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Appendix A5

Ontario Line Project

Exhibition Station Early Works – Final Traffic and Transportation Early Works Report

Metrolinx

Traffic and Transportation Early Works Report

Ontario Line Exhibition Station Early Works

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Project #: 60611173

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AECOM: 2015-04-13

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Executive Summary

ES.1 Ontario Line Exhibition Station Early Works

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

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

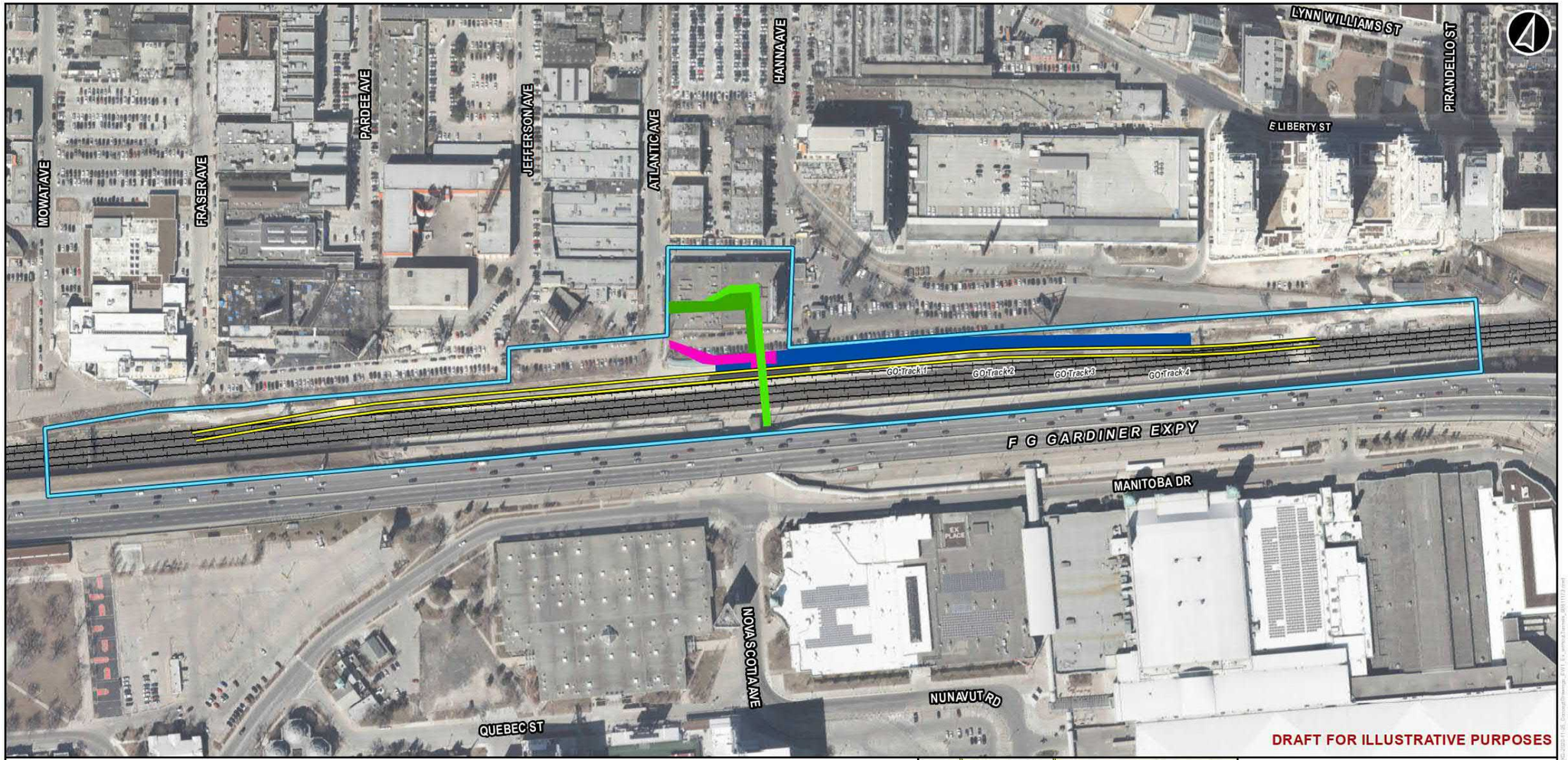
> "any components of the Ontario Line Project that Metrolinx proposes to proceed with before the completion of the Ontario Line assessment process, such as station construction, rail corridor expansion, utility relocation or bridge replacement or expansion."

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

AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete the Ontario Line Exhibition Station Early Works Report for the Project. This Traffic and Transportation Early Works Report (this Report) supports the Ontario Line Final Exhibition Station Early Works Report and has been prepared for the Project to

document the traffic and transportation impact assessment of Exhibition Station early works (**Figure ES-1**).

Figure ES-1: Exhibition Station Early Works Conceptual Design



The Exhibition Station early works will include modifications and improvements to the existing Exhibition GO Station, including extension of the existing passenger tunnel, construction of vertical accesses, construction of a new north platform, shifting of the two northern-most GO tracks, construction of a temporary pedestrian bridge, and relocating utilities.

The Exhibition Station early works components and construction activities are further described in **Section 1.3**.

The purpose of this Report is to:

- Describe the local environmental conditions related to the identified transportation network and transit network within the Exhibition Station Study Area;
- Assess the potential impacts of the Exhibition Station early works construction activities on the identified transportation network and transit network; and,
- Identify mitigation measures and monitoring activities for any potential negative impacts on traffic and transportation operations within the Exhibition Station Study Area.

This Report supports the Ontario Line Exhibition Station Early Works Report prepared in accordance with Ontario Regulation 341/20: Ontario Line Project.

Refer to **Section 1** of this Report for more information related to the Project and a detailed early works description.

ES.2 Methodology

This Report documents the assessment of Exhibition Station early works construction impacts related to traffic and transportation operations. Impacts associated with Project operations will be addressed as part of the Environmental Impact Assessment Report, under separate cover. Detailed methodology is provided in **Section 2**.

<u>Local Environmental Conditions</u>

AECOM completed a desktop background review of secondary source information to establish local traffic and transportation conditions within the Exhibition Station Study Area. The following traffic and transportation elements were qualitatively documented:

- Transportation network:
  - Roads
  - Active Transportation
  - Rail
- Transit network.

The following sources were used to conduct the background information review as part of the Ontario Line Final Environmental Conditions Report (AECOM, 2020)[1]:

- City of Toronto's website:
  - Open Data Portal (City of Toronto, no date -a);
  - Road Classification System Update (City of Toronto, 2018);
  - Vision Zero Mapping Tool (City of Toronto, 2020); and,
  - Public Consultations / Infrastructure and Construction Projects / Liberty Village New Street Environmental Assessment webpage (City of Toronto, n.d.b).
- Transit schedule and route information:
  - GO Transit (GO Transit, 2020);
  - VIA Rail (VIA Rail, 2020); and,
  - Toronto Transit Commission schedules (Toronto Transit Commission, 2020).

The Ontario Line Final Environmental Conditions Report (AECOM, 2020) notes that turning movement counts and signal timing plans were not available at some intersections within the Ontario Line Study Area, and were not collected through new traffic surveys considering the uncharacteristic traffic conditions as a result of the COVID-19 pandemic. As a result of the data limitations related to the identified road network within the Exhibition Station Study Area, a quantitative level of service assessment is not included in this Report.

A quantitative impact assessment was not completed at this stage as the detailed construction staging schemes that describe the potential modifications to the existing transportation network were not available. Quantitative impact assessment will be completed, as required, as detailed design progresses and this information becomes available. The quantitative impact assessment may include a larger study area.

<u>Impact Assessment</u>

This early works impact assessment and development of mitigation measures and monitoring activities considered the following in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act:

- Exhibition Station early works components as described in **Section 1.3.1**;
- The Exhibition Station Early Works Project Footprint and Exhibition Station Study Area as described in **Section 1.3.2**;

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

- Exhibition Station construction activities as described in **Section 1.3.3**; and,
- Local environmental conditions within the Exhibition Station Study Area as described in **Section 3**.

