Metrolinx

Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Environmental Project Report

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Executive Summary

E.1 Introduction

The purpose of the Union Station Rail Corridor (USRC) East Enhancements Project is to provide additional mainline track capacity, increased train storage capacity and increased track speed capabilities along the east side of the USRC. This Project will facilitate infrastructure improvements to support the planned increases in train and passenger volumes in the USRC as part of the transformational Regional Express Rail (RER) program.

The USRC East Enhancements Project includes the following components:

- New track on the north side (Track E0);
- New tracks on the south side (Tracks E7 and E8);
- Wilson Yard Layover Facility;
- Bridge extensions:
  - Lower Jarvis Street (south side only)
  - Lower Sherbourne Street (north and south sides)
  - Parliament Street (north side only)
  - Cherry Street (north side only)
- Retaining walls on the north side of the rail corridor; and
- Relocation of the Cherry Street Interlocking Tower to accommodate Track E0.

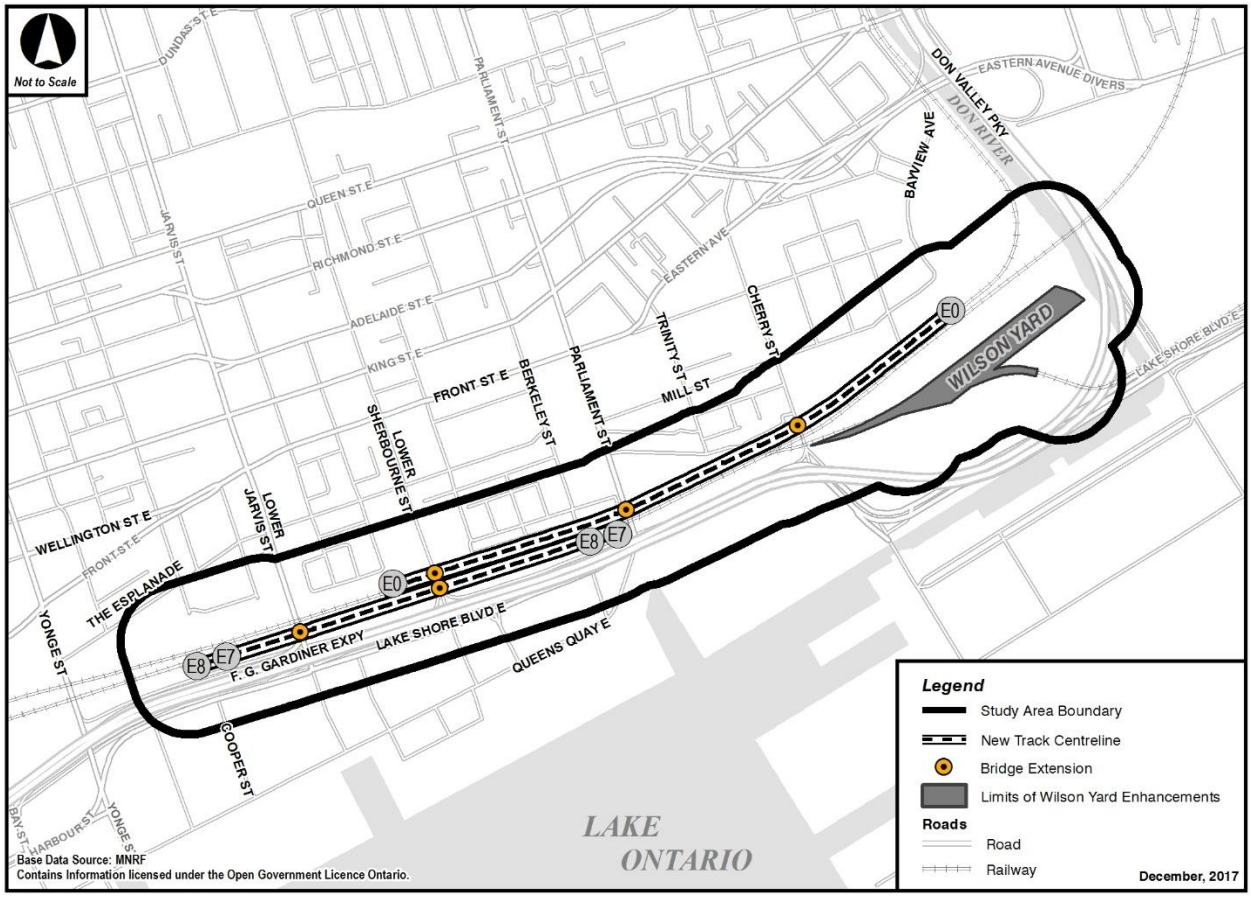
Figure E-1 shows the USRC East Enhancements Project encompassing the existing rail right-of-way (ROW) from east of Yonge Street to west of Corktown Common Park (approximately Mile 0.35E to Mile 1.51E). The Study Area for this Transit Project Assessment Process (TPAP) includes a 120 m buffer from the Limits of Disturbance (LOD). The LOD are where project effects have a potential to occur.

E.2 Study Process

This Environmental Project Report (EPR) was prepared in accordance with *O. Reg. 231/08, Transit Projects and Metrolinx Undertakings* (Transit Projects Regulation). By following the TPAP for certain approved projects, the Transit Projects Regulation exempts the proponent of the transit project (i.e., Metrolinx) from the requirements under Part II of the *Environmental Assessment Act*.

Proponents of a project must follow the prescribed steps in the TPAP within specified time frames, and provide adequate opportunities for review and comment by a broad range of stakeholders, culminating with the Minister of the Environment and Climate Change's decision within six months of the start of the process. Once the TPAP has been completed to the satisfaction of the Minister of the Environment and Climate Change, transit project proponents may file a Statement of Completion and proceed with design and construction processes.

Figure E-1: Study Area



E.3 Project Description

The main elements of the Preferred Design include the extension of the North Service Track to form a new Track (Track E0), the addition of two new tracks (E7 and E8) and increased storage capacity at the Wilson Yard Layover Facility. See **Figure E-1**.

Track E0

Track E0 is proposed to mitigate congestion within the USRC through the additional mainline capacity and operational flexibility. The existing North Service Track currently

connects into Track E1 approximately 30 m west of Lower Sherbourne Street (approximately Mile 0.73E). The new mainline will extend the existing North Service Track east, parallel to Track E1 across Lower Sherbourne Street, Parliament Street and Cherry Street. To facilitate extension of the Cherry Street Bridge and to create adequate clearance for the new track, the existing Cherry Street Interlocking Tower will need to be relocated.

Construction of Track E0 will require retaining walls along the majority of the north side of the new track to facilitate grading of the new track and associated access gates. The retaining walls will be built along the existing property line from east of Lower Sherbourne Street to approximately 285 m west of the Don River, which will provide the necessary space for the new track. The retaining wall height ranges from 1.5 m to 4.5 m. Existing fences and retaining walls along the property line will be replaced with the proposed retaining wall. The design of public-facing retaining walls and corridor-facing retaining walls that may be notable from a public realm perspective has been reviewed by the Metrolinx Design Review Panel (MDRP) in co-ordination with the City of Toronto and Waterfront Toronto.

Construction of Track E0 will require extensions to the northern sections of the Lower Sherbourne Street, Parliament Street and Cherry Street Bridges with associated retaining and supporting structures. These bridges are considered Provincial Heritage Property as they have cultural heritage value in accordance with *O. Reg. 9/06*. Heritage Impact Assessments will be undertaken in Detailed Design phase to further guide the design of these bridges.

For each of these bridges, retaining walls will be required to facilitate the extended bridges. The wing walls will be tied into the retaining walls designed to maintain the existing access roads/ramps to the Metrolinx rail corridor while minimizing impacts to adjacent properties. Bents, a type of pier, are vertical structural components of bridges used to support the bridge beams and/or girders, are usually made of reinforced concrete or steel. Bents along the sidewalks will be extended at each side, east and west, under the new structure. The middle bent will not be extended, creating a single span across all traffic lanes. The wing walls from each bridge will connect to the new retaining walls along the ROW of the property (i.e., no gap between wing wall and retaining wall). The extensions will be fitted with the existing structure for consistency in profile and integration. The joints between the new and existing structures will be sealed against any leakage.

Enhancements to the underside of the bridges, such as improved lighting, architectural finishings and other public realm improvements, are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto to improve the pedestrian experience and to provide a better connection

between the waterfront and the downtown. These enhancements will be further refined during Detailed Design phase.

The majority of the proposed USRC East Enhancements Project utilizes existing Metrolinx property within the corridor. In certain sections of the Study Area, portions of private properties and public lands will need to be acquired to accommodate Track E0.

Tracks E7 and E8

Tracks E7 and E8 are proposed to connect existing Tracks 13 and 14 in Union Station to future track realignments proposed for the existing Don Yard to mitigate congestion within the USRC. Tracks E7 and E8 will connect to existing Tracks 13 and 14 west of Lower Jarvis Street at approximately Mile 0.35E and connect to future track realignments west of Parliament Street at approximately Mile 0.9E.

The length of the new Tracks E7 and E8 from the tie-in point with the existing tracks to the eastern extent is approximately 850 m. The construction of Tracks E7 and E8 will occur entirely in the Metrolinx ROW. The new E7 and E8 tracks will require extension to the southern sections of the bridges over Lower Jarvis Street and Lower Sherbourne Street and associated retaining and supporting structures. These bridges are considered Provincial Heritage Property as they have cultural heritage value in accordance with *O. Reg. 9/06*. Heritage Impact Assessments will be undertaken in Detailed Design phase to further guide the design of these bridges.

To accommodate the Tracks E7 and E8 expansion work, both the Lower Jarvis Street Bridge and the Lower Sherbourne Street Bridge must be extended to the south end of the existing structures. The wing walls from the bridge will connect to the new retaining walls, where applicable along the ROW of the property (i.e., no gap between wing wall and retaining wall). The extensions will be tied into the existing structure for consistency in profile and integration. The joints between the new and existing structures will be sealed against any leakage.

Construction of Tracks E7 and E8 at the south bridge extension at Lower Jarvis Street may require a retaining wall to facilitate the use of the Metrolinx ROW in this area. Should the retaining wall be required, the tie-in will be co-ordinated with the Lower Jarvis Street Bridge wing wall. The status of this work will be confirmed during Detailed Design.

Enhancements to the underside of the bridges, such as improved lighting, architectural finishings and other public realm improvements, are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto to improve the pedestrian experience and to provide a better connection

between the waterfront and the downtown. These enhancements will be further refined during Detailed Design.

Wilson Yard Layover Facility

There are currently three rail tracks south of the existing Don Yard known as the Wilson Yard Layover Facility, used for holding miscellaneous freight cars. Upgrades to the Wilson Yard Layover Facility tracks will extend the Don Yard south providing additional storage and layover capacity in the USRC in order to provide storage of GO trains. The Wilson Yard Layover Facility will include up to five new storage tracks and reconfiguration of the existing three tracks (i.e., up to eight storage tracks in total) with capacity for 12 cars. The new tracks will be connected into the existing Don Yard's track layout and will be laid out parallel to the existing Don Yard tracks. Adding this additional track capacity will require realignment of and shifting the existing Harbour Lead Track to the south.

Metrolinx will need to acquire property to facilitate expansion of the Wilson Yard Layover Facility, including substation, wayside power cabinets, compressed air system, site lighting and security improvements.

E.4 Existing Conditions

Natural Environment

The Study Area provides limited wildlife habitat given its disturbed and urbanized nature. There are no Environmentally Significant Areas, Areas of Natural and Scientific Interest, or provincially or locally significant wetlands in the Study Area. The Study Area is within the jurisdiction of the Toronto and Region Conservation Authority. The same few vegetation communities that are commonly encountered in urban settings were identified along the length of the USRC during the ecological land classification (ELC) surveys.

There are no watercourse crossings identified for the USRC East Enhancements Project. The Don River is located just outside of the Study Area to the east.

The following bird and bat Species at Risk and Species of Conservation Concern (SOCC) have the potential to occur within the Study Area based on the presence of suitable habitat: Barn Swallow; Common Nighthawk; Eastern Wood-pewee; Peregrine Falcon; and Chimney Swift. No suitable bat cavity trees or hibernacula have been identified in the Study Area.

Soils and Groundwater

According to the MNRF (2015) soils within the Study Area are classified as urban soils. The contaminants of concern potentially present near in the Study Area are mostly associated with the composition of lakefill materials, industrial operations including underground and aboveground storage tanks, as well as with historical harbour operations. These may include petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), volatile organic compounds (VOC), various metals, and polychlorinated biphenyls (PCB).

