addition, the following movements are approaching capacity (i.e., V/C ratio in excess of 0.90):

- Northbound through and southbound left-turn movements at the intersection of Spadina Avenue and Adelaide Street with both movements operating at a V/C ratio of 0.99; and
- Eastbound left-turn movement at the intersection of Bathurst Street and Fort York Boulevard with V/C ratio of 0.93.

In the PM peak hour and as shown in **Table 3-51**, motorists experience relatively long average delays in making the following critical movements:

- The shared northbound left-turn and right-turn movements at the intersection of Queen Street and Portland Street;
- Southbound left-turn movement at the intersection of Spadina Avenue and Adelaide Street;

Table 3-51: Summary of Traffic Operations at the Ontario Line West Study Area Intersections under Existing Conditions (2020) during the AM and PM Peak Hours

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay (sec) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (metres) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay (sec) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (metres) |
|--------------------------------------------------------|----------|---------------------------------------------|--------------------------------|-------------------------------------|---------------------------------------------------------------|---------------------------------------------|--------------------------------|-------------------------------------|---------------------------------------------------------------|
| Queen Street and University Avenue (Signalized) | EBTR | 0.43 | 24.9 | C | 46.5 | 0.33 | 20.8 | C | 37.1 |
| Queen Street and University Avenue (Signalized) | WBTR | 0.60 | 27.9 | C | 72.4 | 0.49 | 23.2 | C | 59.3 |
| Queen Street and University Avenue (Signalized) | NBTR | 0.32 | 10.0 | B | 19.1 | 0.48 | 10.5 | B | 17.4 |
| Queen Street and University Avenue (Signalized) | SBTR | 0.59 | 21.0 | C | 75.2 | 0.52 | 22.3 | C | 59.3 |
| Queen Street and University Avenue (Signalized) | Overall | 0.58 | 20.1 | C | - | 0.49 | 18.1 | B | - |
| Queen Street and St. Patrick Street (Signalized) | EBLT | 0.47 | 8.1 | A | 27.0 | 0.35 | 6.8 | A | 19.7 |
| Queen Street and St. Patrick Street (Signalized) | WBTR | 0.32 | 9.5 | A | 25.6 | 0.38 | 9.9 | A | 39.9 |
| Queen Street and St. Patrick Street (Signalized) | SBLR | 0.28 | 27.1 | C | 26.0 | 0.57 | 31.0 | C | 44.5 |
| Queen Street and St. Patrick Street (Signalized) | Overall | 0.40 | 10.4 | B | - | 0.42 | 11.7 | B | - |
| Queen Street and John Street (Signalized) | EBLTR | 0.43 | 11.5 | B | 44.2 | 0.34 | 10.6 | B | 33.7 |
| Queen Street and John Street (Signalized) | WBLTR | 0.29 | 7.8 | A | 16.2 | 0.42 | 8.8 | A | 24.7 |
| Queen Street and John Street (Signalized) | NBL | 0.20 | 22.0 | C | 17.0 | 0.43 | 27.7 | C | 28.3 |
| Queen Street and John Street (Signalized) | NBTR | 0.41 | 25.1 | C | 36.8 | 0.35 | 23.9 | C | 33.2 |
| Queen Street and John Street (Signalized) | SBLTR | 0.21 | 21.4 | C | 23.9 | 0.30 | 22.9 | C | 30.5 |
| Queen Street and John Street (Signalized) | Overall | 0.42 | 13.2 | B | - | 0.42 | 13.3 | B | - |
| Queen Street and Peter Street/Soho Street (Signalized) | EBTR | 0.11 | 7.9 | A | 6.5 | 0.34 | 29.0 | C | 14.8 |
| Queen Street and Peter Street/Soho Street (Signalized) | WBLTR | 0.29 | 8.9 | A | 25.0 | 0.42 | 10.5 | B | 37.2 |
| Queen Street and Peter Street/Soho Street (Signalized) | NBL | 0.09 | 25.3 | C | 11.0 | 0.24 | 27.6 | C | 21.2 |
| Queen Street and Peter Street/Soho Street (Signalized) | NBR | 0.12 | 25.8 | C | 0.0 | 0.17 | 27.0 | C | 3.9 |
| Queen Street and Peter Street/Soho Street (Signalized) | Overall | 0.29 | 12.2 | B | - | 0.44 | 17.4 | B | - |
| Queen Street and Augusta Avenue (Signalized) | EBLTR | 0.47 | 5.2 | A | 25.3 | 0.28 | 5.0 | A | m12.2 |
| Queen Street and Augusta Avenue (Signalized) | WBLTR | 0.28 | 6.4 | A | 23.3 | 0.48 | 9.1 | A | 49.2 |
| Queen Street and Augusta Avenue (Signalized) | NBLTR | 0.21 | 22.0 | C | 15.6 | 0.61 | 29.8 | C | 47.5 |
| Queen Street and Augusta Avenue (Signalized) | SBLTR | 0.38 | 23.4 | C | 26.2 | 0.26 | 24.2 | C | 22.1 |
| Queen Street and Augusta Avenue (Signalized) | Overall | 0.45 | 8.0 | A | - | 0.52 | 11.4 | B | - |
| Queen Street and Portland Street (Signalized) | EBTR | 0.28 | 6.1 | A | 23.8 | 0.18 | 6.1 | A | 15.0 |
| Queen Street and Portland Street (Signalized) | WBLT | 0.20 | 4.6 | A | 10.3 | 0.24 | 4.8 | A | 11.7 |
| Queen Street and Portland Street (Signalized) | NBLR | 0.46 | 40.2 | D | m25.3 | 0.86 | 49.6 | D | #67.3 |
| Queen Street and Portland Street (Signalized) | Overall | 0.31 | 9.6 | A | - | 0.42 | 14.4 | B | - |
| Richmond Street and John Street (Signalized) | WBLTR | 0.27 | 9.3 | A | 23.1 | 0.41 | 10.5 | B | 39.8 |
| Richmond Street and John Street (Signalized) | NBL | 0.20 | 21.2 | C | 13.4 | 0.25 | 22.2 | C | 16.8 |
| Richmond Street and John Street (Signalized) | NBT | 0.32 | 21.7 | C | 36.7 | 0.26 | 20.9 | C | 30.6 |
| Richmond Street and John Street (Signalized) | SBTR | 0.29 | 21.6 | C | 30.6 | 0.33 | 22.2 | C | 34.4 |
| Richmond Street and John Street (Signalized) | Overall | 0.29 | 14.0 | B | - | 0.38 | 13.5 | B | - |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay (sec) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (metres) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay (sec) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (metres) |
|----------------------------------------------------|----------|---------------------------------------------|--------------------------------|-------------------------------------|---------------------------------------------------------------|---------------------------------------------|--------------------------------|-------------------------------------|---------------------------------------------------------------|
| Richmond Street and University Avenue (Signalized) | WBLTR | 0.76 | 32.1 | C | 85.2 | 0.73 | 28.2 | C | 89.0 |
| Richmond Street and University Avenue (Signalized) | NBL | 0.48 | 33.3 | C | #20.6 | 0.61 | 38.3 | D | #34.9 |
| Richmond Street and University Avenue (Signalized) | NBT | 0.24 | 13.8 | B | 27.8 | 0.36 | 17.2 | B | 44.7 |
| Richmond Street and University Avenue (Signalized) | SBTR | 0.54 | 4.0 | A | 10.8 | 0.48 | 7.3 | A | 14.1 |
| Richmond Street and University Avenue (Signalized) | Overall | 0.63 | 15.3 | B | - | 0.66 | 18.1 | B | - |
| Adelaide Street and Peter Street (Signalized) | EBLTR | 0.55 | 11.5 | B | 54.2 | 0.38 | 9.7 | A | 34.7 |
| Adelaide Street and Peter Street (Signalized) | NBTR | 0.65 | 32.1 | C | 61.1 | 0.64 | 31.3 | C | 61.9 |
| Adelaide Street and Peter Street (Signalized) | SBL | 0.52 | 34.7 | C | #26.8 | 0.59 | 37.9 | D | #33.4 |
| Adelaide Street and Peter Street (Signalized) | SBT | 0.26 | 22.5 | C | 28.9 | 0.31 | 23.0 | C | 35.0 |
| Adelaide Street and Peter Street (Signalized) | Overall | 0.59 | 16.5 | B | - | 0.48 | 17.1 | B | - |
| Adelaide Street and Spadina Avenue (Signalized) | EBLTR | 0.69 | 25.8 | C | 76.6 | 0.52 | 22.2 | C | 56.0 |
| Adelaide Street and Spadina Avenue (Signalized) | NBT | 0.99 | 66.8 | E | #104.0 | 0.74 | 38.9 | D | 65.2 |
| Adelaide Street and Spadina Avenue (Signalized) | NBR | 0.35 | 36.0 | D | #22.4 | 0.22 | 31.8 | C | 0.0 |
| Adelaide Street and Spadina Avenue (Signalized) | SBL | 0.99 | 109.6 | F | #62.6 | 0.99 | 117.2 | F | #57.7 |
| Adelaide Street and Spadina Avenue (Signalized) | SBT | 0.24 | 13.0 | B | 25.9 | 0.25 | 13.7 | B | 28.2 |
| Adelaide Street and Spadina Avenue (Signalized) | Overall | 0.82 | 38.9 | D | - | 0.64 | 29.9 | C | - |
| Adelaide Street and Brant Street (Signalized) | EBLTR | 0.44 | 9.4 | A | 52.6 | 0.28 | 3.4 | A | 13.3 |
| Adelaide Street and Brant Street (Signalized) | NBTR | 0.11 | 18.7 | B | 10.3 | 0.24 | 25.0 | C | 23.8 |
| Adelaide Street and Brant Street (Signalized) | SBLT | 0.31 | 21.3 | C | 24.2 | 0.33 | 27.0 | C | 26.1 |
| Adelaide Street and Brant Street (Signalized) | Overall | 0.40 | 10.8 | B | - | 0.30 | 8.3 | A | - |
| Adelaide Street and Portland Street (Signalized) | EBLTR | 0.33 | 8.6 | A | 28.3 | 0.25 | 2.1 | A | m9.3 |
| Adelaide Street and Portland Street (Signalized) | NBTR | 0.52 | 21.0 | C | 36.9 | 0.49 | 26.3 | C | 39.7 |
| Adelaide Street and Portland Street (Signalized) | SBLT | 0.77 | 27.7 | C | #61.5 | 0.50 | 26.4 | C | 40.0 |
| Adelaide Street and Portland Street (Signalized) | Overall | 0.48 | 14.2 | B | - | 0.33 | 11.3 | B | - |
| Adelaide Street and Bathurst Street (Signalized) | NBT | 0.31 | 8.6 | A | m30.1 | 0.36 | 12.3 | B | 39.9 |
| Adelaide Street and Bathurst Street (Signalized) | NBR | 0.81 | 19.3 | B | m#91.9 | 0.69 | 21.5 | C | 76.3 |
| Adelaide Street and Bathurst Street (Signalized) | SBLT | 0.75 | 17.7 | B | 78.4 | 0.84 | 22.7 | C | #93.0 |
| Adelaide Street and Bathurst Street (Signalized) | Overall | 0.56 | 15.5 | B | - | 0.54 | 19.0 | B | - |
| King Street and Portland Street (Signalized) | EBR | 0.05 | 7.9 | A | 1.3 | 0.06 | 8.0 | A | 2.7 |
| King Street and Portland Street (Signalized) | WBR | 0.04 | 7.8 | A | 1.8 | 0.14 | 8.9 | A | 5.1 |
| King Street and Portland Street (Signalized) | NBLTR | 0.65 | 26.8 | C | 59.4 | 0.54 | 24.3 | C | 42.5 |
| King Street and Portland Street (Signalized) | SBLTR | 0.25 | 21.0 | C | 21.1 | 0.47 | 23.1 | C | 38.3 |
| King Street and Portland Street (Signalized) | Overall | 0.26 | 22.8 | C | - | 0.28 | 20.8 | C | - |
| King Street and Spadina Avenue (Signalized) | EBT | 0.07 | 20.4 | C | 9.3 | 0.08 | 20.4 | C | 10.3 |
| King Street and Spadina Avenue (Signalized) | EBR | 0.05 | 15.9 | B | 1.0 | 0.11 | 16.6 | B | 7.8 |
| King Street and Spadina Avenue (Signalized) | WBT | 0.04 | 17.7 | B | 9.2 | 0.10 | 20.7 | C | 13.2 |
| King Street and Spadina Avenue (Signalized) | WBR | 0.03 | 15.6 | B | 0.0 | 0.06 | 16.0 | B | 1.0 |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay (sec) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (metres) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay (sec) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (metres) |
|-------------------------------------------------------|----------|---------------------------------------------|--------------------------------|-------------------------------------|---------------------------------------------------------------|---------------------------------------------|--------------------------------|-------------------------------------|---------------------------------------------------------------|
| King Street and Spadina Avenue (Signalized) | NBL | 0.60 | 57.9 | E | 19.9 | 0.77 | 73.4 | E | #34.7 |
| King Street and Spadina Avenue (Signalized) | NBTR | 0.41 | 21.8 | C | 47.6 | 0.35 | 20.2 | C | 42.0 |
| King Street and Spadina Avenue (Signalized) | SBTR | 0.37 | 27.7 | C | 40.1 | 0.62 | 31.3 | C | 64.6 |
| King Street and Spadina Avenue (Signalized) | Overall | 0.24 | 24.6 | C | - | 0.35 | 27.2 | C | - |
| Bathurst Street and Fort York Boulevard (Signalized) | EBL | 0.93 | 57.1 | E | #79.4 | 0.62 | 29.5 | C | 48.2 |
| Bathurst Street and Fort York Boulevard (Signalized) | EBTR | 0.46 | 22.7 | C | 55.1 | 0.35 | 25.6 | C | 45.2 |
| Bathurst Street and Fort York Boulevard (Signalized) | WBLTR | 0.65 | 34.4 | C | 39.9 | 0.31 | 35.1 | D | 21.1 |
| Bathurst Street and Fort York Boulevard (Signalized) | NBLTR | 0.60 | 17.5 | B | 79.5 | 0.38 | 13.6 | B | 49.2 |
| Bathurst Street and Fort York Boulevard (Signalized) | SBLTR | 0.48 | 6.8 | A | 12.6 | 0.91 | 32.2 | C | #136.4 |
| Bathurst Street and Fort York Boulevard (Signalized) | Overall | 0.76 | 23.4 | C | - | 0.87 | 26.7 | C | - |
| Wellington Street and Tecumseth Street (Unsignalized) | WBLTR | 0.34 | 9.3 | A | - | 0.69 | 16.6 | C | - |
| Wellington Street and Tecumseth Street (Unsignalized) | NBLT | 0.06 | 8.1 | A | - | 0.05 | 8.9 | A | - |
| Wellington Street and Tecumseth Street (Unsignalized) | SBTR | 0.11 | 8.0 | A | - | 0.22 | 9.6 | A | - |
| Wellington Street and Tecumseth Street (Unsignalized) | Overall | - | 9.3 | A | - | - | 16.6 | C | - |
| Wellington Street and Niagara Street (Unsignalized) | EBLTR | 0.44 | 11.5 | B | - | 0.23 | 8.9 | A | - |
| Wellington Street and Niagara Street (Unsignalized) | WBLTR | 0.45 | 12.1 | B | - | 0.58 | 13.5 | B | - |
| Wellington Street and Niagara Street (Unsignalized) | SBTR | 0.40 | 12.0 | B | - | 0.23 | 9.9 | A | - |
| Wellington Street and Niagara Street (Unsignalized) | Overall | - | 12.1 | B | - | - | 13.5 | B | - |
| East Liberty Street and Strachan Avenue (Signalized) | EBL | 0.48 | 24.7 | C | 45.7 | 0.39 | 22.7 | C | 38.5 |
| East Liberty Street and Strachan Avenue (Signalized) | EBTR | 0.23 | 20.1 | C | 18.0 | 0.13 | 18.9 | B | 0.0 |
| East Liberty Street and Strachan Avenue (Signalized) | WBL | 0.12 | 20.1 | C | 6.2 | 0.03 | 18.1 | B | 3.2 |
| East Liberty Street and Strachan Avenue (Signalized) | WBTR | 0.01 | 17.6 | B | 2.7 | 0.00 | 17.6 | B | 0.0 |
| East Liberty Street and Strachan Avenue (Signalized) | NBL | 0.54 | 15.6 | B | 31.7 | 0.65 | 22.8 | C | 40.9 |
| East Liberty Street and Strachan Avenue (Signalized) | NBTR | 0.54 | 14.7 | B | 76.1 | 0.58 | 15.4 | B | 83.8 |
| East Liberty Street and Strachan Avenue (Signalized) | SBL | 0.02 | 15.2 | B | 2.8 | 0.02 | 18.6 | B | 2.1 |
| East Liberty Street and Strachan Avenue (Signalized) | SBT | 0.47 | 20.5 | C | 60.9 | 0.92 | 47.0 | D | #141.0 |
| East Liberty Street and Strachan Avenue (Signalized) | SBR | 0.14 | 16.7 | B | 10.4 | 0.24 | 21.1 | C | 20.2 |
| East Liberty Street and Strachan Avenue (Signalized) | Overall | 0.54 | 18.2 | B | - | 0.65 | 26.9 | C | - |
| Liberty Street and Dufferin Street (Signalized) | EBLTR | 0.01 | 20.9 | C | 0.4 | 0.02 | 12.2 | B | 3.7 |
| Liberty Street and Dufferin Street (Signalized) | WBLTR | 0.79 | 40.3 | D | #65.1 | 0.98 | 53.7 | D | #148.3 |
| Liberty Street and Dufferin Street (Signalized) | NBLTR | 0.59 | 11.6 | B | 47.2 | 0.44 | 16.8 | B | 39.1 |
| Liberty Street and Dufferin Street (Signalized) | SBLT | 0.39 | 8.8 | A | 31.7 | 0.40 | 16.3 | B | 34.8 |
| Liberty Street and Dufferin Street (Signalized) | Overall | 0.65 | 15.4 | B | - | 0.71 | 29.5 | C | - |

Notes: #: 95th percentile cycle volume exceeds capacity, queue may be longer
m: Volume for the 95th percentile queue is metered by an upstream signal
The critical movements are highlighted in grey and are defined as those operating either with a volume to capacity ratio in excess of 0.84 or at level of service ‘E’ or ‘F’

- Northbound left-turn movement at the intersection of Spadina Avenue and King Street;
- The shared southbound left-turn, through, and right-turn movements at the intersection of Bathurst Street and Fort York Boulevard;
- Southbound through movement at the intersection of Strachan Avenue and East Liberty Street; and
- The shared westbound left-turn, through, and right-turn movements at the intersection of Dufferin Street and East Liberty Street.

Among the noted critical movements, and similar to the AM peak hour results, the southbound left-turn movement at the intersection of Spadina Avenue and Adelaide Street has the longest average delay of 117.2 seconds representing Level of Service 'F' in the PM peak hour. In addition, the following movements are approaching capacity (i.e., V/C ratio in excess of 0.90):

- Southbound left-turn movement at the intersection of Spadina Avenue and Adelaide Street with V/C ratio of 0.99;
- The shared southbound left-turn, through, and right-turn movements at the intersection of Bathurst Street and Fort York Boulevard with V/C ratio of 0.91;
- Southbound through movement at the intersection of Strachan Avenue and East Liberty Street with V/C ratio of 0.92; and
- The shared westbound left-turn, through, and right-turn movements at the intersection of Dufferin Street and East Liberty Street with V/C ratio of 0.98.

Qualitative Analysis

Due to the lack of available data, the following intersections within the Ontario Line West Study Area were qualitatively assessed:

- Queen Street West and Spadina Avenue;
- Queen Street West and Bathurst Street;
- Richmond Street West and Bathurst Street;
- Richmond Street West and Spadina Avenue;
- Richmond Street West and Peter Street;
- Richmond Street West and Duncan Street;
- Richmond Street West and Portland Street;
- Richmond Street West and Brant Street;

- King Street West and Bathurst Street;
- King Street West and Niagara Street;
- King Street West and Tecumseth Street;
- King Street West and Dufferin Street;
- Bathurst Street and Niagara Street; and
- Bathurst Street and Front Street West.

Generally, all major corridors within the Ontario Line West Study Area provide good lane continuity for through movements with the exception of the King Street Transit Priority Corridor (i.e., the King Street section between Bathurst Street and Jarvis Street) where through movements are generally prohibited. Cycle tracks are provided along Richmond Street for cyclists traveling in the westbound direction along with cross-rides available at the Richmond Street intersections facilitating cyclists' crossing. High visibility painted crosswalks and standard transverse crosswalks are provided across all legs of the intersections. Where information was available, it was found that traffic queues at adjacent downstream intersections do not extend to the intersections upstream, with the exception of the intersection of Richmond Street and Portland Street where the northbound queues at the downstream intersection of Queen Street and Portland Street could spillover and block the intersection in the PM peak hour.

The complete qualitative analysis results are provided in **Appendix B7**.

3.8.2.3 Transit Network and Operations

Transit Network

The Ontario Line West Study Area is connected to the rest of the City through bus and streetcar routes operated by Toronto Transit Commission. The number, name, and description of the Toronto Transit Commission bus and streetcar routes servicing the Study Area and their schedules as per the information obtained from the City's website are summarized in **Table 3-52**.

Transit Operations

The findings of the Transit Level of Service analysis at the Ontario Line West Study Area signalized intersections and road segments under Existing Conditions (2020) are summarized in **Appendix B7**.

Table 3-52: Transit Routes Servicing the Ontario Line West Study Area

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------|
| #29 – Dufferin bus route operates between Wilson Station on Line 1 Yonge-University and Exhibition Place, generally in a north-south direction. It also serves Dufferin Station on Line 2 Bloor-Danforth. Two services are operated: the 29A (Wilson Station-Exhibition/Dufferin Gate) and the 29C (Wilson Station-Exhibition/Princes' Gate). The 29A operates during the midday and evening from Monday to Friday, and during the evening on Saturdays, Sundays, and holidays during the Fall and Winter. It is part of the 10-minute network, and operates at 10-minute or better headways, all day, every day. During the Spring and Summer, the 29A branch operates at all times, seven days a week. The 29C branch operates during the peak periods from Monday to Friday, and during the daytime on Saturdays, Sundays, and holidays during the Fall and Winter. The bus service mainly operates along Dufferin Street with nearside northbound and southbound stops located at the studied intersection of Dufferin Street and Liberty Street. | 5:00 AM – 3:00 AM | 8-minute |
| #63 – Ossington bus route operates between Eglinton West Station on Line 1 Yonge-University and King Street West and the Liberty Village, generally in a north-south direction. It also serves Ossington Station on Line 2 Bloor-Danforth. Two services are operated: the 63A (Eglinton West Station-Liberty Village) and the 63B (St Clair-Liberty Village). The 63A operates at all times, seven days a week. The 63B operates during the peak periods, from Monday to Friday only and it is part of the 10-minute network where it operates at 10-minute or better headways, all day, every day. The bus service mainly operates along Ossington Avenue, Strachan Avenue, and East Liberty Street with nearside southbound stop located at the studied intersection of Strachan Avenue and East Liberty Street. | 5:00 AM – 2:00 AM | 4-minute in the AM peak hour 5-minute in the PM peak hour |
| #121 – Fort York-Esplanade bus route operates between Exhibition Place, the Fort York neighbourhood and the Distillery neighbourhood, and, in the summer, between Ontario Place, the Fort York neighbourhood and Clarke Beach Park (Cherry Beach), generally in an east-west direction. All buses serve Union Station on Line 1, and the Fort York, City Place, Esplanade, and Distillery neighbourhoods. Two services are operated: the 121A (Exhibition (Princes' Gates)-Distillery via Union Station) branch operates all day, every day outside the summer months. The 121D (Ontario Place-Cherry Beach via Union Station and Distillery) seasonal branch operates from mid-May to mid-October. The bus service mainly operates along Cherry Street, Front Street, The Esplanade, and Fort York Boulevard with multiple eastbound and westbound stops within the | 6:00 AM – 1:00 AM | 16-minute in the AM peak hour 26-minute in the PM peak hour |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------|
| Ontario Line South Study Area at The Esplanade intersections with Lower Jarvis Street, and Lower Sherbourne Street. The bus service also has multiple stops at Front Street intersections with, Parliament Street, and Cherry Street, and at the intersection of Mills Street and Cherry Street. | | |
| #141 – Downtown / Mount Pleasant Express bus route operates between the intersection of Charlotte Street and King Street and the intersection of Mount Pleasant Road and Eglinton Avenue, generally in a north-south direction. The bus service is extended to operate from the intersection of Mount Pleasant Road and Lawrence Avenue for the first three trips of the morning and both trips in the afternoon. The bus service mainly operates along the King Street Transit Priority Corridor, Jarvis Street, and Mount Pleasant Road. Within the Ontario Line West Study Area, the bus route has a northbound express stop located far-side at the intersection of King Street and Simcoe Street and a southbound express stop located nearside at the intersection of King Street and Peter Street. | 7:00 AM – 6:00 PM | 15-minute in the AM peak hour 30-minute in the PM peak hour |
| #142 – Downtown / Avenue Road Express bus route operates between the intersection of Berkeley Street and King Street and Bombay loop located northeast of the Highway 401 and Avenue Road interchange, generally in a north-south direction. The bus service mainly operates along the section of King Street Transit Priority Corridor between University Avenue and Jarvis Street, University Avenue, and Avenue Road. Within the Ontario Line West Study Area, the bus route has northbound express stops located far-side at the intersection of University Avenue and Adelaide Street and the intersection of University Avenue and Queen Street and southbound express stops located nearside at the intersection of University Avenue and Queen Street and the intersection of University Avenue and Adelaide Street. | 6:00 AM – 7:00 PM | 30-minute |
| #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. The bus service mainly operates along the King Street Transit Priority Corridor, Queen Street East, Eastern Avenue, and Richmond Street East. Within the Ontario Line West Study Area, the bus route has an eastbound express stop located far-side at the intersection of King Street and Simcoe Street and a westbound express stop located nearside at the intersection of King Street and Peter Street. | 7:00 AM – 7:00 PM | 15-minute in the AM peak hour 25-minute in the PM peak hour |
| #144 – Downtown / Don Valley Express bus route operates between the intersection of Charlotte Street and King Street and the intersection of Victoria Park Avenue and Parkwoods Village Drive and Concorde Place, generally in a north-south direction. Two services are operated: the 144A (Underhill-Downtown Express) and the 144B (Wynford-Downtown Express). The bus service mainly | 6:00 AM – 7:00 PM | 7-minute in the AM peak hour 20-minute in the PM peak hour |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------|
| operates along the King Street Transit Priority Corridor, Adelaide Street East, Don Valley Parkway, and Don Mills. Within the Ontario Line West Study Area, the bus route has a northbound express stop located far-side at the intersection of King Street and Simcoe Street and a southbound express stop located nearside at the intersection of King Street and Peter Street. | | |
| #145 – Downtown / Humber Bay Express bus route operates between the intersection of Berkeley Street and King Street and the intersection of Lake Shore Boulevard and Royal York Road or the intersection of Lake Shore Boulevard and Kipling Avenue, generally in an east-west direction. Two services are operated: the 145A (Royal York-Downtown Express) and the 145B (Kipling-Downtown Express). The bus service mainly operates along Lake Shore Boulevard, Bathurst Street, and the King Street Transit Priority Corridor. Within the Ontario Line West Study Area, the bus route has eastbound express stops located near-side at the intersection of King Street and Bathurst Street and far-side at the intersection of King Street and Simcoe Street. The bus route has westbound express stops located nearside at the intersection of King Street and Peter Street and far-side at the intersection of King Street and Bathurst Street. | 6:00 AM – 7:00 PM | 20-minute |
| #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. The streetcar route operates mainly along Queen Street with multiple eastbound and westbound stops within the Ontario Line West Study Area at the Queen Street intersections with Bathurst Street, Augusta Avenue, Spadina Avenue, Peter Street, John Street, St. Patrick Street and University Avenue. | 12:00 AM – 5:00 AM | 15-minute |
| #304 – King Blue Night streetcar route operates between Dundas West Station and Broadview Station on Line 2 Bloor-Danforth via King Street, generally in an east-west direction. One single service is operated: the 304 (Dundas West Station-Broadview Station) branch which operates during the overnight period, seven days a week. The streetcar route operates mainly along King Street with multiple eastbound and westbound stops within the Ontario Line West Study Area at the King Street intersections with Bathurst Street, Portland Street, Spadina Avenue, Blue Jays Way/Peter Street, John Street, and University Avenue. | 1:00 AM – 5:00 AM | 15-minute |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------|
| <p>#307 – Bathurst Blue Night bus route operates between Exhibition Loop and the area of Bathurst Street and Steeles Avenue West, generally in a north-south direction. One single service is operated: the 307 (Exhibition-Steeles) branch which operates during the overnight period, seven days a week. The bus route operates mainly along Bathurst Street, Fleet Street, and Manitoba Drive with multiple northbound and southbound stops within the Ontario Line West Study Area at the Bathurst Street intersections with Fort York Boulevard, King Street, and Queen Street. Bathurst Street will be closed to vehicular traffic to the end of 2020 for bridge rehabilitation. This will result in route diversion for the 307 buses where they would typically get on Front Street, Spadina Avenue, and Fort York Boulevard before returning to Fleet Street.</p> | 1:00 AM – 5:00 AM | <p>30-minute during Monday to Friday and Sunday overnight 20-minute during Saturday overnight</p> |
| <p>#310 – Spadina Blue Night streetcar route operates between Spadina Station on Line 1 Yonge-University and Line 2 Bloor-Danforth and Union Station on Line 1 Yonge-University, generally in a north-south direction. One single service is operated: the 310 (Spadina Station-Union Station) which operates during the overnight period, seven days a week. The streetcar route operates mainly along Spadina Avenue and Queens Quay West with northbound and southbound stops located far-side at the Spadina Avenue intersections with King Street and Queen Street.</p> | 2:00 AM – 5:00 AM | 15-minute |
| <p>#329 – Dufferin Blue Night bus route operates between Steeles Avenue and Exhibition Loop, generally in a north-south direction. The route serves Downsview Station on Line 1 Yonge-University. One single service is operated: the 329 (Steeles-Exhibition) branch which operates during the overnight period, seven days a week. The bus service mainly operates along Dufferin Street and Manitoba Drive with multiple northbound and southbound stops located within the Ontario Line West Study Area including the Exhibition Loop stop.</p> | 1:00 AM – 6:00 AM | 30-minute |
| <p>#363 – Ossington Blue Night bus route operates between Eglinton West Station on Line 1 Yonge-University and Exhibition Loop, generally in a north-south direction. One single service is operated: the 363 (Eglinton West Station-Exhibition) branch which operates during the overnight period, seven days a week. The bus service mainly operates along Ossington Avenue, Strachan Avenue, and Manitoba Drive with multiple stops within the Ontario Line West Study Area including stops located at the studied intersection of Strachan Avenue and East Liberty Street as well as a stop at the Exhibition Loop.</p> | 2:00 AM – 6:00 AM | 30-minute |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------|
| <p>#501 – Queen streetcar route operates between Neville Park Loop and Long Branch Loop, generally in an east-west direction. It serves Queen and Osgoode Stations 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: 501A (Humber-Neville Park) and 501L (Long Branch-Humber). The streetcar route operates mainly along Queen Street with multiple eastbound and westbound stops within the Ontario Line West Study Area at the Queen Street intersections with Bathurst Street, Augusta Avenue, Spadina Avenue, Peter Street, John Street, St. Patrick Street and University Avenue.</p> | 4:00 AM – 12:00 AM | 7-minute |
| <p>#503 – Kingston Road 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 Stations on Line 1. One single service is operated: the 503 (Victoria Park-York) which is part of the 10-minute network, providing 10-minute or better service during the peak periods, from Monday to Friday only. The streetcar route operates mainly along Kingston Road, Queen Street East, and King Street with an eastbound stop located far-side at the intersection of King Street and University Avenue. The closest westbound stop to the Ontario Line West Study Area is located nearside at the intersection of King Street and York Street.</p> | 5:00 AM – 8:00 PM | 7-minute in the AM peak hour 8-minute in the PM peak hour |
| <p>#504 – King streetcar route operates between Dundas Station and Broadview Station on Line 2 Bloor-Danforth, generally in an east-west direction. It also serves the St. Andrew and King Station on Line 1 Yonge-University. Two services are operated: the 504A (Dundas West Station-Distillery) and the 504B (Broadview Station-Dufferin Gate), both branches operating 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. The streetcar route operates mainly along King Street with multiple eastbound and westbound stops within the Ontario Line West Study Area at the King Street intersections with Bathurst Street, Portland Street, Spadina Avenue, Blue Jays Way/Peter Street, John Street, and University Avenue.</p> | 5:00 AM – 2:00 AM | 3-minute |
| <p>#509 – Harbourfront streetcar route operates between Union Station on Line 1 (Yonge-University) and Exhibition Loop, generally in an east-west direction. One single service is operated: the 509 (Union Station-Exhibition) which operates at all times, seven days a week. The route is part of the 10-minute network, providing 10-minute or better service, all day, every day. The streetcar route operates mainly along Queens Quay West, Fleet Street, and Manitoba Drive and makes a terminal stop at the Exhibition Loop.</p> | 5:00 AM – 2:00 AM | 6-minute in the AM peak hour 8-minute in the PM peak hour |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------|
| #510 – Spadina streetcar route operates between Spadina Station and Union Station, generally in a north-south direction. Three services are operated: the 510A (Spadina Station-Union Station), the 510B (Spadina Station-Queens Quay/Spadina), and the 510C (Spadina Station-King). The route is part of the 10-minute network, providing 10-minute or better service, all day, every day. The route operates mainly along Spadina Avenue and Queens Quay with designated northbound and southbound stops within the Ontario Line West Study Area at the Spadina Avenue intersections with King Street, Richmond Street, and Queen Street. | 5:00 AM – 3:00 AM | 4-minute in the AM peak hour 5-minute in the PM peak hour |
| #511 – Bathurst streetcar route operates between Bathurst Station on Line 2 Bloor-Danforth and Exhibition Loop, generally in a north-south direction. A single service is operated: the 511 (Bathurst Station-Exhibition) branch which operates at all-times, seven days a week. The route is part of the 10-minute network, providing 10-minute or better service, all day, every day. The route operates mainly along Bathurst Street and Fleet Street with designated northbound and southbound stops within the Ontario Line West Study Area at the Bathurst Street intersections with Niagara Street, King Street, and Queen Street. Streetcars are replaced by buses between Bathurst Station and Exhibition Loop through the end of 2020 to accommodate several Toronto Transit Commission and City of Toronto construction projects. This will also result in route diversions for the 511 buses where they would get on Front Street, Spadina Avenue, and Fort York Boulevard before getting back to Fleet Street. | 5:00 AM – 2:00 AM | 7-minute in the AM peak hour 8-minute in the PM peak hour |

Source: Toronto Transit Commission online schedules and maps, accessed through www.Toronto Transit Commission.ca on July 20, 2020.