ES.3 Local Environmental Conditions

Existing elements of the transportation and transit networks within the Exhibition Station Study Area include:

- Two north-south collector roads (i.e., Atlantic Avenue and Jefferson Avenue), a north-south park road (i.e., Nova Scotia Avenue), and an east-west collector road (i.e., Manitoba Drive);
- Sidewalks along Atlantic Avenue, Manitoba Drive, Nova Scotia Avenue, and Jefferson Avenue as well as bicycle parking racks and Bike Share Toronto stations along Atlantic Avenue and Manitoba Drive;
- Four Metrolinx-owned rail tracks that service commuter trains operated by Metrolinx (i.e., Lakeshore West GO line) and VIA Rail (i.e., Toronto-Niagara Falls and Toronto-Windsor lines) and freight trains operated by Canadian National Railway and Canadian Pacific Railway; and,
- Several bus and streetcar routes operated by Toronto Transit Commission that service Exhibition Loop (i.e., bus routes #29, #63, #307, #329, and #363 and streetcar routes #509 and #511).

Local environmental conditions are further described in **Section 3**.

ES.4 Potential Impacts, Mitigation Measures and Monitoring Activities

Section 4 includes information related to potential impacts, mitigation measures, and monitoring activities for the Exhibition Station early works. Potential impacts may result from early works construction activities, including temporary closures and realignment of transportation network components (i.e., lanes and rail tracks), increased traffic, and removal/relocation of existing bicycle parking racks within the Exhibition Station Study Area. Mitigation measures and monitoring activities are recommended to minimize the potential impacts during construction.

Refer to **Table ES-1** for a complete list of potential impacts, mitigation measures, and monitoring activities for the Exhibition Station early works.

ES.5 Permits and Approvals

Section 5 notes that federal or provincial permits and approvals related to traffic and transportation are not required for the Exhibition Station early works. Metrolinx will

coordinate with the City of Toronto and Exhibition Place for transportation-related permits and approvals (e.g., street occupation permit) prior to construction, as required.

Table ES-1: Potential Impacts, Mitigation Measures and Monitoring Activities for the Exhibition Station Early Works

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Transportation Network – Roads	▪ Impeding traffic flow and increased average delay of vehicles, including emergency vehicles, due to temporary lane restrictions of nearby roads (e.g., Manitoba Drive, Atlantic Avenue, and Jefferson Avenue). ▪ Heavy construction vehicle traffic may impact traffic operations resulting in increased vehicular delays and queue lengths, especially at intersections where construction traffic is required to make left-turning movements. ▪ Potential overlapping construction timelines with other planned projects (e.g., local development) nearby may result in impacts to the transportation network and its road users. ▪ Potential impacts to on-/off-street parking along Atlantic Avenue.	▪ A quantitative traffic impact assessment will be completed, as required, as detailed design progresses to consider vehicular traffic impacts as a result of the Exhibition Station early works, and develop and implement a Transit and Traffic Management Plan(s), which could include temporary changes to intersection lane configurations, traffic signal timing optimization, modifications to existing signal timing plans, etc. The Transit and Traffic Management Plan(s) will also address specific emergency services requirements in consultation with the City of Toronto. ▪ Traffic signal timing optimization may be assessed/implemented to increase capacity of affected intersections and to aid in the movement of traffic. Traffic signal timing adjustments would require coordination between Metrolinx and City of Toronto, and will be undertaken if required, to determine appropriate changes to signal timings. ▪ Develop communication plans, including media and online notifications and advisory signage through portable variable message signs, to alert local traffic of any upcoming closures. ▪ Consider scheduling construction activities during off-peak periods and weekends to minimize disruptions to road users during the critical peak periods. ▪ Co-ordinate with the City of Toronto, appropriate agency and/or developer regarding other ongoing construction projects (e.g., Liberty New Street, if applicable) when scheduling the early works activities to maintain the mobility of all road users (i.e., avoid closure of parallel corridors). ▪ Consult with the City of Toronto, local school board(s), and Exhibition Place during construction planning including consideration of route detours. ▪ Minimize the duration and extent of disruptions to roads, property accesses and on-/off-street parking to the extent possible. ▪ Consult with the City of Toronto and the Toronto Parking Authority/private parking lot owner(s) should on-/off-street , public and/or private parking be affected.	▪ The effectiveness of the Transit and Traffic Management Plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.
Transportation Network – Active Transportation	▪ Potential increased walking distances may result in compromising pedestrians' convenience. ▪ Traffic congestion along Atlantic Avenue and other adjacent roads, as a result of the potential lane closures, could increase pedestrians' exposure to traffic. ▪ Potential removal/relocation of the existing bicycle parking racks along Atlantic Avenue may impact the convenience of cyclists in accessing the station. ▪ Disruptions to access through the existing pedestrian tunnel are not anticipated.	▪ Co-ordinate with the City of Toronto to minimize the interference with pedestrians and cyclists. This may include fencing, hoarding, shared-lane markings, signals, wayfinding signs, and lighting as required to provide pedestrians and cyclists with safe, accessible, and continuous routes. ▪ Include safety precautions for nearby schools (e.g., having school crossing guards at nearby intersections) in the Transit and Traffic Management Plan(s) in consultation with the City of Toronto, local school board(s), and Exhibition Place. ▪ If required, ensure any modifications to pedestrian crossing distances at signalized intersections are reflected in revised pedestrian clearance timings. ▪ Any temporary pedestrian facilities including temporary or relocated Toronto Transit Commission transit stops will be designed to meet Toronto Transit Commission accessibility standards. ▪ Implement flagging where construction vehicles are present to ensure construction vehicle operators are aware of pedestrian and vehicular traffic within the construction area. ▪ If required, existing bicycle parking racks along Atlantic Avenue will be relocated to the nearest feasible location to the northern entrance of Exhibition Station. ▪ Minimize the duration and extent of disruptions to roads and property accesses to the extent possible. ▪ Consult the National Association of City Transportation Officials' Bike Share Toronto Siting Guide (National Association of City Transportation Officials, 2016) for location and design considerations if relocation of any Bike Share Toronto stations is required as part of the Exhibition Station early works. Where possible, Bike Share Toronto stations will remain at their current location.	▪ The effectiveness of the Transit and Traffic Management Plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Transportation Network – Rail	▪ Short-term track closures, if implemented, may disrupt existing commuter and freight rail operations. ▪ No interruptions anticipated to GO Transit service.	▪ Consult with rail operators with current service along the rail corridor (i.e., VIA Rail, Canadian National Railway, and Canadian Pacific Railway) to assess how track closures would impact their service and co-ordinate temporary schedules to accommodate all rail services on the open tracks.	▪ The effectiveness of the Transit and Traffic Management Plan(s) will be monitored throughout the construction period. Adjustments to the construction staging plans and Transit and Traffic Management Plan(s) will be made based on actual field observations, as needed.
Transit Network	▪ Impacts to surface transit routes (i.e., bus and streetcar) within the Exhibition Station Study Area are not anticipated.	▪ No mitigation measures are recommended.	▪ Transit services will be monitored through actual field observations throughout the construction period and mitigation measures will be considered, as needed.

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1. Introduction

1.1 Purpose of the Ontario Line Early Works

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

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

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

Exhibition Station early works are considered to be of strategic importance in enabling the timely implementation of the Project. The early works are being advanced where the Project interfaces with GO Expansion. Advancing early works and supporting environmental and technical studies in this area provides planning and design efficiencies for the Project and GO Expansion, and facilitates the timely implementation of both. Exhibition Station early works are described in detail in **Section 1.3**.

1.1.1 Purpose of this Report

AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete the Ontario Line Exhibition Station Early Works Report for the Project. This Traffic and Transportation Early Works Report (this Report) supports the Ontario Line Final Exhibition Station Early Works Report and has been prepared for the Project to document the traffic and transportation impact assessment of Exhibition Station early works (**Figure 1-1**). The early works components and construction activities are described in **Section 1.3**.

The purpose of this Report is to:

- Describe the local environmental conditions related to the identified transportation network and transit network within the Exhibition Station Study Area;
- Assess the potential impacts of the Exhibition Station early works construction activities on the identified transportation network and transit network; and,
- Identify mitigation measures and monitoring activities for any potential negative impacts on traffic and transportation operations within the Exhibition Station Study Area.