The Study Area is located in an Event Based Area (EBA), which is an area within a watershed where a spill could pollute the drinking water supply because of sanitary sewers, sewage treatment plants or pipelines that are close to rivers, streams or other water bodies.

A review of the Ministry of the Environment, Conservation and Parks (MECP, formerly known as the Ministry of the Environment and Climate Change, MOECC) Water Well Database was completed within a radius of 500 m from the proposed track expansions (E0, E7 and E8) and the Wilson Yard Layover Facility. A total of 1,170 water well records were found within the search area. A review of the information within the well records indicates that the majority of wells extend to a depth of less than 10 m and are used for the purpose of monitoring/test boreholes and dewatering.

The depth to the water table was characterized by reviewing the static water level recorded in the MECP water well records. Thirty-eight (38) records were identified that report a static water level. The static water levels within these well records range between about 0.6 m and 6.0 m Below Ground Surface. Static water levels may fluctuate considerably in response to changes in nearby pumping/dewatering activities, precipitation patterns and seasonal fluctuations. The large number of MECP water well records with dewatering well use indicates the presence of a shallow groundwater table within the Study Area. Given the close proximity, the shallow groundwater table may be hydraulically connected to Lake Ontario.

Air Quality

Local air quality impacts were assessed by estimating contaminant concentrations at representative sensitive and critical receptors within the Study Area. Current/Existing Conditions were investigated for the year of 2016. It was found that maximum concentrations are below air quality threshold levels with the exception of acrolein (24-hr), benzene (annual), benzo(a)pyrene (24-hr and annual), and $PM_{2.5}$ (annual). The GO rail network's current impact on local air quality is small, and far overshadowed by impacts from roads and background conditions.

Noise and Vibration

The baseline noise levels are typical of an urban environment, where noise levels are dominated by man-made noise sources, including road traffic. A summary of key baseline measurement data at two sample locations adjacent to the rail corridor is provided below:

Table E-1: Summary of Baseline Noise and Vibration Monitoring Data

Location	Monitoring Dates	**Noise** Existing Daytime Noise (dBA) Leq,07:00-23:00	**Noise** Existing Night-time Noise (dBA) Leq,23:00-07:00	**Vibration** Existing Average Daily Maximum Root Mean Square Velocity (RMSV) (mm/s) *
NV1 - Track Section near Lower Sherbourne Street (Gate LE31)	November 1, 2016 – November 8, 2016	65.5	60.9	0.122
NV2 - Track Section near Cherry Street (Gate LE51)	November 1, 2016 – November 8, 2016	67.3	61.1	0.508

Note: * RMSV estimated from measured Peak Particle Velocity (PPV) data assuming a crest factor of 4. Crest factor is the ratio of PPV to maximum RMS amplitude, which is usually 4 to 5 for ground-borne vibration from trains (FTA, 2006).

Both vibration measurements are representative of the locations at which they were recorded, but levels at residential buildings would be lower as they are further from the rail corridor.

Land Use and Planning Policies

Land use designations within the Study Area include:

- Regeneration Areas both north and south of the rail corridor;
- Apartment Neighbourhoods, including low, mid-rise residential apartments between Lower Jarvis Street and Parliament Street and high-rise residential apartments between Parliament Street and Cherry Street;
- Parks and Natural Areas east of Cherry Street;
- Mixed Use Areas north of the GO Transit Rail Corridor; and
- Utility Corridors.

There are a variety of policies that support this Project. The most directly relevant policies are described below:

The Big Move (2008) and The 2041 Regional Transportation Plan (2041 RTP)

Metrolinx manages transportation planning within the GTHA. The Regional Transportation Plan (entitled “The Big Move” Transforming Transportation in the Greater Toronto and Hamilton Area) was adopted on November 28, 2008. The Big Move contains a vision, goals and objectives for the future in which the GTHA is seamless, co-ordinated, efficient, equitable and user-centered. A Technical Update was prepared to refine certain elements of the plan and fully integrate the GO 2020 10-year plan within the longer term transportation goals and objectives of The Big Move. The Technical Update was approved in February 2014 by Metrolinx’s Board of Directors.

The 2041 Regional Transportation Plan (2041 RTP) guides the work to transform the transportation system in the GTHA. It is a blueprint for creating an integrated multimodal regional transportation system that will serve the needs of residents, business and institutions.

City of Toronto Official Plan (July, 2015)

This Official Plan is in effect for the lands to the north of the USRC from Yonge Street to Cherry Street, within the Study Area. Key principles and visions from the Official Plan include: vibrant neighbourhoods that are a part of complete communities; a comprehensive and high quality affordable transit system to allow people to move around the City quickly and conveniently; a strong and competitive economy; green spaces; recreational opportunities; connectivity to the waterfront; and interesting architecture and urban design (City of Toronto, 2015). The Official Plan acknowledges the collaboration required with the provincial government and Metrolinx regarding regional transportation and growth.

The City of Toronto’s Official Plan includes policies related to the waterfront. In particular, the Official Plan seeks to improve connectivity between the waterfront and the downtown, primarily by addressing the barrier effect posed by the rail corridor, the Gardiner Expressway, and Lake Shore Boulevard.

Former City of Toronto Official Plan (1993) and Central Waterfront Secondary Plan (November, 2007)

The former City of Toronto Official Plan, along with the Metropolitan Toronto Plan (refer to **Section 4.6.2.7**) are the in-force policy documents for the Central Waterfront including: East Bayfront (with the exception of 162 Queens Quay East), Keating Channel West (with the exception of 351-369 LSB-E) and West Don Lands.

Secondary Plans and Precinct Plans

The Study Area covers two Secondary Plans:

- King-Parliament Secondary Plan (2006); and
- Central Waterfront Secondary Plan (CWSP, 2007).

The Study Area is addressed within six Precinct Plans:

- Lower Yonge Precinct Plan;
- Keating Channel Precinct Plan;
- East Bayfront Precinct Plan;
- Villiers Island Precinct Plan;
- West Don Lands Precinct Plan; and
- Unilever Precinct Plan.

Traffic and Transportation

The Traffic and Transportation Assessment completed for this Project shows that the majority of intersections and related traffic movements are currently operating below critical thresholds. The following movements and intersections were identified as operating at a Level of Service (LOS) E or F, or a v/c ratio greater than 1.0, meaning that current conditions are congested:

- Front Street/Wellington Street & Church Street
  - Southbound through (LOS ‘F’ with v/c ratio of 1.00) (PM Peak Hour)
  - Eastbound through (LOS ‘F’ with v/c ratio of 0.99) (PM Peak Hour)
- Cherry Street & Front Street
  - Northbound right (LOS ‘E’ with v/c ratio of 0.41) (PM Peak Hour)
- Yonge Street & Lake Shore Boulevard E (Eastbound)/Harbour Street (South Intersection)
  - Eastbound left (LOS ‘F’ with v/c ratio of 1.03) (AM Peak Hour)
- Lower Jarvis Street & Lake Shore Boulevard E
  - Eastbound left (LOS ‘E’ with v/c ratio of 0.89) (PM Peak Hour)
  - Eastbound through (LOS ‘F’ with v/c ratio of 0.94) (PM Peak Hour)
  - Northbound left-through-right (LOS ‘E’ with v/c ratio of 0.55) (PM Peak Hour)
  - Southbound left-through (LOS ‘E’ with v/c ratio of 0.79) (AM Peak Hour)

- Lower Sherbourne Street & Lake Shore Boulevard E
  - Southbound through-right (LOS 'E' with v/c ratio of 0.59) (AM Peak Hour)
  - Southbound through-right (LOS 'E' with v/c ratio of 0.74) (PM Peak Hour)
- Lake Shore Boulevard E & Parliament Street
  - Southbound through-right (LOS 'E' with v/c ratio of 0.64) (AM Peak Hour)
  - Southbound through-right (LOS 'E' with v/c ratio of 0.88) (PM Peak Hour)
- Lake Shore Boulevard E & Cherry Street (North intersection)
  - Southbound left-right (LOS 'F' with v/c ratio of 0.96) (AM Peak Hour)
  - Southbound left-right (LOS 'F' with v/c ratio of 0.91) (PM Peak Hour)

Of the four rail crossings, pedestrian movements are highest along Lower Jarvis Street, while the greatest numbers of cyclists use Lower Sherbourne Street.

Utilities

The below utility owners have been identified to be in conflict with the bridge extensions:

Table E-2: Utilities within the Study Area

Utility Type	Company Name
Power, Cables, Conduits and Lighting	▪ Hydro One Networks Inc.(power) ▪ Toronto Hydro Corporation (power) ▪ CN Railway Company (power) ▪ Metrolinx (power cables)
Gas and Oil	▪ Enbridge Gas Distribution Inc. (gas) ▪ Metrolinx (gas line-feed from Enbridge)
Potable Water	▪ City of Toronto (water service)
Communications	▪ Bell Canada (telephone lines and fibre optic cable) ▪ 360 Communication (internet service) ▪ Rogers Communications Inc. (fibre optic cable) ▪ Sprint Corporation (fibre optic cable) ▪ TELUS Corporation (fibre optic cable) ▪ CN Railway Company (fibre optic cable) ▪ CN Railway Company (signal cables) ▪ Cogeco Inc. (fibre optic cable) ▪ Metrolinx (signal cables) ▪ Beanfield Metroconnect (fibre optic cable) ▪ Zayo Group, formerly Allstream (fibre optic cable)
Sewers and Drains	▪ City of Toronto

Cultural Environment

The four Subway bridges (Lower Jarvis Street, Lower Sherbourne Street, Parliament Street, and Cherry Street) are Provincial Heritage Properties. A Subway is a passage below grade that is typically used to separate traffic flows, such as a pedestrian Subway below a busy highway. In railway parlance, a Subway is a grade separation structure in which a road is depressed in a cutting below the railway. The track is carried over the road on a bridge. The three interlocking towers (John Street Tower, Scott Street Tower and Cherry Street Interlocking Tower) are Heritage Properties of Provincial Significance.

With regard to archaeological resources, the majority of the lands within the Study Area are comprised of artificial lake fill, or have been deeply disturbed by construction of the railway and commercial / industrial development. However, there are portions of the Study Area which still retain potential for deeply buried intact archaeological resources. Areas of archaeological potential within or crossing over the LOD (including the Toronto Rolling Mills Wharf (WD-12), the Gooderham & Worts Distillery Wharves (WD-20), and the Gooderham and Worts Distillery Complex National Historic Site (WD-19)) which are believed to be located at a depth of approximately 76 m above sea level (ASL) (ASI 2016).

Stormwater Management and Drainage

The Study Area consists of three drainage areas:

- Bala and Belleville Subdivision Rail Corridor;
- Harbour Lead Rail Corridor; and
- The Don Yard and Wilson Yard Layover Facility.

According to TRCA flood and hazard mapping, the Study Area is inside the TRCA regulation limit. The Don River Floodplain covers the low-lying sections of the Study Area, which mainly exist beyond the proposed works. The existing area south of the Wilson Yard Layover Facility slopes southward towards the lake and is a part of the Don River Floodplain. The existing Harbour Lead track, which passes south of the Wilson Yard Layover Facility and continues east, also falls within the Don River Floodplain.

E.5 Assessment of the Potential Effects and Proposed Mitigation Measures of the Preferred Design

The environmental impacts for the USRC East Enhancements Project consider both construction and operations. Key impacts and mitigation measures associated with each of these categories are described below.

- **Natural Environment:**
  Existing terrestrial and aquatic natural environment conditions were determined through a combination of desktop background literature review and field investigations. Environmental effects were assessed for the LOD associated with construction and operation activities of the Project. Potential effects include:
  - Permanent removal of the following vegetation community types: approximately 1.5 ha of mineral cultural thickets (CUT1) and 0.7 ha of mineral cultural woodland (CUW1);
  - Potential displacement and/or habitat loss of bird SAR and SOCC as a result of vegetation removal; and
  - No potential effects are anticipated to aquatic, vegetation or mammal SAR.