The majority of the intersection approaches and overall intersections operate at Transit Level of Service that meets the targets for the studied corridors. However, transit vehicles experience notable delays at the following intersections:

- Adelaide Street and Spadina Avenue; and
- Bathurst Street and Fort York Boulevard.

This is attributed to the long average delay that transit vehicles experience when completing specific movements at the noted Ontario Line West Study Area intersections. Accordingly, the following transit routes operate at critical Transit Level of Service at the identified intersections:

- Bus routes #143 and #144 operate at critical Transit Level of Service 'E' at the intersection of Adelaide Street and Spadina Avenue when buses along both routes complete a northbound right-turn movement; and
- Bus route #145 and streetcar route #511 operate at critical Transit Level of Service 'E' at the intersection of Bathurst Street and Fort York Boulevard when buses and streetcars complete a southbound through movement.

All transit vehicles travelling along the segments within the Ontario Line West Study Area experience an acceptable Transit Level of Service 'D' or better, meeting the minimum desirable Transit Level of Service for the studies sections. It is worth noting that transit vehicles travelling along the King Street Transit Priority Corridor (i.e., the King Street section between Bathurst Street and Jarvis Street) experience Transit Level of Service 'B' and transit vehicles travelling along the dedicated streetcar facility along Spadina Avenue experience Transit Level of Service 'A'.

3.8.2.4 Pedestrian Network and Operations

Pedestrian Network

Pedestrians are accommodated within the Ontario Line West Study Area through sidewalks provided on both sides of the majority of the streets. In addition, painted crosswalks are provided across all legs of the Study Area intersections. Sidewalks are generally 1.5 to 2.0 metres wide, with a mix of monolithic and boulevard separated facilities. The South Liberty Trail extends from Dufferin Street to the existing Exhibition GO Station at the south side of Atlantic Avenue. No notable gaps in the pedestrian network within the Ontario Line West are identified. The pedestrian facilities within the Study Area are illustrated in **Appendix B7**.

Pedestrian Operations

The findings of the Pedestrian Level of Service analysis at the Ontario Line West Study Area signalized intersections and road segments in the Existing Conditions (2020) are summarized in **Appendix B7**.

At the Study Area signalized intersections in both the AM and PM peak hours, pedestrians experience long average delays / waiting times before they receive Walk Time and start crossing the studied sections of the major arterial roads within the Study Area such as University Avenue, Queen Street, King Street, etc. In addition, as they start crossing at the signalized intersection, 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). Thus, the majority of the signalized intersection approaches in the Existing Conditions are estimated to operate at Pedestrian Level of Service ‘D’ or worse. At the overall intersection level too, pedestrians experience Pedestrian Level of Service ‘D’ or worse at all the Study Area signalized intersections in both the AM and PM peak hours with the only exception being the intersection of Queen Street and Portland Street where pedestrians experience Pedestrian Level of Service ‘C’ during the AM peak hour.

As for the Study Area road segments, pedestrians are generally accommodated through wide sidewalks provided along either side of the studied sections of the major arterial roads. In addition, vehicles generally operate at low average speeds (i.e., between 30 and 50 kilometres per hour) when driving along the major arterial roads. Pedestrians experience acceptable Pedestrian Level of Service ‘C’ or better along all the studied road segments, with the exception of the Adelaide Street section between Brant Street and Bathurst Street and the Strachan Avenue section between East Liberty Street and Fleet Street which operate at Pedestrian Level of Service ‘E’ as a result of the narrow sidewalk widths which expose pedestrians to the significant volumes of curb lane traffic (i.e., greater than 3000 average daily curb lane traffic volumes along the noted section of Adelaide Street).

3.8.2.5 Cycling Networks and Operations

Cycling Network

Cyclists are accommodated within the Study Area through exclusive cycling facilities, on-street bike lanes, and shared lane markings. The cycle tracks along the north side of Richmond Street and the south side of Adelaide Street provide cyclists within the Study Area with one-way movement in the westbound and eastbound directions, respectively.

Cyclists travelling in the northbound and southbound direction within the Study Area are accommodated through the directional cycle tracks along either side of Simcoe Street and Peter Street as well as the shared lane markings along either side of Spadina Avenue. Bathurst Street offers a curb bike lane in the southbound direction between Richmond Street and Adelaide Street, providing cyclists travelling along Richmond Street with another connection to Adelaide Street.

In addition, and at the intersection level, cross-rides are provided across the north leg and the south leg of all the Study Area intersections along Richmond Street and Adelaide Street, respectively. Cross-rides are also provided across the east and west legs of the intersection of Richmond Street and Peter Street as well as the intersection of Adelaide Street and Peter Street and the intersection of Adelaide Street and Simcoe Street. The cycling facilities within the Study Area are illustrated in **Appendix B7**.

Notable gaps in the cycling network within the Ontario Line West Study Area include:

- No major north-south bicycle route/facility in the vicinity of Exhibition GO Station which would link the growing Liberty Village neighbourhood to Exhibition GO Station and the amenities and destinations south of the railway corridor; and
- No major east-west bicycle route/facility across the growing Liberty Village neighbourhood which would also provide a connection to the on-street bike lanes along Strachan Avenue.

Cycling Operations

The findings of the Bicycle Level of Service analysis at the Study Area signalized intersections and road segments in the Existing Conditions (2020) are summarized in **Appendix B7**.

The majority of the Study Area signalized intersections operate at acceptable Bicycle Level of Service 'C' or better at the overall intersection level. However, cyclists experience Bicycle Level of Service 'D' or worse at the following signalized Study Area intersections:

- Queen Street and University Avenue;
- Queen Street and John Street;
- Richmond Street and John Street;
- Richmond Street and University Avenue;
- Adelaide Street and Bathurst Street;

- King Street and Portland Street; and
- King Street and Spadina Avenue.

This is mainly attributed to the lack of designated cycling facilities at all the individual approaches to the noted intersections (e.g., bicycle left-turn box, pocket bike lanes, cross-rides, etc.) which requires a left-turning cyclist in mixed traffic to either dismount their bicycle and walk across two perpendicular intersection legs as a pedestrian or weave through and cross general-purpose traffic lanes(s) before reaching to the road centreline and making a left-turn movement. It should be noted that at the northbound approach to the intersection of Adelaide Street and Bathurst Street, and in addition to the lack of any designated cycling facility, the relatively long northbound right-turn lane (i.e., longer than 50 metres) results in cyclists experiencing a Bicycle Level of Service 'F'.

Cyclists experience critical Bicycle Level of Service 'D' or worse along all the studied road segments of Queen Street, King Street, University Avenue, Spadina Avenue, and Dufferin Street. This is mainly attributed to the lack of physically separated cycling facilities along the noted major roads. However, cyclists accommodated through the cycle tracks along Richmond Street and Adelaide Street and through the on-street bike lanes along Strachan Avenue experience excellent Bicycle Level of Service 'A' throughout the studied sections of the noted roads.

3.8.3 Ontario Line South

3.8.3.1 Road Network

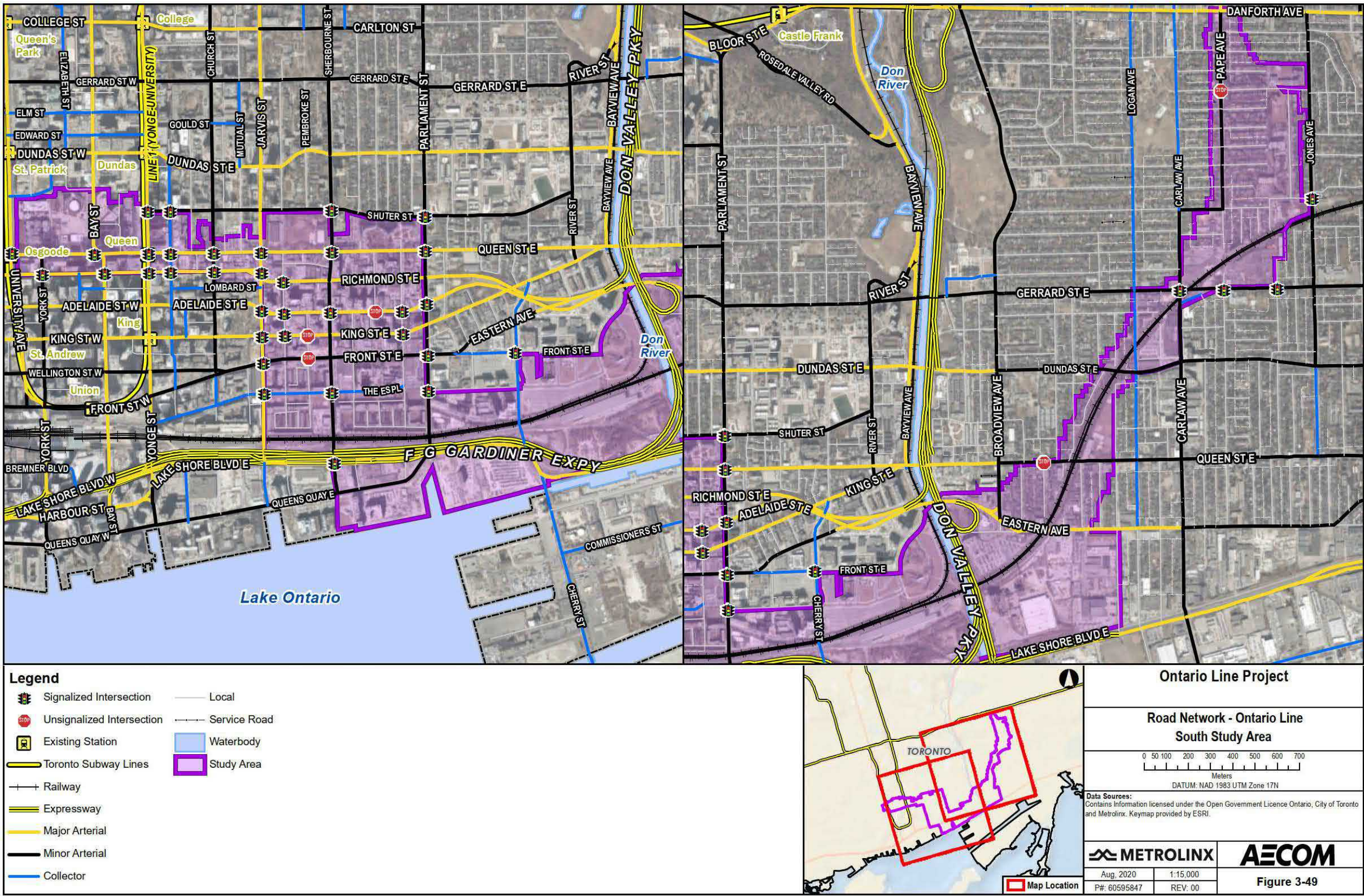
The existing road network, road classification, and the traffic control devices of the intersections within the Ontario Line South Study Area that were quantitatively assessed are presented in **Figure 3-49**. Below is a detailed description of each road in the Ontario Line West Study Area. The roads' cross-section and speed limits are illustrated **Appendix B7**.

Bay Street is a major north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, Bay Street has a four-lane cross-section where the curb lanes are shared with cyclists.

Yonge Street is a major north-south arterial road. Within the Ontario Line South Study Area, Yonge Street has a four-lane cross-section and a posted speed of 40 kilometres per hour.

Jarvis Street is a major north-south arterial road. Within the Ontario Line South Study Area, Yonge Street has a four-lane cross-section and a posted speed of 40 kilometres per hour.

Figure 3-49: Road Network – Ontario Line South Study Area



Queen Street is a major east-west arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, Queen Street has a four-lane cross-section including a shared vehicular and streetcar lane running along the left-most lane of each direction.

Richmond Street is a major arterial road which runs one-way in the westbound direction with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, Richmond Street has a three-lane cross-section and a cycle track running along the north side.

Adelaide Street is a major east-west arterial road which runs one-way in the eastbound direction with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, Adelaide Street has a three-lane cross-section and a cycle track running along the south side.

Lake Shore Boulevard East is a major east-west arterial road. Within the Ontario Line South Study Area, it has a six-lane cross-section with a posted speed limit of 60 kilometres per hour.

Eastern Avenue is a major east-west arterial road with a four lane-cross-section. Within the Ontario Line South Study Area, Eastern Avenue has a posted speed of 50 kilometres per hour west of Broadview Avenue which becomes 30 kilometres per hour immediately downstream.

Danforth Avenue is a major east-west arterial road with a four lane-cross-section and a posted speed of 40 kilometres per hour.

York Street is a minor north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, it has a three-lane cross-section including a shared vehicular and streetcar lane in the left-most lane of the northbound direction.

Church Street is a minor north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, it has a four-lane cross-section including a shared vehicular and streetcar lane in the left-most lane of each direction.

Sherbourne Street is a minor north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, it has a two-lane cross-section with cycle tracks running along either side of the street.

Parliament Street is a minor north-south arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, it has a four-lane cross-section including a shared vehicular and streetcar lane in the left-most lane of each direction.

Pape Avenue is a minor north-south arterial road. Within the Ontario Line South Study Area, it has a two-lane cross-section and a posted speed of 30 kilometres per hour.

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

Front Street and **Dundas Street** are minor east-west arterial roads. Within the Ontario Line South Study Area, both streets have four-lane cross-sections and posted speeds of 40 kilometres per hour.

Shuter Street is a minor east-west arterial road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, Shuter Street has a two-lane cross-section and curb bike lanes running along either side of the street.

Queens Quay East is a minor east-west arterial road with a four-lane cross-section. Within the Ontario Line South Study Area, and with the absence of posted speed signs, Queens Quay E is assumed to have a statutory speed limit of 50 kilometres per hour.

Gerrard Street is a minor east-west arterial road. Within the Ontario Line South Study Area, Gerrard Street has a four-lane cross-section and a posted speed of 40 kilometres per hour.

Victoria Street is a north-south collector road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, it has a four-lane cross-section including a shared vehicular and streetcar lane in the left-most lane of each direction.

Cherry Street is a north-south collector road with a posted speed of 40 kilometres per hour. Within the Ontario Line South Study Area, it has a two-lane cross-section with curb bike lanes running along either side of the street.

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

Lombard Street is an east-west collector road with a four-lane cross-section. Within the Ontario Line South Study Area, and with the absence of posted speed signs, Lombard Street is assumed to have a statutory speed limit of 50 kilometres per hour.

Aitken Place, Albert Frank Place, Berkeley Street, Berti Street, Bonnycastle Street, Booth Avenue, Boston Avenue, Dalhousie Street, De Grassi Street, Douville Court, Egan Avenue, Empire Avenue, Frederick Street, George Street, Hahn Place, Kiswick Street, Lewis Street, McGee Street, Seaton Street, Strange Street, Tiverton Avenue, and Wardell Street are north-south collector roads with two-lane cross-sections and posted speeds of 30 kilometres per hour.

Blake Street, James Street, Mutual Street, Portneuf Court, Poucher Street, Princess Street, and Small Street are north-south collector roads with four-lane cross-sections and posted speeds of 30 kilometres per hour.

Ontario Street and **Saulter Street** are collector roads which run one-way in the southbound direction. They have a single lane cross-section with a posted speed of 30 kilometres per hour.

Marjory Avenue is a collector road which runs in the northbound and southbound directions to the north of Gerrard Street and one-way in the northbound direction immediately to the south of Gerrard Street. Within the Ontario Line South Study Area, it has a two-lane cross-section and a posted speed of 30 kilometres per hour.

Albert Street, Bain Avenue, Boulton Avenue, Britain Street, Cavell Avenue, Cummings Street, Dickens Street, Dingwall Avenue, First Avenue, Frizzell Avenue, Harcourt Avenue, Hazelwood Avenue, Henry Lane Terrace, Langley Avenue, Longboat Avenue, Mill Street, Paisley Avenue, Riverdale Avenue, Scadding Avenue, Sunlight Park Road, Withrow Avenue, and Wroxeter Avenue are east-west local roads with two-lane cross-sections and posted speeds of 30 kilometres per hour.

The Esplanade is an east-west collector road with a four-lane cross-section and a posted speed of 40 kilometres per hour.

Strathcona Avenue is an east-west collector road with a posted speed of 30 kilometres per hour and a single lane cross-section. Within the Ontario Line South Study Area, it runs in the eastbound direction to the west of Pape Avenue and in the westbound direction east of Pape Avenue. Strathcona Avenue has a contra-flow bike lane on either side of Pape Avenue.

3.8.3.2 Intersections Analysis

Quantitative Analysis

Traffic Volumes

Similar to the growth rate applied to traffic in the Ontario Line South Study Area, and to capture the traffic growth between the date the Turning Movement Count surveys were undertaken and the existing base year (2020), an annual growth rate of 1% has been applied to the raw Turning Movement Count data. Note that the traffic volume balancing was conducted only between any two consecutive intersections where imbalance of traffic volumes is not justified; i.e., where there are no mid-block driveways or other access points for traffic to enter or exit the Study Area between the two consecutive intersections.

The TMC data comparison details are provided in **Appendix B7**.

Traffic Operations

The analysis findings on traffic operations at the Ontario Line South Study Area intersections in the Existing Conditions (2020) are summarized in **Table 3-53**. The critical movements are highlighted in grey in **Table 3-53** and are defined as those operating either with a V/C ratio in excess of 0.84 or at Level of Service 'E' or worse. The detailed High Capacity Manual 2000 reports from Synchro pertaining to the Existing Conditions analysis are presented in **Appendix B7**.

As shown in **Table 3-53**, all the Ontario Line South Study Area intersections, where traffic data was available, operate at acceptable Level of Service 'D' or better and within capacity in both the AM and PM peak hours. However, in the AM peak hour, the shared southbound left-turn and through movements at the intersection of Jarvis Street and Adelaide Street is approaching capacity with V/C ratio of 0.90.

In the PM peak hour, and among the signalized Study Area intersections, the following movements were found to operate at critical levels:

- The shared southbound left-turn and through movements at the intersection of Jarvis Street and Adelaide Street; and
- The shared southbound through and right-turn movements at the intersection of Lower Sherbourne Street and Lake Shore Boulevard East.

Among the noted critical movements, the shared southbound through and right-turn movements at the intersection of Lower Sherbourne Street and Lake Shore Boulevard East are approaching capacity (i.e., V/C ratio in excess of 0.90) in the PM peak hour with V/C ratio of 0.97. Motorists experience a long average delay of approximately 87 seconds in completing this movement in the PM peak hour.

Among the unsignalized Ontario Line South Study Area intersections, the intersection of Frederick Street and Front Street was found to operate over-capacity in the PM peak hour. After further investigation, it was determined that the time the turning movement count data was collected, on December 6, 2017, coincided with an event at the nearby Scotiabank Arena (Toronto Maple Leafs hockey game), which could have resulted in unusually high traffic volumes / patterns at the noted intersection.

Table 3-53: Summary of Traffic Operations at the Ontario Line South Study Area Intersections under Existing Conditions (2020) during the AM and PM Peak Hours