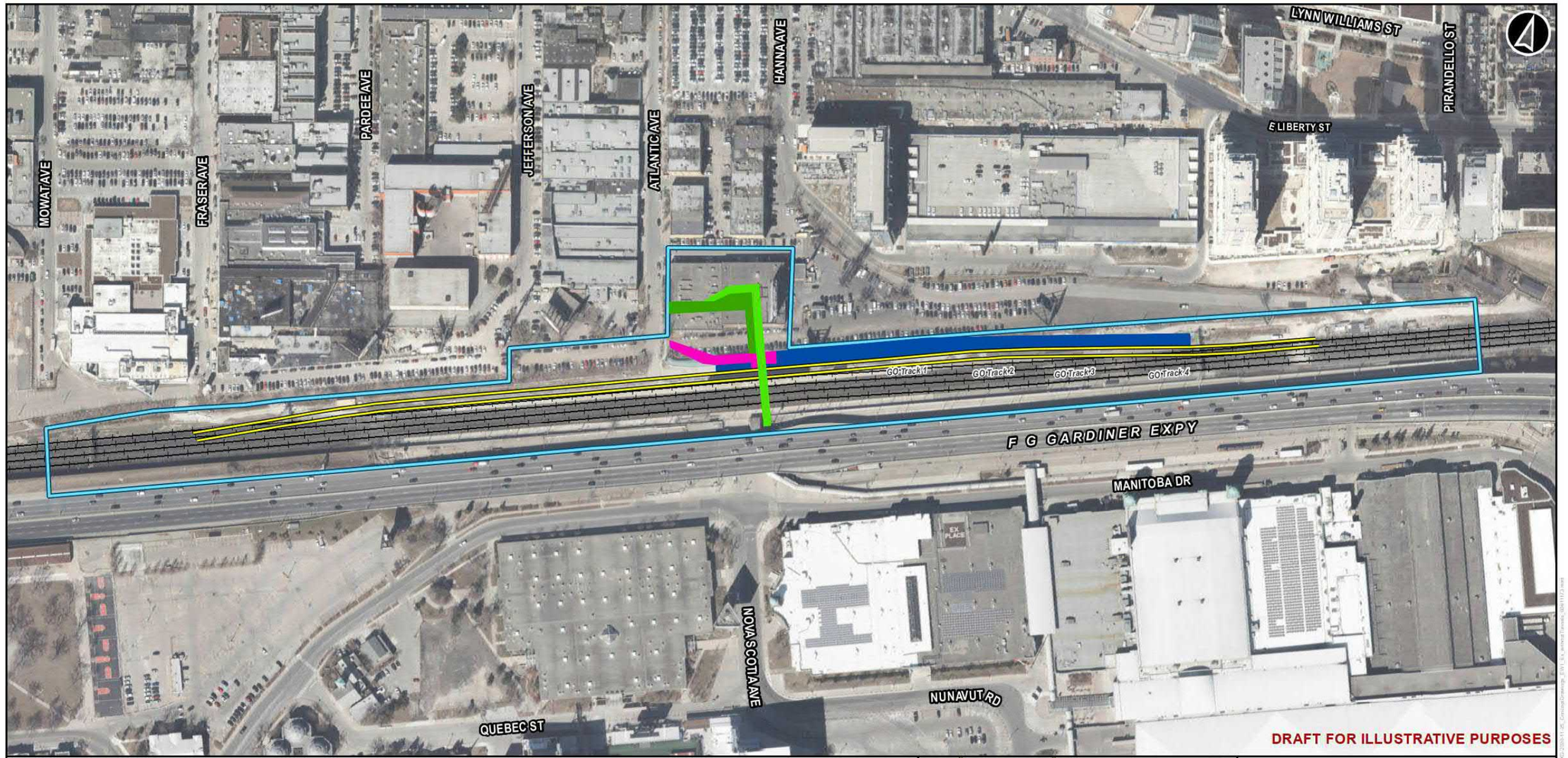
This Report has been prepared in accordance with Ontario Regulation 341/20: Ontario Line Project and contains the information outlined in **Table 1-1**.

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

Reg. Section	Requirement	Report Section
Section 8(2)2	The rationale for proceeding with the early works.	**Section 1.1**
Section 8(2)4	A description of the local environmental conditions at the site of the early works.	**Section 3**
Section 8(2)6	Metrolinx's assessment and evaluation of the impacts that the preferred method of carrying out the early works and other methods might have on the environment, and Metrolinx's criteria for assessment and evaluation of those impacts.	**Section 4**
Section 8(2)7	A description of any measures proposed by Metrolinx for mitigating any negative impacts that the preferred method of carrying out the early works might have on the environment.	**Section 4**
Section 8(2)8	A description of the means Metrolinx proposes to use to monitor or verify the effectiveness of mitigation measures proposed.	**Section 4**

Reg. Section	Requirement	Report Section
Section 8(2)9	A description of any municipal, provincial, federal or other approvals or permits that may be required for the early works.	**Section 5**

Figure 1-1: Exhibition Station Early Works Conceptual Design



1.2 Ontario Line Project Overview

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

The Project is a new approximately 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 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.

1.3 Early Works Description

1.3.1 Project Description

The Exhibition Station early works will include modifications and improvements to the existing Exhibition GO Station, including extension of the existing passenger tunnel, construction of vertical accesses, construction of a new north platform, shifting of the two northern-most GO tracks, construction of a temporary pedestrian bridge, and relocating utilities.

The Exhibition Station early works will support the future Ontario Line terminus station which will create a connection to the GO network. Exhibition Station early works components are shown in **Figure 1-2** and described in **Section 1.3.1.1** to **Section 1.3.1.3** below.

1.3.1.1 Passenger Access: Tunnels and Vertical Accesses

<u>Existing Passenger Tunnel Extension</u>

There is currently an existing and operating passenger tunnel at Exhibition Station that runs below the GO tracks and provides access between the north and south sides of the rail corridor. This existing tunnel was previously extended north of the north platform with a new head house (enclosed building above tunnel entrance) connected to Atlantic

Avenue through a covered pathway, though these structures have not been commissioned. These structures will be commissioned, along with associated infrastructure such as Closed Circuit Television, lighting, and communication systems, as part of the Exhibition Station early works. This activated access point will be in service until the new passenger tunnel extension and north entrance (see details below) are completed. At that time, the covered pathway to Atlantic Avenue will be closed, but the tunnel extension and vertical access will continue facilitating passenger access.

The existing passenger tunnel is also proposed to be extended approximately 40 m further to the north from the currently un-commissioned head house, with a new head house constructed at the new terminus. Vertical accesses will be constructed as well. This tunnel extension and new north entrance will provide continuous access to the station throughout Ontario Line construction.

Temporary Pedestrian Bridge

A temporary pedestrian bridge spanning the rail corridor will be installed, providing additional access and egress capacity for the station platforms and augmenting cross-corridor capacity to serve trips to and from Liberty Village. In addition, the bridge will reduce the potential congestion in the existing tunnel during special events at Exhibition Place and/or Ontario Place. The bridge will be aligned with the existing tunnel and its extension (described above). A temporary structure, this bridge will not be accessible, while the existing tunnel will continue to provide barrier-free access to the westbound platform and across the corridor. The bridge will be complete with all required associated infrastructure such as lighting, Closed Circuit Television and communication system. The temporary pedestrian bridge is anticipated to be in place until Ontario Line is in operation.

1.3.1.2 New North Platform and Track 1 and Track 2 Shift

A new north platform for westbound GO trains will be constructed that will include all required amenities such as platform edge tiles and curbs, lighting, signage, and platform shelters.

Track 1 and Track 2 (northern-most GO tracks) will be relocated approximately 10 metres to the north of their current locations and run south of the new north platform described above. Once the new north platform is constructed and Track 1 and Track 2 are shifted north, the existing north platform, including the existing headhouse, will be removed.

The new north platform will service GO trains temporarily. Once the Ontario Line station is constructed, the western portion of the new north platform will form part of the joint

GO-Ontario Line platform, and the eastern portion will be removed. GO trains will continue to run on Track 1, and stop at the new joint GO-Ontario Line platform. The joint platform will allow people transferring from the Ontario Line to the GO Train to walk straight from one to the other without having to go up or down a level.

1.3.1.3 Utilities

Utilities such as sewers, water, electrical, communications and gas located within the rail corridor as well as other parts of the Exhibition Station Early Works Project Footprint will be relocated to facilitate completion of the work described above, as required.

1.3.2 Early Works Project Footprint and Study Area

The Exhibition Station Early Works Project Footprint, shown in **Figure 1-2**, is defined as the area of direct disturbance associated with the early works construction activities, including anticipated required construction staging and laydown areas[2]. The Exhibition Station Early Works Project Footprint largely overlaps with the existing Lakeshore West rail corridor and Exhibition GO Station from Mowat Avenue in the west to Pirandello Street in the east and extends approximately 150 metres north of the rail corridor between Atlantic Avenue in the west to Hanna Avenue in the east. The Exhibition Station Early Works Project Footprint also overlaps with an existing building and part of a parking lot on the east side of Atlantic Avenue and immediately north of the existing Exhibition GO Station access.