  Mitigation measures include:
  - Vegetation removal will be scheduled to occur outside of the overall bird nesting season of April 1 to August 31, where feasible;
  - Areas for vegetation removal will be refined during Detailed Design and areas to be protected during construction will be delineated prior to construction start;
  - Exposed soils shall be stabilized and re-vegetated as soon as possible to reduce erosion;
  - Compensate for vegetation removal in accordance with Metrolinx Vegetation Compensation Protocol;
  - Construction activities near water should be scheduled to avoid wet, windy and rainy periods that may increase erosion and sedimentation;
  - An Erosion and Sediment Control Plan for the work site should be prepared and implemented during construction;
  - Nest searches should be conducted if construction activities are scheduled during the overall breeding bird window (April 1 to August 31);
  - Site-specific mitigation measures and a monitoring program for groundwater-dependent natural features, private water wells, and structures susceptible to ground settlement within the anticipated dewatering Zone of Influence will be determined during Detailed Design and will be informed by a detailed Water Taking Assessment; and
  - A Groundwater Management Plan will be developed and implemented.
- **Soils and Groundwater / Stormwater Management and Drainage:**
  Potential impacts on soils (minor contaminant releases, erosion and sedimentation) and groundwater (potential for high dewatering rates and decrease in groundwater contribution) during construction will be mitigated by developing an Erosion and Sediment Control Plan and a Groundwater Management Plan and implementing

best management practices during construction. Minor release of contaminants from maintenance trucks and vehicles may occur during operation. Samples have been taken to determine what toxins and contaminants are in the soil, and Metrolinx will make these data available publicly when available. A Spill Prevention and Response Plan will be developed.

- **Air Quality:**
  Local air quality impacts were assessed by taking background levels for a series of air contaminants, adding predicted modelled concentrations due to the changes by 2025, and then comparing these to established standards/guidelines at representative sensitive receptors. Sensitive receptors include residences and community facilities like schools, daycares and places of worship. Air dispersion modelling was conducted using AERMOD, which is an MECP approved model, to predict future concentrations of carbon monoxide (CO), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), fine particulate matter ($PM_{2.5}$), volatile organic compounds (VOCs) and colycylic aromatic hydrocarbons (PAHs), which were compared with provincial and national guidelines or thresholds.

  The results of the modelled scenarios suggest that the Future Build (2025) scenario emissions from locomotives are significantly less than Current scenario emissions which are primarily due to the future electrification of most of the train traffic passing on the USRC, and that the remaining diesel locomotives will all be meeting Tier 4 standards in the future.

  Construction related air quality impacts are of a temporary nature and can be effectively mitigated by:

  - Ensuring all machinery is maintained and operated in accordance with the manufacturer's specifications;
  - Using equipment sized for the particular job;
  - Minimizing idling time;
  - Locating stationary equipment away from sensitive receptors; and
  - Implementing measures to minimize the generation and dispersion of dust from materials handling, vehicle movement and wind erosion.

- **Noise:**
  Noise levels associated with the Project were assessed through modelling at representative receptors closest to the Project. Noise measurements were also conducted at two locations to provide a benchmark for comparison. Noise impacts were assessed based on the requirements of the 1995 Ontario Ministry of Environment and Energy (MOEE) / GO Transit Draft Protocol for Noise and Vibration Assessment. For modelling construction noise, construction equipment associated

with specific activities (e.g., site preparation and utility relocation, excavation and grading, track installation) was assumed to be operating at full power at the nearest possible location to receptors.

The 1995 MOEE/GO Transit Draft Protocol for Noise and Vibration Assessment stipulates that, “Mitigation must be considered if the project is expected to cause a 5 dB increase or greater in the average noise level (referred to as ‘Leq’) relative to the existing noise level or the MOEE objectives of 55 dBA for daytime and 50 dBA for nighttime, whichever is higher. If mitigation must be considered, the potential to mitigate is evaluated based on administrative, operational, economic and technical feasibility.”

As the majority of train movements (approximately 87%) will be by electric trains, which are much quieter at low speeds, total noise levels will not change significantly. Future noise levels are predicted to be 1 dBA higher than today. At all assessed locations, the change compared to today falls below the threshold for ‘significant’ impacts that would require mitigation. As such, no specific operational noise mitigation measures are anticipated to be required.

Construction noise will be mitigated through implementation of a variety of measures, including:

- Using construction equipment complaint with noise level specifications in MECP guidelines NPC-115 and NPC-118.
- Keeping equipment well-maintained and fitted with efficient muffling devices.
- Restricting idling of equipment to the minimum necessary to perform the specified work.
- Ensuring vehicles employed continuously on site for extended periods of time (two days or more) are fitted with sound reducing back-up (reversing) alarms.
- Avoiding unnecessary revving of engines and switch off equipment when not required (do not idle).
- Minimizing drop heights of material.
- Routing haulage/dump trucks on main roads where possible, rather than quieter residential roads.
- Operating in accordance with local by-laws wherever possible.
- If construction needs to be undertaken outside of normal daytime hours, informing local residences beforehand of the type of construction planned and the expected duration.
- Scheduling non-concurrent use of active heavy equipment where feasible.

- **Vibration:**
  Vibration impacts were assessed based on the requirements of the 1995 MOEE/GO Transit Draft Protocol for Noise and Vibration Assessment. The Protocol stipulates that if vibration levels of a project exceed the higher of the existing vibration level or 0.14 mm/s by 25% or more, vibration mitigation needs to be investigated based on administrative, operational, economic and technical feasibility.

  Without mitigation, operational vibration impacts are predicted to be significant at three locations: southeast of Henry Lane Terrace, Tom Longboat Lane (between Portneuf Court and Parliament Street), and the corner of Mill Street and Bayview Avenue. Metrolinx plans to install ballast mats (i.e., place rubber or other types of elastomer pad under the ballast) to mitigate operational vibration at the three identified locations.

  With regard to construction, the City of Toronto has a construction vibration by-law (By-Law 514, found in the City of Toronto Municipal Code Chapter 363), which Metrolinx adheres to. Construction vibration is predicted to be below the City of Toronto's zone of influence threshold for construction vibration at all locations. As such, no specific construction vibration mitigation measures are anticipated to be required.

- **Socio-Economic and Land Use:**
  The socio-economic and land use study was conducted to understand current and future conditions in the Study Area and assess any potential effects the Project may have on those features. Potential effects include:

  - Temporary access, aesthetic and nuisance (e.g., dust) impacts resulting from construction activities.
  - Billboard removal or relocation to accommodate bridge extensions.
  - Temporary impacts to trail users during construction.
  - Relocation of utilities.

  Mitigation measures include the following:

  - Construction to be completed expediently to minimize temporary aesthetic effects.
  - Prior to the commencement of construction, a Traffic Staging and Management Plan will be developed.
  - Access to residential, commercial and institutional uses will be maintained, where possible. Where this is not possible, consultation will occur with the affected property owners in advance of access disruption.

- Enhancements to public realm (i.e., pedestrian/cyclist experience, landscaping, etc.) are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto.
- Metrolinx will fund a Pedestrian and Cycling Connectivity Study to evaluate and prioritize potential future new connection(s) under the rail corridor.

- **Traffic:**
  The transportation and traffic assessment was carried out to identify potential road traffic impacts, impacts to pedestrians/cyclists and transit impacts that may result from the Project in accordance with the City of Toronto's Guidelines for Preparation of Transportation Impact Studies, the Highway Capacity Manual, and the Ontario Traffic Manual. Major intersections and trails potentially impacted by the Project were included. To assess the existing traffic operating conditions during the AM and PM peak hours, a level of service and capacity analysis was undertaken for the subject intersections. Eight different staging scenarios and associated traffic diversions were assessed to identify impacts associated with the road closures required to construct the Project. The staging scenarios include:
  - Partial closure of one northbound lane and east sidewalk on Lower Jarvis Street and Parliament Street.
  - Partial closure of one southbound lane and west sidewalk on Lower Jarvis Street and Parliament Street.
  - Full night or weekend closure of Lower Jarvis Street.
  - Full night or weekend closure of Parliament Street.
  - Partial closure of the northbound bike lane and east sidewalk on Lower Sherbourne Street and southbound bike lane and west sidewalk on Cherry Street.
  - Partial closure of the southbound bike lane and west sidewalk on Lower Sherbourne Street and northbound bike lane and east sidewalk on Cherry Street.
  - Full night or weekend closure of Lower Sherbourne Street.
  - Full night or weekend closure of Cherry Street.

  Disruptions to local traffic/pedestrians/cyclists and emergency vehicles are anticipated during the construction period. Potential effects include the following:
  - Travel time delay.
  - Hazards presented by active construction work zone.
  - Detour required on 75 Sherbourne TTC route.
  - Delay to 75 Sherbourne, 65 Parliament, 97 Yonge, 121 Fort York-Esplanade TTC routes.

- Travel time delay for emergency vehicles.
- Disruption to pedestrian movements during the full closure of Lower Jarvis Street and full closure of Lower Sherbourne Street.
- Disruption to cyclist movements during the full closure of Lower Sherbourne Street and the full closure of Cherry Street.
- Hazards presented by active construction work zones for pedestrians/cyclists.

Mitigation measures include the following:

- Prior to the commencement of construction, a Traffic Staging and Management Plan will be developed.
- Reduce duration of closures where possible.
- Develop detour routes and detailed staging plans.
- Limit full closures to weekends/evenings.
- Inform vehicle traffic of upcoming road work.
- Work with the City of Toronto to adjust signal timing plans.
- Provide appropriate signage and pavement markings.
- Control movement of traffic and personnel at sites.
- Store equipment away from roadways and utilize construction barricades.
- Monitor traffic conditions during construction to inform adaptive management.
- Transit Service:
  - Update schedules and routes.
  - Inform riders of changes/detours to scheduled service.
- Emergency Vehicles
  - Provide signal pre-emption (EMS gets priority at lights) where possible.
  - Restrict on-street parking through congested sections.
  - Notify the City of Toronto and Emergency Services in advance of closures.
- Pedestrians and Cyclists:
  - Maintain one sidewalk and bike lane open and clear, where applicable, in either direction at all possible times.
  - Identify and sign detours.
  - Disruption to local traffic due to lane closures is anticipated. Detour routes and a detailed staging plan will be developed in Detailed Design. The duration of closures will be reduced where possible.

- **Cultural Heritage:**
  A Cultural Heritage Screening Report (CHSR) was completed in accordance with the Metrolinx Draft Terms of Reference for Consultants: Cultural Heritage Screening Report for Built Heritage Resources and Cultural Heritage Landscapes (2013) and the Metrolinx Interim Cultural Heritage Management Process (2013). Five properties within the Study Area exhibited cultural heritage value or interest and will be directly impacted by the Project. They are:
  - Four Subway bridges that allow pedestrians, cyclists and vehicles to pass beneath the rail corridor: Lower Jarvis Street, Lower Sherbourne Street, Parliament Street, and Cherry Street. They are provincial heritage properties of local significance. The bridges will be altered due to the bridge extensions.
  - The Cherry Street Interlocking Tower that controls train movements in the USRC. It is a provincial heritage property of provincial significance. The Cherry Street Interlocking Tower will be relocated to accommodate new Track E0.

  Heritage Impact Assessment will be prepared for the four Subway bridges during Detailed Design to ensure that the necessary work will be completed in such a way as to conserve the Cultural Heritage Value or Interest of each property. For the Cherry Street Interlocking Tower, mitigation measures have been identified as part of the Heritage Impact Assessment completed as part of this TPAP.
- **Archaeological Resources:**
  A Stage 1 Archaeological Assessment (AA) was conducted for lands that may be impacted by the Project in accordance with the provisions of the Ontario Heritage Act (2005) and the MTCS' Standards and Guidelines for Consultant Archaeologists (2011). The majority of lands within the Study Area are comprised of artificial fill, or have been deeply disturbed by the past construction of railways and commercial/industrial development, and require no further archaeological work. Portions of the Study Area retain potential for deeply buried intact archaeological resources. If construction disturbance should reach a depth of 76 m above sea level, there may be effects to areas of archaeological potential. Mitigation measures include the following:
  - Areas of archaeological potential within or crossing over the Study Area which are believed to be located at a depth of approximately 76 mASL will require Stage 2 monitoring if construction disturbances should reach this depth.
  - There are areas of archaeological potential within the Study Area that may be present at unknown depths. Stage 2 monitoring should be completed in these areas if they cannot be avoided by future construction.

Climate Change

As an agency of the Government of Ontario, Metrolinx has prioritized achieving progress towards sustainability (Metrolinx, 2014) which is in alignment with the MECP Climate Change Strategy.

While the future electrification of the USRC is anticipated to yield a significant reduction in greenhouse gas emissions rather than continuing to operate using diesel-powered rolling stock, the USRC will continue to produce GHG emissions over its life cycle. Given the contribution over time, opportunities to further reduce GHG emissions may be considered.

Adaptive management should be planned for as part of the Project in order to monitor changing climate conditions over time to introduce new measures in the future as needed. Upon future electrification of the USRC, Metrolinx will also apply the adaptations identified as part of the *GO Rail Network Electrification TPAP*, including the effects of high heat on the Overhead Contact System and its structures (i.e., traction power substations).