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay(s) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (m) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay(s) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (m) |
|------------------------------------------------------------------|----------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|
| Yonge Street and Queen Street (Signalized) | EBT | 0.22 | 12.8 | B | 26.6 | 0.39 | 14.4 | B | 48.7 |
| Yonge Street and Queen Street (Signalized) | WBT | 0.45 | 27.0 | C | 70.0 | 0.30 | 19.3 | B | 46.6 |
| Yonge Street and Queen Street (Signalized) | NBT | 0.41 | 37.9 | D | 66.0 | 0.44 | 16.9 | B | 70.6 |
| Yonge Street and Queen Street (Signalized) | SBT | 0.26 | 21.8 | C | 33.0 | 0.30 | 23.7 | C | 42.0 |
| Yonge Street and Queen Street (Signalized) | Overall | 0.43 | 26.4 | C | - | 0.41 | 18.0 | B | - |
| Yonge Street and Richmond Street (Signalized) | WBLTR | 0.64 | 6.9 | A | 17.5 | 0.63 | 8.6 | A | 21.1 |
| Yonge Street and Richmond Street (Signalized) | NBT | 0.45 | 24.8 | C | 47.1 | 0.47 | 25.0 | C | 53.3 |
| Yonge Street and Richmond Street (Signalized) | SBT | 0.33 | 25.0 | C | 48.8 | 0.38 | 54.6 | D | 58.5 |
| Yonge Street and Richmond Street (Signalized) | Overall | 0.56 | 13.0 | B | - | 0.57 | 20.5 | C | - |
| Victoria Street and Queen Street (Signalized) | EBTR | 0.23 | 14.5 | B | 45.3 | 0.36 | 24.2 | C | 88.3 |
| Victoria Street and Queen Street (Signalized) | WBTR | 0.42 | 4.9 | A | 19.1 | 0.22 | 6.5 | A | 17.3 |
| Victoria Street and Queen Street (Signalized) | NBLT | 0.41 | 26.9 | C | 48.8 | 0.61 | 31.0 | C | 53.6 |
| Victoria Street and Queen Street (Signalized) | NBR | 0.07 | 21.2 | C | m4.1 | 0.17 | 25.7 | C | m13.9 |
| Victoria Street and Queen Street (Signalized) | SBLTR | 0.30 | 26.2 | C | 25.9 | 0.32 | 26.5 | C | 26.3 |
| Victoria Street and Queen Street (Signalized) | Overall | 0.48 | 13.3 | B | - | 0.44 | 21.1 | C | - |
| Victoria Street and Richmond Street (Signalized) | WBLTR | 0.57 | 11.2 | B | 60.1 | 0.55 | 11.6 | B | 57.9 |
| Victoria Street and Richmond Street (Signalized) | NBLT | 0.33 | 23.8 | C | 25.5 | 0.41 | 24.8 | C | 31.8 |
| Victoria Street and Richmond Street (Signalized) | SBTR | 0.22 | 17.7 | B | 13.8 | 0.31 | 22.0 | C | 21.4 |
| Victoria Street and Richmond Street (Signalized) | Overall | 0.48 | 13.3 | B | - | 0.49 | 14.9 | B | - |
| Yonge Street and Eaton Centre Parking/Shuter Street (Signalized) | EBT | 0.02 | 23.7 | C | 5.0 | 0.39 | 28.4 | C | 47.6 |
| Yonge Street and Eaton Centre Parking/Shuter Street (Signalized) | WBL | 0.51 | 34.2 | C | 37.7 | 0.33 | 30.0 | C | 21.8 |
| Yonge Street and Eaton Centre Parking/Shuter Street (Signalized) | WBTR | 0.70 | 39.2 | D | #75.9 | 0.43 | 30.2 | C | 40.1 |
| Yonge Street and Eaton Centre Parking/Shuter Street (Signalized) | NBTR | 0.34 | 15.8 | B | 70.2 | 0.33 | 13.2 | B | 73.4 |
| Yonge Street and Eaton Centre Parking/Shuter Street (Signalized) | SBLT | 0.31 | 9.0 | A | 25.5 | 0.31 | 9.0 | A | 24.5 |
| Yonge Street and Eaton Centre Parking/Shuter Street (Signalized) | Overall | 0.45 | 20.3 | C | - | 0.36 | 17.2 | B | - |
| Victoria Street and Shuter Street (Signalized) | EBLTR | 0.31 | 10.4 | B | 27.1 | 0.52 | 12.6 | B | 63.3 |
| Victoria Street and Shuter Street (Signalized) | WBLTR | 0.70 | 17.7 | B | 80.6 | 0.50 | 12.5 | B | 50.9 |
| Victoria Street and Shuter Street (Signalized) | NBLTR | 0.24 | 17.9 | B | 14.7 | 0.34 | 23.1 | C | 23.8 |
| Victoria Street and Shuter Street (Signalized) | SBLTR | 0.23 | 17.7 | B | 15.1 | 0.40 | 24.1 | C | 27.4 |
| Victoria Street and Shuter Street (Signalized) | Overall | 0.52 | 16.2 | B | - | 0.48 | 16.9 | B | - |
| Bay Street and Queen Street (Signalized) | EBTR | 0.32 | 16.4 | B | 48.0 | 0.21 | 11.2 | B | 24.6 |
| Bay Street and Queen Street (Signalized) | WBTR | 0.39 | 15.7 | B | 45.3 | 0.28 | 11.8 | B | 32.5 |
| Bay Street and Queen Street (Signalized) | NBTR | 0.56 | 4.6 | A | 5.7 | 0.49 | 25.4 | C | 61.0 |
| Bay Street and Queen Street (Signalized) | SBT | 0.51 | 23.6 | C | 55.1 | 0.69 | 31.0 | C | 68.9 |
| Bay Street and Queen Street (Signalized) | Overall | 0.46 | 14.6 | B | - | 0.43 | 21.1 | C | - |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay(s) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (m) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay(s) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (m) |
|------------------------------------------------|----------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|
| Bay Street and Richmond Street (Signalized) | WBLT | 0.11 | 0.4 | A | 0.0 | 0.14 | 1.7 | A | 1.3 |
| Bay Street and Richmond Street (Signalized) | WBR | 0.05 | 0.7 | A | m0.0 | 0.07 | 0.3 | A | m0.0 |
| Bay Street and Richmond Street (Signalized) | NBT | 0.54 | 26.2 | C | 62.4 | 0.32 | 20.4 | C | 38.3 |
| Bay Street and Richmond Street (Signalized) | SBT | 0.45 | 13.5 | B | 20.7 | 0.36 | 41.2 | D | 61.7 |
| Bay Street and Richmond Street (Signalized) | Overall | 0.27 | 15.9 | B | - | 0.23 | 22.3 | C | - |
| York Street and Richmond Street (Signalized) | WBTR | 0.54 | 23.7 | C | 66.9 | 0.49 | 23.0 | C | 62.4 |
| York Street and Richmond Street (Signalized) | NBL | 0.35 | 28.7 | C | m37.4 | 0.60 | 32.0 | C | m60.0 |
| York Street and Richmond Street (Signalized) | NBT | 0.21 | 22.9 | C | m32.4 | 0.17 | 21.8 | C | m25.5 |
| York Street and Richmond Street (Signalized) | SBR | 0.03 | 17.2 | B | 0.1 | 0.05 | 17.5 | B | 3.5 |
| York Street and Richmond Street (Signalized) | Overall | 0.44 | 24.1 | C | - | 0.54 | 24.5 | C | - |
| George Street and Adelaide Street (Signalized) | EBLTR | 0.34 | 9.9 | A | m55.9 | 0.48 | 11.0 | B | 91.2 |
| George Street and Adelaide Street (Signalized) | NBT | 0.08 | 27.0 | C | 11.7 | 0.18 | 28.2 | C | 22.5 |
| George Street and Adelaide Street (Signalized) | NBR | 0.01 | 26.3 | C | 3.1 | 0.02 | 26.4 | C | 5.7 |
| George Street and Adelaide Street (Signalized) | SBTL | 0.38 | 32.2 | C | 33.5 | 0.72 | 44.5 | D | #70.5 |
| George Street and Adelaide Street (Signalized) | Overall | 0.35 | 12.8 | B | - | 0.55 | 16.2 | B | - |
| Jarvis Street and Adelaide Street (Signalized) | EBL | 0.16 | 16.2 | B | 15.7 | 0.45 | 21.2 | C | 44.4 |
| Jarvis Street and Adelaide Street (Signalized) | EBT | 0.54 | 20.3 | C | 69.6 | 0.82 | 27.3 | C | 122.8 |
| Jarvis Street and Adelaide Street (Signalized) | EBR | 0.14 | 16.0 | B | 11.9 | 0.08 | 15.3 | B | 4.6 |
| Jarvis Street and Adelaide Street (Signalized) | NBT | 0.79 | 33.8 | C | 93.5 | 0.69 | 29.9 | C | 80.5 |
| Jarvis Street and Adelaide Street (Signalized) | SBLT | 0.90 | 38.4 | D | #109.7 | 0.88 | 13.4 | B | 38.8 |
| Jarvis Street and Adelaide Street (Signalized) | Overall | 0.75 | 30.0 | C | - | 0.74 | 24.7 | C | - |
| Jarvis Street and Richmond Street (Signalized) | WBL | 0.39 | 16.8 | B | 46.5 | 0.12 | 14.5 | B | 16.6 |
| Jarvis Street and Richmond Street (Signalized) | WBT | 0.84 | 25.5 | C | 137.1 | 0.68 | 21.6 | C | 98.5 |
| Jarvis Street and Richmond Street (Signalized) | WBR | 0.04 | 12.6 | B | 0.3 | 0.09 | 14.2 | B | 8.8 |
| Jarvis Street and Richmond Street (Signalized) | NBLT | 0.60 | 13.6 | B | m43.1 | 0.60 | 29.2 | C | 70.9 |
| Jarvis Street and Richmond Street (Signalized) | SBT | 0.72 | 33.1 | C | 76.2 | 0.48 | 20.7 | C | 29.0 |
| Jarvis Street and Richmond Street (Signalized) | Overall | 0.78 | 24.0 | C | - | 0.67 | 22.8 | C | - |
| Church Street and Queen Street (Signalized) | EBLTR | 0.30 | 4.2 | A | 7.3 | 0.42 | 4.3 | A | 15.7 |
| Church Street and Queen Street (Signalized) | WBLTR | 0.46 | 23.2 | C | 89.7 | 0.34 | 10.9 | B | 26.9 |
| Church Street and Queen Street (Signalized) | NBLTR | 0.74 | 26.1 | C | 57.9 | 0.70 | 20.1 | C | 18.4 |
| Church Street and Queen Street (Signalized) | SBLTR | 0.53 | 26.9 | C | 50.7 | 0.56 | 28.0 | C | 48.6 |
| Church Street and Queen Street (Signalized) | Overall | 0.56 | 21.3 | C | - | 0.54 | 14.8 | B | - |
| Jarvis Street and Queen Street (Signalized) | EBTR | 0.22 | 9.1 | A | m17.9 | 0.48 | 19.0 | B | 64.7 |
| Jarvis Street and Queen Street (Signalized) | WBTR | 0.38 | 20.4 | C | 50.1 | 0.27 | 14.5 | B | 37.3 |
| Jarvis Street and Queen Street (Signalized) | NBTR | 0.40 | 35.8 | D | 57.1 | 0.49 | 11.9 | B | 37.8 |
| Jarvis Street and Queen Street (Signalized) | SBTR | 0.31 | 19.3 | B | 34.1 | 0.25 | 18.7 | B | 27.2 |
| Jarvis Street and Queen Street (Signalized) | Overall | 0.39 | 21.9 | C | - | 0.49 | 16.2 | B | - |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay(s) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (m) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay(s) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (m) |
|----------------------------------------------------|----------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|
| Sherbourne Street and Shuter Street (Signalized) | EBL | 0.12 | 13.1 | B | 9.0 | 0.12 | 12.9 | B | 10.1 |
| Sherbourne Street and Shuter Street (Signalized) | EBTR | 0.30 | 14.4 | B | 36.7 | 0.79 | 26.1 | C | #129.3 |
| Sherbourne Street and Shuter Street (Signalized) | WBL | 0.08 | 13.1 | B | m7.3 | 0.20 | 20.0 | B | m12.7 |
| Sherbourne Street and Shuter Street (Signalized) | WBT | 0.49 | 18.1 | B | 65.7 | 0.25 | 18.7 | B | 32.4 |
| Sherbourne Street and Shuter Street (Signalized) | NBTR | 0.49 | 19.7 | B | 59.1 | 0.53 | 20.5 | C | 67.2 |
| Sherbourne Street and Shuter Street (Signalized) | SBTR | 0.43 | 18.7 | B | 51.7 | 0.57 | 21.5 | C | 72.5 |
| Sherbourne Street and Shuter Street (Signalized) | Overall | 0.49 | 17.7 | B | - | 0.69 | 22.4 | C | - |
| Adelaide Street and Sherbourne Street (Signalized) | EBLTR | 0.39 | 10.8 | B | 41.9 | 0.52 | 12.1 | B | 60.9 |
| Adelaide Street and Sherbourne Street (Signalized) | NBTR | 0.64 | 32.3 | C | 75.7 | 0.65 | 32.0 | C | 81.5 |
| Adelaide Street and Sherbourne Street (Signalized) | SBL | 0.32 | 27.4 | C | 19.3 | 0.57 | 38.0 | D | #34.9 |
| Adelaide Street and Sherbourne Street (Signalized) | SBT | 0.37 | 25.3 | C | 47.4 | 0.51 | 27.9 | C | 67.8 |
| Adelaide Street and Sherbourne Street (Signalized) | Overall | 0.48 | 17.6 | B | - | 0.56 | 18.8 | B | - |
| Lower Jarvis Street and King Street (Signalized) | EBR | 0.04 | 33.7 | C | 0.0 | 0.11 | 37.2 | D | 0.0 |
| Lower Jarvis Street and King Street (Signalized) | WBL | 0.74 | 54.1 | D | #38.8 | 0.44 | 36.7 | D | 14.4 |
| Lower Jarvis Street and King Street (Signalized) | WBR | 0.08 | 15.6 | B | 5.5 | 0.08 | 16.2 | B | 5.0 |
| Lower Jarvis Street and King Street (Signalized) | NBTR | 0.66 | 22.2 | C | 70.3 | 0.68 | 23.5 | C | 72.1 |
| Lower Jarvis Street and King Street (Signalized) | SBTR | 0.62 | 21.3 | C | 70.0 | 0.30 | 17.6 | B | 30.7 |
| Lower Jarvis Street and King Street (Signalized) | Overall | 0.41 | 23.4 | C | - | 0.37 | 22.6 | C | - |
| Church Street and Richmond Street (Signalized) | WBLTR | 0.39 | 3.7 | A | m11.9 | 0.29 | 5.4 | A | 13.5 |
| Church Street and Richmond Street (Signalized) | NBLT | 0.38 | 23.3 | C | 39.1 | 0.44 | 24.8 | C | 45.5 |
| Church Street and Richmond Street (Signalized) | SBTR | 0.47 | 22.0 | C | 39.9 | 0.38 | 20.2 | C | 33.8 |
| Church Street and Richmond Street (Signalized) | Overall | 0.42 | 13.2 | B | - | 0.35 | 15.1 | B | - |
| Adelaide Street and Berkeley Street (Signalized) | EBLTR | 0.32 | 5.8 | A | 33.1 | 0.45 | 6.7 | A | 54.7 |
| Adelaide Street and Berkeley Street (Signalized) | NBTR | 0.23 | 30.7 | C | 22.0 | 0.25 | 30.8 | C | 23.8 |
| Adelaide Street and Berkeley Street (Signalized) | SBLT | 0.31 | 31.5 | C | 26.5 | 0.33 | 31.7 | C | 26.3 |
| Adelaide Street and Berkeley Street (Signalized) | Overall | 0.32 | 9.7 | A | - | 0.42 | 9.5 | A | - |
| Adelaide Street and Parliament Street (Signalized) | EBL | 0.10 | 4.0 | A | 3.9 | 0.09 | 3.4 | A | 3.3 |
| Adelaide Street and Parliament Street (Signalized) | EBTR | 0.44 | 7.2 | A | 11.3 | 0.74 | 11.4 | B | 121.3 |
| Adelaide Street and Parliament Street (Signalized) | NBTR | 0.31 | 24.5 | C | 31.4 | 0.42 | 25.7 | C | 44.8 |
| Adelaide Street and Parliament Street (Signalized) | SBLT | 0.36 | 25.1 | C | 34.8 | 0.38 | 25.3 | C | 37.1 |
| Adelaide Street and Parliament Street (Signalized) | Overall | 0.41 | 14.1 | B | - | 0.63 | 15.9 | B | - |
| Berkeley Street and King Street (Signalized) | EBTR | 0.14 | 5.6 | A | 9.8 | 0.25 | 6.2 | A | 23.1 |
| Berkeley Street and King Street (Signalized) | WBTR | 0.25 | 6.2 | A | 22.0 | 0.14 | 5.7 | A | 13.8 |
| Berkeley Street and King Street (Signalized) | NBLTR | 0.26 | 25.7 | C | 17.5 | 0.36 | 26.5 | C | 28.5 |
| Berkeley Street and King Street (Signalized) | SBLTR | 0.32 | 26.1 | C | 24.4 | 0.22 | 25.3 | C | 20.0 |
| Berkeley Street and King Street (Signalized) | Overall | 0.27 | 10.2 | B | - | 0.28 | 10.4 | B | - |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay(s) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (m) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay(s) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (m) |
|--------------------------------------------------------|----------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|
| King Street and George Street (Signalized) | EBTR | 0.14 | 7.5 | A | 16.6 | 0.31 | 8.8 | A | 37.3 |
| King Street and George Street (Signalized) | WBTR | 0.27 | 7.1 | A | 25.8 | 0.19 | 6.6 | A | 17.2 |
| King Street and George Street (Signalized) | NBLTR | 0.27 | 24.5 | C | 24.4 | 0.36 | 25.3 | C | 31.9 |
| King Street and George Street (Signalized) | SBLTR | 0.29 | 24.7 | C | 28.3 | 0.39 | 25.6 | C | 36.3 |
| King Street and George Street (Signalized) | Overall | 0.28 | 10.9 | B | - | 0.34 | 11.9 | B | - |
| Lower Jarvis Street and Front Street (Signalized) | EBL | 0.17 | 28.3 | C | m10.0 | 0.24 | 9.5 | A | m6.5 |
| Lower Jarvis Street and Front Street (Signalized) | EBTR | 0.23 | 25.4 | C | 24.4 | 0.34 | 8.1 | A | 17.2 |
| Lower Jarvis Street and Front Street (Signalized) | WBL | 0.30 | 20.9 | C | 23.0 | 0.14 | 17.2 | B | 9.7 |
| Lower Jarvis Street and Front Street (Signalized) | WBTR | 0.40 | 20.2 | C | 46.2 | 0.41 | 19.0 | B | 48.1 |
| Lower Jarvis Street and Front Street (Signalized) | NBLTR | 0.60 | 19.6 | B | 57.2 | 0.50 | 18.6 | B | 53.2 |
| Lower Jarvis Street and Front Street (Signalized) | SBLTR | 0.60 | 19.1 | B | 72.2 | 0.32 | 16.2 | B | 32.1 |
| Lower Jarvis Street and Front Street (Signalized) | Overall | 0.51 | 20.4 | C | - | 0.45 | 15.6 | B | - |
| Parliament Street and Front Street (Signalized) | EBL | 0.14 | 13.4 | B | 8.5 | 0.16 | 13.3 | B | 11.9 |
| Parliament Street and Front Street (Signalized) | EBTR | 0.18 | 12.6 | B | 21.6 | 0.49 | 15.9 | B | 61.1 |
| Parliament Street and Front Street (Signalized) | WBL | 0.35 | 15.6 | B | 31.4 | 0.59 | 26.8 | C | #38.7 |
| Parliament Street and Front Street (Signalized) | WBTR | 0.51 | 16.3 | B | 66.4 | 0.34 | 14.1 | B | 40.4 |
| Parliament Street and Front Street (Signalized) | NBLTR | 0.50 | 22.8 | C | 43.1 | 0.62 | 25.4 | C | 56.0 |
| Parliament Street and Front Street (Signalized) | SBLTR | 0.37 | 20.7 | C | 32.8 | 0.39 | 21.0 | C | 35.2 |
| Parliament Street and Front Street (Signalized) | Overall | 0.51 | 17.8 | B | - | 0.60 | 19.0 | B | - |
| Cherry Street and Front Street (Signalized) | EBL | 0.02 | 21.3 | C | 3.1 | 0.05 | 17.9 | B | 6.2 |
| Cherry Street and Front Street (Signalized) | EBT | 0.13 | 22.1 | C | 14.6 | 0.34 | 20.2 | C | 41.2 |
| Cherry Street and Front Street (Signalized) | EBR | 0.02 | 21.3 | C | 0.0 | 0.06 | 18.0 | B | 4.2 |
| Cherry Street and Front Street (Signalized) | WBL | 0.11 | 22.0 | C | 9.3 | 0.20 | 19.1 | B | 16.2 |
| Cherry Street and Front Street (Signalized) | WBTR | 0.30 | 23.4 | C | 29.0 | 0.17 | 18.8 | B | 21.3 |
| Cherry Street and Front Street (Signalized) | NBLT | 0.19 | 4.4 | A | 3.1 | 0.21 | 14.6 | B | 38.5 |
| Cherry Street and Front Street (Signalized) | NBR | 0.31 | 33.2 | C | 6.0 | 0.50 | 39.6 | D | 20.7 |
| Cherry Street and Front Street (Signalized) | SBTR | 0.28 | 9.2 | A | 37.0 | 0.44 | 13.8 | B | 53.5 |
| Cherry Street and Front Street (Signalized) | Overall | 0.30 | 13.8 | B | - | 0.42 | 17.8 | B | - |
| Lower Jarvis Street and The Esplanade (Signalized) | EBLTR | 0.23 | 22.5 | C | 19.6 | 0.68 | 29.8 | C | 56.6 |
| Lower Jarvis Street and The Esplanade (Signalized) | WBLTR | 0.53 | 27.9 | C | 46.8 | 0.70 | 33.1 | C | #48.8 |
| Lower Jarvis Street and The Esplanade (Signalized) | NBLTR | 0.51 | 11.3 | B | 47.5 | 0.34 | 9.0 | A | 32.0 |
| Lower Jarvis Street and The Esplanade (Signalized) | SBLTR | 0.49 | 10.8 | B | 54.0 | 0.19 | 7.8 | A | 19.4 |
| Lower Jarvis Street and The Esplanade (Signalized) | Overall | 0.54 | 13.7 | B | - | 0.48 | 16.4 | B | - |
| Lower Sherbourne Street and The Esplanade (Signalized) | EBLTR | 0.30 | 20.7 | C | 24.9 | 0.50 | 25.2 | C | 37.2 |
| Lower Sherbourne Street and The Esplanade (Signalized) | WBLTR | 0.36 | 21.6 | C | 29.3 | 0.47 | 24.2 | C | 35.4 |
| Lower Sherbourne Street and The Esplanade (Signalized) | NBL | 0.09 | 7.1 | A | 7.1 | 0.11 | 7.4 | A | 7.1 |
| Lower Sherbourne Street and The Esplanade (Signalized) | NBTR | 0.33 | 8.9 | A | 29.6 | 0.29 | 8.5 | A | 29.0 |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay(s) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (m) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay(s) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (m) |
|--------------------------------------------------------|----------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|
| Lower Sherbourne Street and The Esplanade (Signalized) | SBL | 0.03 | 6.7 | A | 2.7 | 0.03 | 5.9 | A | m2.6 |
| Lower Sherbourne Street and The Esplanade (Signalized) | SBTR | 0.26 | 8.2 | A | 23.2 | 0.42 | 10.4 | B | 57.7 |
| Lower Sherbourne Street and The Esplanade (Signalized) | Overall | 0.34 | 12.5 | B | - | 0.45 | 14.5 | B | - |
| Parliament Street and Mill Street (Signalized) | WBL | 0.17 | 18.1 | B | 18.1 | 0.17 | 18.2 | B | 19.2 |
| Parliament Street and Mill Street (Signalized) | WBR | 0.08 | 17.4 | B | 9.5 | 0.09 | 17.6 | B | 9.8 |
| Parliament Street and Mill Street (Signalized) | NBTR | 0.36 | 11.9 | B | 30.7 | 0.45 | 12.8 | B | 37.5 |
| Parliament Street and Mill Street (Signalized) | SBLT | 0.30 | 11.5 | B | 24.3 | 0.47 | 13.1 | B | 39.3 |
| Parliament Street and Mill Street (Signalized) | Overall | 0.27 | 12.7 | B | - | 0.33 | 13.7 | B | - |
| Cherry Street and Mill Street (Signalized) | EBL | 0.09 | 17.6 | B | 9.8 | 0.13 | 17.9 | B | 12.7 |
| Cherry Street and Mill Street (Signalized) | EBTR | 0.14 | 17.9 | B | 16.3 | 0.32 | 19.3 | B | 35.0 |
| Cherry Street and Mill Street (Signalized) | WBL | 0.66 | 26.2 | C | 58.4 | 0.55 | 22.7 | C | 43.7 |
| Cherry Street and Mill Street (Signalized) | WBTR | 0.18 | 18.2 | B | 20.0 | 0.11 | 17.7 | B | 14.9 |
| Cherry Street and Mill Street (Signalized) | NBL | 0.11 | 14.9 | B | 11.3 | 0.10 | 14.8 | B | 8.2 |
| Cherry Street and Mill Street (Signalized) | NBT | 0.21 | 15.6 | B | 28.5 | 0.21 | 15.6 | B | 30.9 |
| Cherry Street and Mill Street (Signalized) | SBL | 0.25 | 37.6 | D | m6.3 | 0.20 | 48.5 | D | m3.2 |
| Cherry Street and Mill Street (Signalized) | SBTR | 0.34 | 20.9 | C | 56.2 | 0.57 | 11.1 | B | 45.9 |
| Cherry Street and Mill Street (Signalized) | Overall | 0.50 | 20.8 | C | - | 0.59 | 16.0 | B | - |
| Parliament Street and Shuter Street (Signalized) | EBL | 0.13 | 9.2 | A | m5.4 | 0.24 | 5.9 | A | m9.3 |
| Parliament Street and Shuter Street (Signalized) | EBTR | 0.05 | 5.7 | A | m2.0 | 0.50 | 9.0 | A | m44.6 |
| Parliament Street and Shuter Street (Signalized) | WBL | 0.11 | 13.1 | B | 12.0 | 0.17 | 14.2 | B | 11.7 |
| Parliament Street and Shuter Street (Signalized) | WBTR | 0.44 | 16.8 | B | 57.2 | 0.14 | 13.3 | B | 18.4 |
| Parliament Street and Shuter Street (Signalized) | NBLTR | 0.48 | 18.3 | B | 38.3 | 0.42 | 17.2 | B | 36.8 |
| Parliament Street and Shuter Street (Signalized) | SBLTR | 0.31 | 15.9 | B | 27.9 | 0.28 | 15.6 | B | 25.0 |
| Parliament Street and Shuter Street (Signalized) | Overall | 0.46 | 16.2 | B | - | 0.46 | 13.3 | B | - |
| Queen Street and Parliament Street (Signalized) | EBLTR | 0.23 | 30.0 | C | 25.5 | 0.30 | 4.8 | A | 16.2 |
| Queen Street and Parliament Street (Signalized) | WBLTR | 0.51 | 26.4 | C | 50.6 | 0.13 | 7.4 | A | 14.0 |
| Queen Street and Parliament Street (Signalized) | NBLTR | 0.35 | 11.0 | B | 30.0 | 0.56 | 30.5 | C | 51.7 |
| Queen Street and Parliament Street (Signalized) | SBLTR | 0.27 | 10.2 | B | 24.4 | 0.46 | 28.9 | C | 41.0 |
| Queen Street and Parliament Street (Signalized) | Overall | 0.40 | 18.2 | B | - | 0.38 | 17.4 | B | - |
| Sherbourne Street and Queen Street (Signalized) | EBLTR | 0.17 | 6.4 | A | 10.1 | 0.37 | 8.2 | A | 56.0 |
| Sherbourne Street and Queen Street (Signalized) | WBLTR | 0.33 | 23.2 | C | 64.6 | 0.17 | 10.9 | B | 20.7 |
| Sherbourne Street and Queen Street (Signalized) | NBL | 0.19 | 22.7 | C | 13.9 | 0.17 | 23.5 | C | 11.6 |
| Sherbourne Street and Queen Street (Signalized) | NBTR | 0.51 | 26.9 | C | 67.0 | 0.53 | 28.0 | C | 67.6 |
| Sherbourne Street and Queen Street (Signalized) | SBL | 0.18 | 22.6 | C | 12.5 | 0.40 | 28.7 | C | 25.5 |
| Sherbourne Street and Queen Street (Signalized) | SBTR | 0.52 | 27.2 | C | 65.3 | 0.63 | 30.9 | C | 82.9 |
| Sherbourne Street and Queen Street (Signalized) | Overall | 0.40 | 21.9 | C | - | 0.46 | 18.4 | B | - |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay(s) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (m) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay(s) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (m) |
|--------------------------------------------------------------------|----------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|
| Lower Sherbourne Street and Lake Shore Boulevard East (Signalized) | EBLTR | 0.45 | 37.1 | D | 51.5 | 0.48 | 34.8 | C | 63.8 |
| Lower Sherbourne Street and Lake Shore Boulevard East (Signalized) | WBLTR | 0.60 | 33.9 | C | 80.0 | 0.55 | 35.7 | D | 69.9 |
| Lower Sherbourne Street and Lake Shore Boulevard East (Signalized) | NBL | 0.00 | 36.9 | D | 1.7 | 0.03 | 38.1 | D | 2.8 |
| Lower Sherbourne Street and Lake Shore Boulevard East (Signalized) | NBTR | - | - | - | - | 0.01 | 36.9 | D | 3.2 |
| Lower Sherbourne Street and Lake Shore Boulevard East (Signalized) | SBL | 0.14 | 39.1 | D | 15.4 | 0.25 | 41.2 | D | 25.9 |
| Lower Sherbourne Street and Lake Shore Boulevard East (Signalized) | SBTR | 0.50 | 46.8 | D | 56.0 | 0.97 | 86.6 | F | #145.7 |
| Lower Sherbourne Street and Lake Shore Boulevard East (Signalized) | Overall | 0.52 | 36.2 | D | - | 0.65 | 44.7 | D | - |
| Carlaw Avenue and Gerrard Street (Signalized) | EBLTR | 0.20 | 11.1 | B | 14.9 | 0.76 | 25.3 | C | 64.9 |
| Carlaw Avenue and Gerrard Street (Signalized) | WBLTR | 0.76 | 14.5 | B | 79.2 | 0.56 | 32.0 | C | 49.5 |
| Carlaw Avenue and Gerrard Street (Signalized) | NBLTR | 0.25 | 15.2 | B | 18.5 | 0.38 | 11.6 | B | 28.9 |
| Carlaw Avenue and Gerrard Street (Signalized) | SBLTR | 0.52 | 18.2 | B | 43.5 | 0.61 | 22.5 | C | 42.4 |
| Carlaw Avenue and Gerrard Street (Signalized) | Overall | 0.65 | 15.2 | B | - | 0.65 | 23.0 | C | - |
| Pape Avenue and Gerrard Street/Gerrard Avenue (Signalized) | EBLTR | 0.26 | 13.7 | B | 23.1 | 0.46 | 5.7 | A | 15.4 |
| Pape Avenue and Gerrard Street/Gerrard Avenue (Signalized) | WBLTR | 0.35 | 4.9 | A | 4.4 | 0.35 | 16.5 | B | 44.1 |
| Pape Avenue and Gerrard Street/Gerrard Avenue (Signalized) | NBLTR | 0.10 | 16.0 | B | 12.7 | 0.16 | 16.5 | B | 17.1 |
| Pape Avenue and Gerrard Street/Gerrard Avenue (Signalized) | SBLTR | 0.07 | 15.7 | B | 9.0 | 0.23 | 17.3 | B | 21.7 |
| Pape Avenue and Gerrard Street/Gerrard Avenue (Signalized) | Overall | 0.25 | 9.3 | A | - | 0.37 | 11.7 | B | - |
| Gerrard Avenue and Marjory Avenue (Signalized) | EBLT | 0.24 | 11.5 | B | 39.8 | 0.39 | 3.2 | A | 10.8 |
| Gerrard Avenue and Marjory Avenue (Signalized) | WBTR | 0.34 | 6.6 | A | 35.1 | 0.25 | 6.0 | A | 24.0 |
| Gerrard Avenue and Marjory Avenue (Signalized) | NBL | 0.12 | 20.8 | C | 10.3 | 0.31 | 22.4 | C | 18.4 |
| Gerrard Avenue and Marjory Avenue (Signalized) | NBTR | 0.03 | 20.2 | C | 5.9 | 0.09 | 20.6 | C | 10.0 |
| Gerrard Avenue and Marjory Avenue (Signalized) | SBLTR | - | - | - | - | 0.01 | 20.1 | C | 2.0 |
| Gerrard Avenue and Marjory Avenue (Signalized) | Overall | 0.28 | 9.2 | A | - | 0.37 | 6.1 | A | - |
| Frederick Street and Front Street (Unsignalized) | EBLTR | 0.04 | 2.0 | A | - | 0.06 | 1.7 | A | - |
| Frederick Street and Front Street (Unsignalized) | WBLTR | 0.04 | 1.1 | A | - | 0.06 | 2.1 | A | - |
| Frederick Street and Front Street (Unsignalized) | NBLTR | 0.17 | 21.8 | C | - | 2.43 | 940.5 | F | - |
| Frederick Street and Front Street (Unsignalized) | SBLTR | 0.29 | 34.5 | D | - | 3.04 | Err | F | - |
| Frederick Street and Front Street (Unsignalized) | Overall | - | 34.5 | D | - | - | 940.5 | F | - |
| Adelaide Street and Ontario Street (Unsignalized) | EBT | 0.19 | 0 | A | - | 0.30 | 0 | A | - |
| Adelaide Street and Ontario Street (Unsignalized) | SBR | 0.15 | 12.6 | B | - | 0.22 | 16.3 | C | - |
| Adelaide Street and Ontario Street (Unsignalized) | Overall | - | 12.6 | B | - | - | 16.3 | C | - |
| Saulter Street and Queen Street (Unsignalized) | EBT | 0.19 | 0 | A | - | 0.37 | 0 | A | - |
| Saulter Street and Queen Street (Unsignalized) | EBR | 0.01 | 0 | A | - | 0.10 | 0 | A | - |
| Saulter Street and Queen Street (Unsignalized) | WBL | 0.01 | 0.2 | A | - | 0.01 | 0.3 | A | - |
| Saulter Street and Queen Street (Unsignalized) | NBLR | 0.09 | 18.7 | C | - | 0.08 | 23.4 | C | - |
| Saulter Street and Queen Street (Unsignalized) | Overall | - | 18.7 | C | - | - | 23.4 | C | - |

| Intersection | Movement | AM Peak Hour Volume to capacity Ratio | AM Peak Hour Delay(s) | AM Peak Hour Level of service | AM Peak Hour 95 th Percentile Queue (m) | PM Peak Hour Volume to capacity Ratio | PM Peak Hour Delay(s) | PM Peak Hour Level of service | PM Peak Hour 95 th Percentile Queue (m) |
|--------------------------------------------------|----------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|---------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------|
| Strathcona Avenue and Pape Avenue (Unsignalized) | EBLTR | 0.15 | 21.7 | C | - | 0.07 | 12.6 | B | - |
| Strathcona Avenue and Pape Avenue (Unsignalized) | WBLTR | 0.30 | 22.3 | C | - | 0.11 | 15.9 | C | - |
| Strathcona Avenue and Pape Avenue (Unsignalized) | NBLTR | 0.18 | 0 | A | - | 0.21 | 0 | A | - |
| Strathcona Avenue and Pape Avenue (Unsignalized) | SBLTR | 0.27 | 0 | A | - | 0.17 | 0 | A | - |
| Strathcona Avenue and Pape Avenue (Unsignalized) | Overall | - | 22.3 | C | - | - | 15.9 | C | - |

Notes: #: 95th percentile cycle volume exceeds capacity, queue may be longer
m: Volume for the 95th percentile queue is metered by an upstream signal
dl: de facto left-turn lane
The critical movements are highlighted in grey and are defined as those operating either with a volume to capacity ratio in excess of 0.84 or at level of service 'E' or 'F'

Qualitative Analysis

Due to the lack of available data, the following intersections within the Ontario Line South Study Area were qualitatively assessed:

- Queen Street West and York Street;
- Shuter Street and Jarvis Street;
- Richmond Street East and George Street;
- Richmond Street East and Sherbourne Street;
- Richmond Street East and Berkeley Street;
- Richmond Street East and Parliament Street;
- Adelaide Street East and Frederick Street;
- King Street East and Sherbourne Street;
- King Street East and Parliament Street;
- Front Street East and George Street;
- Front Street East and Lower Sherbourne Street;
- Front Street East and Princess Street;
- Front Street East and Berkeley Street;
- Front Street West and Bay Street;
- Lake Shore Boulevard East and Lower Jarvis Street;
- Lake Shore Boulevard East and Parliament Street; and
- Eastern Avenue and Broadview Avenue.

Generally, all major corridors within the Ontario Line South Study Area provide good lane continuity for all movements with the exception of a few left-turn restrictions along King Street and Queen Street. Cycle tracks are provided along Richmond Street, Adelaide Street, and Sherbourne Street with cross-rides installed at the intersections along the noted roads. High visibility painted crosswalks and standard transverse crosswalks are provided across all legs of the intersections. Where information was available, it was found that traffic queues at adjacent downstream intersections do not extend to the intersections upstream, with the exception of the intersection of Adelaide Street and Frederick Street where the eastbound queues at the downstream intersection of Adelaide Street and Sherbourne Street could spillover and block the intersection in the PM peak hour.

The complete qualitative analysis results are provided in **Appendix B7**.

3.8.3.3 Transit Network and Operations

Transit Network

The Ontario Line South Study Area is connected to the rest of the City through bus and streetcar routes operated by Toronto Transit Commission. The number, name, and description of the Toronto Transit Commission bus and streetcar routes servicing the Ontario Line South Study Area and their schedules as per the information obtained from the City's website are summarized in **Table 3-54**.

Transit Operations

The findings of the Transit Level of Service analysis at the Study Area signalized intersections, and road segments under Existing Conditions (2020) are summarized in **Appendix B7**.

The majority of the intersection approaches and overall intersections operate at Transit Level of Service that meet the targets for the studied corridors. However, transit vehicles experience notable delays at the following intersections:

- Queen Street and Yonge Street;
- Richmond Street and Yonge Street;
- Queen Street and Jarvis Street;
- Adelaide Street and Sherbourne Street;
- King Street and Jarvis Street;
- The Esplanade and Lower Jarvis Street;
- Queen Street and Parliament Street;
- Queen Street and Sherbourne Street; and
- Gerrard Street and Carlaw Avenue.

Table 3-54: Transit Routes Servicing the Ontario Line South Study Area

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------|
| #1 – Yonge-University Subway Line has 38 stations and is a “U-shaped” route running generally in a south and then north direction. The route operates from the northern area of Yonge Street and Finch Avenue East, south to Union Station in downtown Toronto, and then north again to the area of Highway 7 and Jane Street. Line 1 connects with Line 2 at Bloor-Yonge, St. George and Spadina stations, and it connects with Line 4 at Sheppard-Yonge Station. | 5:00 AM – 12:00 AM | 2-minute in the AM peak hour 3-minute in the PM peak hour |
| #6 – Bay bus route operates generally in a north-south direction between the area of Dupont Street and Bedford Road, and the area of Queens Quay East and Lower Sherbourne Street. It also serves Bay Station on Line 2 Bloor-Danforth and Union Station on Line 1 Yonge-University. This route operates all day, every day. Two services are operated: the 6A (Dupont-Queens Quay & Sherbourne) branch operates seven days a week all day, every day. The 6B (Bloor-Queens Quay & Sherbourne) short-turn branch operates during the morning and afternoon peak periods from Monday to Friday only. The bus service mainly operates along Bay Street with multiple northbound and southbound stops within the Ontario Line South Study Area at the Bay Street intersections with Queen Street, and Richmond Street. | 5:00 AM – 2:00 AM | 5-minute in the AM peak hour 8-minute in the PM peak hour |
| #61 – Richmond Hill GO route operates between Union Station and Gormley GO Station in Richmond Hill, generally in a north-south direction. The train service operates only during weekday peak hours with southbound trains operating in the morning peak hours and northbound trains operating in the afternoon peak hours. A bus service generally covers the southbound and northbound services during the remaining hours of a typical weekday with the latest southbound departure from Gormley GO Station scheduled at 2 PM and the latest northbound departure from Union Station scheduled at 2:40 AM. | 5:00 AM – 3:00 PM | 60-minute |
| #65 – Parliament bus route operates between Castle Frank Station on the Bloor-Danforth Subway and the area of The Esplanade and Princess Street, generally in a north-south direction. A single service is operated: the 65 (Castle Frank Station-Esplanade) branch operates at all times, seven days a week. The bus service mainly operates along Parliament Street with multiple northbound and southbound stops within the Ontario Line South Study Area at the Parliament Street intersections with Front Street, King Street East, Adelaide Street East, Richmond Street East, Queen Street East, and Shuter Street. | 5:00 AM – 2:00 AM | 13-minute in the AM peak hour 11-minute in the PM peak hour |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------|
| <p>#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. The bus service mainly operates along Carlaw Avenue with a southbound stop within the Ontario Line South Study Area at the intersections of Gerrard Street East and Carlaw Avenue</p> | <p>5:00 AM – 2:00 AM</p> | <p>6-minute in the AM peak hour 7-minute in the PM peak hour</p> |
| <p>#75 – Sherbourne bus route operates between the area of Queens Quay East and Lower Jarvis Street, Sherbourne Station on the Bloor-Danforth Subway, and the area of South Drive and Glen Road, generally in a north-south direction. One single service is operated: the 75 (Queens Quay-South Drive) branch operates at all times, seven days a week. At certain times of the week these buses alternate trips with the 82 Rosedale bus route. These trips are identified as the 75A (Queens Quay-South Drive & Summerhill) branch on schedules only. There is no change to the service or routing on the 75 Sherbourne route. The bus service mainly operates along Sherbourne Street with multiple northbound and southbound stops within the Ontario Line South Study Area at the Sherbourne Street intersections with The Esplanade, King Street East, Adelaide Street East, Richmond Street East, Queen Street East, and Shuter Street.</p> | <p>5:00 AM – 1:00 AM</p> | <p>6-minute in the AM peak hour 7-minute in the PM peak hour</p> |
| <p>#97 – Yonge bus route operates between Davisville Station and York Mills Station on Line 1, Yonge-University, and the area of Yonge Street and Steeles Avenue West, generally in a north-south direction. It also serves Finch Station (northbound buses only) and the area of Yonge Street and Queens Quay West. Three services are operated: the 97A (Davisville Station-York Mills Station via Yonge Blvd) branch operates during the midday and evening, from Monday to Friday, and at all times on Saturdays, Sundays, and holidays. The 97B (Queens Quay-York Mills Station via Yonge Blvd) branch operates during the peak periods, from Monday to Friday only. The 97F (Davisville Station-Steeles) branch operates at all times, seven days a week. The bus service mainly operates along Yonge Street with multiple northbound and southbound stops within the Ontario Line South Study Area at the Yonge Street intersections with Front Street, King Street East, Richmond Street East, Queen Street East, and Shuter Street.</p> | <p>5:00 AM – 1:00 AM</p> | <p>15-minute</p> |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------|
| <p>#121 – Fort York-Esplanade bus route operates between Exhibition Place, the Fort York neighbourhood and the Distillery neighbourhood, and, in the summer, between Ontario Place, the Fort York neighbourhood and Clarke Beach Park (Cherry Beach), generally in an east-west direction. All buses serve Union Station on Line 1, and the Fort York, City Place, Esplanade, and Distillery neighbourhoods. Two services are operated: the 121A (Exhibition (Princes' Gates)-Distillery via Union Station) branch operates all day, every day outside the summer months. The 121D (Ontario Place-Cherry Beach via Union Station and Distillery) seasonal branch operates from mid-May to mid-October. The bus service mainly operates along Cherry Street, Front Street, The Esplanade, and Fort York Boulevard with multiple eastbound and westbound stops within the Ontario Line South Study Area at The Esplanade intersections with Lower Jarvis Street, and Lower Sherbourne Street. The bus service also has multiple stops at Front Street intersections with, Parliament Street, and Cherry Street, and at the intersection of Mills Street and Cherry Street.</p> | <p>6:00 AM – 1:00 AM</p> | <p>16-minute in the AM peak hour 26-minute in the PM peak hour</p> |
| <p>#141 – Downtown / Mount Pleasant Express bus route operates between the intersection of Charlotte Street and King Street and the intersection of Mount Pleasant Road and Eglinton Avenue, generally in a north-south direction. The bus service is extended to operate from the intersection of Mount Pleasant Road and Lawrence Avenue for the first three trips of the morning and both trips in the afternoon. The bus service mainly operates along the King Street Transit Priority Corridor, Jarvis Street, and Mount Pleasant Road. Within the Ontario Line South Study Area, the bus route has northbound and southbound express stops located at the intersections of King Street and Jarvis Street, and at the intersection of Queen Street and Jarvis Street.</p> | <p>7:00 AM – 6:00 PM</p> | <p>15-minute in the AM peak hour 30-minute in the PM peak hour</p> |
| <p>#142 – Downtown / Avenue Road Express bus route operates between the intersection of Berkeley Street and King Street and Bombay loop located northeast of the Highway 401 and Avenue Road interchange, generally in a north-south direction. The bus service mainly operates along the section of King Street Transit Priority Corridor between University Avenue and Jarvis Street, University Avenue, and Avenue Road. Within the Ontario Line South Study Area, the bus route has northbound and southbound express stops located at King Street and Berkeley Street, and at King Street and George Street.</p> | <p>6:00 AM – 7:00 PM</p> | <p>30-minute</p> |
| <p>#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. The bus service mainly operates along the King Street Transit Priority Corridor, Queen Street East, Eastern Avenue, and Richmond Street East. Within the Ontario Line South Study Area, the bus route has eastbound and westbound express stops located at King Street and George Street.</p> | <p>7:00 AM – 7:00 PM</p> | <p>15-minute in the AM peak hour 25-minute in the PM peak hour</p> |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------|
| #144 – Downtown / Don Valley Express bus route operates between the intersection of Charlotte Street and King Street and the intersection of Victoria Park Avenue and Parkwoods Village Drive and Concorde Place, generally in a north-south direction. Two services are operated: the 144A (Underhill-Downtown Express) and the 144B (Wynford-Downtown Express). The bus service mainly operates along the King Street Transit Priority Corridor, Adelaide Street East, Don Valley Parkway, and Don Mills. Within the Ontario Line South Study Area, the bus route has eastbound and westbound express stops located at King Street and George Street. | 6:00 AM – 7:00 PM | 7-minute in the AM peak hour 20-minute in the PM peak hour |
| #145 – Downtown / Humber Bay Express bus route operates between the intersection of Berkeley Street and King Street and the intersection of Lake Shore Boulevard and Royal York Road or the intersection of Lake Shore Boulevard and Kipling Avenue, generally in an east-west direction. Two services are operated: the 145A (Royal York-Downtown Express) and the 145B (Kipling-Downtown Express). The bus service mainly operates along Lake Shore Boulevard, Bathurst Street, and the King Street Transit Priority Corridor. Within the Ontario Line South Study Area, the bus route has eastbound and westbound express stops located at King Street and George Street. | 6:00 AM – 7:00 PM | 20-minute |
| #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. The streetcar route operates mainly along Queen Street with multiple eastbound and westbound stops within the Ontario Line South Study Area at the Queen Street intersections with Bay Street, Yonge Street, Victoria Street, Church Street, Jarvis Street, Sherbourne Street, and Parliament Street. | 12:00 AM – 5:00 AM | 15-minute |
| #304 – King Blue Night streetcar route operates between Dundas West Station and Broadview Station on Line 2 Bloor-Danforth via King Street, generally in an east-west direction. One single service is operated: the 304 (Dundas West Station-Broadview Station) branch which operates during the overnight period, seven days a week. The streetcar route operates mainly along King Street. Within the Ontario Line South Study Area, the streetcar route has an eastbound and westbound stop at King Street and Jarvis Street. The streetcar also has a northbound and southbound stop at Cherry Street and Front Street. | 1:00 AM – 5:00 AM | 15-minute |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------|
| #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. One single service is operated: the 306 (Main Street Station-Dundas West Station) which operates during the overnight period, seven days a week. The streetcar operates mainly along College Street, Gerrard Street, and Main Street with multiple eastbound and westbound stops within the Ontario Line South Study Area located nearside at the Gerrard Street intersections at Carlaw Avenue, Pape Avenue, and Marjory Avenue. | 12:00 AM – 5:00 AM | 20-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 Stations 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: 501A (Humber-Neville Park) and 501L (Long Branch-Humber). The streetcar route operates mainly along Queen Street with multiple eastbound and westbound stops within the Ontario Line South Study Area at the Queen Street intersections with Bay Street, Yonge Street, Victoria Street, Church Street, Jarvis Street, Sherbourne Street, and Parliament Street. | 4:00 AM – 12:00 AM | 7-minute |
| #503 – Kingston Road 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 Stations on Line 1. One single service is operated: the 503 (Victoria Park-York), which operates during the peak periods, from Monday to Friday only. The streetcar route operates mainly along Kingston Road, Queen Street East, and King Street with eastbound and westbound stops within the Ontario Line South Study Area located at the intersection of King Street and Jarvis Street and at the intersection of Queen Street and Saulter Street | 5:00 AM – 8:00 PM | 7-minute in the AM peak hour 8-minute in the PM peak hour |
| #504 – King streetcar route operates between Dundas Station and Broadview Station on Line 2 Bloor-Danforth, generally in an east-west direction. It also serves the St. Andrew and King Station on Line 1 Yonge-University. Two services are operated: the 504A (Dundas West Station-Distillery) and the 504B (Broadview Station-Dufferin Gate), both branches operating 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. The streetcar route operates mainly along King Street. Within the Ontario Line South Study Area, the streetcar route has an eastbound and westbound stop at King Street and Jarvis Street. The streetcar also has a northbound and southbound stop at Cherry Street and Front Street. | 5:00 AM – 2:00 AM | 3-minute |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------|
| #505 – Dundas streetcar route operates between Dundas West Station and Broadview Station on Line 2 (Bloor-Danforth), generally in an east-west direction. It also serves the St Patrick and Dundas Stations on Line 1 (Yonge-University). A single service is operated: the 505 (Dundas West Station-Broadview Station branch, which operates at all times, seven days a week. The route is part of the 10-minute network, and operates 10 minutes or better, all day, every day. The streetcar route operates mainly along Dundas Street and Broadview Avenue where the closest eastbound and westbound stops to the Ontario Line South Study Area are located nearside at the intersection of Dundas Street and Broadview Avenue. | 5:00 AM – 2:00 AM | 9-minute in the AM peak hour 8-minute in the PM peak hour |
| #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) branch 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. The streetcar route operates mainly along Main Street, Gerrard Street, Carlton Street and College Street with eastbound and westbound stops within the Ontario Line South Study Area at the Gerrard Street intersections with Carlaw Avenue, Pape Avenue, and Marjory Avenue | 5:00 AM – 1:00 AM | 8-minute in the AM peak hour 9-minute in the PM peak hour |

Source: Toronto Transit Commission online schedules and maps, accessed through www.Toronto Transit Commission.ca on July 20, 2020.