For the purpose of this Report, the Exhibition Station Study Area, also shown in **Figure 1-2**, includes the Exhibition Station Early Works Project Footprint and adjacent road segments and intersections. The adjacent road segments and intersections within the Exhibition Station Study Area were identified as they meet either of the following criteria:

- Directly impacted by the early works within the Exhibition Station Early Works Project Footprint (i.e., construction of the new western passenger tunnels and new north platform is anticipated to impact Atlantic Avenue and Jefferson Avenue); or,
- Provides direct connection to Exhibition Station (i.e., Atlantic Avenue, Manitoba Drive, and Nova Scotia Avenue) and therefore may be considered as a route for heavy construction vehicles.

[2] Staging and laydown areas are areas for the temporary storage of construction equipment and materials.

The Exhibition Station Study Area assessed in this Report is specific to the traffic and transportation impact assessment. The study areas for other environmental disciplines are outlined in the Ontario Line Final Exhibition Station Early Works Report.

Figure 1-2: Exhibition Station Early Works Project Footprint and Exhibition Station Study Area

1.3.3 Construction Activities

Table 1-2 provides a description of the anticipated construction activities for the Exhibition Station early works. These typical activities serve as the basis for the assessment of construction-related potential environmental impacts. These activities may be expanded, further refined, or found to be unnecessary as the Project progresses through detailed design and construction.

Table 1-2: Anticipated Construction Activities for the Ontario Line Exhibition Station Early Works

Anticipated Construction Activity	Description	Associated Equipment
Site Preparation	▪ Mobilization of equipment and temporary facilities to the site. ▪ Clearing and grubbing of vegetation, tree removal and protection. ▪ Erection of temporary and permanent fences. ▪ Installation of environmental management features (e.g., erosion and sediment controls). ▪ Dewatering works. ▪ Demobilization. ▪ Temporary railway crossing. ▪ Temporary signs. ▪ Locates and surveys. ▪ Notices. ▪ Site specific documents (safety, approvals, permit etc.). ▪ Mobilization of construction materials currently located on site north of train tracks.	▪ Site compaction equipment and grading equipment. ▪ Vegetation removal equipment. ▪ Excavation equipment. ▪ Haulage/dump trucks. ▪ Dewatering equipment (pumps etc.). ▪ Hand tools. ▪ Surveying equipment. ▪ Flatbed truck. ▪ Forklift.
Site Servicing/ Removals/ Demolition	▪ Relocation and/or extension of services and utilities on the site, which may include both underground and aerial services and utilities (e.g., sewers, water, electrical, communications, gas). This may also involve installation of utilities within the site. Includes utilities on the rail corridor and off the rail corridor. ▪ Demolition and removal of main building at 1 Atlantic Avenue. ▪ Pedestrian tunnel installation. ▪ Removal and reinstatement railway track. ▪ Tree removal.	▪ Excavation equipment including backhoe, dump trucks, spoils removal equipment, jackhammers. ▪ Hand tools. ▪ Mobile crane. ▪ Flatbed trucks. ▪ Track stabilizer. ▪ Boom truck. ▪ Spreader for track work.

Anticipated Construction Activity	Description	Associated Equipment
Excavating and Grading	▪ Excavation and grading activities may involve earth-moving activities and stockpiling, as applicable. Excavated material will be accommodated on-site on the degree practicable; however, where necessary, surplus material will be disposed of off-site to an approved facility. ▪ Any off-site disposal shall be done in compliance with applicable regulations, including as it relates to contaminated material that may be encountered. ▪ Implement support of the existing infrastructure by way of caissons and other temporary supporting structure. ▪ Any groundwater encountered will be managed and disposed of in accordance with applicable regulations.	▪ Site compaction equipment and general grading equipment, dump trucks, soil removal equipment. ▪ Groundwater pumping equipment. ▪ Excavation equipment including backhoe, dump trucks, soil removal equipment, and jack hammers.
Construction and Rehabilitation/ Upgrade of Structures	▪ All structures will be constructed using standard civil construction techniques. ▪ Rehabilitation and upgrade of GO platforms (Exhibition GO), including mini-platform, platform curbs, etc. ▪ Construction of Ontario Line-GO pedestrian tunnel and vertical access to GO platforms (including elevators and stairwells). ▪ Relocate existing platform amenities (i.e., lighting poles, fencing, Closed Circuit Television, etc.).	▪ Foundation placement equipment. ▪ Augured piles or rammed aggregate piers. ▪ Drill rigs. ▪ Mobile cranes and hoists. ▪ Concrete trucks, pumps and vibrators, skid steer.
Construction and/or Alteration of Bridges	▪ Includes grounding and bonding. ▪ Pile installation, foundations, abutments, retaining walls, bridge girders, decking, backfilling, concrete demolition.	▪ Mobile cranes and hoists. ▪ Flatbed trucks, cranes. ▪ Augured piles or rammed aggregate piers. ▪ Drill rigs. ▪ Bulldozer and excavator. ▪ Jackhammer.

Anticipated Construction Activity	Description	Associated Equipment
Construction of Ancillary Facilities	▪ Ancillary facilities may include electrical transformer /supply equipment, parking areas, exterior yard facilities including lighting, electrification enabling facilities, platform shelters, platform canopies, utility buildings, entrance plazas/ head houses.	▪ Flatbed trucks, cranes, concrete trucks. ▪ Backhoe, pavement excavation equipment. ▪ Mobile cranes and hoists. ▪ Concrete trucks, pumps and vibrators.
Installation of Trackwork	▪ Assembly of track, ties and fastenings.	▪ Thermal welding. ▪ Tie placement (cranes, lifting equipment). ▪ Ballast placement equipment. ▪ Concrete pouring equipment.
Temporary Track Diversion	▪ Grading. ▪ Temporary drainage. ▪ Relocation/Installation of tracks. ▪ Temporary relocation of signals, if any. ▪ Clear delineation and protection between active rail service and construction work zones. ▪ Provision of GO signal overhead bridge support/protection and temporary GO ballast track protection (i.e., sheet piling).	▪ Site compaction equipment and general grading equipment, dump trucks, spoil removal equipment. ▪ Thermal welding. ▪ Tie placement (cranes, lifting equipment). ▪ Ballast placement equipment. ▪ Temporary concrete barriers.
Temporary Road Closures	▪ All road closures will follow standard traffic control management guidelines.	▪ Temporary traffic control devices such as signs, signals, barriers, traffic barrels, plate tampers.
Management of Stormwater	▪ All precipitation falling within the site will be managed as stormwater within a designed system of collection, conveyance, retention and discharge features. The system will be designed and operated in compliance with applicable standards and regulatory requirements. Surface flows within the site will be managed within the site to ensure discharge to off-site receivers (i.e., municipal storm sewers) is appropriate in terms of water quantity and quality.	▪ Site compaction equipment and general grading equipment. ▪ Groundwater pumping.

Anticipated Construction Activity	Description	Associated Equipment
Mechanical Work	▪ Installation of snow melt systems, heating and ventilation systems, plumbing work, gas lines, elevators and associated machinery, fire sprinklers and associated infrastructure, and other components associated with the early works Project structures.	▪ Hoists and cranes, trucks, hand tools, backhoe, small excavator, skid steer, welding units, compaction equipment, vibrators, concrete trucks, tampers.
Electrical Work	▪ Installation of electrical upgrades, fare equipment, Closed Circuit Television, communication system, lighting poles and fixtures, and other electrical components associated with the Exhibition Station early works.	▪ Hoists and cranes, trucks, hand tools, backhoe, small excavator, skid steer, welding units, compaction equipment, vibrators, concrete trucks, tampers.

2. Methodology

This Report documents the assessment of Exhibition Station early works construction impacts. Impacts associated with Project operations will be addressed as part of the Environmental Impact Assessment Report, under separate cover.

2.1 Local Environmental Conditions

AECOM completed a desktop background review of secondary source information to establish local traffic and transportation conditions within the Exhibition Station Study Area. The following traffic and transportation elements were qualitatively documented:

- Transportation network:
  - Roads
  - Active Transportation
  - Rail
- Transit network.