Table E-3: Summary of Potential Effects, Mitigation Measures, Net Effects and Monitoring Requirements – Construction

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Vegetation Cover and Designated Natural Areas	*Track E0* – Permanent removal of approximately 1.2 ha of mineral cultural thicket (CUT1).	*Track E0* – Vegetation removal will be kept to a minimum and limited to within the construction footprint and should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31. – Areas for vegetation removal will be refined during Detailed Design and areas that should be protected during construction will be delineated prior to construction start wherein no activities will be permitted. – Exposed soils shall be stabilized and re-vegetated as soon as possible to reduce erosion using native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site. Slopes greater than 2:1 will have a slope retention material (e.g., Erosion Control Blanket) applied reduce soil erosion. – Mitigation measures specific to trees, including City of Toronto Tree By-law permitting requirements, that are summarized in the *Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Tree Inventory Report* (AECOM, 2016) and which will be further detailed in an Arborist Report completed during Detailed Design, will be adhered to. – Vegetation removal, tree protection measures and compensation will be completed in accordance with the *Vegetation Compensation Protocol for Metrolinx RER* projects, which will either meet or exceed relevant municipal by-laws and/or policies. – Incorporate native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site as part of planting plans during Detailed Design. – Construction fencing and/or silt fencing, where appropriate, will be installed and maintained. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Stockpiled materials or equipment will be stored within the construction footprint, but shall be kept away from adjacent natural areas or parks and be kept at least 30 m away from watercourses.	*Track E0* – Permanent removal of approximately 1.2 ha mineral cultural thicket (CUT1).	*Track E0* – Construction and/or silt fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction. – Environmental Monitors will be on-site during key construction activities as required. – Post-planting monitoring of restoration areas will be required for two years after installation. An annual site visit will be conducted during the appropriate growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken during the appropriate growing season. If additional seeding/or planting is undertaken after the second annual site visit, one additional monitoring visit will be required in the following growing season. – Additional restoration/compensation measures and/or monitoring may be required based on the results of additional surveys and consultations with the appropriate regulatory agencies during Detailed Design.
Natural Environment	Vegetation Cover and Designated Natural Areas	*Tracks E7 and E8* – No permanent / temporary removal of natural vegetation communities anticipated.	*Tracks E7 and E8* – N/A	*Tracks E7 and E8* – None.	*Tracks E7 and E8* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Vegetation Cover and Designated Natural Areas	*Wilson Yard Layover Facility* – Permanent removal of approximately 0.3 ha of mineral cultural thicket (CUT1) and 0.7 ha of mineral cultural woodland (CUW1).●	*Wilson Yard Layover Facility* – Vegetation removal will be kept to a minimum and limited to within the construction footprint and should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31. – Areas for vegetation removal will be refined during Detailed Design and areas that should be protected during construction will be delineated prior to construction start wherein no activities will be permitted. – Exposed soils shall be stabilized and re-vegetated as soon as possible to reduce erosion using native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site. Slopes greater than 2:1 will have a slope retention material (e.g., Erosion Control Blanket) applied reduce soil erosion. – Mitigation measures specific to trees, including City of Toronto Tree By-law permitting requirements, that are summarized in the *Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Tree Inventory Report* (AECOM, 2016) and which will be further detailed in an Arborist Report completed during Detailed Design, will be adhered to. – Vegetation removal, tree protection measures and compensation will be completed in accordance with the *Vegetation Compensation Protocol for Metrolinx RER* projects, which will either meet or exceed relevant municipal by-laws and/or policies. – Incorporate native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site as part of planting plans during Detailed Design. – Construction fencing and/or silt fencing, where appropriate, will be installed and maintained. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Stockpiled materials or equipment will be stored within the construction footprint, but shall be kept away from adjacent natural areas or parks and be kept at least 30 m away from watercourses.	*Wilson Yard Layover Facility* – Permanent removal of approximately 0.3 ha mineral cultural thicket (CUT1) and 0.7 ha mineral cultural woodland (CUW1).	*Wilson Yard Layover Facility* – Construction and/or silt fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction. – Environmental Monitors will be on-site during key construction activities as required. – Post-planting monitoring of restoration areas will be required for two years after installation. An annual site visit will be conducted during the appropriate growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken during the appropriate growing season. If additional seeding/or planting is undertaken after the second annual site visit, one additional monitoring visit will be required in the following growing season. – Additional restoration/compensation measures and/or monitoring may be required based on the results of additional surveys and consultations with the appropriate regulatory agencies during Detailed Design.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Tree Inventory	*All Project Components* – Potential permanent removal of approximately 424 shrubs within the Metrolinx ROW.	*All Project Components* – Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx RER projects. Vegetation that is removed will be compensated for in accordance with the provisions of this protocol. In addition, a Landscaping Strategy is being developed to identify vegetation/landscaping options and retaining wall design to along the Cathedral and Caroline Co-ops, as well as residences on Longboat Avenue. – The number and location of impacted trees will be further refined during the Detailed Design phase of the Project. This will inform the Arborist Report which will be completed during Detailed Design. – Vegetation protection measures will be developed in accordance with the City of Toronto's *Tree Protection Policy and Specifications for Construction Near Trees* (2016). – Undertake further consultation with potentially impacted property owners when detailed tree impacts are known. – Where replanting is required, planting on or as close to the impacted site will be considered, to the extent feasible. – Relevant replacement ratios will be followed. – Schedule potential removal of impacted trees to occur outside of the overall bird nesting season of April 1 to August 31, following the mitigation measures described for Breeding Birds. – Explore the use of Tree Protection Barriers and Tree Protection Signage where required. – Ensure that stockpiling of soil materials is outside of Tree Protection Zones. Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage to trees. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Obtain permits and approvals, as required.	*All Project Components* – Permanent removal of approximately 1,192 impacted trees within Ravine and Natural Feature Protection will be mitigated through planting as per the Metrolinx Vegetation Compensation Protocol. – Permanent removal of approximately 424 impacted shrubs within the Metrolinx ROW.	*All Project Components* – Construction and/or silt fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction. – Undertake on-site inspection on a monthly basis during construction to ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities. – The Arborist Report completed during the Detailed Design phase of the Project shall outline monitoring requirements to ensure success of preservation and removal measures.
Natural Environment	Tree Inventory	*Track E0* – 616 trees (614 within LOD and 2 within Study Area Buffer) that may require removal and/or be injured.	– Same as above	– Same as above	– Same as above
Natural Environment	Tree Inventory	*Tracks E7 and E8* – 21 trees (8 within LOD and 13 within Study Area Buffer) that may require removal and/or be injured.	– Same as above	– Same as above	– Same as above

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Tree Inventory	*Wilson Yard Layover Facility* – 555 trees (460 within LOD and 95 within Study Area Buffer) that may require removal and/or be injured.	– Same as above	– Same as above	– Same as above
Natural Environment	Significant Wildlife Habitat (SWH)	*All Project Components* – No potential effects are anticipated as no SWH were identified.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Migratory Breeding Birds	*All Project Components* – Potential for displacement of breeding migratory birds and/or destruction of their active nests as a result of vegetation removal during construction.	*All Project Components* – Vegetation removal should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31 and strictly should not occur within complex habitat during the core bird nesting season of May 1 to July 31. – If vegetation removal must occur within the above-listed timing windows, nest and nesting activity searches will be conducted by a qualified Biologist no more than 24 hours prior to vegetation removal. – If an active nest or confirmed nesting activity of a migratory bird is observed, regardless of the timing window recommended, a species-specific buffer area following ECCC guidelines will be applied to the nest or confirmed nesting activity wherein no vegetation removal will be permitted until the young have fledged from the nest. The radius of the buffer will depend on species, level of disturbance and landscape context (ECCC, 2014), which will be confirmed by a qualified Biologist, but will protect a minimum of 10 m around the nest or nesting activity. – The results of all nest searches will be documented at the end of each survey day in a technical memorandum.	*All Project Components* – Displacement of breeding birds and destruction of their nests will be avoided provided that the mitigation measures are implemented.	*All Project Components* – Any bridge extension structures and other suitable man-made structures within the Study Area should be inspected for evidence of active bird nests during the breeding bird season prior to the onset of construction activities in order to determine appropriate nesting preventative measures. – Nest searches by a qualified Biologist will be required immediately prior to vegetation removal, if construction activities are scheduled during the overall bird nesting season of April 1 to August 31.
Natural Environment	Aquatic Features	*Track E0* – Potential risk of water contamination (Don River) as a result of spills from construction equipment use. – Potential for greater risk for soil erosion and sedimentation to the watercourse (Don River).	*Track E0* – Where feasible, follow best management practices for near water works. – Construction activities near water should be scheduled in order to avoid wet, windy and rainy periods that may increase erosion and sedimentation. – An Erosion and Sediment Control Plan for the work site should be prepared and implemented during construction. – Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized. The plan should, where applicable, include: – Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody; and, – Measures for managing water flowing onto the site.	*Track E0* – Water contamination and soil erosion and sedimentation to the watercourse (Don River) will be minimized provided that the mitigation measures are followed.	*Track E0* – Environmental Monitors will be on-site during key construction activities as required to ensure compliance with environmental requirements.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– Measures should be undertaken to contain and stabilize any waste material (e.g., construction waste and materials). – Inspection and maintenance of erosion and sediment control measures and structures should happen regularly and after storm events during the course of construction. – Repairs to erosion and sediment control measures and structures should take place if damage occurs. – Non-biodegradable erosion and sediment control materials should be removed once site is stabilized. – Machinery should arrive on site in a clean condition and be maintained free of fluid leaks, invasive species and noxious weeds. Machinery should be washed, refuelled, and serviced properly away from any waterbody (at a minimum of 30 m). Storage of fuel and other materials for the machinery at least 30 m away from the watercourse and in such a way as to prevent any deleterious substances from entering the water. – Activities near water should be planned to insure that such materials do not enter the watercourse. – A Spill Prevention and Response Plan should be developed before work commences. This plan should be implemented immediately in the event of a sediment release or spill of a deleterious substance and an emergency spill kit should be kept on site. – All construction materials should be removed from site upon project completion. – If any clearing/removal of riparian vegetation and/or manicured grass is required, it should be kept to a minimum. When practicable, prune or top the vegetation instead of grubbing/uprooting, if required. – The shoreline and/or banks disturbed by any activity associated with the USRC East Enhancements Project should be immediately stabilized to prevent erosion and/or sedimentation.		
Natural Environment	Aquatic Features	*Tracks E7 and E8* No potential effects to the Don River.	*Tracks E7 and E8* – No mitigation measures required	*Tracks E7 and E8* – No net effects to the Don River.	*Tracks E7 and E8* – Not required
Natural Environment	Aquatic Features	*Wilson Yard Layover Facility* – Potential risk of water contamination (Don River) as a result of spills from construction equipment use. – Potential for greater risk for soil erosion and sedimentation to the watercourse (Don River).	*Wilson Yard Layover Facility* – Where feasible, follow best management practices for near water works. – Construction activities near water should be scheduled in order to avoid wet, windy and rainy periods that may increase erosion and sedimentation. – An Erosion and Sediment Control Plan for the work site should be prepared and implemented during construction.	*Wilson Yard Layover Facility* – Water contamination and soil erosion and sedimentation to the watercourse (Don River) will be minimized provided that the mitigation measures are followed.	*Wilson Yard Layover Facility* – Environmental Monitors will be on-site during key construction activities as required to ensure compliance with environmental requirements.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized. The plan should, where applicable, include: – Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody; and, – Measures for managing water flowing onto the site. – Measures should be undertaken to contain and stabilize any waste material (e.g., construction waste and materials). – Inspection and maintenance of erosion and sediment control measures and structures should happen regularly and after storm events during the course of construction. – Repairs to erosion and sediment control measures and structures should take place if damage occurs. – Non-biodegradable erosion and sediment control materials should be removed once site is stabilized. – Machinery should arrive on site in a clean condition and be maintained free of fluid leaks, invasive species and noxious weeds. Machinery should be washed, refuelled, and serviced properly away from any waterbody (at a minimum of 30 m). Storage of fuel and other materials for the machinery at least 30 m away from the watercourse and in such a way as to prevent any deleterious substances from entering the water. – Activities near water should be planned to insure that such materials do not enter the watercourse. – A Spill Prevention and Response Plan should be developed before work commences. This plan should be implemented immediately in the event of a sediment release or spill of a deleterious substance and an emergency spill kit should be kept on site. – All construction materials should be removed from site upon project completion. – If any clearing/removal of riparian vegetation and/or manicured grass is required, it should be kept to a minimum. When practicable, prune or top the vegetation instead of grubbing/uprooting, if required. – The shoreline and/or banks disturbed by any activity associated with the USRC East Enhancements Project should be immediately stabilized to prevent erosion and/or sedimentation.		