This is attributed to the long average delay that transit vehicles experience when completing specific movements at the noted Study Area intersections. Accordingly, the following transit routes operate at critical Transit Level of Service at the identified intersections:

- Bus route #97 operates at critical Transit Level of Service 'E' at the intersection of Queen Street and Yonge Street when buses complete a northbound through movement during the AM peak hour;
- Bus route #97 operates at critical Transit Level of Service 'F' at the intersection of Richmond Street and Yonge Street when buses complete a southbound through movement during the PM peak hour;
- Bus route #141 operates at critical Transit Level of Service 'E' at the intersection of Queen Street and Jarvis Street when buses complete a northbound through movement during the AM peak hour;
- Bus route #75 operates at critical Transit Level of Service 'E' at the intersection of Adelaide Street and Sherbourne Street when buses complete a southbound through movement during the PM peak hour and a northbound through movement during AM and PM peak hours. The bus route also operates at critical Transit Level of Service 'E' at the intersection of Queen Street and Sherbourne Street when buses complete a southbound through movement during the PM peak hour;
- Streetcar route #503 and streetcar route #504 operate at critical Transit Level of Service 'E' at the intersection of King Street and Jarvis Street when streetcars complete a westbound through movement during the AM peak hour and an eastbound through movement during AM and PM peak hours;
- Bus route #121 operates at critical Transit Level of Service 'E' at the intersection of The Esplanade and Lower Jarvis Street when buses complete a westbound through movement during the PM peak hour;
- Streetcar route #501 operates at critical Transit Level of Service 'E' at the intersection of Queen Street and Parliament Street when streetcars complete an eastbound through movement during the PM peak hour; and
- Streetcar route #506 operates at critical Transit Level of Service 'E' at the intersection of Gerrard Street and Carlaw Avenue when streetcars complete a westbound through movement during the PM peak hour.

All transit vehicles travelling along the road segments within the Study Area experience an acceptable Transit Level of Service 'D' or better, meeting the minimum desirable Transit Level of Service for the studies sections. The only exception is the transit vehicles travelling along the King Street section between Jarvis Street and George Street which were found to experience a critical Transit Level of Service 'E'.

3.8.3.4 Pedestrian Network and Operations

Pedestrian Network

Pedestrians are accommodated within the Study Area through sidewalks provided on both sides of the majority of the roads. In addition, painted crosswalks are provided across all legs of the Study Area intersections. Sidewalks are generally 1.5 to 2.0 metres wide, with a mix of monolithic and boulevard separated facilities. There are some multi-use pathways and trails provided, including the Lower Don River Trail and the Martin Goodman Trail. No notable gaps in the pedestrian network within the Ontario Line West are identified. The pedestrian facilities within the Study Area are illustrated in **Appendix B7**.

Pedestrian Operations

The findings of the Pedestrian Level of Service analysis at the Study Area signalized intersections, and road segments under Existing Conditions (2020) are summarized in **Appendix B7**.

At the Study Area signalized intersections in both the AM and PM peak hours, pedestrians experience long average delays / waiting times before they receive Walk Time and start crossing the studied sections of the major arterial roads within the Study Area such as Queen Street, Richmond Street, Adelaide Street, Yonge Street, Jarvis Street, etc. In addition, as they start crossing at the signalized intersection, 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). Thus, the majority of the signalized intersection approaches are estimated to operate at Pedestrian Level of Service ‘D’ or worse. At the overall intersection level too, pedestrians experience Pedestrian Level of Service ‘D’ or worse at all the Study Area signalized intersections in both the AM and PM peak hours with the exception being the intersections of Queen Street and Yonge Street, Richmond Street and York Street, Queen Street and Jarvis Street, and Mill Street and Parliament Street where pedestrians experience Pedestrian Level of Service ‘C’ during both the AM and PM peak hours.

For the Study Area road segments, the majority of the road segments between University Avenue and Jarvis Street as well as the road segments along Sherbourne Street, Lake Shore Boulevard, and Gerrard Street operate at acceptable Pedestrian Level of Service ‘C’ or better. This is mainly attributed to the wide sidewalks and the presence of a multi-use pathway along Lake Shore Boulevard. The remaining road segments generally operate at a critical Pedestrian Level of Service ‘E’. This is mainly attributed to the narrow sidewalk widths along the noted road segments.

3.8.3.5 Cycling Networks and Operations

Cycling Network

Cyclists are accommodated within the Study Area through exclusive cycling facilities, on-street bike lanes, and shared lanes. The cycle tracks along the north side of Richmond Street and the south side of Adelaide Street provide cyclists within the Study Area with one-way movement in the westbound and eastbound directions, respectively. Cyclists traveling along Shuter Street are accommodated through shared lane along the north and south sides.

Cyclists traveling in the northbound and southbound direction within the Study Area are accommodated through the directional cycle tracks along either side of Sherbourne Street, which provides cyclists traveling along Richmond Street with another connection to Adelaide Street and vice versa. In addition, and at the intersection level, cross-rides are provided across the north leg and the south leg of all the Study Area intersections along Richmond Street and Adelaide Street, respectively. Cross-rides are also provided across the east legs and the west legs of all Study Area along Sherbourne Street. The cycling facilities within the Study Area are illustrated in **Appendix B7**.

Notable gaps in the cycling network within the Ontario Line South Study Area include:

- No major north-south bicycle route/facility west of Sherbourne Street.

Cycling Operations

The findings of the Bicycle Level of Service analysis at the Study Area signalized intersections, and road segments under Existing Conditions (2020) are summarized in **Appendix B7**.

The majority of the Study Area signalized intersections operate at acceptable BLOS 'C' or better overall. However, cyclists experience Bicycle Level of Service 'D' or worse at the following signalized Study Area intersections:

- Richmond Street and York Street;
- Shuter Street and Sherbourne Street;
- Front Street and Lower Jarvis Street;
- Front Street and Parliament Street;
- Mill Street and Cherry Street;
- Shuter Street and Parliament Street
- The Esplanade and Lower Jarvis Street; and
- Lake Shore Boulevard East and Lower Sherbourne Street.

This is mainly attributed to lack of designated cycling facilities on some of the individual approaches to the noted intersections (e.g., bicycle left-turn box, pocket bike lanes, cross-rides, etc.) which requires a left-turning cyclist in mixed traffic to either dismount their bicycle and walk across two perpendicular intersection legs as a pedestrian or weave through and cross general-purpose traffic lanes(s) before making a left turn.

Cyclists experience critical Bicycle Level of Service 'D' along all the studied road segments of Queen Street, King Street, Bay Street, Yonge Street, Jarvis Street, Parliament Street, and Gerrard Street. This is mainly attributed to the lack of any physically separated cycling facilities along the noted roads. However, cyclists accommodated through the cycling facilities along Richmond Street, Adelaide Street, Shuter Street, Sherbourne Street, and Lake Shore Boulevard experience excellent Bicycle Level of Service 'A' or 'B' throughout the studied sections of the noted roads.

3.8.4 Ontario Line North

3.8.4.1 Road Network

The existing road network, road classification, and the traffic control devices of the intersections within the Ontario Line North Study Area that were quantitatively assessed are presented in **Figure 3-50**. Below is a detailed description of each road in the Ontario Line West Study Area. The roads' cross-section and speed limits are illustrated **Appendix B7**.

Eglinton Avenue East is a major arterial road that provides extensive east-west vehicular and transit mobility across the City of Toronto. Prior to the construction of the Eglinton Crosstown Light Rail Transit, High-Occupancy Vehicle lanes terminated just east of Leslie Street in the westbound direction and commenced just east of Leslie Street in the eastbound direction. These lanes have been removed entirely during construction. During construction, there are two general purpose lanes per direction east of Laird Drive and three general purpose lanes on the eastbound approach to Laird Drive. Eglinton Avenue East has a posted speed limit of 50 kilometres per hour.

Don Mills Road is a major arterial road under the jurisdiction of the City of Toronto. South of Eglinton Avenue East, Don Mills Road has a six-lane cross-section, with two general purpose lanes and one High-Occupancy Vehicle lane per direction. Opposing traffic streams are separated by a concrete median, while exclusive turning lanes are provided at key intersections. On-street parking and stopping are restricted on both sides of Don Mills Road. Don Mills Road has a speed limit of 50 kilometres per hour.

Rochefort Drive is an east-west local two-way street with a speed limit of 50 kilometres per hour.

St Dennis Drive is a two-lane east-west collector street with a speed limit of 50 kilometres per hour.

Overlea Boulevard is an east-west major arterial road consisting of two lanes, a four-lane cross-section and raised centre median. The curb lanes are designated High-Occupancy Vehicle lanes. Overlea Boulevard has a speed limit of 50 kilometres per hour.

Thorncliffe Park Drive is a two-lane collector that connectors to Overlea Boulevard on either end and provides access to the areas south of Overlea Boulevard. The speed limit on the street is 50 kilometres per hour.

Leaside Park Drive, Banigan Drive, Grandstand Place, Milepost Place, Pat Moor Drive, and William Morgan Drive are two-lane local roads in the Thorncliffe Park Area with 50 kilometre per hour speed limits.

Millwood Road is a north-south major arterial road with a four-lane cross-section north of Overlea Boulevard, and a six-lane cross-section south of Overlea Boulevard. Millwood Road diverges at Laird Drive and continues west to Bayview Avenue. Millwood Road has a posted speed limit of 50 kilometres per hour.

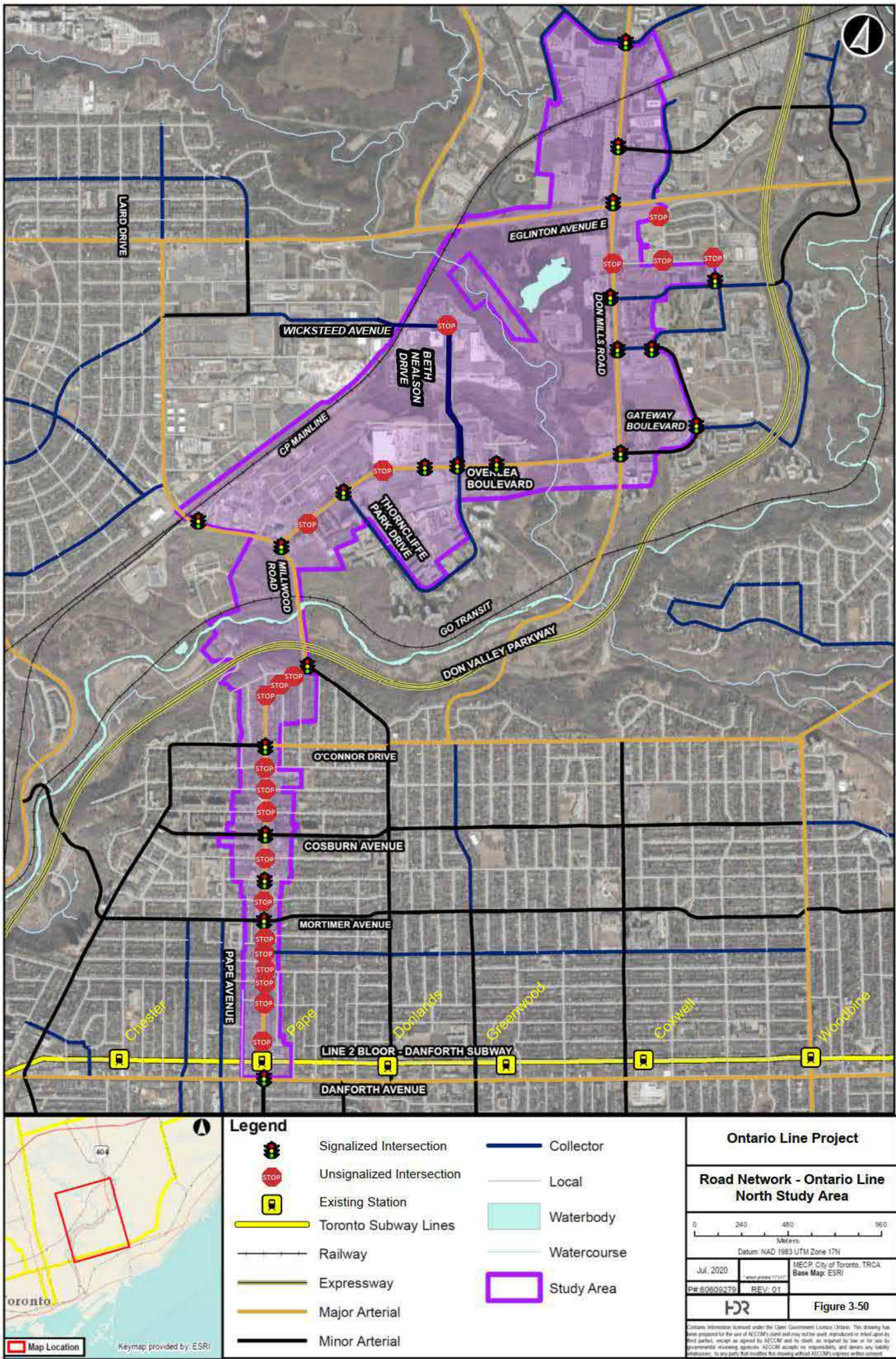
Pape Avenue is a four-lane major arterial road with a designated High-Occupancy Vehicle lane in both directions. The northbound High-Occupancy Vehicle lane ends approximately 130 metres south of Millwood Road. The southbound High-Occupancy Vehicle lane starts at approximately 90 metres south of Millwood Road. Pape Avenue has a posted speed limit of 40 kilometres per hour.

O'Connor Drive is a major arterial road east of Pape Avenue, and a minor arterial west of Pape Avenue. It has two general purpose lanes in both directions. O'Connor Drive has an unposted speed limit of 50 kilometres per hour,

Gamble Avenue is a local road with one general purpose lanes in both directions. It has a posted speed limit of 30 kilometres per hour and allows on-street parking along the north side.

Cosburn Avenue is a minor arterial road with one general purpose lane and one bike lane per direction, with dedicated left-turn lanes at Pape Avenue. In addition, a dedicated parking lane is provided on the north side of the street ending approximately 50 metres east of Pape Avenue and restarting approximately 50 metres west of Pape Avenue. It has an unposted speed limit of 50 kilometres per hour.

Figure 3-50: Road Network – Ontario Line North Study Area



Floyd Avenue is a local road with one general purpose lane in both directions. It has a posted speed limit of 30 kilometres per hour, and allows on-street parking along the north side, starting 30 metres west of Pape Avenue.

Mortimer Avenue is a minor arterial road with one general purpose lane per direction, with dedicated left-turn lanes at Pape Avenue. It has a posted speed limit of 40 kilometres per hour.

Sammon Avenue is a local road east of Pape Avenue with one general purpose lane in both directions. It has an unposted speed limit of 50 kilometres per hour and allows on-street parking along the north side.

Fulton Avenue is a local road west of Pape Avenue with one general purpose lane in both directions. It has a posted speed limit of 30 kilometres per hour. West of the Ontario Line North Study Area, it is one-way westbound.

Aldwych Avenue is a local road east of Pape Avenue with one general purpose lane in both directions. It has a posted speed limit of 30 kilometres per hour and allows on-street parking along both the north and south sides.

Browning Avenue is a one-way eastbound local road west of Pape Avenue with one westbound left-turn lane and one westbound right-turn lane. It has a posted speed limit of 30 kilometres per hour.

Lipton Avenue is a local road with a posted speed limit of 30 kilometres per hour. It has one lane eastbound. Its westbound approach consists of one dedicated left-turn lane, and a shared through-right lane. The westbound approach is heavily used by buses egressing from Pape Station.

Danforth Avenue is a major arterial road with two general purpose lanes per direction and dedicated left-turn lanes at Pape Avenue. It has an unposted speed limit of 50 kilometres per hour. On-street parking is prohibited in the westbound direction during the AM peak, and in the eastbound direction during the PM peak.

Redway Road is a two-lane local road west of Millwood Road. It has a posted speed limit of 30 kilometres per hour.

Village Station Road is a two-lane local road. It has an unposted speed limit of 50 kilometres per hour.

Ferrand Drive is a local road with a two-lane cross-section. It has an unposted speed limit of 50 kilometres per hour.

St. Dennis Drive is a collector road with a four-lane cross-section with two through lanes operating in each direction. St. Dennis Drive runs east-west throughout the

Ontario Line North Study Area. Parking on both sides of St. Dennis Drive is restricted between the hours of 8:00 AM and 6:00 PM from Monday to Friday. St. Dennis Drive has a posted speed limit of 50 kilometres per hour.

Gateway Boulevard is a collector road. Within the vicinity of the site area, Gateway Boulevard has a four-lane cross-section with two-way traffic and two through lanes operating in each direction. Paid parking is permitted on the north side of Gateway Boulevard on Monday to Saturday between 8:00 AM and 6:00 PM. Gateway Boulevard has a posted speed limit of 40 kilometres per hour.

Grenoble Drive is a collector road with a two-lane cross-section with two-way traffic and a single through lane operating in each direction. Parking is only permitted on the north side of Grenoble Drive outside the hours of 8:00 AM to 6:00 PM between Monday to Friday. Grenoble Drive has a posted speed limit of 40 kilometres per hour.

Deauville Lane is a collector road with a two-lane cross-section with two-way traffic and a single through lane operating in each direction. Parking is only permitted on the west side of Deauville Lane outside the hours of 8:00 AM to 6:00 PM between Monday to Friday. Deauville Lane has a posted speed limit of 50 kilometres per hour.

Wynford Drive is an east-west two-way minor arterial road. It has a speed limit of 50 kilometres per hour speed limit and a typical 5-lane urban cross-section. Terminating at Don Mills Road, the westbound approach consists of a dual left-turn lane and a channelized right-turn lane.

Barber Greene Road/Green Belt Drive are east-west collector roads operating in a general east-west direction. Each road operates with one lane in each direction with separate left-turn lanes at Don Mills Road.

Beth Neilson Drive is a north-south collector road with a speed limit of 50 kilometres per hour speed limit and a typical 2-lane urban cross-section. Between Overlea Boulevard and Par Moore Drive, there is a two-way left turn lane.

Gervais Drive is a north-south collector road with a speed limit of 50 kilometres per hour speed limit and a typical 2-lane urban cross-section with left turning bays at Wynford Drive.

3.8.4.2 Intersections Analysis

Quantitative Analysis

Traffic Volumes

The motorized vehicles turning movement volumes (including autos, buses, and trucks) were obtained from the available Turning Movement Count data. An annual compound

growth rate of 1% was applied to through-movements for all Turning Movement Counts collected before 2020 along all major corridors. The major corridors include Eglinton Avenue East, Don Mills Road, Overlea Boulevard, Laird Drive, Millwood Road, Pape Avenue, O'Connor Drive, and Danforth Avenue. After the growth rate was applied, volumes were balanced at locations that have no sources or sinks, such as driveways or unstudied intersections.

The TMC data comparison details are provided in **Appendix B7**.

Traffic Operations

The analysis findings of traffic operations at intersections within the Ontario Line North Study Area are summarized in **Table 3-55**. The critical movements are highlighted in grey and are defined as those operating either with a volume to capacity ratio in excess of 0.84 or at level of service 'E' or worse. The detailed High Capacity Manual 2000 reports from Synchro pertaining to the Existing Conditions analysis are presented in **Appendix B7**.

As shown in **Table 3-55**, most of the Ontario Line North Study Area intersections, where traffic data was available, operate at acceptable level of service 'D' or better and within capacity in both the AM and PM peak hours.

However, in both peak hours, the intersections along Eglinton Avenue East at Leslie Street and at Don Mills Road operate at or above capacity, primarily due to the lane reductions from ongoing construction of the Eglinton Crosstown Light Rail Transit at the following locations:

- At Leslie Street, the southbound right, previously free-flow channelization, is now forced to stop at red lights during construction operating at capacity.
- At Don Mills Road, the movements approaching capacity are primarily the north-south through-movements, as well as advanced southbound and westbound left-turns. It is notable that the east-west through-movements are well under capacity. This is likely due to the widespread construction along a substantial segment of Eglinton Avenue East and West across the City that has been in place for the past few years. Construction on some parts of Eglinton not only limits the traffic volumes that eventually pass through Don Mills/Eglinton in the east-west direction but also encourages general traffic to seek alternate routes to divert away from Eglinton Avenue. Conversely, Don Mills Road does not have any other major disruptions aside from the construction at Eglinton. However, the north-south traffic tolerates congestion and higher delays at the intersection.
- The westbound left-turn at Don Mills Road and Eglinton Avenue East was previously allowed to turn during the green time for east-west through-traffic after yielding to oncoming traffic. However, during the Eglinton Crosstown

Light Rail Transit construction, these left-turners became prohibited from turning during this phase, which has reduced the capacity of this movement.

At Don Mills Road and Overlea Boulevard, the northbound left is operating at capacity during both the AM and PM peak hours. This is likely due to the high volumes of traffic travelling to and from the Don Valley Parkway immediately to the south, with the northbound left movement representing traffic from the highway. Particularly during the AM peak, the northbound left traffic competes for green time with the southbound-through movement.

Along Overlea Boulevard, the east-west through movements operates at or above capacity at William Morgan Drive and at Thorncliffe Park Drive East (Beth Neelson Drive). This is due to the High-Occupancy Vehicle lane, which reduces capacity by almost half for general through-traffic. Furthermore, green time given to traffic travelling along Overlea Boulevard is limited by the high volumes of pedestrians activating the north-south phase.

Examination of the existing Turning Movement Counts along Laird Drive, Wicksteed Avenue and Overlea Boulevard suggest that a substantial amount of traffic travel along Thorncliffe Park Drive East/Beth Neelson Drive and Wicksteed Avenue as an alternative to travelling through the intersection of Overlea Boulevard/Millwood Road. During both the AM and PM peak hours, the north-south through movements along Laird Drive and Millwood Road are generally well within capacity. This suggests that these streets will have spare capacity to accommodate potentially diverted traffic. East-west movements along Overlea Boulevard west of Thorncliffe Park Drive East are also well under capacity during both peak hours. However, during the AM peak, the southbound left-turn movement at Overlea Boulevard and Millwood Road approaches capacity.

The southbound left movement at Laird Drive/McRae Drive/Wicksteed Avenue intersection operates within capacity but has a level of service F due to high delays in both peak periods.

Of the unsignalized intersections, the stop-controlled movements generally operate at acceptable levels of service. The exceptions are Overlea Boulevard/Leaside Park Drive, and at Wicksteed Avenue/Leslie Street in the PM peak. At these locations, there is a large increase in east-west free-flow traffic, which increases the delay for the stop-controlled movements.

Qualitative Analysis

Within the Ontario Line North Study Area, data was available for all road segments and intersections identified above; therefore, a qualitative analysis was not required to supplement the quantitative analysis presented in **Table 3-55**.

Table 3-55: Summary of Traffic Operations at the Ontario Line North Study Area Intersections under Existing Conditions (2020) during the AM and PM Peak Hours

| 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) |
|-----------------------------------------------------------------|----------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | EBL | 0.24 | 44.4 | D | 23.0 | 0.47 | 22.8 | C | 23.9 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | EBTR | 0.29 | 44.9 | D | 34.2 | 0.17 | 26.1 | C | 16.2 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | WBL | 0.69 | 57.9 | E | 51.2 | 0.42 | 22.4 | C | 27.5 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | WBTR | 0.10 | 42.9 | D | 16.7 | 0.27 | 27.0 | C | 21.4 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | NBL | 0.76 | 44.3 | D | #52.9 | 0.43 | 14.4 | B | 19.8 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | NBTR | 0.55 | 17.0 | B | 95.7 | 1.03 | 52.1 | D | #210.9 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | SBL | 0.94 | 61.9 | E | #95.2 | 0.21 | 19.2 | B | 9.4 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | SBTR | 0.72 | 17.5 | B | 166.3 | 0.58 | 21.5 | C | 81.6 |
| Don Mills Road/Barber Greene Road/Green Belt Drive (Signalized) | Overall | 0.90 | 23.9 | C | - | 0.76 | 37.2 | D | - |
| Don Mills Road/Wynford Drive (Signalized) | WBL | 0.21 | 45.8 | D | 28.5 | 0.42 | 48.4 | D | 56.3 |
| Don Mills Road/Wynford Drive (Signalized) | WBR | 0.30 | 0.5 | A | 0.0 | 0.39 | 0.8 | A | 0.0 |
| Don Mills Road/Wynford Drive (Signalized) | NBTR | 0.62 | 24.6 | C | 119.6 | 0.59 | 23.7 | C | 118.9 |
| Don Mills Road/Wynford Drive (Signalized) | SBL | 1.12 | 117.4 | F | #186.1 | 0.96 | 71.9 | E | #128.8 |
| Don Mills Road/Wynford Drive (Signalized) | SBT | 0.38 | 8.7 | A | 57.2 | 0.31 | 8.1 | A | 44.9 |
| Don Mills Road/Wynford Drive (Signalized) | Overall | 0.64 | 28.6 | C | - | 0.85 | 22.2 | C | - |
| Don Mills Road/Eglinton Avenue East (Signalized) | EBTR | 0.61 | 50.8 | D | 79.0 | 0.85 | 65.1 | E | #105.6 |
| Don Mills Road/Eglinton Avenue East (Signalized) | WBL | 0.95 | 136.9 | F | #65.0 | 0.88 | 126.0 | F | #52.3 |
| Don Mills Road/Eglinton Avenue East (Signalized) | WBT | 0.35 | 35.2 | D | 52.5 | 0.24 | 34.9 | C | 39.6 |
| Don Mills Road/Eglinton Avenue East (Signalized) | WBR | 0.12 | 32.1 | C | 14.8 | 0.09 | 32.9 | C | 13.2 |
| Don Mills Road/Eglinton Avenue East (Signalized) | NBL | 0.53 | 30.0 | C | 23.8 | 0.45 | 24.9 | C | 18.0 |
| Don Mills Road/Eglinton Avenue East (Signalized) | NBT | 0.92 | 46.5 | D | #229.3 | 0.92 | 48.2 | D | #228.0 |
| Don Mills Road/Eglinton Avenue East (Signalized) | NBR | 0.12 | 23.3 | C | 13.4 | 0.24 | 26.4 | C | 31.9 |
| Don Mills Road/Eglinton Avenue East (Signalized) | SBL | 0.60 | 34.1 | C | 27.7 | 0.90 | 77.2 | E | #84.5 |
| Don Mills Road/Eglinton Avenue East (Signalized) | SBTR | 0.95 | 52.3 | D | #240.5 | 0.77 | 35.1 | D | 171.2 |
| Don Mills Road/Eglinton Avenue East (Signalized) | Overall | 0.82 | 48.2 | D | - | 0.92 | 46.9 | D | - |
| Don Mills Road/St Dennis Drive (Signalized) | EBL | 0.02 | 36.7 | D | 3.6 | 0.09 | 37.2 | D | 8.4 |
| Don Mills Road/St Dennis Drive (Signalized) | EBTR | 0.01 | 36.6 | D | 3.9 | 0.01 | 36.3 | D | 5.4 |
| Don Mills Road/St Dennis Drive (Signalized) | WBLTR | 0.29 | 39.3 | D | 22.8 | 0.40 | 40.3 | D | 34.2 |
| Don Mills Road/St Dennis Drive (Signalized) | NBL | 0.04 | 10.8 | B | 2.7 | 0.02 | 10.7 | B | 2.2 |
| Don Mills Road/St Dennis Drive (Signalized) | NBTR | 0.65 | 17.6 | B | 129.3 | 0.79 | 21.6 | C | 175.7 |
| Don Mills Road/St Dennis Drive (Signalized) | SBL | 0.49 | 13.5 | B | 20.4 | 0.60 | 27.3 | C | 30.6 |
| Don Mills Road/St Dennis Drive (Signalized) | SBTR | 0.52 | 9.8 | A | 89.3 | 0.44 | 9.0 | A | 72.0 |
| Don Mills Road/St Dennis Drive (Signalized) | Overall | 0.55 | 15.6 | B | - | 0.67 | 19.3 | B | - |
| Don Mills Road/Gateway Boulevard North (Signalized) | EBL | 0.02 | 36.2 | D | 3.1 | 0.01 | 36.1 | D | 3.1 |
| Don Mills Road/Gateway Boulevard North (Signalized) | EBTR | 0.01 | 36.1 | D | 4.4 | 0.02 | 36.2 | D | 7.8 |
| Don Mills Road/Gateway Boulevard North (Signalized) | WBL | 0.50 | 42.5 | D | 56.1 | 0.52 | 42.9 | D | 60.7 |
| Don Mills Road/Gateway Boulevard North (Signalized) | WBT | 0.02 | 36.2 | D | 6.6 | 0.01 | 36.1 | D | 4.4 |
| Don Mills Road/Gateway Boulevard North (Signalized) | WBR | 0.15 | 37.6 | D | 20.2 | 0.16 | 37.7 | D | 22.3 |
| Don Mills Road/Gateway Boulevard North (Signalized) | NBL | 0.11 | 14.3 | B | 5.3 | 0.04 | 12.6 | B | 2.7 |
| Don Mills Road/Gateway Boulevard North (Signalized) | NBTR | 0.64 | 19.9 | B | 121.2 | 0.62 | 19.5 | B | 115.1 |
| Don Mills Road/Gateway Boulevard North (Signalized) | SBL | 0.75 | 33.7 | C | #45.5 | 0.78 | 35.2 | D | #51.2 |
| Don Mills Road/Gateway Boulevard North (Signalized) | SBTR | 0.54 | 12.1 | B | 89.5 | 0.49 | 11.3 | B | 78.8 |
| Don Mills Road/Gateway Boulevard North (Signalized) | Overall | 0.69 | 18.9 | B | - | 0.72 | 19.1 | B | - |