Background information and documentation relevant to the Exhibition Station Study Area is contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020)[3] prepared for the Project and was reviewed prior to commencing the traffic and transportation assessment within this Report. Desktop resources were reviewed to qualitatively determine the potential impacts on the transportation and transit networks from proposed construction activities related to the early works, which included:

- Review of City of Toronto's Open Data Portal (City of Toronto, n.d.a) to obtain mapping data related to roads, pedestrian and cyclist routes related to the Exhibition Station Study Area;
- Review of City of Toronto's Road Classification System Update (City of Toronto, 2018) and Vision Zero Mapping Tool (City of Toronto, 2020) to obtain road classification and speed information related to roads within the Exhibition Station Study Area; and,
- Review of the GO Transit website (GO Transit, 2020), VIA Rail website (VIA Rail, 2020), and Toronto Transit Commission website (Toronto Transit

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

Commission, 2020) to obtain transit schedule and route data related to the Exhibition Station Study Area.

The Ontario Line Final Environmental Conditions Report (AECOM, 2020) notes that turning movement counts and signal timing plans were not available at some intersections within the Ontario Line Study Area, and were not collected through new traffic surveys considering the uncharacteristic traffic conditions as a result of the COVID-19 pandemic. As a result of the data limitations related to the identified road network within the Exhibition Station Study Area, a quantitative level of service assessment is not included in this Report.

2.2 Impact Assessment

This early works impact assessment and development of mitigation measures and monitoring activities considered the following:

- Exhibition Station early works components as described in **Section 1.3.1**;
- The Exhibition Station Early Works Project Footprint and Exhibition Station Study Area as described in **Section 1.3.2**;
- Exhibition Station construction activities as described in **Section 1.3.3**; and,
- Local environmental conditions within the Exhibition Station Study Area as described in **Section 3**.

Mitigation measures and monitoring activities have been recommended to mitigate the identified potential negative impacts within the Exhibition Station Study Area. The results of the impact assessment are provided in **Section 4**.

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

3. Local Environmental Conditions

3.1 Transportation Network

3.1.1 Roads

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

Gardiner Expressway is an east-west expressway running immediately south of the rail tracks with a six-lane cross-section and a posted speed of 90 kilometres per hour.

Jefferson Avenue is a north-south local road with a two-lane cross-section. Between the south end of Jefferson Avenue and King Street, Jefferson Avenue has a posted speed of 30 kilometres per hour and on-street parking is prohibited on the east side of the street. On the west side of the street, on-street parking is permitted from Monday to Saturday (between 8:00 AM and 9:00 PM) and on Sundays (between 1:00 PM and 9:00 PM) and is controlled and regulated by parking machine (By-law 536-2014).

Atlantic Avenue is a north-south collector road, between King Street and Liberty Street, with a two-lane cross-section and a regulatory speed limit of 50 kilometres per hour. Between the south end of Atlantic Avenue and Liberty Street, Atlantic Avenue is a local road and has a posted speed of 30 kilometres per hour. On-street parking is prohibited on the west side of the street. On the east side, on-street parking is permitted from Monday to Saturday (between 8:00 AM and 9:00 PM) and on Sundays (between 1:00 PM and 9:00 PM) and is controlled and regulated by parking machine (By-law 536-2014).

Nova Scotia Avenue is a north-south park road with a two-lane cross-section and a posted speed of 20 kilometres per hour. Nova Scotia Avenue is a designated park road under the direct responsibility of Exhibition Place.

Manitoba Drive is an east-west park road with a two-lane cross-section and a dedicated streetcar facility which loops around the Gardiner Expressway in a one-way direction starting from the south side of the Gardiner Expressway and through the

Exhibition Loop. Manitoba Drive has a posted speed of 30 kilometres per hour. Manitoba Drive is a designated park road under the direct responsibility of Exhibition Place.

In addition to the existing roads listed above, the City of Toronto completed a Municipal Class Environmental Assessment that has recommended the construction of a new east-west road extending between Dufferin Street and Strachan Avenue (City of Toronto, n.d.b). The new road would be located on the north side of the existing rail tracks. The Environmental Study Report was completed in 2016. Currently, there is no schedule for construction (City of Toronto, n.d.b).

3.1.2 Active Transportation

Pedestrians are accommodated through sidewalks along the following streets located within the Exhibition Station Study Area:

- Manitoba Drive (sidewalk on the north side and partial sidewalk on the south side to the east of Nova Scotia Avenue. To the west of Nova Scotia Avenue, sidewalks are provided on both north and south sides);
- Atlantic Avenue (sidewalk on east side and partial sidewalk on west side);
- Jefferson Avenue (partial sidewalk on the west side only); and,
- Nova Scotia Avenue (sidewalk on the east and west sides).

In addition, painted crosswalks are provided across all legs of the intersection of Manitoba Drive and Nova Scotia Avenue, located within the Exhibition Station Study Area.

Pedestrians along Manitoba Drive, Nova Scotia Avenue, and Atlantic Avenue, as well as transit riders that alight transit vehicles at the Exhibition Loop, have direct access to the station platforms. The South Liberty Trail extends from Dufferin Street to the existing Exhibition GO Station at the south side of Atlantic Avenue. Exhibition Station provides an accessible tunnel which connects pedestrians and dismounted cyclists between either side of the platforms. Exhibition Station plays a major role as a north-south active transportation connection linking the growing Liberty Village neighbourhood to amenities and destinations south of the railway corridor.

Cyclists are not well accommodated within the Exhibition Station Study Area given the lack of dedicated cycling facilities. The only cycling provisions within the Exhibition Station Study Area are the existing bicycle parking racks and the Bike Share Toronto station on Atlantic Avenue and along Manitoba Drive at the southern entrance to Exhibition Station.

Figure 3-1 and **Figure 3-2** illustrate the location and type of pedestrian and cycling facilities provided within the Exhibition Station Study Area, respectively.

3.1.3 Rail

There are four existing rail tracks within the Exhibition Station Study Area. These rail tracks are owned by Metrolinx and currently service the following commuter train lines:

- Metrolinx Lakeshore West GO line; and,
- VIA Rail Toronto-Niagara Falls and Toronto-Windsor lines.

The identified commuter train routes are further described in **Section 3.2**. Canadian National Railway and Canadian Pacific Railway freight trains also operate on these rail tracks.