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Species at Risk and Species of Conservation Concern	*All Project Components* – No potential effects are anticipated to SAR or SOCC plants. – No potential effects are anticipated to mammal SAR. – Potential displacement of bird SAR and SOCC as a result of vegetation removal. – Displacement and/or habitat loss for bird SOCC (Eastern Wood-Pewee and Common Nighthawk) as a result of vegetation removal. – No potential effects are anticipated to aquatic SAR.	*All Project Components* – Mitigation measures and vegetation removal timing restrictions for Migratory Breeding Birds will be implemented. – Nest searches of the bridge extension structures and other structures within the Natural Environment Study Area should be conducted if construction activities are scheduled during the overall breeding bird window (April 1 to August 31). The MNRF should be consulted to confirm initial assessment of bat SAR habitat. Mitigation measures for Vegetation Cover and Designated Natural Areas will be implemented to minimize habitat loss.	*All Project Components* – Displacement of bird SAR and SOCC and displacement and/or habitat loss for bird SOCC will be minimized provided that the mitigation measures are followed.	*All Project Components* – Environmental monitoring as described above for Vegetation Cover and Designated Natural Areas shall be implemented to minimize habitat loss. – Environmental monitoring as described for Migratory Breeding Birds shall be implemented to avoid displacement of or disturbance to any SAR or SOCC birds.
Natural Environment	Wetlands	*All Project Components* – Potential effects are not anticipated as no wetlands were identified	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Soils and Groundwater	Soils	*All Project Components* – Potential changes to soil quality through minor contaminant releases (i.e., fuels, lubricating oils and other fluids). – Potential for accidental release of contaminants to the environment due to erosion and sedimentation of contaminated soil stockpiles and / or the improper handling and disposal of contaminated soils. – Construction activities will result in the creation of bare soil surfaces, soil stock piles, and sloped surfaces. These features will be susceptible to erosion by subsequent action by foot and vehicular traffic, wind and water flow, etc.	*All Project Components* – An Erosion and Sediment Control Plan will be developed during Detailed Design in consultation with TRCA and will include the requirement for a spill kit to be on site at all times during construction. Implementation of erosion and sedimentation control measures shall conform to recognized standard specifications such as Ontario Provincial Standards Specification and requirements of the TRCA. – Sediment and erosion control measures shall be installed prior to site clearing, grubbing, excavation or grading works. – Stockpiled material shall be stored at a safe distance from the waterway (Don River) to ensure no deleterious substances enter watercourses. – A Waste Management Plan shall be developed prior to construction to address proper handling of all excess materials that may be potentially contaminated. – Signs of soil impacts will be managed according to standard industry best practices during construction activities. – Management of excess soil will be undertaken in accordance with Excess Soil – A Guide to Best Management Practices (MECP, January 2014). – All contaminated materials will be handled according to applicable provincial and federal legislation, regulations and standard procedures. – A site specific Health and Safety Plan and a Spill Prevention and Response Plan, as applicable, will be developed and implemented during construction. – A Phase I ESA investigation for additional lands, if required, for the Project shall be conducted during Detailed Design. – Mitigation measures will be required to limit the movement of unstabilized soil and to protect potential receptors such as water courses/water bodies.	*All Project Components* – Soil contamination will be minimized provided that the mitigation measures are followed.	*All Project Components* – Regular visual inspection of bare soil surfaces, waterbodies downgradient of construction area, and installed mitigation measures to confirm proper function is recommended during the construction phase of the Project.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements

Soils and Groundwater	Groundwater Quality and Quantity	*All Project Components*
		– Potential for high dewatering rates as the Study Area is in close proximity to the Don River and the shoreline of Lake Ontario.
		– Potential to decrease groundwater contribution to nearby groundwater dependent natural features resulting in declines in surface water levels/flow, temperature changes, and potential loss of habitat.
		– Potential for contaminants, such as dense non-aqueous phase liquid (DNAPL) / organic solvent, to intercept groundwater during excavation and/or a spill.
		– Road salt on roads/parking lots may occur on occasion in confined areas for safety of construction operations.
		– Potential effects to areas designated as HVA and EBA.
		– Construction activities will result in the creation of bare soil surfaces, soil stock piles, and sloped surfaces. These features will be susceptible to erosion by subsequent action by foot and vehicular traffic, wind and water flow, etc.
			All Project Components
			– Prior to construction, a detailed Water Taking Assessment will be conducted.
			– Site-specific mitigation measures and a monitoring program for groundwater-dependent natural features, private water wells, and structures susceptible to ground settlement within the anticipated dewatering ZOI will be determined during the Detailed Design phase of the Project.
			– A Groundwater Management Plan will be developed by the consultant (AECOM) and implemented.
			– Where appropriate, based on local groundwater quality, other mitigation measures will be identified to reduce groundwater taking quantities and related impacts. Potential impacts will be further mitigated by limiting the duration of dewatering, when possible, through effective construction staging.
			– For DNAPL/organic solvent, ensure best management practices are established and followed. it is also recommended that Spill Prevention best management practices be followed, a Spill Response Protocol be generated/updated as necessary, and that a Communication Protocol be established/ updated for use in the event of a spill
			– Develop or update risk management plan/salt management plan that shall include a goal to minimize salt usage through alternative measures, while maintaining safety for users.
			– Regarding DNAPL and or organic solvents, ensure best management practices are established and followed.
			– A Spill Prevention and Response Plan, outlining steps to prevent and contain any contaminant releases and/or avoid impacts to groundwater will need to be developed prior to commencement of construction.
			– Existing Metrolinx programs for areas designated as HVA and EBA will continue to be implemented as well as planned initiatives as follows:
			  – Construction Safety Management Program which includes a spill prevention program;
			  – Spill kits located in various locations in the corridor; and
			  – As part of the ongoing works in Don Yard, oil grit separators and drip pans will be installed as a permanent prevention system.
			– Mitigation measures will be required to limit the movement of unstabilized soil and to protect potential receptors such as water courses/water bodies.
				All Project Components
				– Groundwater taking quantities and will be minimized and contamination will be managed provided that mitigation measures are followed.
					All Project Components
					– Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Groundwater Management Plan are fulfilled.
					– Groundwater quality testing will be performed at all construction dewatering locations prior to discharge and appropriate water quality management will be implemented as required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Stormwater Management and Drainage	Stormwater Management Report	*All Project Components* – Increase in impervious surface area will require water quality and quantity controls.	*All Project Components* – A Stormwater Management Report will be completed during Detailed Design and shared with MECP and TRCA.	*All Project Components* – Water quality and quantity will be managed provided that the Stormwater Management Report is implemented	*All Project Components* – Not required.
Air Quality	Air Emission	*All Project Components* – Construction related air quality impacts are of a temporary nature and not likely to pose a major risk to human health.	*All Project Components* – Construction activities are scheduled to avoid overlapping where possible. – The number of machines operating in any one area is minimized at any given point in time.	*All Project Components* – The air quality impacts of construction related activities can be effectively mitigated provided that mitigation measures are followed.	*All Project Components* – Not required.
Noise and Vibration	Noise and Vibration	*All Project Components* – Noise and vibration during construction are expected to be perceptible to sensitive receptors. – Vibration levels are predicted to be below the City of Toronto's zone of influence threshold for construction vibration (5 mm/s).	*All Project Components* Noise – Operate in accordance with local by-laws whenever possible. – If construction needs to be undertaken outside of the normal daytime hours, local residents shall be informed beforehand of the type of construction planned and the expected duration. – Use construction equipment compliant with noise level specifications in MECP guidelines NPC-115 and NPC-118; – Keep equipment well-maintained and fitted with efficient muffling devices – Restrict idling of equipment to the minimum necessary to perform the specified work and switch off equipment when not required. – During construction, ensure vehicles that are on site continuously for extended periods of time (two days or more) are fitted with an effective sound reducing back-up (reversing) alarms, such as variable loudness / self-adjusting backup alarm; – Avoid unnecessary revving of engines; and – Comply with the City of Toronto by-laws for haulage/ dump trucks. Minimize drop heights of materials. Vibration – No specific construction vibration mitigation measures are required.	*All Project Components* – Noise will be controlled to ensure that the applicable guideline limits are not exceeded, where possible.	*All Project Components* – Monitoring Noise Levels: additional mitigation measures may be considered and implemented, where appropriate.
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Track E0* – Undesirable temporary aesthetic impacts resulting from construction activities. – Access to and from properties may be affected as a result of construction activities – Temporary nuisance effects from increased noise and vibration levels and/or air and dust due to construction equipment. – Temporary traffic delays associated with construction activities. – Minor increases in traffic volume with the addition of construction vehicles	*Track E0* – Construction to be completed expediently to minimize temporary aesthetic effects. Access to all residential, commercial and institutional uses will be maintained, where possible. Where this is not possible, consultation will occur with the affected property owners in advance of any access disruptions. – Refer to Air Quality and Noise and Vibration mitigation measures above. – Staging plans will be developed during Detailed Design (refer TPAP Transportation and Traffic Impact Analysis in **Appendix B.6**). – Prior to the commencement of construction, a Traffic	*Track E0* – While construction will be completed as expediently as possible, there will be undesirable temporary aesthetic impacts during construction for residents, businesses and institutions – Temporary access restrictions for mentioned properties (e.g., Tom Longboat Lane, HD Supply Brafasco, municipal Green P parking lots, loading dock entrance at Cherry Street, etc.).	*Track E0* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
		associated with the Project. – To accommodate bridge extensions billboards will require removal or relocation. – Construction workers will provide some additional revenue to local businesses from local purchasing of goods and services during the construction period. – For project works that will take place during the night, temporary flood lights will be used to illuminate work areas. These flood lights have the potential to alter the light levels normally present in adjacent areas.	Staging and Management Plan will be developed. – Continued consultation with stakeholders (i.e., the City of Toronto, surrounding community, the TTC, Emergency Services, Waterfront Toronto, etc.) regarding construction traffic impacts. – Consultation with the owners of billboards to be relocated or removed. Agreement of removal/ relocation to be confirmed during Detailed Design. – A construction monitoring program will be prepared and include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, Metrolinx claim protocol will be followed. – Lighting will be controlled by angling the lights in a way to safely light the work area but, as much as practical, shine away from residences.	– Short term, infrequent and highly localized nuisance effects to residents, businesses and institutions associated with noise and vibration levels and/or air quality and dust due to construction activities will be minimized provided that mitigation measures are followed. – Temporary traffic delays, increased transit travel times and inconveniences related to detours and partial/full lane closures for residents, businesses and institutions will be minimized where possible provided that mitigation measures are followed.	
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Tracks E7 and E8* – Temporary nuisance effects from increased noise and vibration levels and/or air and dust due to construction equipment. – Temporary traffic delays associated with construction activities. To accommodate bridge extensions billboards will require removal or relocation. – Construction workers will provide some additional revenue to local businesses from local purchasing of goods and services during the construction period. – For project works that will take place during the night, temporary flood lights will be used to illuminate work areas. These flood lights have the potential to alter the light levels normally present in adjacent areas.	*Tracks E7 and E8* – During temporary partial closures of the Lower Jarvis Street underpasses, one lane of traffic, in both directions will remain open and clear, and one sidewalk and bicycle lane will also remain open and clear in either direction. Full underpass closure will be minimized, as best possible, to weekends and/or overnight periods. In either case, detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. – Staging plans will be developed during Detailed Design (refer TPAP Transportation and Traffic Impact Analysis in **Appendix B.6**).Refer to Air Quality and Noise and Vibration mitigation measures above. – Prior to the commencement of construction, a Traffic Staging and Management Plan will be developed. – Continued consultation with stakeholders (i.e., the City of Toronto, surrounding community, the TTC, Emergency Services, Waterfront Toronto, etc.) regarding construction traffic impacts. – Consultation with the owners of billboards to be relocated or removed. Agreement of relocation/ removal to be confirmed during Detailed Design. – A construction monitoring program will be prepared and include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, Metrolinx claim protocol will be followed. – Lighting will be controlled by angling the lights in a way to safely light the work area but, as much as practical, shine away from residences.	*Tracks E7 and E8* – Short term, infrequent and highly localized nuisance effects to residents, businesses and institutions associated with noise and vibration levels and/or air quality and dust due to construction activities will be minimized provided that mitigation measures are followed. – Temporary traffic delays, increased transit travel times and inconveniences related to detours and partial/full lane closures for residents, businesses and institutions will be minimized where possible provided that mitigation measures are followed.	*Tracks E7 and E8* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Wilson Yard Layover Facility* – No potential effects to residential, commercial and institutional uses. – Construction workers will provide some additional revenue to local businesses from local purchasing of goods and services during the construction period. – For project works that will take place during the night, temporary flood lights will be used to illuminate work areas. These flood lights have the potential to alter the light levels normally present in adjacent areas.	*Wilson Yard Layover Facility* – No mitigation measures are required, as there are no potential adverse effects. – A construction monitoring program will be prepared and include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, Metrolinx claim protocol will be followed. – Lighting will be controlled by angling the lights in a way to safely light the work area but, as much as practical, shine away from residences.	*Wilson Yard Layover Facility* – None.	*Wilson Yard Layover Facility* – Not required.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Track E0* – Relocation of the Bike Share rack along the north of the rail corridor near the Cherry Street underpass. – Partial or full closure of the bridge underpasses during construction results in impacts to pedestrian and cyclist access. – Undesirable temporary aesthetic effects and effects on user enjoyment during construction. – Temporary nuisance effects during construction due to increased noise and vibration levels and aesthetic effects from construction equipment and activities.	*Track E0* – During the construction phase, co-ordination with the city of Toronto required for the optimal location of the Bike Share rack along the north of the rail corridor near the Cherry Street underpass. – During temporary partial closures of underpasses, one sidewalk and/or bike lane access will be maintained to the extent feasible. If sidewalk and/or bike lane access cannot be maintained or when full closure is required, (minimized to weekends and/or evenings/overnight), detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. – A construction staging plan will be developed during Detailed Design and will consider measures to minimize impacts to pedestrians and cyclists. Preliminary construction staging concepts were assessed as part of the USRC East Enhancements TPAP Transportation and Traffic Impact Analysis (**Appendix B.6**). – Safety fencing and signage indicating the presence of construction crews and/or activities will be used. – Metrolinx will work closely with City of Toronto and Waterfront Toronto in the Detailed Design stage, through TAC meetings, to further develop appropriate mitigation plans associated with the design for the bridge extensions	*Track E0* – Temporary partial/full closures of underpasses, sidewalk and/or bike lanes to pedestrians and cyclists will be minimized where possible by maintaining sidewalk and/or bike lane access where feasible. – Nuisance effects may be felt by pedestrians and cyclists if access cannot be maintained, however these effects will be minimized by providing detour routes well in advance of closures. – Temporary nuisance effects to recreational users during construction due to increased noise and vibration levels and aesthetic effects due to construction equipment and activities will be minimized provided that mitigation measures are followed.	*Track E0* – Not required.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Tracks E7 and E8* – Partial or full closure of the bridge underpasses during construction results in impacts to pedestrian and cyclist access. – Undesirable temporary aesthetic effects and effects on user enjoyment during construction. – Temporary nuisance effects during construction due to increased noise and	*Tracks E7 and E8* – During temporary partial closures of underpasses, one sidewalk and/or bike lane access will be maintained to the extent feasible. If sidewalk and/or bike lane access cannot be maintained or when full closure is required, (minimized to weekends and/or evenings/overnight), detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. – A construction staging plan will be developed during Detailed Design and will consider measures to minimize	*Tracks E7 and E8* – Nuisance effects to recreational users of bridge underpasses will be minimized where possible by providing signage with alternative access routes when temporary underpass closures are required. – Temporary partial/full closures of underpasses, sidewalk and/or bike lanes to pedestrians and	*Tracks E7 and E8* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
		vibration levels and aesthetic effects from construction equipment and activities.	impacts to pedestrians and cyclists. Preliminary construction staging concepts were assessed as part of the USRC East Enhancements TPAP Transportation and Traffic Impact Analysis (**Appendix B.6**). – Safety fencing and signage indicating the presence of construction crews and/or activities will be used. – Metrolinx will work closely with City of Toronto and Waterfront Toronto in the Detailed Design stage, through TAC meetings, to further develop appropriate mitigation plans associated with the design for the bridge extensions	cyclists will be minimized where possible by maintaining sidewalk and/or bike lane access where feasible. – Nuisance effects may be felt by pedestrians and cyclists if access cannot be maintained, however these effects will be minimized by providing detour routes well in advance of closures.	
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Wilson Yard Layover Facility* – During construction of the realigned Harbour Lead, there may be temporary impacts to trail users. No additional trail impacts are anticipated due to the construction of Wilson Yard Layover Facility; however the existing detour route to facilitate construction of the Cherry Street Stormwater Management Facility may remain in place. – Temporary nuisance effects during construction due to increased noise and vibration levels and aesthetic effects from construction equipment and activities.	*Wilson Yard Layover Facility* – Metrolinx will continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA related to the design and construction of the Wilson Yard Layover Facility (as well as the other projects in the vicinity) regarding realignments and/or temporary detours of the Lower Don River Trail as required. – In the Detailed Design stage appropriate mitigation plans with respect to trail impacts at the Wilson Yard Layover Facility will be developed in consultation with the City of Toronto and Waterfront Toronto.	*Wilson Yard Layover Facility* – Short-term closure of Lower Don River Trail users will be minimized by having realignments and/or temporary detours in place prior to construction. – Temporary nuisance effects to recreational users during construction due to increased noise and vibration levels and aesthetic effects due to construction equipment and activities will be minimized provided that mitigation measures are followed.	*Wilson Yard Layover Facility* – Not required.
Socio-Economic and Land Use	Utilities	*Track E0* – Gas main relocation and/or protection at the northeast corner of the Parliament Street structure. – Impacts to existing cable troughs which currently run parallel to the tracks along the existing retaining wall and in proximity to several bridge structures. Utilities modification and relocation. – Relocation of the light poles. – Relocation of stormwater catch basins and associated collector storm sewers (catch basin leads), fibre optics cable, and buried hydro along both sides of Cherry Street. – Relocation/diversion of 300 mm diameter watermain along east side (northbound lane) of Cherry Street. – Relocation/diversion of 300 mm diameter watermain along west side (southbound lane) of Parliament Street.	*Track E0* – In depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Other considerations will also be determined during Detailed Design. – Potential service interruptions to residents and businesses will be identified during the Detailed Design phase and mitigation measures determined in consultation with the utility provider.	*Track E0* – Temporary effects to utility providers, residents and businesses will be refined and confirmed during the Detailed Design phase of the Project. – Temporary service interruptions will be minimized to the greatest extent possible.	*Track E0* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
		– Potential impact to existing 300 mm diameter watermain along the east side (northbound) of Lower Sherbourne Street, relocation/diversion may be required. – Potential connection to existing storm sewers for drainage of proposed access ramps at Parliament Street and Lower Sherbourne Street.			
Socio-Economic and Land Use	Utilities	*Tracks E7 and E8* – Temporary relocation of Fibre optic CN signal and communications conduits mounted on the south side of the Jarvis and Sherbourne Street Bridges during construction. – Underground Allstream and Telus fibre optic cables in the vicinity of the Lower Jarvis Street structure may require temporary and/or permanent relocation prior to the bridge extension construction. – Relocation of stormwater catch basin and associated collector storm sewers (catchbasin leads) will occur along both sides along the east side (northbound lane) of Lower Jarvis Street. Potential impact to existing 300 mm diameter watermain along the east side (northbound) of Lower Sherbourne Street, relocation/diversion may be required. – Relocation of the light poles. Utilities modification and relocation.	*Tracks E7 and E8* – In depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Other considerations will also be determined during Detailed Design. – Potential service interruptions to residents and businesses will be identified during the Detailed Design phase and mitigation measures determined in consultation with the utility provider.	*Tracks E7 and E8* – Temporary effects to utility providers, residents and businesses will be refined and confirmed during the Detailed Design phase of the Project. – Temporary service interruptions will be minimized to the greatest extent possible.	*Tracks E7 and E8* – Not required.