| 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) |
|---------------------------------------------------------------------------|----------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|
| Don Mills Road/Overlea Boulevard (Signalized) | EBL | 0.76 | 59.2 | E | 85.4 | 0.71 | 58.4 | E | 76.1 |
| Don Mills Road/Overlea Boulevard (Signalized) | EBT | 0.30 | 26.7 | C | 56.3 | 0.66 | 33.3 | C | 159.2 |
| Don Mills Road/Overlea Boulevard (Signalized) | EBR | 0.33 | 28.0 | C | 35.1 | 0.24 | 23.5 | C | 28.9 |
| Don Mills Road/Overlea Boulevard (Signalized) | WBL | 0.83 | 56.8 | E | #90.1 | 0.37 | 30.5 | C | 25.9 |
| Don Mills Road/Overlea Boulevard (Signalized) | WBT | 0.82 | 64.2 | E | #163.0 | 0.52 | 42.9 | D | 99.6 |
| Don Mills Road/Overlea Boulevard (Signalized) | WBR | 0.31 | 43.6 | D | 36.3 | 0.04 | 33.3 | C | 0.0 |
| Don Mills Road/Overlea Boulevard (Signalized) | NBL | 1.00 | 104.3 | F | #79.5 | 0.98 | 99.7 | F | #73.5 |
| Don Mills Road/Overlea Boulevard (Signalized) | NBTR | 0.49 | 39.7 | D | 78.2 | 0.76 | 49.3 | D | 120.5 |
| Don Mills Road/Overlea Boulevard (Signalized) | SBL | 0.20 | 30.7 | C | 15.1 | 0.41 | 36.5 | D | 20.3 |
| Don Mills Road/Overlea Boulevard (Signalized) | SBT | 0.84 | 53.2 | D | 152.2 | 0.76 | 51.8 | D | 130.6 |
| Don Mills Road/Overlea Boulevard (Signalized) | SBR | 0.72 | 30.0 | C | 90.4 | 0.75 | 34.7 | C | 130.8 |
| Don Mills Road/Overlea Boulevard (Signalized) | Overall | 0.83 | 48.8 | D | - | 0.84 | 45.9 | D | - |
| Overlea Boulevard/William Morgan Drive (Signalized) | EBL | 0.12 | 12.6 | B | 3.6 | 0.27 | 14.8 | B | 9.5 |
| Overlea Boulevard/William Morgan Drive (Signalized) | EBT | 0.91 | 31.3 | C | #218.1 | 0.94 | 26.3 | C | #322.2 |
| Overlea Boulevard/William Morgan Drive (Signalized) | WBTR | 0.96 | 37.8 | D | #240.7 | 0.81 | 16.0 | B | #250.8 |
| Overlea Boulevard/William Morgan Drive (Signalized) | SBLR | 0.05 | 23.6 | C | 9.8 | 0.22 | 32.8 | C | 21.8 |
| Overlea Boulevard/William Morgan Drive (Signalized) | Overall | 0.64 | 34.4 | C | - | 0.77 | 21.9 | C | - |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | EBL | 0.37 | 32.6 | C | 22.2 | 0.43 | 34.1 | C | 27.2 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | EBTR | 0.79 | 39.1 | D | #137.7 | 1.00 | 64.5 | E | #227.5 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | WBL | 0.64 | 19.3 | B | 49.4 | 0.77 | 39.3 | D | #69.7 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | WBTR | 0.77 | 23.7 | C | 142.1 | 0.71 | 22.0 | C | 138.8 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | NBL | 0.16 | 25.8 | C | 19.3 | 0.31 | 26.8 | C | 25.2 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | NBT | 0.20 | 26.1 | C | 31.4 | 0.14 | 24.8 | C | 22.7 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | NBR | 0.38 | 28.3 | C | 40.2 | 0.18 | 25.1 | C | 15.1 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | SBL | 0.53 | 30.9 | C | 60.2 | 0.63 | 33.1 | C | 70.5 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | SBTR | 0.12 | 25.3 | C | 19.2 | 0.37 | 27.3 | C | 48.9 |
| Overlea Boulevard/Thorncliffe Park Drive East (Beth Neilson) (Signalized) | Overall | 0.70 | 28.3 | C | - | 0.81 | 38.0 | D | - |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | EBL | 0.10 | 7.7 | A | 7.3 | 0.48 | 11.2 | B | 23.3 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | EBTR | 0.55 | 15.2 | B | 111.1 | 0.76 | 23.3 | C | #179.7 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | WBL | 0.18 | 7.5 | A | 11.1 | 0.45 | 13.0 | B | 18.0 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | WBT | 0.53 | 14.2 | B | 102.2 | 0.63 | 19.2 | B | 119.1 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | NBL | 0.04 | 30.6 | C | 5.3 | 0.17 | 29.6 | C | 16.3 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | NBTR | 0.03 | 30.5 | C | 6.8 | 0.12 | 29.0 | C | 14.9 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | SBL | 0.02 | 30.4 | C | 3.9 | 0.41 | 32.2 | C | 32.8 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | SBT | 0 | 0 | 0 | 0 | 0.07 | 28.6 | C | 11.1 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | SBR | 0.01 | 30.3 | C | 0.0 | 0.12 | 29.1 | C | 13.6 |
| Overlea Boulevard/East York Town Centre/Costco (Signalized) | Overall | 0.39 | 14.9 | B | - | 0.63 | 22.2 | C | - |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | EBL | 0.70 | 43.2 | D | m#39.2 | 0.60 | 25.4 | C | m19.2 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | EBT | 0.61 | 28.4 | C | m87.9 | 0.60 | 17.5 | B | m82.9 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | EBR | 0.15 | 25.4 | C | m8.4 | 0.27 | 14.1 | B | m15.0 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | WBL | 0.20 | 20.8 | C | 11.9 | 0.46 | 23.6 | C | 24.3 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | WBTR | 0.68 | 28.1 | C | 94.5 | 0.68 | 20.8 | C | 106.8 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | NBL | 0.45 | 18.1 | B | 42.2 | 0.56 | 32.6 | C | 54.9 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | NBTR | 0.14 | 15.9 | B | 19.2 | 0.18 | 23.3 | C | 24.2 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | SBL | 0.21 | 24.0 | C | 22.7 | 0.36 | 26.8 | C | 36.8 |

| 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) |
|------------------------------------------------------------|----------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | SBTR | 0.14 | 22.8 | C | 18.7 | 0.24 | 24.1 | C | 30.0 |
| Overlea Boulevard/Thorncliffe Park Drive West (Signalized) | Overall | 0.59 | 26.2 | C | - | 0.63 | 21.3 | C | - |
| Millwood Road/Overlea Boulevard (Signalized) | WBL | 0.38 | 21.9 | C | 33.0 | 0.42 | 21.5 | C | 41.7 |
| Millwood Road/Overlea Boulevard (Signalized) | WBR | 0.41 | 8.4 | A | 33.1 | 0.40 | 10.3 | B | 37.5 |
| Millwood Road/Overlea Boulevard (Signalized) | NBT | 0.94 | 40.6 | D | #143.5 | 0.45 | 20.1 | C | 48.7 |
| Millwood Road/Overlea Boulevard (Signalized) | NBR | 0.56 | 4.6 | A | m1.7 | 0.70 | 12.1 | B | 38.6 |
| Millwood Road/Overlea Boulevard (Signalized) | SBL | 0.96 | 68.9 | E | #81.2 | 0.90 | 42.6 | D | #81.6 |
| Millwood Road/Overlea Boulevard (Signalized) | SBT | 0.24 | 15.2 | B | 46.6 | 0.37 | 13.8 | B | 61.7 |
| Millwood Road/Overlea Boulevard (Signalized) | Overall | 0.83 | 26.3 | C | - | 0.83 | 18.2 | B | - |
| Donlands Avenue/Millwood Road/Pape Avenue (Signalized) | WBR | 0.38 | 15.6 | B | 45.6 | 0.43 | 16.3 | B | 47.6 |
| Donlands Avenue/Millwood Road/Pape Avenue (Signalized) | NBTR | 0.79 | 32.7 | C | 113.4 | 0.46 | 24.5 | C | 64.2 |
| Donlands Avenue/Millwood Road/Pape Avenue (Signalized) | SBL | 0.27 | 9.1 | A | 22.0 | 0.51 | 10.7 | B | 37.0 |
| Donlands Avenue/Millwood Road/Pape Avenue (Signalized) | SBT | 0.54 | 12.9 | B | 57.4 | 0.58 | 12.8 | B | 52.2 |
| Donlands Avenue/Millwood Road/Pape Avenue (Signalized) | Overall | 0.67 | 20.6 | C | - | 0.55 | 15.7 | B | - |
| O'Connor Drive/Pape Avenue (Signalized) | EBLTR | 0.55 | 24.6 | C | 40.1 | 0.56 | 20.4 | C | 46.4 |
| O'Connor Drive/Pape Avenue (Signalized) | WBLTR | 0.42 | 14.3 | B | 34.6 | 0.37 | 11.0 | B | 25.6 |
| O'Connor Drive/Pape Avenue (Signalized) | NBLTR | 0.86 | 37.6 | D | #86.7 | 0.97 | 57.6 | E | #102.7 |
| O'Connor Drive/Pape Avenue (Signalized) | SBLTR | 0.69 | 26.7 | C | 65.8 | 0.68 | 27.7 | C | 60.1 |
| O'Connor Drive/Pape Avenue (Signalized) | Overall | 0.67 | 26.1 | C | - | 0.69 | 30.4 | C | - |
| Pape Avenue/Cosburn Avenue (Signalized) | EBL | 0.28 | 26.4 | C | 15.8 | 0.28 | 25.5 | C | 18.4 |
| Pape Avenue/Cosburn Avenue (Signalized) | EBTR | 0.36 | 25.6 | C | 34.1 | 0.64 | 32.1 | C | 64.0 |
| Pape Avenue/Cosburn Avenue (Signalized) | WBL | 0.51 | 31.8 | C | 33.5 | 0.54 | 37.0 | D | #29.4 |
| Pape Avenue/Cosburn Avenue (Signalized) | WBTR | 0.61 | 31.5 | C | 59.0 | 0.30 | 24.8 | C | 28.8 |
| Pape Avenue/Cosburn Avenue (Signalized) | NBLTR | 0.50 | 10.8 | B | 43.7 | 0.58 | 12.1 | B | 57.0 |
| Pape Avenue/Cosburn Avenue (Signalized) | SBLTR | 0.52 | 11.6 | B | 52.2 | 0.58 | 12.6 | B | 56.9 |
| Pape Avenue/Cosburn Avenue (Signalized) | Overall | 0.55 | 18.0 | B | - | 0.61 | 18.2 | B | - |
| Pape Avenue/Floyd Avenue (Signalized) | EBLTR | 0.12 | 25.6 | C | 11.4 | 0.14 | 25.8 | C | 13.2 |
| Pape Avenue/Floyd Avenue (Signalized) | WBLTR | 0.16 | 25.9 | C | 15.4 | 0.15 | 25.8 | C | 14.6 |
| Pape Avenue/Floyd Avenue (Signalized) | NBLTR | 0.37 | 13.5 | B | m59.7 | 0.55 | 6.9 | A | m35.7 |
| Pape Avenue/Floyd Avenue (Signalized) | SBLTR | 0.42 | 7.6 | A | 44.2 | 0.54 | 9.6 | A | 51.0 |
| Pape Avenue/Floyd Avenue (Signalized) | Overall | 0.35 | 11.9 | B | - | 0.45 | 9.8 | A | - |
| Pape Avenue/Mortimer Avenue (Signalized) | EBL | 0.55 | 41.3 | D | #23.8 | 0.20 | 18.3 | B | 15.6 |
| Pape Avenue/Mortimer Avenue (Signalized) | EBTR | 0.41 | 22.4 | C | 46.3 | 0.81 | 32.6 | C | #122.1 |
| Pape Avenue/Mortimer Avenue (Signalized) | WBL | 0.22 | 20.7 | C | 16.6 | 0.30 | 23.5 | C | 12.3 |
| Pape Avenue/Mortimer Avenue (Signalized) | WBTR | 0.85 | 38.9 | D | #125.2 | 0.42 | 20.5 | C | 50.1 |
| Pape Avenue/Mortimer Avenue (Signalized) | NBLTR | 0.65 | 17.6 | B | 62.7 | 0.85 | 28.7 | C | #90.0 |
| Pape Avenue/Mortimer Avenue (Signalized) | SBLTR | 0.51 | 8.6 | A | 60.2 | 0.55 | 12.3 | B | 31.3 |
| Pape Avenue/Mortimer Avenue (Signalized) | Overall | 0.73 | 22.0 | C | - | 0.83 | 24.2 | C | - |
| Pape Avenue/Lipton Avenue (Signalized) | EBLTR | 0.02 | 10.9 | B | 3.6 | 0.03 | 9.5 | A | 1.7 |
| Pape Avenue/Lipton Avenue (Signalized) | WBL | 0.03 | 11.1 | B | 4.3 | 0.07 | 10.0 | B | 6.3 |
| Pape Avenue/Lipton Avenue (Signalized) | WBTR | 0.06 | 11.3 | B | 3.8 | 0.12 | 10.7 | B | 6.8 |
| Pape Avenue/Lipton Avenue (Signalized) | NBLTR | 0.47 | 37.0 | D | 60.9 | 0.60 | 20.9 | C | m34.4 |
| Pape Avenue/Lipton Avenue (Signalized) | SBLTR | 0.57 | 26.3 | C | 60.9 | 0.50 | 27.1 | C | 50.4 |
| Pape Avenue/Lipton Avenue (Signalized) | Overall | 0.26 | 30.0 | C | - | 0.29 | 22.3 | C | - |

| 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) |
|-------------------------------------------------------------|----------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|
| Pape Avenue/Danforth Avenue (Signalized) | EBL | 0.67 | 38.9 | D | #37.2 | 0.27 | 12.9 | B | 17.4 |
| Pape Avenue/Danforth Avenue (Signalized) | EBTR | 0.26 | 12.2 | B | 29.2 | 0.44 | 13.0 | B | 54.8 |
| Pape Avenue/Danforth Avenue (Signalized) | WBL | 0.29 | 14.0 | B | 20.5 | 0.27 | 13.6 | B | 14.5 |
| Pape Avenue/Danforth Avenue (Signalized) | WBTR | 0.65 | 17.5 | B | 91.6 | 0.31 | 11.7 | B | 34.2 |
| Pape Avenue/Danforth Avenue (Signalized) | NBLTR | 0.65 | 27.8 | C | 54.0 | 0.86 | 42.2 | D | #78.5 |
| Pape Avenue/Danforth Avenue (Signalized) | SBLTR | 0.84 | 31.3 | C | #78.2 | 0.98 | 50.1 | D | #72.2 |
| Pape Avenue/Danforth Avenue (Signalized) | Overall | 0.74 | 21.8 | C | - | 0.63 | 26.6 | C | - |
| Millwood Road/Redway Road/Village Station (Signalized) | EBL | 0.21 | 42.5 | D | 9.6 | 0.18 | 34.6 | C | 15.1 |
| Millwood Road/Redway Road/Village Station (Signalized) | EBTR | 0.02 | 40.9 | D | 5.5 | 0.20 | 34.6 | C | 19.3 |
| Millwood Road/Redway Road/Village Station (Signalized) | WBLTR | 0.11 | 41.6 | D | 9.8 | 0.15 | 34.3 | C | 15.2 |
| Millwood Road/Redway Road/Village Station (Signalized) | NBL | 0.07 | 1.7 | A | m1.3 | 0.40 | 14.5 | B | #23.1 |
| Millwood Road/Redway Road/Village Station (Signalized) | NBTR | 0.56 | 3.3 | A | m29.3 | 0.49 | 6.8 | A | 90.6 |
| Millwood Road/Redway Road/Village Station (Signalized) | SBL | 0.10 | 1.3 | A | m0.8 | 0.11 | 7.8 | A | m3.5 |
| Millwood Road/Redway Road/Village Station (Signalized) | SBTR | 0.30 | 1.1 | A | 15.3 | 0.59 | 9.6 | A | m89.6 |
| Millwood Road/Redway Road/Village Station (Signalized) | Overall | 0.52 | 3.7 | A | - | 0.52 | 10.5 | B | - |
| Gateway Boulevard/Grenoble Drive (North) (Signalized) | EBL | 0.29 | 19.0 | B | 18.8 | 0.41 | 20.4 | C | 30.7 |
| Gateway Boulevard/Grenoble Drive (North) (Signalized) | EBT | 0.11 | 15.7 | B | 10.1 | 0.08 | 15.4 | B | 8.1 |
| Gateway Boulevard/Grenoble Drive (North) (Signalized) | WBLTR | 0.13 | 15.9 | B | 9.8 | 0.13 | 15.8 | B | 10.4 |
| Gateway Boulevard/Grenoble Drive (North) (Signalized) | NBLTR | 0.31 | 14.6 | B | 25.5 | 0.28 | 14.0 | B | 26.8 |
| Gateway Boulevard/Grenoble Drive (North) (Signalized) | SBL | 0.18 | 13.0 | B | 15.7 | 0.05 | 11.7 | B | 5.6 |
| Gateway Boulevard/Grenoble Drive (North) (Signalized) | SBTR | 0.25 | 13.5 | B | 19.6 | 0.25 | 13.5 | B | 20.1 |
| Gateway Boulevard/Grenoble Drive (North) (Signalized) | Overall | 0.29 | 14.9 | B | - | 0.32 | 15.4 | B | - |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | EBL | 0.16 | 9.6 | A | 11.8 | 0.09 | 8.9 | A | 8.1 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | EBTR | 0.17 | 9.3 | A | 15.2 | 0.17 | 9.4 | A | 17.2 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | WBL | 0.40 | 12.7 | B | 29.8 | 0.32 | 11.6 | B | 23.7 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | WBTR | 0.26 | 10.2 | B | 18.2 | 0.14 | 9.3 | A | 12.9 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | NBLT | 0.34 | 18.1 | B | 28.4 | 0.28 | 17.1 | B | 25.4 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | NBR | 0.17 | 16.8 | B | 12.2 | 0.20 | 15.1 | B | 13.0 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | SBLT | 0.24 | 17.2 | B | 22.6 | 0.66 | 23.1 | C | #56.0 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | SBR | 0.02 | 15.7 | B | 3.7 | 0.20 | 15.1 | B | 15.2 |
| St Dennis Drive/Deauville (Ferrand Drive East) (Signalized) | Overall | 0.38 | 13.2 | B | - | 0.46 | 15.0 | B | - |
| Gateway Boulevard/Grenoble Drive (South) (Signalized) | WBL | 0.70 | 16.5 | B | #60.4 | 0.33 | 10.0 | A | 22.3 |
| Gateway Boulevard/Grenoble Drive (South) (Signalized) | WBR | 0.10 | 8.3 | A | 6.4 | 0.03 | 7.7 | A | 3.6 |
| Gateway Boulevard/Grenoble Drive (South) (Signalized) | NBTR | 0.26 | 9.1 | A | 9.4 | 0.47 | 10.9 | B | 16.3 |
| Gateway Boulevard/Grenoble Drive (South) (Signalized) | SBLT | 0.28 | 9.2 | A | 12.6 | 0.17 | 8.5 | A | 8.6 |
| Gateway Boulevard/Grenoble Drive (South) (Signalized) | Overall | 0.49 | 11.9 | B | - | 0.40 | 10.3 | B | - |
| Don Mills Road/Rochefort Drive (Unsignalized) | WBLTR | 0.22 | 10.8 | B | 6.2 | 0.5 | 20.7 | C | 21.1 |
| Don Mills Road/Rochefort Drive (Unsignalized) | NBTR | 0.39 | 0 | 0 | 0 | 0.32 | 0 | 0 | 0 |
| Don Mills Road/Rochefort Drive (Unsignalized) | SBL | 0.04 | 12 | B | 1 | 0.01 | 13.2 | B | 0.3 |
| Don Mills Road/Rochefort Drive (Unsignalized) | SBT | 0.34 | 0 | 0 | 0 | 0.29 | 0 | 0 | 0 |
| Don Mills Road/Rochefort Drive (Unsignalized) | Overall | - | 12 | B | - | - | 20.7 | C | - |
| Ferrand Drive West/Eglinton Avenue East (Unsignalized) | EBLR | 0.18 | 9.3 | A | 4.9 | 0.07 | 8.8 | A | 1.7 |
| Ferrand Drive West/Eglinton Avenue East (Unsignalized) | NBLT | 0 | 0 | 0 | 0 | 0 | 0.8 | A | 0 |
| Ferrand Drive West/Eglinton Avenue East (Unsignalized) | SBTR | 0.01 | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 |
| Ferrand Drive West/Eglinton Avenue East (Unsignalized) | Overall | - | 9.3 | A | - | - | 8.8 | A | - |

| 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) |
|-----------------------------------------------------|----------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|---------------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------|
| Ferrand Drive West/Rochefort Drive (Unsignalized) | EBLT | 0.01 | 2 | A | 0.2 | 0 | 0.3 | A | 0.1 |
| Ferrand Drive West/Rochefort Drive (Unsignalized) | WBTR | 0.13 | 0 | 0 | 0 | 0.08 | 0 | 0 | 0 |
| Ferrand Drive West/Rochefort Drive (Unsignalized) | SBLR | 0.12 | 10.1 | B | 3 | 0.06 | 9.8 | A | 1.4 |
| Ferrand Drive West/Rochefort Drive (Unsignalized) | Overall | - | 10.1 | B | - | - | 9.8 | A | - |
| Pape Avenue/Gamble Avenue (Unsignalized) | EBLTR | 0.34 | 31.4 | D | 10.6 | 0.27 | 29.7 | D | 7.9 |
| Pape Avenue/Gamble Avenue (Unsignalized) | WBLTR | 0.33 | 27.3 | D | 10.5 | 0.07 | 17.6 | C | 1.7 |
| Pape Avenue/Gamble Avenue (Unsignalized) | NBLTR | 0.14 | 1.7 | 0 | 1 | 0.17 | 1.7 | 0 | 1 |
| Pape Avenue/Gamble Avenue (Unsignalized) | SBLTR | 0.13 | 0.8 | 0 | 0.4 | 0.13 | 0.6 | 0 | 0.3 |
| Pape Avenue/Gamble Avenue (Unsignalized) | Overall | - | 31.4 | D | - | - | 29.7 | D | - |
| Pape Avenue/Sammon Avenue (Unsignalized) | WBLR | 0.37 | 22.4 | C | 12.5 | 0.08 | 16.3 | C | 1.9 |
| Pape Avenue/Sammon Avenue (Unsignalized) | NBTR | 0.21 | 0 | 0 | 0 | 0.22 | 0 | 0 | 0 |
| Pape Avenue/Sammon Avenue (Unsignalized) | SBLT | 0.22 | 0.9 | 0 | 0.4 | 0.18 | 0.9 | 0 | 0.4 |
| Pape Avenue/Sammon Avenue (Unsignalized) | Overall | - | 22.4 | C | - | - | 16.3 | C | - |
| Pape Avenue/Fulton Avenue (Unsignalized) | EBLR | 0.06 | 19.6 | C | 1.4 | 0.06 | 13.9 | B | 1.5 |
| Pape Avenue/Fulton Avenue (Unsignalized) | NBLT | 0.24 | 2.5 | 0 | 1.5 | 0.24 | 1.4 | 0 | 0.7 |
| Pape Avenue/Fulton Avenue (Unsignalized) | SBTR | 0.23 | 0 | 0 | 0 | 0.17 | 0 | 0 | 0 |
| Pape Avenue/Fulton Avenue (Unsignalized) | Overall | - | 19.6 | C | - | - | 13.9 | B | - |
| Pape Avenue/Aldwych (Unsignalized) | WBLR | 0.17 | 14.2 | B | 4.5 | 0.06 | 17.2 | C | 1.5 |
| Pape Avenue/Aldwych (Unsignalized) | NBTR | 0.22 | 0 | 0 | 0 | 0.26 | 0 | 0 | 0 |
| Pape Avenue/Aldwych (Unsignalized) | SBLT | 0.21 | 1.6 | 0 | 0.8 | 0.18 | 1.5 | 0 | 0.7 |
| Pape Avenue/Aldwych (Unsignalized) | Overall | - | 14.2 | B | - | - | 17.2 | C | - |
| Pape Avenue/Browning Avenue (Unsignalized) | EBLR | 0.3 | 20.5 | C | 9.2 | 0.38 | 20.9 | C | 13.2 |
| Pape Avenue/Browning Avenue (Unsignalized) | NBT | 0.21 | 0 | 0 | 0 | 0.23 | 0 | 0 | 0 |
| Pape Avenue/Browning Avenue (Unsignalized) | SBR | 0.2 | 0 | 0 | 0 | 0.18 | 0 | 0 | 0 |
| Pape Avenue/Browning Avenue (Unsignalized) | Overall | - | 20.5 | C | - | - | 20.9 | C | - |
| Overlea Boulevard/Leaside Park Drive (Unsignalized) | EBTR | 0.28 | 0 | 0 | 0 | 0.38 | 0 | 0 | 0 |
| Overlea Boulevard/Leaside Park Drive (Unsignalized) | WBL | 0.04 | 9.5 | A | 0.8 | 0.15 | 21.7 | C | 3.8 |
| Overlea Boulevard/Leaside Park Drive (Unsignalized) | WBT | 0.21 | 0 | 0 | 0 | 0.26 | 0 | 0 | 0 |
| Overlea Boulevard/Leaside Park Drive (Unsignalized) | NBLR | 0.2 | 21.7 | C | 5.6 | 0.4 | 40.5 | E | 13.5 |
| Overlea Boulevard/Leaside Park Drive (Unsignalized) | Overall | - | 21.7 | C | - | - | 40.5 | E | - |
| Strathcona Avenue and Pape Avenue (Unsignalized) | Overall | - | 22.3 | C | - | - | 15.9 | C | - |

Notes: #: 95th percentile cycle volume exceeds capacity, queue may be longer
m: Volume for the 95th percentile queue is metered by an upstream signal
dl: de facto left-turn lane
The critical movements are highlighted in grey and are defined as those operating either with a volume to capacity ratio in excess of 0.84 or at level of service ‘E’ or ‘F’

3.8.4.3 Transit Network and Operations

Transit Network

The Ontario Line North Study Area is connected to the rest of the City through bus and streetcar routes operated by Toronto Transit Commission. The number, name, and description of the Toronto Transit Commission bus and streetcar routes servicing the Study Area and their schedules as per the information obtained from the City's website are summarized in **Table 3-56**.

Transit Operations

Many of the streets and intersections in the north half of the Ontario Line North Study Area meet the target of level of service 'D'. Other larger intersections along the major corridors, and segments of Pape Avenue exceed level of service 'D'. This is due to high approach delays at signalized intersections and friction along the segments, including frequent driveways and on-street parking. The findings of the Transit Level of Service analysis at the Study Area signalized intersections, and road segments under Existing Conditions (2020) are summarized in **Appendix B7**.

3.8.4.4 Pedestrian Network and Operations

Pedestrian Network

Pedestrians are accommodated within the Ontario Line North Study Area through sidewalks provided along both sides of most of the major arterial streets and cross streets along Pape Avenue, but are missing in some sections, including some minor roads. In addition, painted crosswalks are provided across all legs of the Study Area intersections. Sidewalks are generally 1.5 to 2.0 metres wide, with a mix of mono and boulevard separated facilities. There are some multi-use pathways and trails provided, including through E.T. Seton Park, and south of Overlea Boulevard near Thorncliffe Drive. Notable gaps in the pedestrian network include:

- No facility on Beechwood Drive under the Don Valley Parkway underpass; and
- Missing sidewalks on Banigan Drive, Pat Moore Drive and William Morgan Drive.

The pedestrian facilities within the Study Area are illustrated in **Appendix B7**.

Pedestrian Operations

The findings of the Pedestrian Level of Service analysis at the Study Area signalized intersections, and road segments under Existing Conditions (2020) are summarized in **Appendix B7**.

Table 3-56: Transit Routes Servicing the Ontario Line North Study Area

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------|
| <p>#8 – Broadview bus route operates between Broadview Station on Line 2 Bloor-Danforth and the area of O'Connor Drive and Coxwell Avenue, generally in a north-south direction. Accessible service is provided on the route. Bike racks are available on this route. Broadview Station is an accessible subway station. This route operates all day, every day. One single service is operated: the 8 (Broadview Station-Coxwell) branch, which operates all day, every day</p> | 6:00 AM – 1:00 AM | 30-minute |
| <p>#25 – Don Mills bus route operates between Pape Station on Line 2 Bloor-Danforth, Don Mills Station on Line 4 Sheppard, and the area of Don Mills Road and Steeles Avenue East, generally in a north-south direction. Accessible service is provided on the route. Both Don Mills Station and Pape Station are accessible subway stations. Bike racks are available on this route. Three services are operated. The 25A (Pape Station – Steeles via Don Mills Station) operates during the evenings, seven days a week, and at all times on Saturday, Sunday, and holiday. The 25B (Pape Station – Don Mills Station) and 25C (Don Mills Station – Steeles) operate during the peak periods and midday from Monday to Friday. The route is part of the 10 Minute Network, and operates 10 minutes or better, all day, every day. The route travels north-south through the Ontario Line North Study Area on Pape Avenue and Overlea Boulevard.</p> | 5:00 AM – 2:00 AM | 5-minute |
| <p>#34 – Eglinton East bus route operates between Eglinton Station on Line 1 Yonge-University and Kennedy Station on Line 2 Bloor-Danforth, generally in an east-west direction. Accessible service is provided on the route. Both Eglinton and Kennedy Stations are accessible subway stations. Bike racks are available on this route. Three services are operated. The 34A (Eglinton Station – Kennedy Station) branch operates at all times, seven days a week. The 34B (Don Mills Road – Kennedy Station) supplemental branch operates during the daytime on Saturday only. The 34C (Eglinton Station – Flemingdon Park) branch operates at all times, seven days a week. The route travels along Eglinton Avenue through the Ontario Line North Study Area.</p> | 5:00 AM – 4:00 AM | 3-minute |
| <p>#51 – Leslie bus route operates between Eglinton Station on Line 1 Yonge-University and the area of Steeles Avenue East and Don Mills Road, generally in a north-south direction. It also serves the Leslie Station on Line 4 Sheppard. Accessible service is provided on the route. Both Eglinton and Leslie Stations are accessible subway stations. Bike racks are available on this route. This route operates all day, every day. The route cuts across the northwest corner of the Ontario Line North Study Area.</p> | 5:00 AM – 1:00 AM | 17 to 18-minute |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------|
| <p>#54 – Lawrence East bus route operates between Eglinton Station on Line 1 Yonge-University-Spadina, the area of Lawrence Avenue East and Orton Park Drive, and the area of Lawrence Avenue East and Starspray Boulevard, generally in an east-west direction. It also serves Lawrence East Station on Line 3 Scarborough. Accessible service is provided on the route. Eglinton Station is an accessible subway station. Bike racks are available on this route. The route travels along Eglinton Avenue through the Ontario Line North Study Area. Two services are operated. The 54A (Eglinton Station – Starspray Blvd) branch operates at all times, seven days a week. The 54B (Eglinton Station – Orton Park) short-turn branch operates at all times, seven days a week. Service between Eglinton Station and Scarborough Golf Club Road is part of the 10 Minute Network, and operates 10 minutes or better, all day, every day. The route travels east-west through the Ontario Line North Study Area on Eglinton Avenue.</p> | 5:00 AM – 4:00 AM | 5-minute |
| <p>#56 – Leaside bus route operates between Donlands Station on Line 2 Bloor-Danforth, the area of Laird Drive and Eglinton Avenue East, and Eglinton Station on Line 1 Yonge-University, generally in a north-south direction. Accessible service is provided on the route. Eglinton Station is an accessible subway station. Bike racks are available on this route. This route operates all day, every day. Two services are operated. The 56A (Donlands Station – Eglinton Station) branch operates all day, every day. The 56B (Donlands Station – Brentcliffe) short-turn branch operates during the peak periods, from Monday to Friday only. The route travels north-south on Laird Drive through the Ontario Line North Study Area.</p> | 6:00 AM – 1:00 AM | 9 to 10-minute |
| <p>#62 – Mortimer bus route operates between Broadview Station and Main Street Station on Line 2 Bloor-Danforth, generally in an east-west direction. Accessible service is provided on the route. Bike racks are available on this route. Both Broadview and Main Street Stations are accessible stations. This route operates all day, every day. One single service is operated: the 62 (Broadview Station-Main Street Station) branch, which operates all day, every day. The route crosses the Ontario Line North Study Area on Mortimer Avenue.</p> | 6:00 AM – 1:00 AM | 15-minute |
| <p>#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. Accessible service is provided on the route. Pape Station and Union Station are accessible subway stations. Bike racks are available on this route. 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</p> | 5:00 AM – 2:00 AM | 6-minute in the AM peak hour 7-minute in the PM peak hour |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------|
| 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 10 minutes or better, all day, every day. The route travels south from Pape Station. | | |
| #81 – Thornccliffe Park bus route operates between Pape Station on the Bloor-Danforth Subway and the Thornccliffe Park Drive area, generally in a north-south direction. Accessible service is provided on the route. Pape Station is an accessible subway station. Bike racks are available on this route. One single service is operated: the 81 (Pape Station-Thornccliffe) branch operates at all times, seven days a week. This route travels north-south through the Ontario Line North Study Area on Pape Avenue, and around Thornccliffe Park Drive. | 5:00 AM – 1:00 AM | 6-minute in the AM peak hour 9-minute in the PM peak hour |
| #87 – Cosburn bus route operates between Broadview Station and Main Street Station on Line 2 Bloor-Danforth, generally in an east-west direction. Accessible service is provided on the route. Bike racks are available on this route. Both Broadview and Main Street Stations are accessible subway stations. This route operates every ten minutes or better, all day, every day. Two services are operated. The 87A (Broadview Station-Main Street Station via East York Acres) branch operates during the midday and early evening from Monday to Friday, during the daytime and early evening on Saturdays, and during the daytime only on Sundays and holidays. The 87C (Broadview Station-Main Street Station) branch operates during the peak periods and late evening from Monday to Friday, during the early morning and late evening on Saturdays, during the early and late evening on Sundays, and during the early morning and all evening on holidays. | 5:00 AM – 4:00 AM | 5-minute in the AM peak hour 6-minute in the PM peak hour |
| #88 – South Leaside bus route operates between St. Clair Station on Line 1 Yonge-University-Spadina, the Wicksteed Avenue area, and the Thornccliffe Park Drive area, generally in an east-west direction. Accessible service is provided on the route. St. Clair Station is an accessible subway station. Bike racks are available on this route. Two services are operated. The 88A (St Clair Station-Thornccliffe via Overlea) branch operates at all times, seven days a week. The 88B (St Clair Station-Thornccliffe via Wicksteed) branch operates at all times, seven days a week. | 6:00 AM – 1:00 AM | 6-minute |
| #100 – Flemingdon Park bus route operates between Broadview Station on Line 2 Bloor-Danforth and the area of Don Mills Road and Wynford Drive, generally in a north-south direction. Accessible service is provided on the route. Broadview Stations is an accessible subway station. Bike racks are available on this route. One single service is operated: the 100A (Broadview Station-Don Mills & Wynford) branch all day, every day. This route is part of the 10 Minute Network, and operates 10 minutes or better, all day, every day. | 5:00 AM – 1:00 AM | 4-minute in the AM peak hour 6-minute in the PM peak hour |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------|
| #144 – Downtown / Don Valley Express bus route operates between the intersection of Charlotte Street and King Street and the intersection of Victoria Park Avenue and Parkwoods Village Drive and Concorde Place, generally in a north-south direction. Two services are operated: the 144A (Underhill-Downtown Express) and the 144B (Wynford-Downtown Express) . | 6:00 AM – 7:00 PM | 7-minute in the AM peak hour 20-minute in the PM peak hour |
| #162 – Lawrence-Donway bus route operates between Lawrence Station on Line 1 Yonge-University and the area of Don Mills Road and Lawrence Avenue East, generally in an east-west direction. Accessible service is provided on the route. Bike racks are available on this route. One single service is operated: the 162 (Lawrence Station-Don Mills) branch, which operates during the daytime and early evening Monday to Saturday and during the day only on Sundays and holidays. | 7:00 AM – 10:00 PM | 30-minute |
| #300 – Bloor-Danforth Blue Night bus route operates between Kennedy Station, the area of Warden Avenue and Danforth Avenue, the area of The West Mall and Burnhamthorpe Road, and Toronto Pearson International Airport, generally in an east-west direction. Bike racks are available on this route. Two services are operated. The 300A (Warden-Pearson Airport) branch operates during the overnight period, seven days a week. The 300B (Kennedy Station-West Mall) branch operates during the overnight period, seven days a week. | 2:00 AM – 6:00 AM | 10-minute |
| #322 – Coxwell Blue Night bus route operates between Broadview Station on the Bloor-Danforth Subway, the area of Coxwell Avenue and Queen Street East, and the area of Kingston Road and Victoria Park Avenue, generally in an east-west direction. Accessible service is provided on the route. Bike racks are available on this route. | 1:00 AM – 6:00 AM | 30-minute |
| #325 – Don Mills 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. Accessible service is provided on the route. Bike racks are available on this route. One single service is operated: the 325 (Steeles-Eastern via Pape) branch operates during the overnight period, seven days a week. | 2:00 AM – 5:00 AM | 30-minute |
| #334 – Eglinton East Blue Night bus route operates between the area of Eglinton Station on Line 1 Yonge-University and the area near Finch Avenue and Neilson Road, generally in an east-west direction. Accessible service is provided on the route. Bike racks are available on this route. One single service is operated: the 305 (Eglinton Station-Finch via Neilson) branch operates during the overnight period, seven days a week. | 2:00 AM – 5:00 AM | 30-minute |

| Route Number – Name and Description | Weekday Service Hours | Service Headway during Peak Periods |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------|
| #354 – Lawrence East Blue Night bus route operates between the area of Eglinton Station on Line 1 Yonge-University and Starspray Boulevard, generally in an east-west direction. Accessible service is provided on the route. Bike racks are available on this route. One single service is operated: the 354 (Eglinton Station-Starspray) branch operates during the overnight period, seven days a week. | 2:00 AM – 5:00 AM | 30-minute |
| #403 – South Don Mills Community Bus route provides accessible service in the South Don Mills area. It operates between Don Mills Shopping Centre, Flemingdon Park Shopping Centre and East York Town Centre, generally in a north-south direction. One single service is operated: the 403 (Don Mills Centre-East York Centre) branch operates from approximately 9:30 am to 5:30 pm, from Monday to Friday only. | 10:00 AM – 4:00 PM | 75-minute |
| #925 - Don Mills Express bus route operates between Pape Station on Line 2 Bloor-Danforth, Don Mills Station on Line 4 Sheppard, and the area of Don Mills Road and Steeles Avenue East, generally in a north-south direction. Accessible service is provided on the route. Both Don Mills Station and Pape Station are accessible subway stations. Bike racks are available on this route. One single service is operated. The 925 (Pape Station-Steeles Express) branch operates during the peak periods, midday, and early evening from Monday to Friday, and during the daytime on Saturdays, Sundays, and holidays. | 6:00 AM – 10:00 PM | 8-minute |

Source: Toronto Transit Commission online schedules and maps, accessed through [www. Toronto Transit Commission.ca](http://www.toronto-transit-commission.ca) on July 20, 2020, with select values updated on November 16, 2020.