Figure 3-1: Existing Pedestrian Network Within the Exhibition Station Study Area

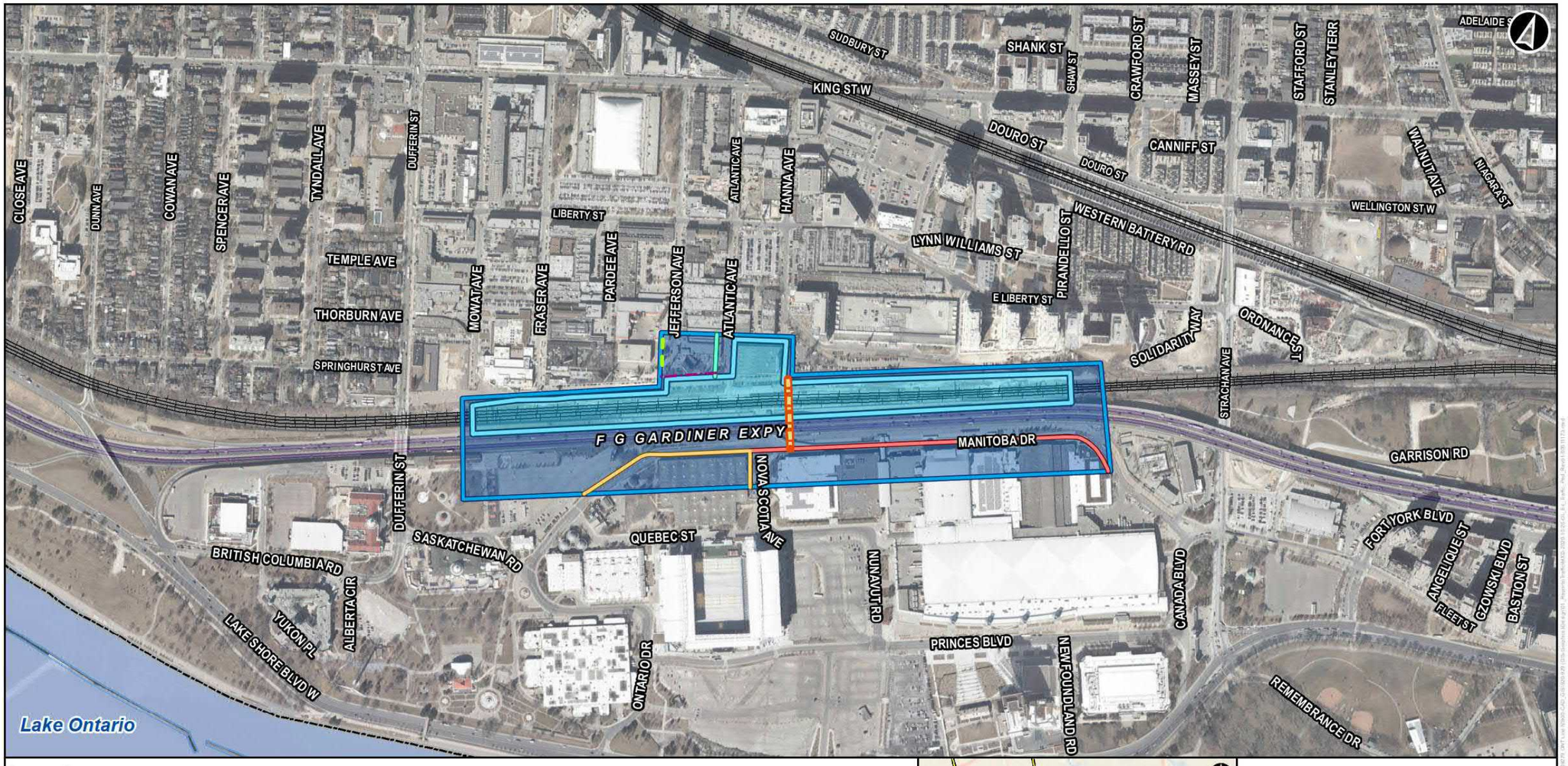
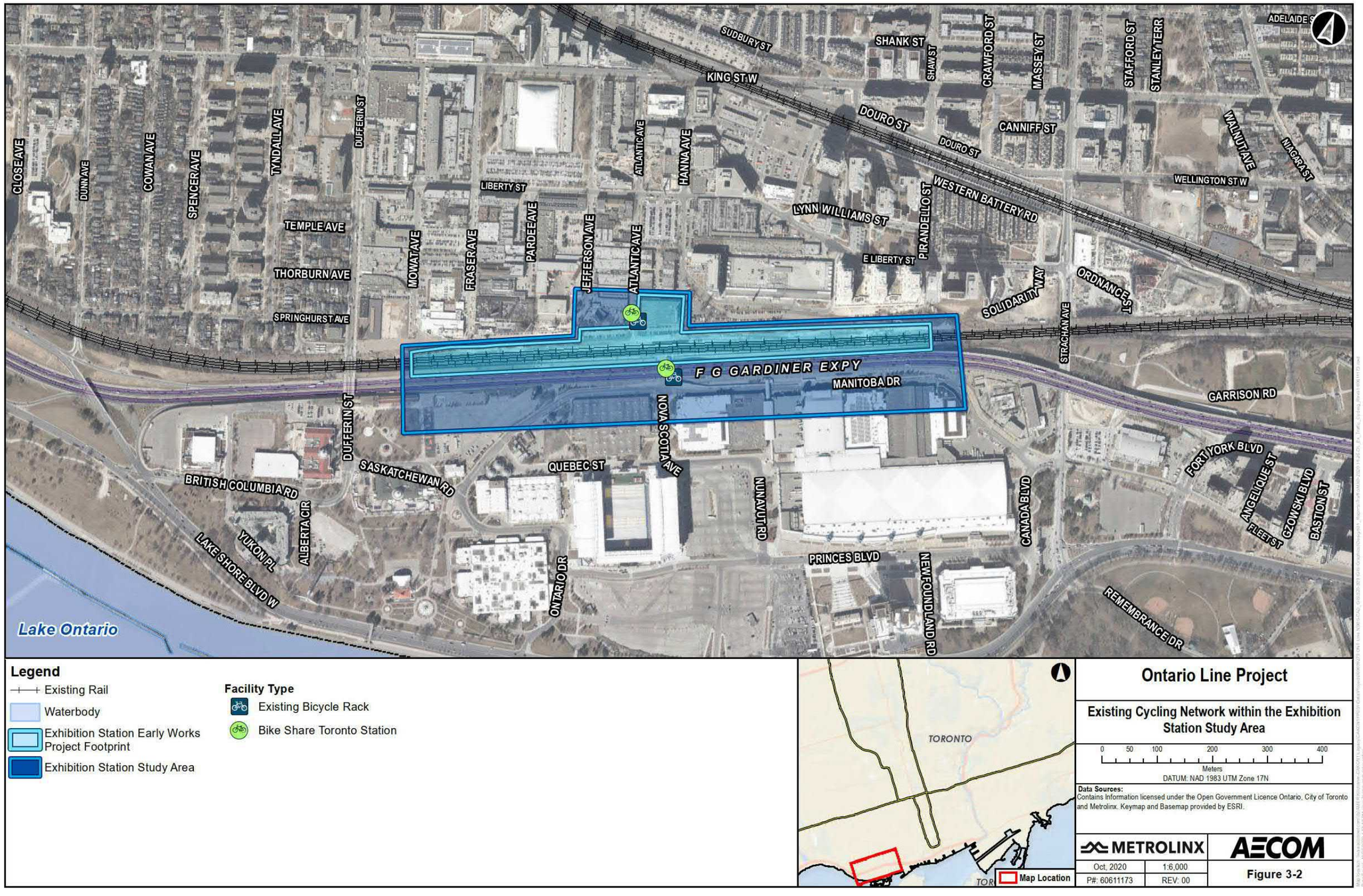


Figure 3-2: Existing Cycling Network Within the Exhibition Station Study Area



3.2 Transit Network

The existing transit routes that operate within the Exhibition Station Study Area are summarized in **Table 3-1** and illustrated in **Figure 3-3**. All transit routes described in **Table 3-1** are operated by the Toronto Transit Commission, with the exception of the Lakeshore West GO line operated by Metrolinx and the Toronto-Niagara Falls and Toronto-Ottawa lines operated by VIA Rail.

The service headways provided in **Table 3-1** represent the hours of peak transit service within the AM peak period (6:00 AM to 9:00 AM) and PM peak period (4:00 AM to 7:00 PM). Off-peak transit services are generally less frequent than AM and PM peak period services; therefore, only AM and PM peak period service headways are provided in **Table 3-1** to represent the maximum transit service that could be impacted by construction to form the transit impact assessment.