Socio-Economic and Land Use	Utilities	*Wilson Yard Layover Facility*
		– Relocation of the following Hydro One facilities to the south side of the proposed Wilson Yard Layover Facility tracks:
		  – Overhead power lines & hydro tower; and
		  – A strip of land owned by Hydro One for the buried 115kV cables.
		– Relocation of Toronto Hydro's 13.8 kV power cables at the existing Don Yard access roads.
		– Relocation of an existing fibre optic cable in the corridor.
		– No direct impacts are anticipated to the existing 3000 mm diameter stormwater tunnel that runs from Cherry Street (north of the USRC) to the Keating Channel (west of the Wilson Yard Layover Facility).
			Wilson Yard Layover Facility
			– Discussions with Hydro One will continue during Detailed Design to obtain an agreement with respect to the relocation of the overhead power lines and buried cables for the Wilson Yard Layover Facility.
			– Potential access requirements for maintenance within the USRC East Enhancements Project will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.
			– In depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Other considerations will also be determined during Detailed Design.
			– Potential service interruptions to residents and businesses will be identified during the Detailed Design
				Wilson Yard Layover Facility
				– Relocation of Hydro One overhead power lines and buried cables will be minimized to the extent possible by continuing discussions during the Detailed Design phase of the Project to obtain an agreement with respect to utility relocations.
				– Temporary effects to utility providers, residents and businesses will be refined and confirmed during the Detailed Design phase of the Project.
				– Temporary service interruptions will be minimized to the greatest extent possible.
					Wilson Yard Layover Facility
					– Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
		– No direct impacts are anticipated to an existing watermain (460 mm) on the east side of Don Yard and the Wilson Yard Layover Facility.	phase and mitigation measures determined in consultation with the utility provider. – As part of the Detailed Design submission, protection measures for the 3000 mm Storm Tunnel from Cherry Street to Keating Channel and the existing watermain (460 mm) on the east side of Don Yard and the Wilson Yard Layover Facility, for any foreseen impacts, if any, will be noted.		
Socio-Economic and Land Use	Property	*Track E0* – No private properties are anticipated to be acquired for work related to Track E0 west of Cherry Street (including the northern bridge extensions). – Construction and operation of Track E0 east of Cherry Street will require both temporary and permanent land acquisition. – Approximately 4,500 m^2 of temporary construction license from IO will be required to allow for construction. – Approximately 1,270 m^2 of permanent property acquisition (IO lands) is anticipated to support the work taking place east of Cherry Street and for the relocation of the Cherry Street Interlocking Tower. No private property acquisition is anticipated west of Cherry Street. – 940 m^2 of property owned by IO will be required for a Permanent Maintenance Easement and will be used for operation and maintenance purposes.	*Track E0* – Metrolinx will engage with affected landowners and will reach an agreement prior to the commencement of construction activities and identify appropriate site-specific mitigation measures. – Communications with stakeholders will occur to identify local and site-specific issues. – To minimize property requirements, retaining walls will be built for Blocks 20 (pending developer design concept) and Block 9 (TDSB lands, future school). An architectural retaining wall will be built for Block 32 (facing Tannery Road) and follow Metrolinx's Design Excellence process. – Property requirements will be confirmed during Detailed Design. – A construction monitoring program will be implemented prior to construction. If property damage claims are received, Metrolinx claim protocol will be followed.	*Track E0* – Approximately 4,500 m^2 of temporary construction license will be required to allow for construction. – Approximately 1,270 m^2 of permanent property acquisition from IO is anticipated to support the new track, retaining wall and Cherry Street Interlocking Tower infrastructure east of Cherry Street.	*Track E0* – Monitoring during construction of sensitive features based on existing conditions assessments.
Socio-Economic and Land Use	Property	*Tracks E7 and E8* – No private properties are anticipated to be acquired for work related to Tracks E7 and E8 (including the southern bridge extensions).	*Tracks E7 and E8* – Communications with stakeholders will occur to identify local and site-specific issues. – Property requirements will be confirmed during Detailed Design. – A construction monitoring program will be implemented prior to construction. If property damage claims are received, Metrolinx claim protocol will be followed.	*Tracks E7 and E8* – None	*Tracks E7 and E8* – Monitoring during construction of sensitive features based on existing conditions assessments.
Socio-Economic and Land Use	Property	*Wilson Yard Layover Facility* – The Wilson Yard Layover Facility design requires approximately 15,000 m^2 of property currently owned by the City of Toronto (and Toronto Port Lands Company), Hydro One Networks Inc., and Conoco Inc.	*Wilson Yard Layover Facility* – Metrolinx is exploring options to obtain the property required for the Wilson Yard Layover Facility. – Metrolinx will engage with affected landowners and will reach an agreement prior to the commencement of construction activities and identify appropriate site-specific mitigation measures. – Property requirements will be confirmed during Detailed Design.	*Wilson Yard Layover Facility* – Approximately 15,000 m^2 of property currently owned by the City of Toronto (and Toronto Port Lands Company), Hydro One Networks Inc., and Conoco Inc. is required for construction.	*Wilson Yard Layover Facility* – Monitoring during construction of sensitive features based on existing conditions assessments.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– A construction monitoring program will be implemented prior to construction. If property damage claims are received, Metrolinx claim protocol will be followed.		
Traffic	Disruption to Local Traffic due to Lane Closures	*All Project Components* *Traffic* – Travel time delay – Hazards presented by active construction work zone *Transit Service* – Detour required on 75 Sherbourne TTC route – Delay to 75 Sherbourne, 65 Parliament, 97 Yonge, 121 Fort York-Esplanade TTC routes *Emergency Vehicles* – Travel time delay *Pedestrians and Cyclists* – Movement may be restricted due to sidewalk and bike lane closures – Hazards presented by active construction work zones	*All Project Components* *Traffic* – Reduce duration of closures where possible. – Co-ordination regarding any road closures during construction will occur between Metrolinx and the City of Toronto. – Develop detour routes and detailed staging plans. – Limit full closures to weekends/ evenings. – Notify vehicle traffic of road work. – City of Toronto and TTC must be notified well in advance. – Minimize impact to properties directly impacted by closures. – Adjust signal timing plans. – Provide appropriate signage and pavement markings – Control movement of traffic and personnel at sites. – Store equipment away from roadway, utilize construction barricades. Lane closures required for the bridge extensions will be co-ordinated with the City of Toronto and Waterfront Toronto, as well as with any utilities that are undertaking projects within or directly adjacent to the bridges. *Transit Service* – Update schedules and routes. – Inform riders in advance of changes/detours to scheduled service. *Emergency Vehicles* – Provide signal pre-emption (EMS gets priority at lights) where possible. – Restrict on-street parking through congested sections. – Notify City of Toronto and Emergency Services in advance of closures. – Scheduling and route planning would be completed by the TTC with input from Metrolinx *Pedestrians and Cyclists* – Maintain one sidewalk and bike lane, where applicable, in either direction. – Identify and sign detours. – Co-ordination required with City of Toronto for Gardiner East Reconfiguration Public Realm project, traffic signal timings, and VMS, and TDM measures – Consultation with property owners directly impacted by closures – Further consideration of staging impacts at Lower Jarvis St and Lake Shore Blvd upon completion of safety audit	*All Project Components* – Disruption to local traffic during construction can be effectively managed provided that mitigation measures are followed.	*All Project Components* – Contractor to monitor traffic conditions during construction. For example, changes to signal timings may be required based on actual observation as opposed to the pre-construction assessment in order to minimize the traffic impacts. – Appropriate detour and/or temporary signage and pavement markings to be installed as required. – Safety fencing and/or physical barricades to be installed as required by the Contractor.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Cultural Heritage	Built Heritage Resources and Cultural Heritage Landscapes	*All Project Components* – Potential alterations to Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, and Cherry Street Subway due to bridge expansions. – Relocation of the Cherry Street Tower due to track expansion for new Track E0.	*All Project Components* – HIA will be prepared for Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, and Cherry Street Subway during Detailed Design. – With respect to the Cherry Street Tower, mitigation measures as identified as part of the HIA (refer to **Section 5.8.2**) above will be implemented.	*All Project Components* – Effects will be determined by conducting an HIA during the Detailed Design phase of the Project for the Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway and Cherry Street Subway. – Effects to the Cherry Street Interlocking Tower are expected to be minimized by following the mitigation measures identified in the HIA completed as part of this Project.	*All Project Components* – To be confirmed once the HIA has been completed.