Pedestrians experience critical Pedestrian Level of Service 'D' or worse at all the signalized intersections within the Ontario Line North Study Area, as none of the studied intersections currently operate at acceptable Pedestrian Level of Service 'C' or better overall.

Only a few of the studied road segments within the Ontario Line North Study Area meet the Pedestrian Level of Service 'C' (Thornccliffe Park Drive, Gateway Boulevard, and some sections of Pape Avenue), and the rest of the Ontario Line North Study Area road segments and intersection exceed Pedestrian Level of Service 'C'. This is primarily due to narrow sidewalks, and wide intersections approaches and crosswalks throughout the Ontario Line North Study Area.

3.8.4.5 Cycling Networks and Operations

Cycling Network

Cyclists are accommodated within the Ontario Line North Study Area through exclusive cycling facilities, on-street bike lanes, and shared lanes; however, designated cycling facilities are sparsely provided and only available on select links and for limited distances. Cosburn Avenue has on-street cycle tracks, and Wicksteed Avenue and Sammon Avenue are suggested east-west on-street routes.

Cyclists travelling in the northbound and southbound direction within the Ontario Line North Study Area are accommodated through on-street bicycle lanes on Millwood Road between Donlands Avenue and Overlea Boulevard, and a major multi-use pathway running north-south east of Don Mills Road, and along the north and west sides of the Don Valley Parkway.

No cross-rides are provided in the Ontario Line North Study Area.

Notable gaps in the cycling network within the Ontario Line North Study Area include:

- No major north-south bicycle route/facility south of Millwood Road (parallel with Pape Avenue), and north of Overlea Boulevard (near either Laird Drive or Don Mills Road; and
- No major dedicated east-west connection within the north half of the Ontario Line North Study Area, such as along Eglinton Avenue, Wicksteed Avenue, or Overlea Boulevard.

The existing cycling network within the Ontario Line North Study Area is illustrated in **Appendix B7**.

Cycling Operations

The findings of the Bicycle Level of Service analysis at the Study Area signalized intersections, and road segments under Existing Conditions (2020) are summarized in **Appendix B7**.

There are a few street segments that meet the level of service B target for “Local Routes”, including a section of Pape Avenue, Thorncliffe Park Drive, Beth Nealson Drive, and the south section of Don Mills Road due to the availability of an off-street pathway. However, these higher level of service sections are separated by intersections and segments that are between level of service D and F. As noted in the network inventory section, continuous north-south and east-west connections through the Ontario Line North Study Area are missing.

3.9 Utilities

Existing private and public utilities were reviewed within the Ontario Line Study Area. Private utilities are listed in **Section 3.9.1** and public utilities and municipal services are listed in **Section 3.9.2**.

3.9.1 Private Utilities

The following privately-owned utility providers have infrastructure within the Ontario Line Study Area:

- Aptum;
- Bell Canada;
- Bell 360;
- CN Fiber;
- Rogers Communications Partnership;
- Cogeco Data Services;
- Zayo Group;
- Telus Communications Company;
- Enbridge;
- EnWave; and
- Hydro One Networks Incorporated.

3.9.2 Public Utilities and Municipal Servicing

The following publicly-owned infrastructure is located within the Ontario Line Study Area:

- Toronto Hydro; and
- Toronto Water.

4. Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities

In accordance with Sections 4(3)6 and 4(3)7 of Ontario Regulation 341/20: Ontario Line Project, this section provides a preliminary overview of potential impacts, mitigation measures, and monitoring activities associated with the Project.

See **Table 4-1** and **Table 4-2** for a list of preliminary potential impacts, mitigation measures, and monitoring activities to be further assessed and evaluated as part of the Early Works Report(s) and/or Environmental Impact Assessment Report, as per Sections 8 and 15 of Ontario Regulation 341/20: Ontario Line Project, respectively.

Table 4-1: Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Construction

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | <ul style="list-style-type: none">Designated Natural Areas – West Don River Valley Candidate Regional Significant Life Science Areas of Natural and Scientific Interest | <ul style="list-style-type: none">Vegetation removal within the West Don River Valley Candidate Regionally Significant Life Science Areas of Natural and Scientific InterestDisturbance, displacement or mortality of wildlife or habitat loss / degradation, including potential Significant Wildlife Habitat and Species at RiskSoil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment useIntroduction or spread of Invasive SpeciesIncreased erosion and sedimentationReduction in ecological function and integrity | <ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities.Refer below to mitigation measures described for Wildlife and Wildlife Habitat.Refer below to mitigation measures described for Species at Risk.Mitigation measures will be confirmed and refined as part of the Environmental Impact Assessment Report, as applicable. | <ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities.Refer below to monitoring described for Wildlife and Wildlife Habitat.Refer below to monitoring described for Species at Risk.Monitoring will be confirmed and refined as part of the Environmental Impact Assessment Report, as applicable. |
| Natural Environment | <ul style="list-style-type: none">Policy Areas – City of Toronto Natural Heritage System and E.T. Seton Park Environmentally Significant Area | <ul style="list-style-type: none">Vegetation removal within the City of Toronto Natural Heritage System and E.T. Seton Park Environmentally Significant AreaDisturbance, displacement or mortality of wildlife or habitat loss / degradation, including potential Significant Wildlife Habitat and Species at RiskDisturbance, displacement or mortality of wildlife or habitat loss / degradation, including potential Significant Wildlife Habitat and Species at RiskSoil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment use.Introduction or spread of Invasive SpeciesIncreased erosion and sedimentationReduction in ecological function and integrity | <ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities.Refer below to mitigation measures described for Wildlife and Wildlife Habitat.Refer below to mitigation measures described for Species at Risk.Mitigation measures will be confirmed and any additional mitigation measures will be identified as part of the Environmental Impact Assessment Report, as applicable. | <ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities.Refer below to mitigation measures described for Wildlife and Wildlife Habitat.Refer below to mitigation measures described for Species at Risk.Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable. |
| Natural Environment | <ul style="list-style-type: none">Policy Areas – City of Toronto Ravine and Natural Feature Protection | <ul style="list-style-type: none">Tree removal within the City of Toronto Ravine and Natural Feature Protection | <ul style="list-style-type: none">Refer below to mitigation measures described for Tree Removal under Vegetation Communities.Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020). | <ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities. |
| Natural Environment | <ul style="list-style-type: none">Policy Areas – Toronto and Region Conservation Authority’s Terrestrial Natural Heritage System and Regulation Areas | <ul style="list-style-type: none">Vegetation removal within Toronto and Region Conservation Authority Regulated Areas and Terrestrial Natural Heritage System | <ul style="list-style-type: none">Further consideration to minimize potential impacts on Toronto and Region Conservation Authority’s Terrestrial Natural Heritage System to the extent possible will be undertaken during detailed design. | <ul style="list-style-type: none">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. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
|---------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | ■ Policy Areas – Urban River Valley under the Greenbelt Plan | ■ Vegetation removal within the Urban River Valley | <ul style="list-style-type: none">■ Refer below to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment.■ Compensation for the removal of vegetation in accordance with Metrolinx’s Vegetation Guideline (2020) will consider maintaining or enhancing connectivity along the Don River to the extent possible. | ■ Refer below to monitoring described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment. |
| Natural Environment | ■ Vegetation Communities | <ul style="list-style-type: none">■ Removal of vegetation communities■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion | <ul style="list-style-type: none">■ Vegetation removal will be kept to a minimum and limited to within the construction footprint.■ Construction fencing and / or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities.■ 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 Species at Risk) and features (e.g., Significant Wildlife Habitat). Refer to the Wildlife, Significant Wildlife Habitat and Species at Risk mitigation measures described below. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.■ The approach to compensation monitoring will be determined by property ownership, applicable governing by-laws / regulations and location with respect to ecological functioning. |
| Natural Environment | ■ Vegetation Communities | ■ City and Private Tree Removal | <ul style="list-style-type: none">■ An Arborist Report by an I.S.A. Certified Arborist may be prepared with regard to the Ontario Forestry Act R.S.O. 1990, and other regulations and best management practices as applicable.■ The Arborist Report may include, but not be limited to the individual identification of trees within the Study Area including those that require removal or preservation, or trees that may be injured as a result of the Project. Trees to be identified within the Study Area may include those on Metrolinx property, trees on public and private lands, and boundary trees. The 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 may 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 (2016) 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). | <ul style="list-style-type: none">■ 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 minimize impacts.■ The approach to compensation monitoring will be determined by property ownership, applicable governing by-laws / regulations and location with respect to ecological functioning. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
|---------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | <ul style="list-style-type: none">■ Pruning of branches will be conducted through the implementation of proper arboricultural techniques.■ Tree Protection Zone (TPZ) fencing will be established to protect and prevent tree injuries. TPZs will be clearly staked prior to construction using barriers in accordance with local by-law requirements. | |
| Natural Environment | <ul style="list-style-type: none">■ Vegetation Communities | <ul style="list-style-type: none">■ Increased erosion and sedimentation | <ul style="list-style-type: none">■ Construction fencing and / or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities.■ An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (2006), will be prepared prior to and implemented during construction to minimize the risk of sedimentation to the vegetation communities.■ Stockpiled materials or equipment will be stored within the construction footprint but shall be kept at least 30 metres away from any watercourse. Signs will be put up on site to indicate the 30 metres setback from any watercourse. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | <ul style="list-style-type: none">■ Vegetation Communities | <ul style="list-style-type: none">■ Soil or water contamination as a result of spills (e.g., grease and / or fuel) from equipment use■ Introduction or spread of Invasive Species | <ul style="list-style-type: none">■ 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 of equipment will occur at least 30 metres away from any watercourse. Signs will be put up on site to indicate the 30 metres setback from any watercourse.■ 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) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.■ Ensure precautions are being taken to minimize the spread of invasive species by implementing the Clean Equipment Protocol for Industry (Halloran et al., 2013) on equipment and machinery prior to moving sites. |
| Natural Environment | <ul style="list-style-type: none">■ Wildlife | <ul style="list-style-type: none">■ Disturbance, displacement or mortality of wildlife | <ul style="list-style-type: none">■ If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and / or its habitat. For example, construction activities will cease or be reduced and wildlife will be encouraged to move off-site and away from the construction area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | ■ Significant Wildlife Habitat – General | ■ Disturbance, displacement or mortality of wildlife or habitat loss for the following Significant Wildlife Habitat: –Candidate Amphibian Movement Corridor –Candidate Bat Maternity Colonies –Candidate Colonially – Nesting Bird Breeding Habitat (Bank and Cliff) –Candidate Landbird Migratory Stopover Area –Candidate Reptile Hibernacula –Candidate Turtle Nesting Areas –Confirmed Amphibian Wetland Breeding Habitat –Confirmed Marsh Breeding Bird Habitat ■ Confirmed Turtle Wintering Area | ■ Potential impacts and appropriate mitigation measures for Significant Wildlife Habitat as result of the Project Footprint will be determined as part of the Environmental Impact Assessment Report, as appropriate. ■ Prior to construction, investigation of the Project Footprint for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate. | ■ Monitoring requirements will be determined in the Environmental Impact Assessment Report. |
| Natural Environment | ■ Significant Wildlife Habitat – Monarch (Species of Conservation Concern) | ■ Disturbance or destruction of habitat used by 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 will be undertaken during construction to prevent unauthorized impacts to habitats used by Monarchs. |
| Natural Environment | ■ Significant Wildlife Habitat – Turtles and Turtle Habitat, including Species of Conservation Concern | ■ Potential for impacts to turtles and / or turtle habitat | ■ Work within turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work. ■ Post-construction habitat restoration will be implemented as 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 minimize impacts. |
| Natural Environment | ■ Significant Wildlife Habitat – Snake Hibernacula | ■ Disturbance or destruction of Reptile Hibernaculum | ■ Where project activity occurs adjacent to suitable snake hibernacula, exclusionary fencing will be erected along the activity area to fully isolate the area of activity during the active snake season. In the event that exclusionary fencing cannot be installed, follow-up discussions with the Ministry of the Environment, Conservation and Parks and the Ministry of Natural Resources and Forestry will be required to determine adequate alternative mitigation measure(s). ■ For areas where the hibernacula feature requires removal to facilitate development, the exclusion fencing is to be installed during the active snake season and prior to any construction activities commencing to prevent snakes from entering the feature pre-removal. Any snakes encountered within the exclusion fencing will be relocated outside the fencing and within suitable habitat containing suitable vegetation cover / refuge by a qualified biologist in accordance with the required permit(s) in accordance with the Ministry of Natural Resources and Forestry’s Reptile and Amphibian Exclusion Fencing (2013c). | ■ Monitoring will be undertaken prior to construction to survey exclusionary fencing installation and regular monitoring during construction to survey for snakes potentially trapped within exclusionary areas. ■ Continuous monitoring of feature removal will be undertaken during activity. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | ■ Significant Wildlife Habitat – Common Nighthawk | ■ Removal of candidate nesting habitat for Common Nighthawk | <ul style="list-style-type: none">■ 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 | <ul style="list-style-type: none">■ 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 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. |
| Natural Environment | ■ Wildlife Habitat Connectivity | ■ Decrease of habitat connectivity for wildlife | <ul style="list-style-type: none">■ Refer to the mitigation measures described above for Urban River Valley under the Greenbelt Plan and Vegetation Communities.■ Opportunities to enhance the natural environment and provide a connection to the surrounding natural areas will be explored to the extent possible. | ■ Refer to monitoring described for Vegetation Communities. |
| Natural Environment | ■ Species at Risk – General | ■ Habitat loss, disturbance and / or mortality to Species at Risk | <ul style="list-style-type: none">■ All requirements of the Endangered Species Act and Species at Risk Act will be met. Species-specific mitigation measures will be implemented based on any recommended surveys undertaken prior to construction, and consultation with Ministry of Environment, Conservation and Parks / Ministry of Natural Resources and Forestry.■ If Species at Risk is present and conservation strategies have been developed by Ministry of Natural Resources and Forestry / Ministry of the Environment, Conservation and Parks, the Constructor will follow the commitments in the recover strategy.■ On-site personnel will be provided with information (e.g., factsheets) that addresses the existence of potential Species at Risk on site, the identification of the Species at Risk species and the procedure(s) to follow if an individual is encountered or injured. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.■ Species-specific monitoring activities will be developed in accordance with any registration and / or permitting requirements under the Endangered Species Act. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | ■ Species at Risk – Barn / Bank Swallow | ■ Habitat loss, disturbance and / or mortality to Barn and / or Bank Swallow | <ul style="list-style-type: none">■ Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active.■ Where loss or disturbance cannot be avoided (e.g., due to work on bridges or banks), all requirements under the Endangered Species Act will be met, including any registration, compensation, replacement structures and / or permitting requirements.■ If construction activities are scheduled during the nesting season for Barn and / or Bank Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn and / or Bank Swallows are nesting on structures or banks that may be affected by construction activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting. | ■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required. |
| Natural Environment | ■ Species at Risk – Chimney Swift | ■ Habitat loss, disturbance and / or mortality to Chimney Swift | <ul style="list-style-type: none">■ If repair, maintenance or demolition of buildings / structures with suitable roosting / nesting habitat (e.g., chimneys) is to take place, targeted surveys for Chimney Swift will be completed as per the Bird Studies Canada Chimney Swift Monitoring Protocol (2009) during the nesting season of April 15 to October 15.■ Repair, maintenance, or demolition of an identified roosting / nesting structure may constitute destruction of critical habitat and would be discussed in advance with the Ministry of Environment, Conservation and Parks and requirements of the Endangered Species Act will be met. | ■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required. |
| Natural Environment | ■ Species at Risk – Bats | ■ Habitat loss, disturbance and/or mortality to Species at Risk Bats | <ul style="list-style-type: none">■ 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 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 minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required. |
| Natural Environment | ■ Species at Risk – Butternut | ■ Habitat loss, disturbance and/or mortality of Butternut | ■ If any works are proposed within the critical root zone (i.e., 25 metres radius from stem) of a butternut, mitigation, monitoring and compensation to address impacts to butternuts may be required based on the results of additional surveys (i.e., Butternut Health Assessment and DNA testing to confirm purity) and consultation with the Ministry of 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 minimize impacts. Additional monitoring measures will be developed with the Ministry of Environment, Conservation and Parks, if required. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | Wetlands and Waterbodies | Removal or impacts to wetland, aquatic and riparian vegetation, degradation of wetlands as result of dewatering and discharge activities; erosion and sedimentation to wetlands / waterbodies from construction; risk of contamination to wetlands / waterbodies as a result of spills. | <ul style="list-style-type: none">Construction activities will maintain the buffers established during the design phase to minimize potential negative impacts to wetlands and waterbodies.Shorelines or banks disturbed by construction activities will be immediately stabilized by any activity associated with the project to prevent erosion and / or sedimentation, preferably through re-vegetation with native species suitable for the site.An Erosion and Sediment Control Plan, in accordance with the Greater Golden Horseshoe's Erosion and Sediment Control Guideline for Urban Construction (December, 2006), as amended from time to time, will be prepared prior to and implemented during construction to minimize the risk of sedimentation to the waterbody.A Spill Prevention and Response Plan will be developed before work commences to ensure procedures and policies are in place during construction to minimize impacts to wetlands and watercourses.In wetland areas where vernal pooling occurs, prior to dewatering isolated work areas, wildlife will be captured and relocated to suitable habitat outside of the work area.Vegetation removals will also consider and mitigate potential impacts to wetland communities. Until such a time, that an Ontario Wetland Evaluation System evaluation is completed and evaluated by Ministry of Natural Resources and Forestry, unevaluated wetlands should be considered as significant for the purposes of assessing impacts.Wetland communities potentially affected by the Project will be clearly staked out on site.If dewatering is proposed, it is recommended to be undertaken during the winter when the potential impacts of changes in water levels are less significant in wetland communities. During detailed design the need for a dewatering zone of influence assessment and dewatering monitoring plan should be evaluated. The dewatering monitoring plan, should it be deemed required, will monitor for potential negative effects to nearby wetlands and adjacent vegetation communities if affected due to dewatering activities, and will provide an adaptive management plan should negative effects be observed. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include alteration of activities to minimize impacts and enhance mitigation measures. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Natural Environment | <ul style="list-style-type: none">Fish and Fish Habitat | <ul style="list-style-type: none">Potential for direct, in-water impacts to fish and fish habitat.Dewatering activities and water discharge resulting in changes in water velocity or temperature, soil and erosion, release of contaminated and sediment-laden water, fish habitat structure and cover, food supply, nutrient concentration, access to habitat leading to the displacement or stranding of fish. | <ul style="list-style-type: none">All requirements of the Fisheries Act will be met.In the event that in-water and/or near water construction works are required appropriate mitigation measures will be followed, as identified in Applicable Law and through consultation with the relevant authorities including Fisheries and Oceans Canada. In-water works will be planned to consider timing windows to protect fish, including their eggs, juveniles, spawning adults and / or the organisms upon which they feed.Design water management system and dewatering operations to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody or adjacent wetlands.Prior to dewatering isolated work areas, fish will be captured and relocated to suitable habitat outside of the work area under a Licence to Collect Fish for Scientific Purposes from the Ministry of Natural Resources and Forestry. | <ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.Monitoring for dewatering will be undertaken to confirm sediment-laden discharge, visible scour/erosion and/or changes in temperature within any receiving watercourse does not occur. |
| Soil and Groundwater | <ul style="list-style-type: none">Soil Stability and Quality | <ul style="list-style-type: none">Construction activities will cause displacement of the soils and bedrock. This may result in ground movement and settlement (e.g., during tunneling, deep excavations for box structures, and/or dewatering activities).Construction activities (e.g., excavation) could expose contaminated materials and/or result in the spreading of contaminated materials. | <ul style="list-style-type: none">Complete a detailed settlement analysis during the detailed design phase;Potential subsidence/settlement impacts to existing structures can be mitigated with measures such as completion of pre-construction inspections of structures within the dewatering zone of influence and implementation of a settlement monitoring program;Excavation support systems will be employed, as required;Use tunneling equipment designed to reduce the potential for ground loss and the associated potential for settlements at the ground surface;Conduct ground treatment such as jet grouting to reduce the risk of ground loss;Remedial action plans, risk assessment and risk mitigation plans for encountering contamination, as necessary; andDevelop a Soil and Excavated Materials Management Plan for the handling, management and disposal of all excavated material (i.e., soil, rock and waste) that is generated or encountered during the work. | <ul style="list-style-type: none">Develop and conduct a settlement monitoring program to document construction effects, identify adverse trends and identify additional mitigation measures; andSoil and groundwater sampling and monitoring plans shall be implemented as required prior to, during, and post construction. Track soil in registry as required by Ontario Regulation 406/19. |
| Soil and Groundwater | <ul style="list-style-type: none">Groundwater Quantity | <ul style="list-style-type: none">Dewatering efforts associated with construction of station infrastructure, tunnelling, the portals, etc., may cause local drawdown of the water table.If extensive dewatering is required drawdown has the potential to impact the recharge of local wetlands.There is a potential for structures to have foundations built below the local water table which may be affected by dewatering. | <ul style="list-style-type: none">Further hydrogeologic assessments will be conducted at locations requiring dewatering to estimate groundwater flow rates, predict impacts (such as lowering groundwater table), and evaluate treatment/discharge options. These studies are also needed to support potentially required water taking permits from the Ministry of the Environment, Conservation and Parks, including registration under the Ministry's Environmental Activity Sector Register or Permit to Take Water applications;Additional investigations to determine the Zone of Influence of any required dewatering will be necessary to fully consider the impacts to nearby structures and infrastructure. Further mitigation plans will be developed prior to construction; andA Groundwater Management Plan will be developed to guide the handling, management, and disposal of groundwater encountered. | <ul style="list-style-type: none">Best management practices will be implemented for managing groundwater, including establishing a baseline and monitoring program during construction.Monitor groundwater discharge as required.Establish groundwater monitoring wells as required. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Soil and Groundwater | <ul style="list-style-type: none">Groundwater Quality | <ul style="list-style-type: none">There is a potential to encounter contaminated groundwater.General construction activities have the potential to affect groundwater quality through minor contaminant releases. | <ul style="list-style-type: none">The existing groundwater conditions within each potential construction dewatering area will be characterized prior to construction activities, during the development of the Groundwater Management Plan as required.Conduct a review of Source Protection Plan policies and implement the following measures, where required:<ul style="list-style-type: none">A Salt Management Plan that incorporates best management practices where the storage and application of road salt is required;Best management practices where the handling and storage of dense non-aqueous phase liquids is required;Best management practices where the storage of organic solvent is required; andBest management practices where the storage and handling of fuel is required. | <ul style="list-style-type: none">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 team.Regular inspections of equipment for fuel/fluid leaks, dewatering equipment and containment tanks for leakage, and installed erosion and sediment control measures. |
| Air Quality | <ul style="list-style-type: none">Construction Air Quality | <ul style="list-style-type: none">Construction related air quality impacts (i.e., creation of vapours and particulate) are of a temporary nature and not likely to result in significant effects. Potential air quality impacts could include effects from diesel combustion and particulate emissions. | <ul style="list-style-type: none">Schedule construction related activities to avoid overlapping construction activities where possible.Minimize the number of machines operating in any one area at any given point in time.Implement all applicable best practices identified in Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities document (Cheminfo Services Inc., 2005), where practical.Implement mitigation measures from Environment Canada's Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (Cheminfo Services Inc., 2005) and the Ministry of the Environment, Conservation and Parks' Technical Bulletin Management Approaches for Industrial Fugitive Dust Sources (Ministry of the Environment and Climate Change, 2017). | <ul style="list-style-type: none">Monitor for dust and air quality parameters during construction to identify if any additional mitigation is required. |
| Noise and Vibration | <ul style="list-style-type: none">Construction Noise | <ul style="list-style-type: none">Environmental noise may cause annoyance and disturb sleep and other activities. | <ul style="list-style-type: none">Use construction equipment compliant with noise level specifications in Ministry of the Environment, Conservation and Parks guidelines NPC-115 and NPC-118.Keep equipment in good working order and operate with effective muffling devices.Equipment enclosures.Additional equipment silencers/mufflers.Off-site construction of components.Temporary construction site noise barriers or berms.Restricting construction hours where possible.Perform construction during day-time hours where possible. If night-time construction is necessary, the activities with the highest noise and vibration levels should be conducted during day-time periods. | <ul style="list-style-type: none">Noise levels will be monitored where impact assessment indicates that noise exposure limits may be exceeded to identify if any additional mitigation is required.At these locations, the Contractor will monitor noise continuously at each geographically distinct active construction site with one monitor located strategically to capture the highest exposure level based on planned construction activities and the number, geographic distribution and proximity of noise sensitive receptors. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Noise and Vibration | ■ Construction Vibration | ■ Exposure to vibration may result in public annoyance and complaints. Vibration may also cause damage to buildings and other structures. | ■ Utilize equipment with low vibration emissions where possible (e.g., using drilled piles instead of impact piling). ■ Off-site construction of components. ■ Restricting construction hours. ■ Perform construction during day-time hours where possible. If night-time construction is necessary, the activities with the highest noise and vibration levels should be conducted during day-time periods. | ■ Monitoring will be undertaken to ensure compliance with City of Toronto By-Law 514 and to identify need for additional mitigation if required. ■ Pre-construction building inspection for buildings adjacent to the construction sites is to be undertaken. Continuous vibration monitoring along the construction zone property lines closest to these structures will be initiated as warranted. |
| Socio-Economic and Land Use | ■ Property | ■ Property acquisition – permanent and temporary | ■ Specific property requirements will be confirmed during detailed design. Where access to property is required, ongoing consultation with affected landowners will help identify appropriate site-specific mitigation measures. | ■ None identified. |
| Socio-Economic and Land Use | ■ All land uses and adjacent lands | ■ Nuisance effects from construction activities | ■ Refer above to mitigation measures described for Noise and Vibration and Air Quality. ■ Minimize potential impacts to recreational uses, parks and open spaces to the extent feasible. | ■ Refer above to monitoring described for Noise and Vibration and Air Quality. |
| Socio-Economic and Land Use | ■ All land uses and adjacent lands | ■ Land use and access disruption | ■ Provide well connected, clearly delineated, and appropriately signed 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 AODA requirements for universal accessibility. ■ Provide temporary lighting and wayfinding signs and cues for navigation around the construction site. ■ Develop a plan to reduce the effects of light pollution. ■ Access to businesses during working hours will be maintained, where feasible. Where regular access cannot be maintained, alternative access and signage will be provided. ■ Minimize potential impacts and maintain access to recreational uses, parks and open spaces to the extent feasible. ■ Where impacts to institutional uses or community groups and resources are anticipated, consult with the property owner to identify appropriate mitigation measures. ■ Continue to engage with the City of Toronto and local school board(s) to confirm mitigation measures. | ■ Temporary access paths, walkways, cycling routes and fencing should be monitored. |
| Socio-Economic and Land Use | ■ Visual Characteristics | ■ Visual effects from construction areas/activities | ■ A screened enclosure for the development site will be provided, as required, with particular attention to material storage areas. ■ Consideration will be given to providing temporary landscaping along the borders of the construction site between site fencing/enclosure and walkways, where space allows, and where necessary. | ■ Construction activities will be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas. |
| Socio-Economic and Land Use | ■ Light Pollution | ■ Light trespass, glare and light pollution effects | ■ Perform the work in such a way that any adverse effects of construction lighting are controlled or mitigated in such a way as to avoid unnecessary and obtrusive light with respect to adjoining residents, communities and/or businesses. | ■ Construction activities will be monitored by a qualified Environmental Inspector to confirm that all activities are conducted in accordance with mitigation plans and within specified areas. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Built Heritage Resources and Cultural Heritage Landscapes | ■ Impacts to Built Heritage Resources and Cultural Heritage Landscapes | ■ Encroachment onto property | ■ Avoidance – Design the Project to avoid the property. ■ If avoidance of the whole property is not feasible, then: – Design Project to encroach onto the property as close to the property line as possible, while avoiding all impacts to the building and/or heritage attributes, including the urban landscaping on the west portion of the property. – Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to public issuance of the Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required. | ■ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | ■ Impacts to Built Heritage Resources and Cultural Heritage Landscapes | ■ Modifying the building to fit a new use | ■ Avoidance – Design the Project to avoid the property. ■ If avoidance of the whole property is not feasible, then: – Consider retention of the building by modifying the building to fit a new use in order to retain its cultural heritage value and heritage attributes. – Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required. | ■ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | ■ Impacts to Built Heritage Resources and Cultural Heritage Landscapes | ■ Introduction of a new element and/or alteration that result in the removal or demolition of all or part of a heritage attribute | ■ Avoidance – Design the Project to avoid the property. ■ If avoidance of the property are not feasible, and if removal or demolition of all or part of a heritage attribute cannot be avoided, then the following is required: – Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required. – Consider documentation of the property that includes the identification of salvageable materials and/or heritage attributes, if applicable, prior to alteration/change. – Design the Project to integrate new physical elements with the building and to be sympathetic and compatible with the Mid-Century Modern design (conforming to Parks Canada’s Standards & Guidelines for the Conservation of Historic Places in Canada, 2010). | ■ None identified. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | Relocation of all or part of the building | <ul style="list-style-type: none">Avoidance – Design the Project to avoid the property.If avoidance of the property is not feasible, complete a structural/engineering assessment to demonstrate the movability of the building or part of the building from this property to a new site.If relocation or partial relocation of the building is possible and cannot be avoided, then the following is required:<ul style="list-style-type: none">Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required.Complete detailed documentation of the property that includes the identification of salvageable materials and/or heritage attributes prior to relocation, in order to inform what building components should be retained and conserved.Stabilize the interior and exterior of the building before relocation.Prepare the new site, i.e. construction of a new foundation, prior to relocation.During design, incorporate commemoration signage in consultation with City of Toronto Heritage Preservation Services, to communicate the cultural heritage value of the relocated structure on the property to the public. | None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | Impacts to Built Heritage Resources and Cultural Heritage Landscapes | Demolition of all or part of the building | <ul style="list-style-type: none">Avoidance – Design the Project to avoid the property.If avoidance of the whole property is not feasible, and if demolition or partial demolition of the building on the property cannot be avoided, the following is required:<ul style="list-style-type: none">Consult with City of Toronto’s Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property in order to determine and obtain any approval or permits required.Complete detailed documentation of the property that includes the identification of salvageable materials and/or heritage attributes, prior to demolition.During design, incorporate commemoration signage in consultation with City of Toronto Heritage Preservation Services, to communicate the cultural heritage value of the demolished structure on the property to the public. | None identified. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
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| Built Heritage Resources and Cultural Heritage Landscapes | ■ Impacts to Built Heritage Resources and Cultural Heritage Landscapes | ■ Impacts to properties that meet or have potential to meet Ontario Regulation 10/06 under the Ontario Heritage Act | <ul style="list-style-type: none">■ Obtain Ministry of Heritage, Sport, Tourism and Culture Industries Minister's Consent, as required.■ Consult with City of Toronto's Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the property(s) in order to determine and obtain any approval or permits required.■ Complete detailed documentation of the property(s) that includes the identification of salvageable materials and/or heritage attributes prior to demolition.■ During design, complete an Interpretation/Commemoration Strategy Framework in consultation with the City of Toronto Heritage Preservation Services. Incorporate commemoration signage to communicate the cultural heritage value of the demolished structure on the property to the public. | ■ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | ■ Impacts to Built Heritage Resources and Cultural Heritage Landscapes | ■ Introduction of new elements and/or alterations that result in the removal or demolition of all or part of a heritage attribute | <ul style="list-style-type: none">■ Avoidance – Design the Project to avoid the structure.■ If avoidance of the structure is not feasible, and if removal or demolition of all or part of a heritage attribute and cannot be avoided, then the following is required:<ul style="list-style-type: none">– Consult with City of Toronto's Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the structure in order to determine and obtain any approval or permits required.– Complete detailed documentation of the property that includes the identification of salvageable materials and/or heritage attributes prior to alteration, in order to inform what structure components should be retained and conserved. | ■ None identified. |
| Built Heritage Resources and Cultural Heritage Landscapes | ■ Impacts to Built Heritage Resources and Cultural Heritage Landscapes | ■ Encroachment into a Heritage Conservation District, causing a physical impact to the Heritage Conservation District, while avoiding physical impact to contributing buildings located within the proposed boundary of the Heritage Conservation District | <ul style="list-style-type: none">■ Avoidance – Design the Project to avoid the proposed Heritage Conservation District.■ If avoidance of the Heritage Conservation District is not feasible, and if there is any physical impact of the Project proposed in the boundary of this Heritage Conservation District, then the following is required:<ul style="list-style-type: none">– Consult with City of Toronto's Heritage Preservation Services as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report regarding any physical impact to the Heritage Conservation District in order to determine and obtain any approval or permits required. | ■ None identified. |

| Discipline | Environmental Component | Potential Impact | Mitigation Measure(s) | Monitoring Activities |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">Impacts to Built Heritage Resources and Cultural Heritage Landscapes | <ul style="list-style-type: none">Vibration impacts to the building related to the Project on or adjacent to the property | <ul style="list-style-type: none">Avoidance – Design the Project to avoid vibration damage, including a sufficient buffer (within 250 metres) between Project components/activities and the building.If vibration impact cannot be avoided, then the following is required:<ul style="list-style-type: none">Documentation (Review and establish) of the structural condition of the building to determine if the structure is vulnerable to vibration impacts;Establish vibration limits based on building conditions, founding soil conditions and type of construction vibration;Implement vibration mitigating measures on the construction site and/or at the building;Monitor vibration during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded; andConduct regular condition surveys and reviews during construction to evaluate efficacy of protective measure in place prior to construction. If damage is identified, then implement additional corrective steps. | <ul style="list-style-type: none">None identified. |
| Archaeological Resources | <ul style="list-style-type: none">Archaeological Potential | <ul style="list-style-type: none">Potential for the disturbance of unassessed or documented archaeological resources | <ul style="list-style-type: none">Areas identified as retaining archaeological potential in the Stage 1 archaeological assessment must be subject to a Stage 2 archaeological assessment.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 completion of detailed design. 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.Undertake future work in a manner that protects archaeological sites by conserving them in their original location or through archaeological field work, and endeavour to conserve significant archaeological resources in their original location through documentation, protection, and avoidance of impacts. Where activities could disturb significant archaeological resources or areas of archaeological potential, Metrolinx will take appropriate measures to mitigate impacts.Include provisions in contract as recommended by archaeological assessment(s) (e.g., in case archaeological resources are discovered, protection of sites). All future Stage 2 Archaeological Assessment findings will be shared with all Indigenous communities that were engaged during the Stage 1 Archaeological Assessment process. | <ul style="list-style-type: none">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 communities will be initiated in the event that archaeological resources or human remains are discovered. | ■ None identified. |
| Traffic and Transportation | ■ Transportation Network | ■ Construction may result in the need for temporary road or lane closures changing access to nearby land uses | ■ Maintain reasonable access through work zones, to the extent possible. ■ Access to nearby land uses will be maintained to the extent possible. Potentially affected residents, tenants and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur. ■ Potential impacts to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate wayfinding, regulatory, and warning signs. ■ Consult with the City of Toronto and local school board(s) during construction planning including consideration of route detours. | ■ Traffic impacts to be monitored and mitigation adjusted as necessary during the construction period. ■ Cycling network impacts to be monitored and mitigation adjusted as necessary during the construction period. |
| Traffic and Transportation | ■ Transit Network | ■ Construction may result in access restrictions to local bus routes and temporary disruptions to the existing rail corridor | ■ Ensure that the public is notified in advance of any potential service disruptions. ■ Consult with local transit agencies to establish a suitable mitigation strategy to be implemented. ■ Consult with the City of Toronto and local school board(s) during construction planning including consideration of impacts to school bus stops. | ■ Traffic impacts to be monitored and mitigation adjusted as necessary during the construction period. |
| Utilities | ■ Private Utilities | ■ Impact to private utilities – temporary disruption and permanent relocation | ■ Metrolinx will consult with the affected utility companies as Project planning and design advance. ■ Appropriate mitigation measures will be determined once impacts are confirmed. | ■ None identified. |
| Utilities | ■ Public Utilities and Municipal Servicing | ■ Impact to municipal infrastructure and servicing – temporary disruption and permanent relocation | ■ Metrolinx will co-ordinate with the City of Toronto and Toronto Water as Project planning and design advance regarding potential impacts and ensure that applicable City standards, guidelines, and criteria are met. ■ Appropriate mitigation measures will be determined once impacts are confirmed. | ■ None identified. |