Table 3-1: Existing Transit Routes Within the Exhibition Station Study Area

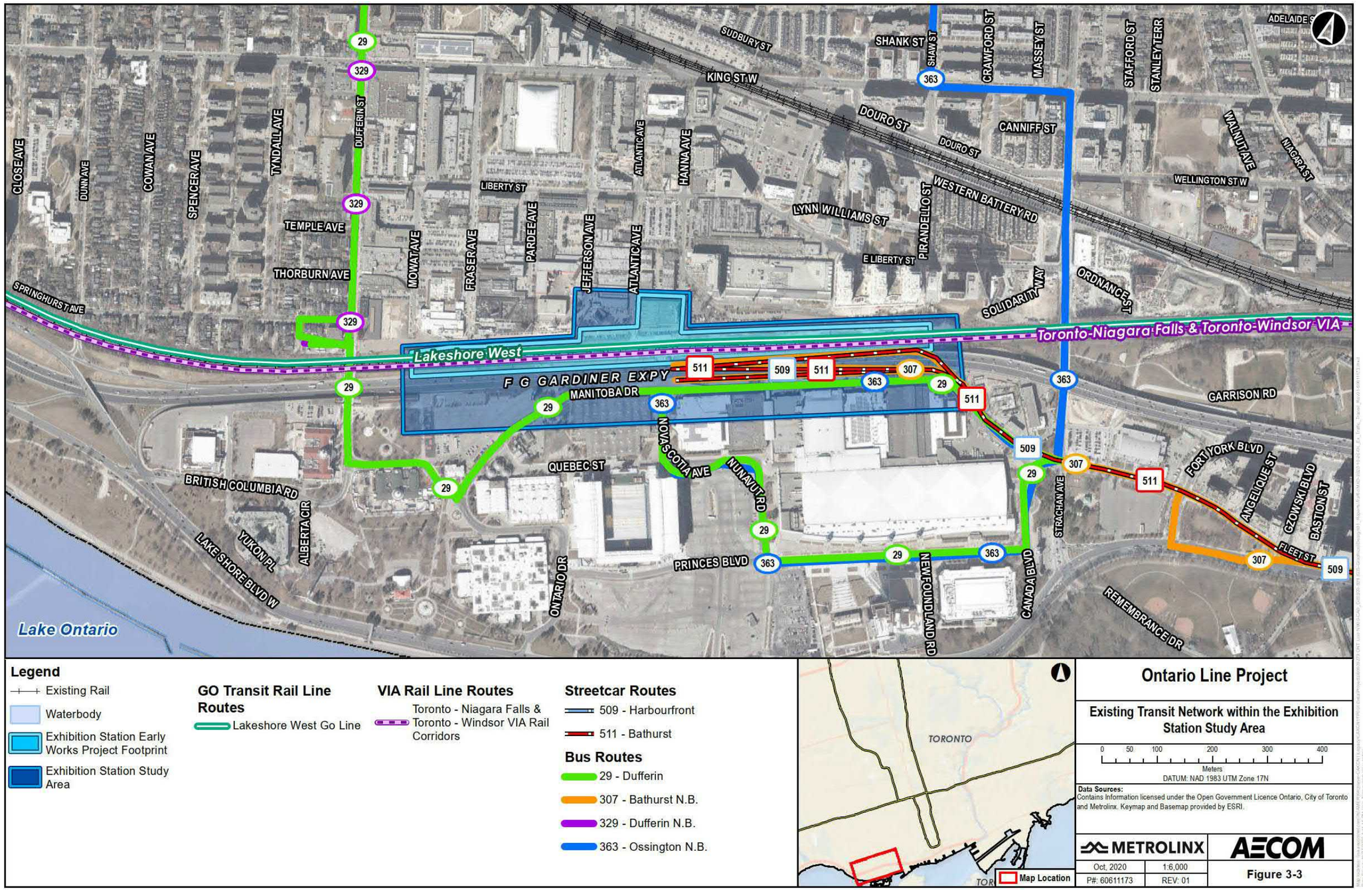
Route Number – Name and Description	Service Headway during Peak Periods
Lakeshore West GO line operates generally in an east-west direction between Union Station in Toronto and Burlington GO Station in Burlington, with some trips extending to Hamilton (Hamilton GO Centre Station and West Harbour GO Station) and Niagara Falls GO (VIA Station). The train service operates seven days a week with eastbound and westbound trains generally operating between 5:00 AM and 1:00 AM. The line has designated eastbound and westbound stops at Exhibition GO Station. GO service along Lakeshore West has recently increased its service to daily trips to Hamilton during morning and afternoon peak times. Weekend train service and daily bus connections are available to Niagara Falls. Lakeshore West GO Expansion is underway with new stations being constructed between Hamilton and Niagara Falls to eventually provide daily train service to Niagara Falls.	15-minute for the peak direction (i.e., eastbound in the AM peak hour and westbound in the PM peak hour) 30-minute for the non-peak direction
Toronto-Niagara Falls VIA Rail line operates between Union Station in Toronto and Niagara Falls Station in Niagara Falls, generally in a north-south direction. The train service operates seven days a week with a single scheduled trip in each direction. The line does not have any designated stops at Exhibition GO Station, but the southbound and northbound trains pass through Exhibition GO Station shortly after the morning departure (scheduled at 8:20 AM) from Union Station and shortly before the evening arrival (scheduled at 7:40 PM) at Union Station.	Single southbound trip each day with a scheduled departure at 8:20 AM Single northbound trip each day with a scheduled arrival at 7:40 PM
Toronto-Windsor VIA Rail line operates between Union Station in Toronto and Windsor Station in Windsor, generally in an east-west direction. The train service operates seven days a week with a single scheduled departure and arrival in each peak period. The line does not have any designated stops at Exhibition GO Station, but the eastbound and westbound trains pass through Exhibition GO Station shortly after each scheduled departure from Union Station and shortly before each scheduled arrival at Union Station.	Single departure from and arrival to Union Station during each peak period
#29C – Wilson Station-Exhibition/Princes' Gate 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. The 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 operates mainly along Manitoba Drive, Saskatchewan Road, and Dufferin Street. The closest northbound and southbound stops to Exhibition Station are located far side and nearside at the intersection of Manitoba Drive and Nova Scotia Avenue, respectively.	8-minute

Route Number – Name and Description	Service Headway during Peak Periods
#63 – Ossington bus route operates between Eglinton 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-Liberty Village)** branch which operates at all times, seven days a week, and the **63B (St Clair-Liberty Village)** short-turn branch which operates during the peak periods, from Monday to Friday only. Service between Liberty Village and St Clair Avenue is part of the 10-minute network, and operates 10 minutes or better, all day, every day. The two services operate mainly along Liberty Street, Shaw Street, and Ossington Avenue. The closest northbound stop to Exhibition Station is located nearside at the intersection of Atlantic Avenue and King Street. The closest southbound stop is located nearside at the intersection of Atlantic Avenue and Liberty Street.	4-minute in the AM peak hour 5-minute in the PM peak hour
#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 where the Exhibition Loop is the terminal and the closest stop to Exhibition Station. Bathurst Street will be closed to vehicular traffic between Front Street West and Fort York Boulevard to the end of 2020 for bridge rehabilitation. This will result in route diversion for the Route 307 buses where they would get on Front Street, Spadina Avenue, and Fort York Boulevard before getting back to Fleet Street.	30-minute
#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 route operates mainly along Dufferin Street and Manitoba Drive where the Exhibition Loop is the terminal and the closest stop to Exhibition Station.	30-minute
#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 route operates mainly along Ossington Avenue, Strachan Avenue, and Manitoba Drive where the Exhibition Loop is the terminal and the closest stop to Exhibition Station.	30-minute

Route Number – Name and Description	Service Headway during Peak Periods
#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 minutes or better service, all day, every day. The streetcar route operates mainly along Queens Quay West, Fleet Street, and Manitoba Drive. The Exhibition Loop is the terminal and the closest stop to Exhibition Station.	6-minute in the AM peak hour 8-minute in the PM peak hour
#511 – Bathurst streetcar operates between Bathurst Station on Line 2 (Bloor-Danforth) and Exhibition Loop, generally in a north-south direction. One 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 minutes or better service all day, every day. The streetcar route operates along Bathurst Street, Fleet Street, and Manitoba Drive where the Exhibition Loop is the terminal and the closest stop to Exhibition Station. Streetcars have been replaced by buses between Bathurst Station and Exhibition Loop until 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 Route 511 buses where they would get on Front Street, Spadina Avenue, and Fort York Boulevard before getting back to Fleet Street.	3-minute

Sources: GO Transit, 2020; VIA Rail, 2020; and Toronto Transit Commission, 2020. Accessed in September 2020.

Figure 3-3: Existing Transit Network Within the Exhibition Station Study Area



4. Potential Impacts, Mitigation Measures and Monitoring Activities

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

Potential impacts to traffic and transportation operations as a result of the Exhibition Station early works have been assessed and are presented in **Table 4-1**, in addition to mitigation measures and monitoring activities.

The Exhibition Station early works may require temporary lane restrictions of nearby roads (i.e., Manitoba Drive, Atlantic Avenue, and Jefferson Avenue), which would result in impeding traffic flow and increasing the average delay of vehicles, including emergency vehicles, travelling in the Exhibition Station Study Area. The extent of such implications will depend on the level of encroachment into the right-of-way of the noted adjacent roads. It should be noted that the Exhibition Station early works are not anticipated to result in any full road closures. Impacts to traffic operations on the Gardiner Expressway are not anticipated, as there are no ramps that provide access to/from the identified roads within the Exhibition Station Study Area.

It is expected that heavy construction vehicles will be travelling within the Exhibition Station Study Area, considering the extent of excavation and grading activities required. Depending on the available haul routes, the addition of these heavy vehicles to the road network will impact traffic operations resulting in increased vehicular delays and queue lengths, especially at intersections where construction traffic is required to make left-turning movements. Heavy construction vehicles are expected to be accommodated at off-road launch sites, and therefore it is not anticipated that these vehicles will occupy curb lanes of roads within the Exhibition Station Study Area.

Other planned projects (e.g., capital projects, local development, etc.) nearby with construction timelines that potentially overlap with the Exhibition Station early works may result in impacts to the transportation network and its road users within the Exhibition Station Study Area.