Cultural Heritage	Cherry Street Interlocking Tower - Heritage Impact Assessment	– Relocation of the Cherry Street Interlocking Tower due to track expansion for new Track E0.
		– The decommissioning and disconnection of the interlocking technology represents a fundamental change from the Tower's current and original use. Removal process is expected to cause some cracking of brick and stone mortar joints and poses some risk to the contents of the structure.
		– Relocation will sever the Tower's relationship with the fencing of the Cherry Street Subway.
			– Prepare a Conservation Plan during the detailed design process to guide the technical aspects of the Tower relocation.
			– Document, through detailed measured drawings, professional photography within and outside the building, the Tower as it currently exists. Create an inventory of fixed and movable fittings, furnishings and artefacts and salvage for removal, or removal for reuse.
			  – Create a written, photographic and video record of staff operations as they currently exist to demonstrate the interlocking signal process, for the purpose of archival and interpretive purposes.
			– Employ qualified professional heritage consultants in the areas of architecture, structural engineering, and rail machinery conservation for all subsequent phases of work.
			– Include a conservator of heritage industrial equipment (or equivalent qualified professional) in the consultant team to document and catalogue the interlocking machinery and all its components as well as all technical attributes located on all floor levels of the Tower. The conservator (or equivalent qualified professional) should be engaged to advise on:
			  – Any selective temporary removal and reinstatement of components resulting from the structural bracing required to move the Tower;
			  – The handling of the attributes and their protection;
			  – The removal of attributes from the basement level (including their temporary storage);
			  – Recommendations for their reinstallation in the Tower if possible, de-accessioning through a recognised process to a suitable heritage railway agency for interpretive purposes.
				– By following the mitigation strategies for the preferred option, the severity of the impacts of the proposed interventions on the values and attributes of the Cherry Street Interlocking Tower are reduced wherever possible.
				– Incorporate best practice conservation techniques into the design specifications.
					– No specific monitoring requirements identified in the HIA. The Conservation Plan may identify specific monitoring requirements. These monitoring requirements will be implemented.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– Interpretation and follow-up activities. – The Tower's physical connection and contextual relationship to the USRC is also integral to its cultural heritage value. It is highly recommended that its new location recreate this connection and relationship as much as possible. The Tower's siting adjacent to the USRC and continued ownership by Metrolinx. – Design of the bridge connection to the expanded rail corridor to the south to incorporate elements and materials that are consistent with the historical precedents found along the USRC. – It is recommended that the iron guard rail fencing be reinstated on the existing bridge after it is extended, and this mitigation measure described through interpretation. – The basement of the building should be a new concrete structure reproducing the existing arrangement. – Modifications to the Tower, such as in a reconstructed foundation (basement level), can be considered only in the context of how they support the Tower's new use and location. – Stabilization of the complete exterior and interior, first and second floor levels, in preparation for the move. – A complete pre-conditions assessment must be prepared and repairs made that will stabilize the structure prior to moving, even if these repairs are temporary. – Preservation in situ of the interlocking equipment on the first and second floors, in combination with protective, selective removal and salvaging for reinstallation following relocation (including racks, cabinets, levers, lights and control board) for preservation within the Tower. – Installation of temporary protective measures for the structure. – Removal and salvaging of selected assemblies (such as windows, doors and stairs) for reinstallation after the move. – Structural bracing and cradling of brick masonry structure and roof of the Tower for preservation and sequential demolition of the existing foundation so that the Tower can be lifted and removed. – Structural bracing and cradling of brick masonry structure and roof of the Tower for preservation and sequential demolition of the existing foundation so that the Tower can be lifted and removed. – Identification of a temporary holding location for the braced structure 'in-transit' while a new northern retaining wall is constructed.		

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– The Tower's interlocking technology is integral to its cultural heritage value and it is inseparable from the building which was designed to house it. It is essential that the interlocking equipment identified as heritage attributes at the first and second levels remain in the relocated Tower to maintain this value. – To mitigate the impact of the decommissioning of the Tower's interlocking functions, a specialized public program should be developed and implemented to interpret its original function through occasions such as Doors Open and other appropriate events. – The lowest storey of the building should be a new concrete structure reproducing the existing arrangement. – Modifications to the Tower, such as in a reconstructed foundation (basement level), can be considered only in the context of how they support the Tower's new use and location. – Restore the relocated building, including all measures identified in the Conservation Plan for heritage attributes such as the masonry, existing windows and doors, existing roof structure, interior components, finishes and the interlocking machinery.		
Archaeology	Archaeological Resources	*All Project Components* – The majority of the areas within the current LOD for the USRC East Enhancements Project have been identified as deeply disturbed and therefore require no further archaeological work. – If construction disturbance should reach a depth of 76 mASL (1-7 m), potential effects to archaeological resources believed to be at a depth of 76 mASL in areas of archaeological potential within or crossing over the LOD identified during the Stage 1 AA as having archeological potential. These include: – Toronto Rolling Mills Wharf (WD-12) including the Gooderham & Worts Distillery Wharves (WD-20); and, – Gooderham and Worts Distillery Complex National Historic Site (WD-19). – Potential effects to archeological resources at unknown depths in areas of archaeological potential well outside the LOD but within the larger Archaeological Study Area. These include: – Don Breakwater (LDP-1); and, – Toronto Dry Dock (LDP-3).	*All Project Components* – The area of potential impact for the USRC East Enhancements Project will be refined during the Detailed Design phase of the Project. It is recommended that the need for further archaeological work shall be re-assessed in comparison to the final LOD for the Project. – The areas of archaeological potential identified within or crossing over the LOD will require Stage 2 monitoring if construction disturbance should reach a depth of 76 mASL (1-7 m). – In the event that archaeological remains are found during construction activities, the consultant archaeologist, approval authority, and the MTCS should be immediately notified. Compliance with the applicable legislation is required.	*All Project Components* – No effects anticipated to areas of archaeological potential within or crossing over the LOD. – No effects anticipated to areas of archeological potential well outside the LOD.	*All Project Components* – The areas of archaeological potential identified within or crossing over the LOD will require Stage 2 monitoring if construction disturbance should reach a depth of 76 mASL (1-7 m). Stage 2 monitoring of these areas would be conducted as per Section 2.1.7, Standard 4; Survey in Deeply Buried Conditions of the Standards and Guidelines for Consultant Archaeologists (MTCS 2011). – Should the Don Breakwater (LDP-1) and the Toronto Dry Dock (LDP-3) be impacted by the construction of the USRC East Enhancements Project, they shall be subject to Stage 2 monitoring, following Section 2.1.7, Standard 4; Survey in Deeply Buried Conditions of the Standards and Guidelines for Consultant Archaeologists (MTCS 2011). – Monitoring should only be completed in these areas if they cannot be avoided by future construction.

Table E-4: Summary of Potential Effects, Mitigation Measures, Net Effects and Monitoring Requirements – Operation

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Vegetation Cover and Designated Natural Areas	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Tree Inventory	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Significant Wildlife Habitat	*All Project Components* – No operation effects are anticipated as no SWH were identified.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Migratory Breeding Birds	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Aquatic Features	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Species at Risk and Special Concern Species	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Wetlands	*All Project Components* – No operation effects are anticipated as no wetlands were identified.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Soils and Groundwater	Soils	*All Project Components* – Potential reduction in soil quality due to the disturbance of existing contaminated soils and the minor release of contaminants from maintenance trucks or vehicles.	*All Project Components* – If potential areas of contamination are identified during operations, further investigations will be completed to determine if impacts are present and the necessary remedial action is to be taken. – All contaminated materials found during operation and maintenance activities will be handled in accordance with applicable provincial and federal legislation, regulations and standard procedures.	*All Project Components* – Soil contamination will be minimized provided that the mitigation measures are followed.	*All Project Components* – Not required.
Soils and Groundwater	Groundwater Quantity and Quality	*All Project Components* – Potential changes to the groundwater flow patterns (i.e., rate, direction, gradient, etc.) may occur. – Potential reduction in groundwater recharge. – Potential risk of groundwater contamination as a result of spills (e.g., grease, soils, and/or fuel) from train operation and maintenance vehicles. – Changes in groundwater flow patterns as a result of the Project is expected to be negligible at the present time as the proposed rail line will be constructed at the same grade as the existing rail. – Reduction in groundwater recharge as a result in increases in impervious surfaces or the placement of fill is considered to be negligible. – Potential effects to areas designated as HVA and EBA.	*All Project Components* – A Spill Prevention and Response Plan will be developed. – Inventory of private water wells will be completed during the detailed design phase. If applicable, water quality and quantity will be monitored in nearby private water wells. – Existing Metrolinx programs for areas designated as HVA and EBA will continue to be implemented as well as planned initiatives as follows: – Construction Safety Management Program which includes a spill prevention program; – Spill kits located in various locations in the corridor; and – As part of the ongoing works in Don Yard, oil grit separators and drip pans will be installed as a permanent prevention system.	*All Project Components* – Soil contamination will be minimized provided that the mitigation measures are followed. Risks of groundwater contamination as a result of spills will be managed, provided that mitigation measures are followed.	*All Project Components* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Stormwater Management and Drainage	Stormwater Management Report	*All Project Components* – Increase in impervious surface area will require water quality and quantity controls.	*All Project Components* – A Stormwater Management Report will be completed during Detailed Design to assess drainage impacts of Tracks E0, E7 and E8, and all associated works in the area. – A separate Stormwater Management Report to assess drainage impacts at the Wilson Yard Layover Facility will occur during Detailed Design of the Wilson Yard Layover Facility.	*All Project Components* – Water quality and quantity will be managed provided that the Stormwater Management Report is implemented	*All Project Components* – Not required.
Air Quality	Emissions from Locomotives	*All Project Components* – No operational impacts are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.