Table 4-2: Preliminary Potential Impacts, Mitigation Measures and Monitoring Activities During Operations

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | <ul style="list-style-type: none">■ Designated Natural Areas<ul style="list-style-type: none">– West Don River Valley Candidate Regionally Significant Life Science Areas of Natural and Scientific Interest | <ul style="list-style-type: none">■ Potential impacts will be assessed and evaluated as part of the Environmental Impact Assessment Report. | <ul style="list-style-type: none">■ Mitigation measures will be determined as part of the Environmental Impact Assessment Report, as applicable. | <ul style="list-style-type: none">■ Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable. |
| Natural Environment | <ul style="list-style-type: none">■ Policy Areas<ul style="list-style-type: none">– City of Toronto Natural Heritage Site– E.T. Seton Park Environmentally Significant Area and Ravine and Natural Feature Protection– Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and Regulation Areas– Urban River Valley under the Greenbelt Plan | <ul style="list-style-type: none">■ Potential impacts will be assessed and evaluated as part of the Environmental Impact Assessment Report. | <ul style="list-style-type: none">■ Mitigation measures will be determined as part of the Environmental Impact Assessment Report, as applicable. | <ul style="list-style-type: none">■ Monitoring will be determined as part of the Environmental Impact Assessment Report, as applicable. |
| Natural Environment | <ul style="list-style-type: none">■ Vegetation Communities | <ul style="list-style-type: none">■ Removal of vegetation during operational vegetation maintenance activities, if applicable.■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion during vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">■ Vegetation removal will be kept to a minimum and limited to within the Metrolinx right-of-way. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | <ul style="list-style-type: none">■ Vegetation Communities | <ul style="list-style-type: none">■ Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use during maintenance activities. | <ul style="list-style-type: none">■ 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 of equipment will occur at least 30 metres away from any watercourse.■ Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | <ul style="list-style-type: none">■ Wildlife and Wildlife Habitat – General | <ul style="list-style-type: none">■ Disturbance, displacement or mortality of wildlife during operational vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">■ If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, operational vegetation maintenance activities will cease or be reduced and wildlife will be encouraged to move off-site and away from the work area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |
| Natural Environment | <ul style="list-style-type: none">■ Significant Wildlife Habitat – Turtles and Turtle Habitat, including Species of Conservation Concern | <ul style="list-style-type: none">■ Potential for impacts to turtles and/or turtle habitat during operational vegetation maintenance activities, if applicable. | <ul style="list-style-type: none">■ Work within turtle habitat will be planned in consideration of turtle overwintering period which occurs from October 1 to April 30 in any given year. It is also possible that turtle surveys would need to be conducted prior to the work. | <ul style="list-style-type: none">■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|----------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Environment | ■ Migratory Breeding Birds and Nests, including Species of Conservation Concern birds | ■ Disturbance or destruction of migratory bird nests during operational vegetation maintenance activities, if applicable. | ■ 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 operation vegetation maintenance activities are proposed to occur during the general nesting period a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ■ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection. | ■ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites. |
| Natural Environment | ■ Species at Risk – ■ Barn / Bank Swallow | ■ Habitat loss, disturbance and/or mortality to Barn and/or Bank Swallow during operational vegetation maintenance activities, if applicable. | ■ If operational vegetation maintenance activities are scheduled during the nesting season for Barn and/or Bank Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn and/or Bank Swallows are nesting on structures or banks that may be affected by activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting. | ■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required. |
| Natural Environment | ■ Wetlands and Waterbodies | ■ Potential impacts are not anticipated during operations. | ■ None required. | ■ None required. |
| Natural Environment | ■ Fish and Fish Habitat | ■ Potential impacts are not anticipated during operations. | ■ None required. | ■ None required. |
| Soil and Groundwater | ■ N/A | ■ Potential impacts are not anticipated during operations. | ■ None required. | ■ None required. |
| Air Quality | ■ Operations Air Quality | ■ Impacts from electric train operations are not anticipated; however, operation of other Project components (e.g., maintenance and storage facility) may result in air quality impacts | ■ Specific mitigation measures will be established in a future operations impact assessment, to be completed as part of the Environmental Impact Assessment Report. | ■ Specific monitoring activities will be established in a future operations impact assessment, to be completed as part of the Environmental Impact Assessment Report. |
| Noise and Vibration | ■ Operational Noise | ■ Environmental noise may cause annoyance and disturb sleep and other activities. | ■ Reducing noise at the source via one or more of the following: – Continuously welded rail; – Rail dampers; – Quieter propulsion units; – Quieter heating and ventilation; – Changes to track layout; and – Designing transit facilities such that noise is minimized. ■ Optimal Maintenance: – Adequate rail lubrication. ■ Noise attenuation: – Noise walls. | ■ Conduct air-borne noise monitoring in accordance with applicable guidelines. ■ Regularly assess the condition of the equipment; equipment should operate within original noise specification. ■ Continue to ensure that facilities operate in compliance with Ministry of the Environment, Conservation and Parks’ noise guidelines. |

| Discipline | Environmental Component | Potential Impacts | Mitigation Measure(s) | Monitoring Activities |
|-----------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Noise and Vibration | ■ Operational Vibration | ■ Vibration may cause annoyance and disturb sleep and other activities. Operational vibration is unlikely to cause building damage. | ■ Reducing vibration at the source via one or more of the following: <ul style="list-style-type: none">– Continuously welded rail; ■ Rail dampers; <ul style="list-style-type: none">– Changes to track layout; and – Designing transit facilities such that vibration is minimized. ■ Optimal Maintenance ■ Vibration transmission attenuation via one or more of the following: <ul style="list-style-type: none">– Resiliently supported rail ties;– High resilient fasteners; and– Ballast mats or floating slabs. | ■ Assess vibration performance regularly to check compliance and to ensure no degradation of vibration mitigation performance. |
| Socio-Economic and Land Use | ■ Visual Characteristics | ■ Visual effects from public-facing structures and/or operations activities | ■ Minimize the visual effects of project structures (e.g., elevated guideways, support structures, retaining walls) by considering their location, building materials, architectural design, and surrounding landscape treatments. ■ Municipality and public engagement as Project planning and design progress. ■ Operations activities such as corridor maintenance to be minimized in duration and footprint to the extent possible. | ■ No monitoring related to visual characteristics is anticipated to be required during operations. |
| Built Heritage Resources and Cultural Heritage Landscapes | ■ N/A | ■ Potential impacts are not anticipated during operations. | ■ None required. | ■ None required. |
| Archaeological Resources | ■ N/A | ■ Potential impacts are not anticipated during operations. | ■ None required. | ■ None required. |
| Traffic and Transportation | ■ Transit Network | ■ Operations may result in modification or disruption to local bus routes. | ■ Ensure that the public is notified in advance of any potential service disruptions or modifications. ■ Consult with local transit agencies to establish a suitable mitigation strategy to be implemented. | ■ No monitoring related to the transit network is anticipated to be required during operations. |
| Utilities | ■ N/A | ■ Potential impacts are not anticipated during operations. | ■ None required. | ■ None required. |

5. Future Studies

As noted in **Section 4**, Metrolinx will complete an Environmental Impact Assessment Report and/or Early Works Report(s) as Project planning and design advance. Preparation of these reports may necessitate additional environmental studies which are described in the following subsections.

5.1 Natural Environment

The following studies may be undertaken, as required, to support the Environmental Impact Assessment Report and/or Early Works Report(s) as Project planning and design advance:

- **Vegetation** – Additional Ecological Land Classification surveys and plant inventories may be required to confirm vegetation communities potentially affected by specific alignment(s) / footprint(s).
- **Birds** – Additional breeding bird surveys may be required for specific alignment(s) / footprint(s), as required.
- **Species at Risk** – Species-specific surveys and/or an updated Species at Risk habitat screening, as required.
- **Significant Wildlife Habitat** – Additional surveys to confirm candidate Significant Wildlife Habitat may be required for specific alignment(s) / footprint(s).
- **Detailed Fish and Fish Habitat Assessments** – Additional fish and fish habitat assessments at the proposed Project water crossing site(s), as required.

Furthermore, the following surveys/studies may be completed prior to construction as required:

- **Migratory Birds Convention Act Protected Birds** – All structures (i.e., bridges, rail overpasses and buildings) that are anticipated to be modified or replaced to facilitate the construction of the Project shall be inspected for nests or nesting activity of Migratory Birds Convention Act protected birds. These surveys can occur at any time of year but must be completed prior to onset of construction activities.

- **Fish and Fish Habitat** – An assessment of potential impacts to fish and fish habitat may need to be completed upon confirmation of construction methodology during the detailed design phase of the Project. Should proposed works require a crossing of the Don River and/or have a temporary or permanent footprint below the HWM, submission of a Department of Fisheries and Oceans Canada Request for Review is recommended.
- **Tree Surveys** – As per Metrolinx's Vegetation Guideline (2020), surveys to inform compensation for trees within public and private lands, including those on the boundary of the Metrolinx right-of-way and public or private lands, will follow the requirements of applicable by-laws and regulations.
- **Exterior Building Surveys** – Buildings proposed to be demolished should be investigated to determine whether they provide potentially suitable habitat for Species of Conservation Concern (e.g., Common Nighthawk and Peregrine Falcon) and Species at Risk (Barn Swallow, Chimney Swift and bat Species at Risk) known to use anthropogenic structures in urban settings.
- **Species at Risk** – Species-specific surveys targeting presence or absence of Species at Risk in order to support required authorizations under the Endangered Species Act, which may include:
 - **Aquatic Species at Risk:** Based on the background information review (i.e., Department of Fisheries and Oceans Canada aquatic Species at Risk Mapping, Ministry of Natural Resources and Forestry data and Toronto and Region Conservation Authority records), no additional surveys to confirm presence / absence of aquatic Species at Risk in the Don River are required as the records of American Eel, Redside Dace and Lake Sturgeon within the Ontario Line Study Area were determined to be historical (i.e., more than 20 years old), indicating that these species are unlikely to still persist in the Don River. Furthermore, there were no critical habitats identified for aquatic Species at Risk within the Don River in the Ontario Line South and Ontario Line North Study Areas.
 - **Bat Species at Risk:** Species-specific surveys (i.e., habitat suitability surveys and / or acoustic monitoring) for bat Species at Risk following the Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis and Tri-coloured Bat (Ministry of Natural Resources and Forestry, 2017c) or a newer protocol if it becomes available from Ministry of the Environment, Conservation and Parks, will be required for tree removals proposed within potential bat Species at Risk habitat to confirm potential impacts and necessary level of

compensation under the Endangered Species Act within the Ontario Line Study Area. Total tree removal areas (including both temporary and permanent removals) in suitable bat Species at Risk habitat are recommended to be calculated based on at least 60% detailed design to inform compensation requirements. If demolition of potentially suitable buildings is proposed, detailed searches for potential entry points from all sides of the building and exit surveys following Ministry of the Environment, Conservation and Parks protocols should be completed. Surveys should be completed prior to scheduled construction to confirm habitat use by bat Species at Risk and to identify potential for disturbance of the species during construction in order to confirm authorization requirements under the Endangered Species Act.

- **Chimney Swift:** If demolition of buildings with potentially suitable chimneys is proposed, the following surveys should be completed to further confirm habitat suitability and habitat use by Chimney Swift in order to inform authorization requirements under the Endangered Species Act:
 - It is recommended that a detailed chimney suitability assessment using the Chimney Assessment Form provided in the Chimney Swift (*Chaetura pelagica*) Monitoring Protocol (BSC, 2009) be completed for potentially suitable chimneys that are proposed to be demolished.
 - If chimneys are confirmed to be potentially suitable, the following is a suggested monitoring protocol adapted from Bird Studies Canada's Ontario SwiftWatch Protocol (2019):
 - Evening surveys will be conducted at least once per month during May, June, July and August to gather evidence of habitat use. If Chimney Swifts are confirmed using nesting habitat during May and June, no further monitoring is required. Each evening survey should consist of an hour long survey, starting 30-45 minutes before sunset and continuing for the remainder of the hour or until a Chimney Swift is detected entering or exiting the chimney. If a Chimney Swift is observed entering the chimney, the surveys will continue for an additional 30 minutes.
 - During July, two daytime surveys are recommended to be completed to detect nesting Chimney Swifts; these should be done the same day that evening surveys are planned.
 - Surveys will be completed on days with low wind and no rain.

- The number of Chimney Swifts observed flying over and entering / exiting chimneys and evidence of nesting should be recorded.
- **Barn Swallow:** All structures (i.e., bridges, rail overpasses and buildings) identified as potential nesting habitat for Barn Swallow that are anticipated to be modified, replaced or disturbed shall be assessed for nesting Barn Swallow in conjunction with the nest searches for Migratory Birds Convention Act protected birds to be completed prior to onset of construction activities on structures.
- **Butternut:** Butternut was incidentally recorded within the Ontario Line North Study Area. In addition, there are records of Butternuts from Toronto and Region Conservation Authority within the Don River Valley, although located outside but in the vicinity of the Ontario Line Study Area. It is recommended that a search for butternuts be completed within at least 25 metres of the 60% detailed design footprint to confirm presence of any other butternuts. Additional species-specific surveys (e.g., Butternut Health Assessment and DNA testing) should be undertaken for those butternuts where excavation or grading is required for temporary or permanent infrastructure within 25 metres of the identified specimens. A Butternut Health Assessment must be completed during the leaf-on season (May 15 to August 31) by a certified Butternut Health Assessor to determine the health of the butternut(s) and a DNA test is also recommended to confirm whether the specimen is a pure butternut or a hybrid.
- **Bank Swallow:** Species-specific surveys to confirm habitat use of identified burrow locations by Bank Swallows should be completed in the Ontario Line North Study Area during detailed design (if these locations are anticipated to be impacted by the Project) to confirm authorization requirements under the Endangered Species Act. The following is a suggested monitoring protocol adapted from Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario (Ministry of Natural Resources and Forestry, 2017a), Ontario Bank Swallow Project: Volunteer Manual (BSC, 2010) and Bank Swallow Monitoring Protocol and Stewardship Study (OSSGA, no date):
 - During the nesting period of Bank Swallow (May 15 to July 15), three visits (May, June, July) to complete monitoring of the burrow sites should be completed by a qualified Avian Biologist to confirm occupation by Bank Swallows.

- If Bank Swallows are confirmed using the burrows during the first two visits, the remaining visit during that nesting period need not be undertaken.
 - Surveys should be conducted during optimal weather conditions (e.g., no precipitation, no or low wind speed, good visibility).
 - Each visit should be completed from the same vantage point(s) with good visibility of the burrows without disturbing birds for a duration one hour to observe burrows and record bird species, number of individuals using burrows, bird activity (nesting, flying in or out, foraging, etc.), as well as note condition of the vertical face (e.g., slope conditions, encroachment of woody plants preventing access). Data should be recorded using the Bird Studies Canada's Ontario Bank Swallow Project data forms.
- **General:** There is potential for provincial and federal Species at Risk protection statuses under the Endangered Species Act and Species at Risk Act, respectively, to change in the future. An updated Species at Risk habitat screening may need to be undertaken prior to construction to confirm if the species represented in this Report have been either up- or down-listed or new Species at Risk added, confirm the need for species-specific surveys targeting presence or absence of Species at Risk, if any, and confirm impacts as the design progresses towards completion.
- **Dewatering Zone of Influence Assessment** – if dewatering activities are proposed, the need for a dewatering zone of influence assessment should be confirmed in order to identify potentially affected natural heritage features (e.g., wetlands).

5.2 Soil and Groundwater

Detailed geotechnical studies (e.g., drilling, soil sampling, and groundwater monitoring) will be completed where required in support of future impact assessments and detailed design. Planned pre-construction activities include, but are not limited to, preparation of the following:

- Construction Dewatering Assessment;
- Groundwater Management Plan; and
- Spill Prevention and Response Plan.

Construction Dewatering Assessment

The Construction Dewatering Assessment shall:

- Provide an estimate of groundwater and/or surface water taking rates and quantities;
- Define a predicted zone of influence for each dewatering area;
- Confirm groundwater and/or surface water quality; and
- Provide an assessment of potential impacts related to the dewatering.

The Construction Dewatering Assessment should be prepared in sufficient scope and detail to provide technical support to obtain regulatory approval (i.e., Permit to Take Water or Environmental Activity and Sector Registry) for the necessary dewatering activities, if/where required.

Groundwater Management Plan

The Groundwater Management Plan shall:

- Evaluate potential groundwater discharge options (i.e., sanitary and/or storm sewer, or natural environment);
- Outline a monitoring and contingency program; and
- Determine the potential need for regulatory approval(s).

The Groundwater Management Plan should be prepared in sufficient scope and detail to provide technical support to obtain regulatory approval (i.e., Permit to Take Water or Environmental Activity and Sector Registry) for the necessary dewatering activities, if/where required.

Spill Prevention and Response Plan

A Spill Prevention and Response Plan to outlining the steps required to prevent and contain any contaminant releases and/or to avoid impacts to groundwater/surface water will be developed prior to initiation of construction activities.

5.3 Air Quality

As Project planning and design advance, an air quality impact assessment will be completed as part of the Environmental Impact Assessment Report.

Prior to construction, an Air Quality Management Plan will be developed which may include but not be limited to the following:

- Air quality impact mitigation measures;
- Baseline local air quality assessment as required; and
- Monitoring and reporting protocol.

5.4 Noise and Vibration

As Project planning and design advance and further details on planned transit facilities are available, the following noise and vibration impact studies may be undertaken:

- **Stationary Source Assessment** (including layover/maintenance and storage facilities)
 - Applicable guidelines and metrics required:
 - Ministry of the Environment, Conservation and Parks NPC-300 Guidelines – One-hour equivalent sound level ($L_{eq,1hr}$) for day, evening, and night time periods
- **Rail Operation Assessments**
 - Potentially applicable guidelines and metrics include:
 - MOEE/GO Draft Protocol – Day-time equivalent sound levels ($L_{eq,16hr}$) and night-time equivalent sound levels ($L_{eq,8hr}$)
 - MOEE/Toronto Transit Commission Protocol – Day-time equivalent sound levels ($L_{eq,16hr}$) and night-time equivalent sound levels ($L_{eq,8hr}$)
 - FTA Guideline – vibration levels (mm/s, RMS)
- **Construction Assessments**
 - Potentially applicable guidelines and metrics include:
 - FTA Guideline – Day-time equivalent sound levels ($L_{eq,16hr}$) and night-time equivalent sound levels ($L_{eq,8hr}$). Day and night periods have been adjusted to match GO Transit and Toronto Transit Commission Protocol periods
 - FTA Guideline – vibration levels (mm/s, RMS)

The residential receptors most exposed to predicted noise and vibration, from Project construction and operations, will require assessment with respect to the applicable guidelines presented above. When determining the worst case receptors and potential mitigation requirements, setback from the tracks and other Project infrastructure, receptor height (i.e., number of storeys), and other localized effects such as ground

geometry will need to be considered. Properties with heritage recognition should be evaluated where vibration levels from the Project may be a concern. Heritage properties within the Ontario Line Study Area are outlined in **Appendix B6**.

For future impact assessment work, additional estimates or measurements may be considered for locations beyond those included in this Report. In addition, to support the application for Environmental Compliance Approvals and completion of Environmental Activity and Sector Registrations for this Project, Ministry of the Environment, Conservation and Parks may require that background levels used for the adjustment of noise limits be verified by calculations in accordance with Ministry of the Environment, Conservation and Parks noise prediction standards.

Prior to construction, a construction Noise Management Plan will be developed which may include but not limited to the following:

- Noise and vibration impact mitigation measures
- Monitoring and reporting protocol

5.5 Socio-Economic Environment

As Project planning and design advance, a socio-economic impact assessment will be completed as part of the Environmental Impact Assessment Report.

5.6 Built Heritage Resources and Cultural Heritage Landscapes

Heritage Detailed Design Report(s) will be prepared as part of the Environmental Impact Assessment Report. The Heritage Detailed Design Report will document the review of the preferred alignment and/or detailed design, confirm impacts and mitigation measures, and identify any changes based on the design.

5.7 Archaeological Resources

Stage 2, 3 and/or 4 Archaeological Assessments will be completed for lands anticipated to be impacted prior to construction, as required. Some or all of these may be completed as part of the Environmental Impact Assessment Report and/or Early Works Report(s).

Further archaeological assessments must be conducted by a licensed archaeologist and must follow the requirements set out in the Standards and Guidelines for Consultant Archaeologists (Government of Ontario, 2011).

5.8 Traffic and Transportation

Additional traffic and transportation studies may be completed for areas that are not included in this Report if additional potentially impacted areas are identified as the Project planning and design advance.

Prior to construction, Traffic Control and Management Plan(s) will be developed prior to construction to maintain reasonable access through work zones, to the extent possible. The Traffic Control and Management Plan(s) will include safety precautions for schools in consultation with the City of Toronto and local school board(s).

6. Permits and Approvals

The following sections describe the federal, provincial, and municipal permits that may be required for the Project, in accordance with Section 8(9) of Ontario Regulation 341/20: Ontario Line Project. Permit and approval requirements will be confirmed as Project planning and design advance.

6.1 Federal

6.1.1 Canadian Navigable Waters Act, 2019

No approvals under the Canadian Navigable Waters Act, 2019 are anticipated to be required.

6.1.2 Species at Risk Act, 2002

Potential permit requirements under the Species at Risk Act, 2002 are not required at this stage during conceptual design. The Species at Risk Act, 2002 will be revisited as Project planning and design advance to review the most current list of regulated species and results of updated field work.

6.1.3 Fisheries Act, 1985

No authorizations are required under the Fisheries Act for works within the Ontario Line West Study Area as there were no watercourses identified within the Ontario Line West Study Area.

If works are to occur in-water or below the high water mark of the Don River within the Ontario Line South or Ontario Line North Study Area, submission of a Department of Fisheries and Oceans Canada Request for Review is recommended. Department of Fisheries and Oceans Canada's review will confirm their permitting expectations and whether a Fisheries Act Authorization or Letter of Advice may be required in the event Project works is anticipated to result in death of fish and/or harmful alteration, disruption or destruction of fish habitat.

6.1.4 Migratory Birds Convention Act, 1994

No permits under the Migratory Birds Convention Act, 1994 are anticipated to be required for the three Study Areas provided that appropriate mitigation measures and

avoidance timing windows are implemented to avoid adverse effects on migratory breeding birds during the breeding bird season of April 1 to August 31.

6.2 Provincial

6.2.1 Endangered Species Act, 2007

All required authorizations in accordance with the Endangered Species Act, 2007 legislation will be obtained for the following Species at Risk within each Study Area as required:

- Ontario Line West Study Area: Barn Swallow, Chimney Swift, Butternut, and Bat Species at Risk.
- Ontario Line South Study Area: Barn Swallow, Chimney Swift, Butternut, and Bat Species at Risk.
- Ontario Line North Study Area: Bank Swallow, Barn Swallow, Chimney Swift, Butternut, and Bat Species at Risk.

Species at Risk potentially affected by the Project, if any, will be identified and confirmed in the Environmental Impact Assessment Report and/or Early Works Report(s) as Project planning and design advance.

6.2.2 Ontario Water Resources Act, 1990

As prescribed under Ontario Regulation 63/16, water taking for construction site dewatering in excess of 50,000 L/day and under 400,000 L/day is subject to registration through the Environmental Activity and Sector Registry. In accordance with Section 34 of the Ontario Water Resources Act, a Category 3 Permit to Take Water from Ministry of the Environment, Conservation and Parks must be obtained for the taking of more than 400,000 L/day of groundwater for the purposes of construction dewatering from any given source. 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), Conservation Authority notification (Permit for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses), 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.

6.2.3 Environmental Protection Act, 1990

6.2.3.1 On-Site and Excess Soil Management

Where construction is expected to generate excess soil, the on-site and off-site beneficial reuse of excess soil will be explored during detailed design and shall be undertaken in accordance with Excess Soil – A Guide to Best Management Practices (Ministry of the Environment and Climate Change, January 2014). During construction, excess soils will be managed in accordance with Ontario Regulation 406/19: On-Site and Excess Soil Management (Ministry of the Environment, Conservation and Parks, 2019).

6.2.3.2 Environmental Compliance Approval and Environmental Activity and Sector Registry

Activities regulated under the Environmental Protection Act, 1990, Chapter E.19, must be carried out in accordance with the Act, the applicable regulations and the guidelines administered by the Ministry of the Environment, Conservation and Parks. In many cases this requires obtaining an environmental compliance approval under Part II.1 of the Environmental Protection Act, 1990 or registering in the Environmental Activity and Sector Registry under Part II.2 of the Environmental Protection Act. Permits and approvals specific to the Project include, but are not limited to:

- Environmental Compliance Approvals for noise and vibration in accordance with the Environmental Protection Act (through Ministry of the Environment, Conservation and Parks) may be required for traction power substations; and
- Environmental Compliance Approvals from the Ministry of the Environment, Conservation and Parks may be required for Mobile Activity (e.g., concrete crushing) (Ministry of the Environment, Conservation and Parks, 2020b).

It is anticipated that Project facilities, such as maintenance and storage facility and traction power substations, will either be registered on the Ministry of the Environment, Conservation and Parks' Environmental Activity Sector Registry or will have applications submitted for Environmental Compliance Approvals, depending on the facility activity.

6.2.4 Ontario Heritage Act, 1990

Metrolinx will consult with the Ministry of Heritage, Sport, Tourism and Culture Industries and obtain Minister's Consent as part of the detailed design phase and prior to issuance of the Draft Environmental Impact Assessment Report, as required for removal, demolition or transfer from provincial control, for properties that meet or have potential to meet Ontario Regulation 10/06 and have the potential to be impacted by the Project.

The properties that meet or potentially meet Ontario Regulation 10/06 are listed in **Table 3-48**, **Table 3-49** and **Table 3-50**.

6.3 Municipal

6.3.1 City of Toronto

A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. Metrolinx will obtain all required permits and approvals. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals.

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

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

6.4 Conservation Authorities

Metrolinx will engage with the Toronto and Region Conservation Authority as Project planning and design advance, including regarding compensation and post-planting monitoring in or near water works and dewatering, and in support of The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority (Toronto and Region Conservation Authority, 2014), as necessary.

In accordance with Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas.

6.5 Utilities

Co-ordination with the owners of impacted publicly-owned and privately-owned utility infrastructure will be undertaken as Project planning and design advance. Potential utility conflicts shall be reviewed in consultation with each utility company. Implementation and construction obligations shall be undertaken with each of the utility companies, as required.

7. Consultation Process

7.1 Overview of the Consultation Process

In accordance with Ontario Regulation 341/20: Ontario Line Project, this section summarizes the consultation activities carried out with members of the public, technical stakeholders, community stakeholders and groups, Indigenous communities, and other interested parties. It includes a record of stakeholder and public engagement, detailed correspondence records and feedback and comments received up to October 17, 2020.

On September 17, 2020, the Notice of Publication of the Draft Environmental Conditions Report was issued to commence the 30-day public review period, effective until October 17, 2020. The Notice was distributed to all individuals on the Project Distribution List, approximately 120,000 properties (i.e., apartments, houses and businesses) within and surrounding the Ontario Line Study Area as shown in this Report, community stakeholders and groups, government review agencies and other technical stakeholders, and Indigenous communities. The Notice was advertised in three major newspapers (Toronto Star, Le Metropolitan, Toronto L'Express) and seven community newspapers (Beach Metro, Ming Pao, Nasha Canada, North York Mirror, Sing Tao Daily, Sol Portugues , and The Greek Press) in multiple languages.

On November 30, 2020, the Notice of Publication of the Final Environmental Conditions Report was issued. This Notice was published in the same major and community newspapers that the Notice of Publication of the Draft Environmental Conditions Report was advertised in. This Notice was also distributed to all individual properties, community stakeholders and groups, government review agencies and other technical stakeholders, and Indigenous communities that received the Notice of Publication of the Draft Environmental Conditions Report. The Final Environmental Conditions Report (this report) includes updates based on feedback received during the 30-day review period of the Draft Environmental Conditions Report, summarized in **Section 7.8**.

The overall consultation strategy implemented by Metrolinx to date is described in the following subsections.

7.1.1 Approach to Consultation

Metrolinx offered a wide range of communication and consultation activities and outlets to reach all interested members of the public, property owners, review agencies, and

other stakeholders to solicit comments and feedback related to the Ontario Line Project, including:

- Project Engagement webpage (Project website) (www.metrolinx.com/ontarioline);
- Project Distribution List (see **Section 7.1.3** for more details);
- Mailings/ notifications;
- Emails via the Project email address (ontarioline@metrolinx.com);
- and e-newsletters;
- Newspaper advertisements;
- Social media posts and advertisements (Facebook, Twitter, Instagram);
- Postcard mailout;
- Public Open Houses;
- Elected Officials briefings;
- Meetings with technical stakeholders, Business Improvement Areas (BIAs) and other local community groups; and
- Online consultation via the Project Engagement webpage.

Further details regarding the consultation process are included in the subsections below and in **Appendices C1 to C6**.

7.1.2 Record of Consultation

Metrolinx maintained a record of all Project consultation undertaken through October 2020. In an effort to organize consultation by phase and feedback provision opportunities available before and after the release of the Draft Environmental Conditions Report and Project updates (see **Section 7.2** for more information), the record of consultation has been divided into six separate appendices:

- **Appendix C1** provides the Project Distribution List used to facilitate notifications to stakeholders and interested parties.
- **Appendix C2** provides a summary of consultation related to the January to February 2020 Public Open Houses.
- **Appendix C3** includes public feedback provided via email and the Project Engagement webpage's 'Provide Your Input', 'Contact Us' and 'Ask-A-Question' features through September 16, 2020. **Appendix C3** excludes

feedback provided during the Draft Environmental Conditions Report review period – these records are included in **Appendix C4**, as outlined below.

- **Appendix C4** includes all public feedback provided through the website and records and summaries of email and telephone correspondence during the Draft Environmental Conditions Report 30-day review period from September 17, 2020 to October 17, 2020. As new online engagement opportunities became available on the Project Engagement webpage during this time, much of this feedback is related specifically to the Draft Environmental Conditions Report. Some feedback is related to the Project updates (made available on the Project website on September 17 and 23, 2020 and included in **Appendix C4**) and general Project inquiries.
- **Appendix C5** contains the complete record of correspondence and meetings with community stakeholders and groups, government agencies and other technical stakeholders, and elected officials through October 2020.
- **Appendix C6** contains summaries and the complete record of correspondence and meetings with Indigenous communities through October 17, 2020.

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

7.1.3 Identification of Interested Parties

At the outset of the Project, an initial Project Distribution List (**Appendix C1**) was developed to facilitate notifications to stakeholders and interested parties. Additional email contacts were collected through the Project webpage where individuals could submit their email addresses and select “subscribe”, and at the open houses held in January and February 2020. Individuals have the opportunity to subscribe or unsubscribe to the Project Distribution List at any time.