Table 4-1: Potential Impacts, Mitigation Measures and Monitoring Activities for the Exhibition Station Early Works

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Transportation Network – Roads	▪ Impeding traffic flow and increased average delay of vehicles, including emergency vehicles, due to temporary lane restrictions of nearby roads (e.g.., Manitoba Drive, Atlantic Avenue, and Jefferson Avenue). ▪ Heavy construction vehicle traffic may impact traffic operations resulting in increased vehicular delays and queue lengths, especially at intersections where construction traffic is required to make left-turning movements. ▪ Potential overlapping construction timelines with other planned projects (e.g., local development) nearby may result in impacts to the transportation network and its road users. ▪ Potential impacts to on- and/or off-street parking along Atlantic Avenue.	▪ A quantitative traffic impact assessment will be completed, as required, as detailed design progresses to consider vehicular traffic impacts as a result of the Exhibition Station early works, and develop and implement a Transit and Traffic Management Plan(s), which could include temporary changes to intersection lane configurations, traffic signal timing optimization, modifications to existing signal timing plans, etc. The Transit and Traffic Management Plan(s) will also address specific emergency services requirements in consultation with the City of Toronto. ▪ Traffic signal timing optimization may be assessed/implemented to increase capacity of affected intersections and to aid in the movement of traffic. Traffic signal timing adjustments would require coordination between Metrolinx and City of Toronto, and will be undertaken if required, to determine appropriate changes to traffic signal timings. ▪ Develop communication plans, including media and online notifications and advisory signage through portable variable message signs, to alert local traffic of any upcoming closures. ▪ Consider scheduling construction activities during off-peak periods and weekends to minimize disruptions to road users during the critical peak periods. ▪ Co-ordinate with the City of Toronto, appropriate agency and/or developer regarding other ongoing construction projects (e.g., Liberty New Street, if applicable) when scheduling the early works activities to maintain the mobility of all road users (i.e., avoid closure of parallel corridors). ▪ Consult with the City of Toronto, local school board(s), and Exhibition Place during construction planning including consideration of route detours. ▪ Minimize the duration and extent of disruptions to roads, property accesses and on-/off-street parking to the extent possible. ▪ Consult with the City of Toronto and the Toronto Parking Authority/private parking lot owner(s) should on-/off-street, public and/or private parking be affected.	▪ The effectiveness of the Transit and Traffic Management Plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.
Transportation Network – Active Transportation	▪ Potential increased walking distances may result in compromising pedestrians' convenience. ▪ Traffic congestion along Atlantic Avenue and other adjacent roads, as a result of the potential lane closures, could increase pedestrians' exposure to traffic. ▪ Potential removal/relocation of the existing bicycle parking racks along Atlantic Avenue may impact the convenience of cyclists in accessing the station. ▪ Disruptions to access through the existing pedestrian tunnel are not anticipated.	▪ Co-ordinate with the City of Toronto to minimize the interference with pedestrians and cyclists. This may include fencing, hoarding, shared-lane markings, signals, wayfinding signs, and lighting as required to provide pedestrians and cyclists with safe, accessible, and continuous routes. ▪ Include safety precautions for nearby schools (e.g., having school crossing guards at nearby intersections) in the Transit and Traffic Management Plan(s) in consultation with the City of Toronto, local school board(s), and Exhibition Place. ▪ If required, ensure any modifications to pedestrian crossing distances at signalized intersections are reflected in revised pedestrian clearance timings. ▪ Any temporary pedestrian facilities including temporary or relocated Toronto Transit Commission transit stops will be designed to meet Toronto Transit Commission accessibility standards. ▪ Implement flagging where construction vehicles are present to ensure construction vehicle operators are aware of pedestrian and vehicular traffic within the construction area. ▪ If required, existing bicycle parking racks along Atlantic Avenue will be relocated to the nearest feasible location to the northern entrance of Exhibition Station. ▪ Minimize the duration and extent of disruptions to roads and property accesses to the extent possible.	▪ The effectiveness of the Transit and Traffic Management Plan(s) will be monitored throughout the construction period and adjustments will be made based on actual field observations, as needed.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
		▪ Consult the National Association of City Transportation Officials' Bike Share Toronto Siting Guide (National Association of City Transportation Officials, 2016) for location and design considerations if relocation of any Bike Share Toronto stations is required as part of the Exhibition Station early works. Where possible, Bike Share Toronto stations will remain at their current location.	
Transportation Network – Rail	▪ Short-term track closures, if implemented, may disrupt existing commuter and freight rail operations. ▪ No interruptions anticipated to GO Transit service.	▪ Consult with rail operators with current service along the rail corridor (i.e., VIA Rail, Canadian National Railway, and Canadian Pacific Railway) to assess how track closures would impact their service and co-ordinate temporary schedules to accommodate all rail services on the open tracks. ▪ No interruptions anticipated to GO Transit service.	▪ The effectiveness of the Transit and Traffic Management Plan(s) will be monitored throughout the construction period. Adjustments to the construction staging plans and Transit and Traffic Management Plan(s) will be made based on actual field observations, as needed.
Transit Network	▪ Impacts to surface transit routes (i.e., bus and streetcar) within the Exhibition Station Study Area are not anticipated.	▪ No mitigation measures are recommended.	▪ Transit services will be monitored through actual field observations throughout the construction period and mitigation measures will be considered, as needed.

The Exhibition Station early works may require temporary realignment of sidewalks along Atlantic Avenue, which would result in increased pedestrian walking distances and times and therefore compromised convenience. Increased traffic along Atlantic Avenue and other adjacent roads as a result of the potential lane closures could increase pedestrians' exposure to vehicular traffic.

There are no dedicated cycling facilities within the Exhibition Station Study Area; however, Exhibition Station early works activities may result in the removal/relocation of the existing bicycle parking racks and the Bike Share Toronto station on Atlantic Avenue. This would impact cyclists' convenience and may result in reduced modal share.

The Exhibition Station early works may require short-term track closures which may temporarily disrupt existing commuter (i.e., Lakeshore West GO Line, Toronto-Niagara Falls VIA Rail line, and Toronto-Windsor VIA Rail line) and freight rail operations.

The Exhibition Station early works are not anticipated to impact operations of any of the existing surface transit routes (i.e., existing bus and streetcar routes) within the Exhibition Station Study Area.

Table 4-1 provides mitigation measures and monitoring activities to be implemented for potential impacts that may result from the Exhibition Station early works.

5. Permits and Approvals

No federal or provincial permits and approvals related to traffic and transportation are required for the Exhibition Station early works.

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

6. References

AECOM, 2020:
Ontario Line Final Environmental Conditions Report. Prepared for Metrolinx.

City of Toronto, n.d.a:
City of Toronto Open Data Portal. Available: https://www.toronto.ca/city-government/data-research-maps/open-data/

City of Toronto, n.d.b:
Infrastructure & Construction Projects. Liberty Village New Street Environmental Assessment. Available: https://www.toronto.ca/community-people/get-involved/public-consultations/infrastructure-projects/libertynewst/

City of Toronto, 2018:
City of Toronto Road Classification System Update. Available: https://www.toronto.ca/services-payments/streets-parking-transportation/traffic-management/road-classification-system/2012-update-to-the-road-classification-system/

City of Toronto, 2020:
Vision Zero Mapping Tool. Available: www.toronto.ca/services-payments/streets-parking-transportation/road-safety/vision-zero/safety-measures-and-mapping

GO Transit, 2020:
Trip Planning. See Schedules. Available: https://www.gotransit.com/en/trip-planning/seeschedules

LEA Consulting Ltd., 2016:
Liberty New Street Municipal Class Environmental Assessment. Prepared for the City of Toronto. Available: https://www.toronto.ca/wp-content/uploads/2018/01/96cd-Liberty-New-Street-ESR-web2-part1.pdf

National Association of City Transportation Officials, 2016:
Bike Share Station Siting Guide. Available: https://nacto.org/wp-content/uploads/2016/04/NACTO-Bike-Share-Siting-Guide_FINAL.pdf

Toronto Transit Commission, 2020:
Toronto Transit Commission Schedules and Maps. Available: https://ttc.ca/Routes/index.jsp

VIA Rail, 2020:

Explore our destinations. Ontario and Quebec. Available: https://www.viarail.ca/en/explore-our-destinations/trains/ontario-and-quebec