Appropriate contacts at review agencies (i.e., federal, provincial, municipal and conservation authorities) were confirmed through outreach during initial consultation activities. Elected officials (i.e., City of Toronto Councillors and Members of Provincial Parliament) with jurisdiction in the Ontario Line Study Area were confirmed through online resources. Indigenous communities were identified through consultation with the Ministry of Transportation and the Ministry of Environment, Conservation and Parks in accordance with Section 3 of Ontario Regulation 341/20: Ontario Line Project.

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 Public Open House, Notice of Draft Environmental Conditions Report and Notice of Final Environmental Conditions Report).

All public contacts in the Project Distribution List have been removed from **Appendix C1** to protect personal information.

7.2 Public Consultation Opportunities

7.2.1 January to February 2020 Public Information Sessions

Five information sessions were held through late January to early February 2020, as outlined in **Table 7-1** below.

Table 7-1: Public Open House Details

| Date | Time | Location | Number of Signed-in Participants |
|-------------------------------|--------------------------|--------------------------------------------------------------|----------------------------------|
| Thursday January 23, 2020 | 6:30 p.m. – 8:30 p.m. | Ontario Science Centre 770 Don Mills Road, Toronto | 277 |
| Monday January 27, 2020 | 6:30 p.m. – 8:30 p.m. | Ryerson University 55 Gould Street, Toronto | 244 |
| Tuesday January 28, 2020 | 6:30 p.m. – 8:30 p.m. | Metropolitan Community Church 115 Simpson Avenue, Toronto | 441 |
| Wednesday January 29, 2020 | 6:30 p.m. – 8:30 p.m. | Beanfield Centre 105 Princes' Boulevard, Toronto | 122 |
| Wednesday February 5, 2020 | 6:30 p.m. – 8:30 p.m. | Estonian House 958 Broadview Avenue, East York | 64 |

Each of the information sessions included the following activities and materials:

- Sign-in sheets, including an option to sign up for updates (also available online);
- Take-home materials – Noise and Vibration Information Sheet, a tent card and Ontario Line maps;
- Display boards (also available online); and
- Feedback forms.

7.2.1.1 Sign-in Sheets

Upon entering the open houses, members of the public were greeted at the welcome table and encouraged to sign in and provide their name and email address to be added to the Project Distribution List. They received a feedback form and a pen along with an overview of the meeting format. In total, approximately 1,150 individuals signed in at the

open houses, including 277 at the Ontario Science Centre, 244 at Ryerson University, 441 at the Metropolitan Community Church, 122 at the Beanfield Centre and 64 at Estonian House.

7.2.1.2 Take-home Materials

Materials including a Noise and Vibration Information Sheet, a tent card and a map of the Ontario Line Project were available at each open house for attendees to view and take home. The Noise and Vibration Information Sheet included terminology related to noise and vibration, comparison of sources of noise, comparison of sources of vibration, and potential noise and vibration mitigation measures. The tent card provided a brief overview of the Project, with links to the Project webpage where people could go to receive more information. The Ontario Line map showed the planned alignment with the potential station locations. The take-home materials are provided in **Appendix C2**.

7.2.1.3 Display Boards

Display boards available at the open houses focused on:

- Key milestones;
- The purpose of delivering the Ontario Line;
- What the Ontario Line will include;
- What is being planned for the future;
- Benefits of the Ontario Line;
- The technology the Ontario Line will use;
- Studies currently underway; and
- The Public-Private Partnership (P3) procurement process.

The public was given the opportunity to freely explore each of the display boards at all five open houses. Subject matter experts were present to engage in one-on-one and small group discussions and answer questions. The display boards are provided in **Appendix C2**.

7.2.1.4 Feedback Forms

Feedback forms provided open house attendees with an opportunity to provide their thoughts and ideas related to the key elements of the Ontario Line. Feedback forms were provided to each attendee upon arrival for completion prior to exiting the open houses, or for completion at home within two weeks of the open house, to be returned

to the Project Team via email or regular mail. A total of 468 feedback forms (in addition to 31 handwritten notes, letters, or other documents) were received and are provided in **Appendix C2**, with personal information redacted.

7.2.2 Project Engagement Webpage: December 10, 2019 to September 16, 2020

Metrolinx Engage has a dedicated Engagement webpage for the Project (<https://www.metrolinxengage.com/en/engagement-initiatives/ontario-line>). This webpage provides key facts, project updates, documents, public engagement materials, and other information for the public, including means to provide feedback and contact the Project team. The webpage includes links to open house materials (e.g., display boards), summarized information related to the Draft Environmental Conditions Report and links to reports and appendices.

Through September 16, 2020, there were three different ways the public could use to provide feedback or submit inquiries, including 'Contact Us', 'Ask-A-Question' and 'We are Listening'. On September 17, 2020 the 'We are Listening' function was replaced with 'Provide Your Feedback', created specifically for the Draft Environmental Conditions Report public review period (more information is provided in **Section 7.2.3** and **Appendix C4**). The 'Contact Us' and 'Ask-A-Question' functions are still available on the Engagement webpage.

'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. Responses from Metrolinx are provided to participants via email. 'Contact Us' submissions received through September 16, 2020 are available in **Appendix C3**. Submissions received between September 17 and October 17, 2020 are available in **Appendix C4**.

'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. 'Ask-A-Question' submissions received through September 16, 2020 are available in **Appendix C3**. Submissions received between September 17 and October 17, 2020 are available in **Appendix C4**.

All public names and contact information have been removed to protect personal information.

Previously, the website featured a 'We are Listening' section, which described some of the main topics heard from the public between January and August 2020. In the 'We Are Listening' section, participants had the option to learn more about and provide input/ask questions related to:

- Environmental Impacts;
- Elevated/above-grade tracks;
- Technology the Ontario Line will use; and
- Budget and timeline.

The materials posted in the 'We are Listening' section are included in **Appendix C3**.

A detailed record of all public email correspondence and submissions received via the Project Engagement webpage up to September 16, 2020 are provided in **Appendix C3**.

7.2.3 Project Engagement Webpage: September 17 to October 17, 2020

To encourage public participation during the 30-day review period for the Draft Environmental Conditions Report and adhere to public health authorities' direction related to COVID-19, virtual engagement opportunities were provided on the Project Engagement webpage between September 17 and October 17, 2020, in place of in-person open houses. During this time, individuals had the opportunity to review the Draft Environmental Conditions Report and associated discipline-specific environmental study reports outlining key study findings, and provide feedback.

The Project Engagement webpage was also updated to include details related to construction, technology, procurement, and Project alignment through various neighbourhoods (i.e., West, Downtown, East and North segments). These details are included in **Appendix C4**.

Feedback related specifically to the Draft Environmental Conditions Report was gathered through the 'Provide Your Feedback' function, which was a fillable anonymous form where participants could provide their feedback on the Draft Environmental Conditions Report by answering the following questions:

- What Environmental Studies are most important to you?
- What are your thoughts on the Environmental Studies?
- Is there anything we missed? Please let us know if you have any additional thoughts or concerns about the Ontario Line Environmental Conditions Report.

To provide feedback on individual environmental studies, fillable anonymous environmental discipline-specific feedback forms were located at the end of the Project Engagement webpage content for each environmental discipline webpage as follows:

- What are your thoughts on the Stage 1 Archaeological Assessment?
- What are your thoughts on the Socio-Economic Environment study?
- What are your thoughts on the Cultural Heritage Report?
- What are your thoughts on the Soil & Groundwater study?
- What are your thoughts on the Noise & Vibration study?
- What are your thoughts on the Natural Environment study?
- What are your thoughts on the Traffic & Transportation study?
- What are your thoughts on the Air Quality study?

All 'Provide Your Feedback', environmental discipline-specific feedback form submissions, 'Contact Us' and 'Ask-A-Question' submissions gathered during the Draft Environmental Conditions Report public review period between September 17 and October 17, 2020 are available in **Appendix C4**. This appendix also includes a summary of public email correspondence and a detailed correspondence record captured between September 17 and October 17, 2020.

The following online statistics were collected during the public engagement period for the Draft Environmental Conditions Report from September 17 to October 17, 2020:

- Almost 20,000 people read blog posts which provided updates on the four segments of the Ontario Line;
- More than 15,000 people visited the Metrolinx Engage website to learn more about the Project and share feedback;
- 181 questions and comments were received by email or through the Ask-A-Question feature; and
- 136 feedback form submissions were received in response to the Draft Environmental Conditions Report.

7.3 Public Feedback

As noted in **Section 7.1.2**, all public feedback received by the Project Team during engagement activities between January and February 2020 via feedback forms at public open houses and comments at pop-up sessions is included in **Appendix C2**. All public feedback received via email and through the Project Engagement webpage between

December 10, 2019 and September 16, 2020 is included in **Appendix C3** and all public feedback received during the 30-day review period for the Draft Environmental Conditions Report, between September 17 and October 17, 2020 is included in **Appendix C4**. All comments received from the public have been redacted to protect personal information.

Detailed summaries of public feedback are provided in the subsections below.

7.3.1 Summary of Public Feedback Received through September 16, 2020

The following section highlights the key findings and level of public interest related to topics/ questions identified through in-person and online engagement activities held through September 16, 2020, prior to the Draft Environmental Conditions Report publication and associated Project Engagement webpage update.

Overall themes that emerged from this feedback include:

- Budget, costs and timeline;
- Engagement process;
- Environmental and community impacts;
- Technology used for the Ontario Line; and
- Alignment.

What is most important to you about this Project?

◆ Budget, Procurement and Timeline

- Participants believe budget, costs and timelines are the most important aspects of the Project.
- Requests to complete the Project sooner rather than later while minimizing costs and maximizing benefits.
- Concerns regarding the importance of completing studies and construction within the proposed seven-year timeline, and requests for timelines to be condensed to deliver the Project sooner.
- Concerns regarding the importance of staying within budget, specifically regarding construction.
- Concerns related to P3 procurement and budget models.
- Concerns regarding fare costs once the Ontario Line is in operation.

◆ **Community Impacts**

- Concerns related to noise and vibration during construction and operation.
- Questions regarding construction process; i.e. timing, impact to local businesses and residents, mitigation.
- Comments and questions regarding the importance of property values and potential property requirements.
- Questions and concerns regarding engagement process, and requests for more detailed schedules, timelines and plans.
- Requests for information on potential impacts to quality of life during construction and operation of the Ontario Line.

◆ **Environmental Impacts**

- Comments regarding importance of preserving parkland and greenspace within the Study Area.
- Requests to receive environmental study results.
- Questions regarding the Environmental Assessment process.

◆ **Technology**

- Requests for faster, lighter trains, use of standards gauge for tracks, and implementing technology that is compatible with existing Toronto Transit Commission systems.
- Requests for more detail on technology at future engagement sessions.

◆ **Alignment**

- Requests for the Ontario Line to be fully accessible for people of all ages, abilities and financial circumstances.
- Suggestions for alternative alignment options, including adding stations and connections to the preliminary alignment.
- Concerns regarding the above-ground portions of the alignment.
- Suggestions to serve the largest population possible while integrating seamlessly with other existing and future transit lines.
- Comments regarding Project's lifespan and choosing an alignment that will best serve Toronto long-term.

What would you like to hear more about?

◆ Budget, Procurement and Timeline

- Questions relating to methods of obtaining funding.
- Requests to be kept informed throughout every stage of construction of the Ontario Line.
- Requests for information on cost of the Ontario Line in relation to above and below ground alignment.
- Questions relating to P3 model.

◆ Community Impacts

- Questions relating to potential impacts to personal property and homes in relation to the construction and operation of the Ontario Line.
- Requests for further information on construction process.
- Questions regarding potential noise and vibration during construction.
- Questions regarding potential for creation due to the Ontario Line and available information regarding future job opportunities.

◆ Environmental Impacts

- Requests for emphases placed on the EA for the Ontario Line.
- Questions relating to the alignment's impacts on greenspace and parks.

◆ Technology and Design

- Questions about type and capacity of train, and integration with the Toronto Transit Commission.
- Questions regarding the design of the trains and track type, in relation to aesthetics.

◆ Alignment

- Concerns with above-ground alignment within their communities.
- Requests for cost comparisons between above-ground and underground alignments.
- Requests for information on station locations.
- Questions regarding information on decision making process, relating to the Ontario Line's alignment.
- Questions regarding level of accessibility within stations and train cars.

How would you like to hear from us going forward?

- ◆ Email;
- ◆ Information session/ Open House;
- ◆ Community/advisory group meetings;
- ◆ Social media;
- ◆ City Council website; and
- ◆ Newsletter and newspaper advertisements.

Is there anything we missed? Additional thoughts or concerns?

◆ **Budget, Procurement and Timeline**

- Concerns regarding funding through P3 model, with requests for greater detail through the process.
- Requests for the Ontario Line to be completed soon.

◆ **Engagement Process**

- Requests for more information during the engagement process.

◆ **Environmental and Community Impacts**

- Concerns regarding Environmental Assessments (EA's) completed in relation to the alignment of the Ontario Line.
- Concerns regarding the impact of the Ontario Line alignment on parks within the community.
- Concerns about level of noise and vibration.
- Concerns about impacts of the alignment on properties within the community.

◆ **Technology and Design**

- Requests for further information on technology used by the Ontario Line in relation to longevity, capacity, and maintenance costs.
- Requests for information on potential methods for integration with Toronto Transit Commission and GO trains/buses.

◆ **Alignment**

- Suggestions for alternative alignments.
- Concerns about the prospect of an above-ground alignment in certain areas.

◆ **Political Influence/ Government Involvement**

- Concerns related to government involvement in the Ontario Line.

7.3.2 Summary of Public Feedback Received between September 17 and October 17, 2020

The following section highlights the key findings and level of public interest identified through online engagement activities during the Draft Environmental Conditions Report review period between September 17 and October 17, 2020.

Input received via email and from ‘Contact Us’ and ‘Ask-A-Question’ submissions from this round of public engagement fell into the following general themes:

- Budget, Costs and Timeline;
- Engagement Process;
- Community Impacts;
- Environmental Impacts;
- Technology used for the Ontario Line;
- Alignment; and
- Environmental Study Results.

◆ **Budget, Costs and Timeline**

There was a strong interest in understanding the projected timelines for the project with an emphasis on when construction would be starting in individual neighbourhoods as well as a comparison of the costs for different construction approaches. Many affirmed the need for the Ontario Line and the desire to have it built and operating as soon as possible so that relief can be provided to existing, overcrowded transit lines in the city. Some expressed skepticism about the likelihood of the project being completed within the projected timeline.

◆ **Engagement Process**

This round of engagement provided additional details about procurement, station locations and refinements to the Ontario Line plans that would speed up delivery, reduce construction costs, minimize community impacts and improve connections for customers. There was a clear desire from participants to better understand the details behind the plans and designs as well as a continued interest in more opportunities to discuss project impacts and benefits.

◆ **Environmental and Community Impacts**

Many participants expected to see more information on impacts to the community and environment in the Draft Environmental Conditions Report and are eagerly anticipating the release of the Early Works Reports and Environmental Impact Assessment Report. Noise and vibration studies as well as natural environment, vegetation and air quality impact assessments are of greatest interest, including the methodology used to measure and predict impacts from construction and operation. Participants expressed support for the minimized residential property impacts in several areas but questioned whether Metrolinx would follow through on commitments to mitigation measures. Impacts on the character of a neighbourhood, safety and quality of life continue to be areas of concern.

◆ **Technology**

Participants' questions about the type of automated trains that will be used for the Ontario Line were addressed through online engagement and virtual meetings. While the specific vehicle used for the Ontario Line will be selected by the successful bidder for the Rolling Stock, Systems, Operations and Maintenance contract based on specifications set by Metrolinx, there was support for the anticipated features such as regenerative braking and smooth acceleration, quiet, electric-powered engines and platform doors for increased safety. Some participants asked about the need for frequent service and whether the pandemic would result in changes to the forecasts and plans.

◆ **Alignment**

Many participants had questions about the current alignment and proposed station locations. Some requested stations and connections be added, for example to the west beyond Exhibition or nearby at Fort York. Others asked for reconsideration of the proposed route or construction approach, pointing to concerns about community and environmental impacts. The ability to decrease congestion on TTC Line 1 was recognized as urgent and essential to Toronto's future but many participants still have questions about the current plans.

7.3.2.1 Summary of Feedback Received Through the Draft Environmental Conditions Report Online 'Provide Your Feedback' Forms

The following themes emerged through the 'Provide Your Feedback' online feedback forms submitted through the Project Engagement webpage from September 17 to October 17, 2020.

- Community Impacts;

- Environmental Impacts;
- Alignment; and
- Environmental Study Results.

What Environmental Studies are most important to you?

Feedback gathered through online feedback forms indicated the following environmental studies are most important to participants:

- Noise & Vibration;
- Natural Environment;
- Socio-Economic; and
- Air Quality.

What are your thoughts on the Environmental Studies?

◆ Environmental Study Results

- A desire for more information and extensive detail in the Environmental Studies.
- Concerns that the Environmental Studies may have been rushed.

Is there anything we missed? Please let us know if you have any additional thoughts or concerns about the Ontario Line Environmental Conditions Report.

◆ Community Impacts

- Requests for bicycle and pedestrian pathways along the corridor.

◆ Environmental Impacts

- Concerns regarding the preservation of heritage buildings and monuments.
- Requests for more detail on the natural environment impacts (such as specific impacts to trees and wildlife).

◆ Alignment

- Requests for a financial assessment to compare the differences between an above-ground versus a below-ground alignment for the Ontario Line.

7.3.2.2 Summary of Feedback Received Through the Draft Environmental Conditions Report Online Discipline-Specific Feedback Forms

The following feedback emerged through the online discipline-specific feedback forms located on each environmental discipline webpage submitted through the Metrolinx Engage website from September 17 to October 17, 2020.

What are your thoughts on the Air Quality study?

- ◆ Concerns about high emissions of air contaminants and questions about how Metrolinx will mitigate air quality impacts during construction.

What are your thoughts on the Cultural Heritage Report?

- ◆ Questions about the approach for protecting heritage buildings and details on the research completed on properties that were not listed as heritage buildings.

What are your thoughts on the Natural Environment study?

- ◆ Requests for more details on the amount of greenspace and wildlife that could be impacted by construction and operation of the Ontario Line.
- ◆ Concerns about disrupting the wildlife and the impacts to Species at Risk during the vegetation clearing process.

What are your thoughts on the Noise & Vibration study?

- ◆ Concerns about the impacts to local resident well-being during construction and the length of disruptions.
- ◆ Questions about where structures (i.e., noise walls) will be located and what type of materials will be used to construct them.

What are your thoughts on the Socio-Economic Environment study?

- ◆ Concerns about impacts to local businesses and communities.
- ◆ Requests for a cost comparison to understand the differences between an above-ground versus a below-ground alignment for the Ontario Line.
- ◆ Concerns about public engagement process and a desire for more public meetings in nearby and impacted communities.

What are your thoughts on the Traffic & Transportation study?

- ◆ Concerns about impacts to traffic during construction, temporary lane closures and daily impacts to the community.
- ◆ Questions about how Metrolinx will expand bridges (i.e., the bridge over Queen Street East) in a way that minimizes traffic.

What are your thoughts on the Stage 1 Archaeological Assessment?

- ◆ Questions about the definitions and requirements surrounding work stoppages and unexpected archaeological materials.
- ◆ Concerns about construction disrupting lands with archaeological potential.

What are your thoughts on the Soil and Groundwater Study?

- ◆ Concerns about dewatering, including risk to building settlements and questions about areas that will be dewatered.
- ◆ Concerns about pollution and contamination to the Don River and local wildlife.

All public correspondence related to the Draft Environmental Conditions Report, received in September and October 2020, is provided in **Appendix C4**.

7.4 Engagement with Community Stakeholders and Groups

Fifteen community stakeholders and groups participated in meetings with Metrolinx through October 2020, including:

- CF Toronto Eaton Centre;
- Community Living Toronto;
- Fontbonne Ministries;
- Fort York Neighbourhood Association;
- Lakeshore East Community Advisory Committee (CAC);
- Liberty Village BIA;
- March of Dimes Canada;
- Pape Area Concerned Citizens for Transit (PACCT);
- Riverside BIA;
- St. Lawrence Neighbourhood Association;
- The Neighbourhood Organization (TNO);
- The Bentway Conservancy;
- Toronto Entertainment District BIA;
- Toronto Financial District BIA; and
- West Don Lands Committee.

Discussions with these community stakeholders and groups focused on Project updates, potential environmental impacts and mitigation measures, potential impacts to business operations, property impacts, and stakeholder group-specific concerns.

Detailed correspondence records and meeting materials are provided in **Appendix C5**.

Metrolinx will continue to engage with community stakeholders and groups as the Project progresses.

In addition, Metrolinx reached out to the following community stakeholders and groups through October 2020:

- Aboriginal Labour Force Development Circle;
- Aboriginal Legal Services;
- Anishnawbe Health Toronto;
- Association for Native Development in the Performing and Visual Arts;
- Building Roots;
- Campbell House Museum;
- Chinatown Business Improvement Area (BIA);
- Corktown Residents and Business Association;
- Distillery Historic District;
- Don Mills Residents Inc.;
- Don Valley Community Legal Services;
- Downtown Yonge BIA;
- Flemingdon Health Centre;
- Friends of Flemingdon Park;
- Gabriel Dumont Institute;
- Garden District Residents Association;
- Gooderham and Worts Neighbourhood Association;
- Grange Community Association;
- Green Communities Canada;
- Liberty Village Residents Association;
- 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 Village BIA;
- Queen Street West BIA;
- Sisters of St. Joseph Toronto;
- St. Lawrence Market Neighbourhood BIA;
- The 519;
- The Friends of Fort York and Garrison Common;
- Thorncliffe Park Community Association;
- Thorncliffe Park Women's Committee;
- Thorncliffe Soccer Club;
- Toronto Aboriginal Support Services Council;
- Toronto and York Region Métis Council;
- Toronto Community Housing;
- Toronto Council Fire Native Cultural Centre;
- Toronto Entertainment District Residents Association;
- Toronto Inuit Association;
- United Way of Greater Toronto;
- Wigwamen;
- WoodGreen Community Services;
- Wynford-Concord Residents Association;
- YMCA of Greater Toronto; and
- 2-Spirited People of the 1st Nations.

Metrolinx looks forward to future engagement with these stakeholders and groups as Project planning advances.

Detailed correspondence records with all community stakeholders and groups are provided in **Appendix C5**.

7.5 Engagement with Technical Stakeholders

The following technical stakeholders were engaged throughout the study process. These technical stakeholders were provided with the opportunity to review a draft of the Draft Environmental Conditions Report, the Draft Environmental Conditions Report and

were provided with the Notice of Publication of the Final Environmental Conditions Report:

■ **Federal Agencies**

- Fisheries and Oceans Canada; and
- Transport Canada.

■ **Provincial Agencies**

- Conservation Ontario;
- Hydro One Networks Incorporated;
- Infrastructure Ontario;
- Ministry of Economic Development, Job Creation and Trade;
- Ministry of Education;
- 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;
- Ontario Power Generation; 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;
- George Brown College;
- Ontario College of Art & Design University;
- La Cite; and
- Law Society of Ontario²⁰.

20. This technical stakeholder was added to the Project Distribution List in August 2020. Technical reports were not shared with this technical stakeholder prior to the Notice of Publication of the Draft Environmental Conditions Report.

Metrolinx will continue to engage with technical stakeholders as the Project progresses. Detailed correspondence records with technical stakeholders are provided in **Appendix C5**.

7.6 Engagement with Elected Officials

The following Elected Officials were engaged throughout the study process, participated in briefings with Metrolinx during key milestones, were provided with the opportunity to review the Draft Environmental Conditions Report and were provided with the Notice of Final Environmental Conditions Report:

- Councillor Brad Bradford;
- Councillor Denzil Minnan-Wong;
- Councillor Jaye Robinson;
- Councillor Joe Cressy;
- Councillor Kristyn Wong-Tam;
- Councillor Paula Fletcher;
- Member of Provincial Parliament (MPP) Chris Glover;
- MPP Kathleen Wynne;
- MPP Michael Coteau;
- MPP Peter Tabuns; and
- MPP Suze Morrison.

Meetings with Elected Officials took place between September 28 and October 14, 2020 and are summarized in **Table 7-2** below.

Table 7-2: Meetings with Elected Officials

| Date | Elected Official |
|--------------------|---------------------------------------|
| September 28, 2020 | ■ MPP Glover |
| September 29, 2020 | ■ Councillor Wong-Tam ■ MPP Tabuns |
| October 6, 2020 | ■ MPP Wynne |
| October 8, 2020 | ■ MPP Morrison |
| October 9, 2020 | ■ Councillor Minnan-Wong |
| October 14, 2020 | ■ Councillor Robinson |

These meetings allowed Metrolinx to update Elected Officials on the Project, including details regarding the Project alignment and current public engagement activities. These meetings focused on Project updates, procurement and timelines and included discussions related to rail safety regulations, protecting greenspace and cost comparisons for above-ground and below-ground alignment options. Meeting materials as well as all correspondence records with Elected Officials between January and October 17, 2020 are provided in **Appendix C5**.

7.7 Engagement with Indigenous Communities

On February 12, 2020, Metrolinx reached out to Indigenous communities to introduce the Project, invite their participation in project consultation, and request their feedback. The letters were distributed via email and registered mail and provided the Ontario Line overview map as an attachment. In response to this letter, Kawartha Nishnawbe First Nation noted it did not have capacity to review reports. 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.

In April and early-June 2020, Metrolinx provided these communities with draft reports for review via email. In June 2020, a meeting was held with 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 meaningfully engaging with these Nations, and to review the Ontario Line Project and associated plans for the Environmental Conditions Report and early works.

The communities of Six Nations of the Grand River and Haudenosaunee Confederacy Chiefs Council were identified in July 2020 as being potentially interested in and potentially impacted by the Project. Introductory letters and draft reports were sent to Six Nations of the Grand River and Haudenosaunee Confederacy Chiefs Council on July 30, 2020, ahead of the Notice of Publication of the Draft Environmental Conditions Report.

On September 17, 2020, Metrolinx provided all Indigenous communities with the Notice of Publication of the Draft Environmental Conditions Report and links to the Draft Environmental Conditions Report via email. In response to this email, Six Nations of the Grand River noted it did not have the resources or capacity to review large reports and meet requested deadlines, with the exception of the archaeological assessment reports. Metrolinx held a meeting with the Nation on November 25, 2020²¹ to understand the

21. Meeting minutes were not available at the time of the preparation of this Report and will be included in the Environmental Impact Assessment Report and/or Early Works Report(s) under separate cover.

issues and concerns of Six Nations of the Grand River so they can move forward with Metrolinx in a positive way. Metrolinx continues to build a positive relationship with Six Nations of the Grand River into the future.

On November 30, 2020, Metrolinx provided the Notice of Publication of the Final Environmental Conditions Report.

Indigenous communities that were notified of Ontario Line activities are listed below and also provided in **Appendix C6**.

- 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.

All correspondence and a summary of discussions with Indigenous communities related to the Ontario Line Project is summarized in **Appendix C6**.

7.8 Description of Metrolinx Response to Concerns Expressed by Indigenous Communities and Interested Persons

In accordance with Section 4.(3)10 of the Ontario Regulation 341/20: Ontario Line Project, the following sections provide a description of what Metrolinx did to respond to concerns expressed by Indigenous communities and interested persons, including provincial agencies, municipal agencies, and technical stakeholders.

7.8.1 Description of Metrolinx Response to Concerns Expressed by Indigenous Communities

On February 12, 2020, Metrolinx reached out to Indigenous communities to introduce the Project, invite their participation in project consultation, and request their feedback. The letters were distributed via email and registered mail and provided the Ontario Line overview map as an attachment. In response to this letter, Kawartha Nishnawbe First Nation noted it did not have capacity to review reports. 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.

On September 17, 2020, Metrolinx provided all Indigenous communities listed in **Section 7.7** with the Notice of Publication of the Draft Environmental Conditions Report and links to the Draft Report via email. In response to this email, only Six Nations of the Grand River issued a response, noting it did not have the resources or capacity to review large reports and meet requested deadlines, with the exception of the Archaeological Assessment. Six Nations of the Grand River noted looking forward to having increased engagement with on-site monitoring of the Project.

To assist Six Nations of the Grand River and further understand their issues and concerns, Metrolinx held a meeting with the Nation on November 25, 2020²² to understand the issues and concerns of Six Nations of the Grand River so they can move forward with Metrolinx in a positive way. Metrolinx continues to build a positive relationship with Six Nations of the Grand River into the future.

No other comments related to the Draft Environmental Conditions Report were received from Indigenous communities.

7.8.2 Description of Metrolinx Response to Concerns Expressed by Interested Persons

Common comments received from interested persons concerning environmental conditions and impacts were related to the Ontario Line alignment and background information, construction noise and vibration impacts, existing air quality conditions, impacts to local businesses and Jimmie Simpson Park, impacts to the Riverside/ Leslieville community, existing conditions and impact assessment information related to built heritage resources and cultural heritage resources, and consultation process. Concerns from members of the public are summarized in **Section 7.3** and detailed

22. Meeting minutes were not available at the time of the preparation of this Report and will be included in the Environmental Impact Assessment Report and/or Early Works Report(s) under separate cover.

feedback and correspondence records are included in **Appendix C3 and C4**. Detailed technical stakeholder feedback and correspondence records, including comments and responses related to the Environmental Conditions Report, are included in **Appendix C5**.

In response to feedback and concerns received by interested persons, Metrolinx revised the Draft Environmental Conditions Report as follows for inclusion in this Final Environmental Conditions Report.

- **Project Overview and Background (Section 1.2 and Section 1.3)**
 - Clarification regarding Relief Line South, including the Transit Project Assessment Process completed
 - Clarification regarding the Ontario Line Study Area developed from the Ontario Line Initial Business Case (Metrolinx and Infrastructure Ontario, 2019) representative alignment
- **Study Process (Section 2)**
 - Addition of details regarding consultation on the Draft Environmental Conditions Report
 - Addition of details regarding the Final Environmental Conditions Report
- **Natural Environment (Section 3.1, Section 4, and Appendix B1)**
 - Addition of details regarding the effects of existing impervious surfaces on stormwater control and Don River water quality
 - Addition of details regarding American Eel historic record
 - Addition of information regarding Don River watershed stormwater and water quality
 - Addition of mitigation measures and monitoring activities to address potential impacts associated with invasive species
- **Soil and Groundwater (Section 4)**
 - Addition of mitigation measures related to soil stability
 - More clearly distinguishing groundwater quality and groundwater quantity preliminary potential impacts, mitigation measures, and monitoring activities
- **Air Quality (Section 3.3, Section 4 and Appendix B2)**
 - Clarification regarding applicable standards for criteria air contaminants
 - Clarification regarding date of background data utilized for the air quality assessment

- Update of background ambient air quality data to clarify exceedances are existing (i.e., not a result of the Project)
- Addition of information regarding existing rail emissions and routes within the Ontario Line North Study Area
- Addition of Ministry of the Environment, Conservation and Parks' Technical Bulletin, Management Approaches for Industrial Fugitive Dust Sources as a mitigation measure for construction air quality impacts
- Addition of preliminary impacts, mitigation measures, and monitoring activities related to Project operations such as maintenance and storage facility operations, recognizing that Ontario Line train operations will be fully electric
- Correction of Ontario Line North surrounding industry figure (**Figure 3-34**)
- **Noise and Vibration (Section 3.4, Section 4 and Appendix B3)**
 - Clarification regarding identification of sensitive receptors for the purpose of this Report
 - Clarified requirements for future impact assessment, including vibration monitoring for properties with known or potential heritage recognition
- **Socio-Economic and Land Use Characteristics (Section 3.5, Section 4 and Appendix B4)**
 - Clarification of data source for land use designations figures (i.e., City of Toronto Official Plan)
 - Acknowledgement that existing parks and open spaces are well-used by the community
 - Addition of Osgoode Hall open space to **Figure 3-39** and **Figure 3-44**
 - Correction of Ontario Line North land use designation figure to include recent Official Plan amendments (**Figure 3-40**)
 - Addition of notable parks within the Ontario Line North Study Area
 - Clarification regarding demographics metrics (i.e., proportional percentage or absolute number)
 - Addition of mitigation measures to reduce potential impacts to community amenities (i.e., recreational uses, parks and open space, institutional uses, and community groups and resources)
 - Clarification regarding types of development applications inventoried
 - Clarification regarding local appeal bodies and processes for development applications
 - Removal of one inventoried development application that has been withdrawn

- **Built Heritage Resources and Cultural Heritage Landscapes (Section 3.6, Section 4, Section 6.2.4, and Appendix B5)**
 - Clarification regarding Cultural Heritage Report methodology
 - Clarification of mitigation measures for properties designated Part IV, Section 29 of the Ontario Heritage Act that are also within Heritage Conservation Districts
 - Clarification regarding Osgoode Hall designation (i.e., separation of eastern and western property) and interior heritage attributes
 - Addition of Osgoode Hall Ontario Heritage Trust and National Heritage Site plaques
 - Clarification regarding Campbell House heritage attributes
 - Clarification regarding location of South Liberty Trail
 - Addition of South Liberty Trail silos/hoppers and plaques
 - Clarification regarding the consultation process to be undertaken with City of Toronto Heritage Preservation Services and MHSTCI for Minister's Consent (i.e., during detailed design and prior to issuing the Draft Environmental Impact Assessment Report)
 - Clarification regarding details of properties that meet Ontario Regulation 10/06
 - Correction of errors in impacts tables in **Appendix B5**
 - Clarification regarding Minister's Consent process
- **Archaeological Resources (Section 3.7, Section 4 and Appendix B6)**
 - Clarification regarding Stage 1 methodology
 - More detailed description of Stage 1 recommendations
 - Clarification regarding future study requirements
- **Traffic and Transportation (Section 3.8 and Appendix B7)**
 - Addition of South Liberty Trail as a pedestrian connection within the Ontario Line West Study Area active transportation network
 - Addition of roads within the Ontario Line North Study Area road network
 - Addition of transit routes within the Ontario Line North Study Area transit network
- **Utilities (Section 3.9)**
 - Addition of private utilities, Bell 360 and CN Fiber

- **Consultation Process (Section 7 and Appendix C)**

- Update to the consultation record to include feedback received between September 17, 2020 and October 17, 2020
- Addition of summary of feedback and concerns from Indigenous communities and interested parties

7.9 Commitment to Future Consultation

Metrolinx is committed to continuing stakeholder and public engagement and consultation. Specifically, Metrolinx will:

- Maintain the Project webpage (www.metrolinx.com/ontarioline) so interested individuals can access updated Project information;
- Maintain the Project Distribution List to help ensure all interested individuals receive Project updates; and
- Continue discussions with members of the public, local stakeholders and Indigenous communities with respect to potential impacts and mitigation, as appropriate.

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