Noise and Vibration	Noise and Vibration	*All Project Components*
		Noise
		– Noise impacts are all below 5 dB – there are no significant impacts.
		Vibration
		– Operational vibration impacts are predicted to be significant in three locations:
		  – Southeast of Henry Lane Terrace
		  – Portion of Tom Longboat Lane (between Portneuf Court and Parliament Street)
		  – Near corner of Mill St. and Bayview Ave.
			All Project Components
			Noise
			– As per the 1995 Ontario Ministry of Environment and Energy/GO Transit Draft Protocol for Noise and Vibration Assessment, no specific operational noise mitigation measures are required.
			Vibration
			– Install a vibration isolation system on the railway tracks at the three locations, including:
			  – Resilient Rail Fasteners;
			  – Resilient Supported Ties; or
			  – Ballast Mats
				All Project Components
				Noise
				– None
				Vibration
				– Reduction of vibration levels by at least 4 dB.
					All Project Components
					– Not required.

Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Track E0* – Potential noise and vibration effects for residential and institutional properties (e.g., future school) are detailed under Noise and Vibration during operation. – Operational air quality impacts are not anticipated during operations and are discussed under Air Quality. – Vegetation removal on the north side of the corridor will eliminate some of the visual screening. – Potential safety concerns for students and staff of the future school due to rail derailment. – Potential impacts to the driveway at the northeast quadrant of the Parliament Street underpass and the loading dock in the northwest quadrant of the Cherry Street underpass.	*Track E0* – Refer to Noise and Vibration mitigation above for details. – To mitigate safety concerns, TDSB/Toronto Lands Corporation and its developers will lead the installation of a crash wall, if required, on Block 9 (TDSB lands, future school) in consultation with Metrolinx at the school location. – During Detailed Design potential impacts to the driveway at the northeast quadrant of the Parliament Street underpass and the loading dock in the northwest quadrant of the Cherry Street underpass will be confirmed and consultation will take place to identify mitigation measures, as required.	*Track E0* – Refer to Noise and Vibration during construction for net effects to residential and institutional properties. – Undesirable aesthetic effects for residents, businesses and institutions will be minimized provided that mitigation measures are followed. – Track design and guidelines ensure that tracks are built to the safest standards to ensure safe operation of trains for customers, staff, and neighbours.	*Track E0* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty. – Public facing retaining walls and landscaped areas will undergo routine maintenance.
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Tracks E7 and E8* – No adverse effects to residential, commercial and institutional uses are anticipated due to the operational phases of the Project.	*Tracks E7 and E8* – None.	*Tracks E7 and E8* – None.	*Tracks E7 and E8* – Not required

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Wilson Yard Layover Facility* – No potential adverse effects to residential, commercial and institutional uses.	*Wilson Yard Layover Facility* – No mitigation measures required, as there are no potential adverse effects.	*Wilson Yard Layover Facility* – None	*Wilson Yard Layover Facility* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty. – Public facing retaining walls and landscaped areas will undergo routine maintenance.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Track E0* – Safe pedestrian movements may be impacted by the access gate to the Metrolinx right-of-way at the southwest quadrant of Lower Jarvis Street. – The railway bridge underpasses represent key north-south connection points to the waterfront. The bridge extensions to the north and to the south will not change the amount of existing pedestrian/cyclists space or infrastructure, but there will be impacts to the overall pedestrian experience due to the lengthened underpasses.	*Track E0* – The following mitigation measures are being proposed to address visual and public realm impacts at the roadway bridge extensions: – Splaying of wing-walls of the road railway underpasses has been incorporated into the design to the extent feasible and will be further refined during Detailed Design. – Landscaping and/or repairs to the pedestrian infrastructure will be determined in consultation with the City of Toronto and Waterfront Toronto. – Enhancements to the underside of the bridges are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto. This also includes co-ordination with the City of Toronto and Waterfront Toronto's work for the Gardiner East Reconfiguration Public Realm Phasing and Implementation Plan. These enhancements will be further refined during Detailed Design. – Metrolinx will also explore opportunities to restrict turning movements into and out of access gates near the bridge Underpasses. Bridge extension aesthetics are being examined in consultation with the City of Toronto and may consider Public Art Visions identified in the East Bayfront Public Art Master Plan. Continued collaboration with Metrolinx, the City of Toronto and Waterfront Toronto will be required for this component.	*Track E0* – Minimal effects are anticipated for recreational users (pedestrians and cyclists) with public realm mitigation measures in place. – Enhanced pedestrian/cyclist safety if opportunities to restrict turning movements into and out of access corridors near the bridge underpasses (e.g., restrict left turns in and out) on the north-south corridors can be realized.	*Track E0* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Tracks E7 and E8* – The railway bridge underpasses represent key north-south connection points to the waterfront. The bridge extensions to the north and to the south will not change the amount of existing pedestrian/cyclists space or infrastructure, but there will be impacts to the overall pedestrian experience due to the lengthened underpasses.	*Tracks E7 and E8* – Metrolinx will explore opportunities to restrict turning movements into and out of Metrolinx's Lower Jarvis Street access location (e.g., restrict left turns in and out) to enhance pedestrian/cyclist safety. – The following mitigation measures are being proposed to address visual and public realm impacts at the roadway bridge extensions: – Splaying of wing-walls of the road railway underpasses has been incorporated into the design to the extent feasible and will be further refined during Detailed Design. – Enhancements to the underside of the bridges are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto. This also includes co-ordination with the City of Toronto and Waterfront Toronto's work for the Gardiner East Reconfiguration Public Realm Phasing and Implementation Plan. These enhancements will be further refined during Detailed Design.	*Tracks E7 and E8* – Minimal effects are anticipated for recreational users (pedestrians and cyclists) with public realm mitigation measures in place. – Enhanced pedestrian/cyclist safety if opportunities to restrict turning movements into and out of access corridors near the bridge underpasses (e.g., restrict left turns in and out) on the north-south corridors can be realized.	*Tracks E7 and E8* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Wilson Yard Layover Facility* – A permanent shift of the Lower Don River Trail to the south is required for the portion of the trail west of the existing Harbour Lead. The trail alignment will be shifted east of the Harbour Lead and then connect into the existing trail alignment at the southeast corner of the Wilson Yard Layover Facility. – Tree/vegetation removal and new retaining walls/embankments for the Wilson Yard Layover Facility may affect the overall recreational experience of trail users. – The Wilson Yard Facility Layover will remove approximately 3 ha of land from an area designated for the Parks and Open Spaces.	*Wilson Yard Layover Facility* – The anticipated permanent realignment of the Lower Don River Trail will accommodate the realigned Harbour Lead, Cherry Street Stormwater Facility, access road, as well as the Gardiner East Reconfiguration and TRCA's sediment and debris management area. – Metrolinx will continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA related to the design and construction of the Wilson Yard Layover Facility (as well as the other projects in the vicinity). – Consultation with the City of Toronto, Waterfront Toronto, TRCA and the community will inform a vision, design and integration approach for Public Realm and public facing elements associated with the Project. – The following mitigation measures are being proposed to address visual and public realm effects at the Wilson Yard Layover Facility: – Renderings will be developed in consultation with the City of Toronto and Waterfront Toronto. – Retaining wall and embankment requirements as well as access requirements will be confirmed in consultation with the City of Toronto, Waterfront Toronto, TRCA, Hydro One, Toronto Hydro and Enbridge. – Opportunities to integrate landscaping and greenspace will be explored, where feasible. – Retaining walls, fencing and other design elements will reflect a consistent aesthetic with other areas in the	*Wilson Yard Layover Facility* – No effects anticipated to the Cherry Street Stormwater facility, access road, as well as Gardiner East Reconfiguration and TRCA's sediment and debris management area as the anticipated permanent realignment of the Lower Don River Trail will accommodate these facilities. – Minimal aesthetic effects are anticipated for Lower Don River Trail users with public realm mitigation measures in place. – Removal of approximately 3 ha of Parks and Open Space will potentially be mitigated based on the outcome of continued consultation with the City of Toronto	*Wilson Yard Layover Facility* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			USRC, as well as the design for other projects in the vicinity. – Consultation will continue to occur during Detailed Design with the City of Toronto, Waterfront Toronto, and TRCA. – Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx RER projects. Vegetation that is removed will be compensated for in accordance with the provisions of this protocol. – With regard to the removal of 3 ha of land designated as Parks and Open Space, Metrolinx will continue consultation with the City of Toronto as part of the ongoing property negotiations for the Wilson Yard Layover Facility.		
Socio-Economic and Land Use	Utilities	*All Project Components* – Access to utilities may require temporary access permission (easements) for maintenance activities within the USRC East Enhancements Project. No other effects on utilities are anticipated during the operation of the Project.	*All Project Components* – Potential access requirements for maintenance within the USRC East Enhancements Project will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.	*All Project Components* – Temporary access requirements from utility providers/owners will be minimized through consultation.	*All Project Components* – Not required.
Socio-Economic and Land Use	Utilities	*Tracks E0, E7 and E8* – During operation, temporary access may be required to conduct maintenance on utilities within the Project.	*Tracks E0, E7 and E8* – Potential access requirements for maintenance within the USRC East Enhancements Project will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.	*Tracks E0, E7 and E8* – Temporary access requirements from utility providers/owners will be minimized through consultation.	*Tracks E0, E7 and E8* – Not required.
Socio-Economic and Land Use	Property	*Track E0* – Operation of Track E0 east of Cherry Street will require both temporary construction license and permanent land acquisition. See property section in **Table 3-1** for details.	*Track E0* – Property requirements will be further confirmed during Detailed Design. – Metrolinx will engage with affected landowners with regard to the identified property acquisitions (temporary and permanent) and will reach an agreement prior to the commencement of construction activities and identify appropriate site-specific mitigation measures.	*Track E0* – Property requirements will be further refined and confirmed during the Detailed Design phase of the Project; however, effects are anticipated to be negligible during the operation phase of the Project with mitigation in place.	*Track E0* – Not required.
Traffic	Disruption to Local Traffic	*All Project Components* – None.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Cultural Heritage	Built Heritage Resources and Cultural Heritage Landscapes	*All Project Components* – None.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Archaeology	Archaeological Resources	*All Project Components* – None.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.

Table E-5: Summary of Potential Effects, Mitigation Measures, Net Effects and Monitoring Requirements – Effects on Other Projects and Connectivity

Feature	Project Phase	Potential Effects	Mitigation Measures	Net Effects	Monitoring Requirements
Effects on Other Projects	Detailed Design Construction Operation	– There are potential timing of construction impacts on 31R Parliament Street, 370R & 370 Cherry Street future developments as well as the Trinity Street Pedestrian Underpass due to the close proximity of these developments to the rail corridor.	– Continued co-ordination with developers is required in Detailed Design regarding timelines and construction schedules for 31R Parliament Street, 370R & 370 Cherry Street future development and the Trinity Street Pedestrian Underpass. – For the Trinity Street Pedestrian Underpass development, Metrolinx will continue working with the City, Waterfront Toronto and other relevant parties to ensure that the Project's design preserves the opportunity to realize the Trinity Street Pedestrian Underpass and to allow for the design elements to be incorporated into the Detailed Design of the USRC East Enhancements Project.	– Minimal effects anticipated pending the outcome of the co-ordination and consultation with these projects.	– n/a
Effects on Other Projects	Detailed Design Construction Operation	– The USRC East Enhancements bridge extensions are adjacent to the City of Toronto and Waterfront Toronto's plans for intersection improvements, new east-west multi-use trail and public realm enhancements as outlined in the Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA, 2017. This Project does not preclude these plans, but directly impacts the overall pedestrian experience, public realm vision and connections to the waterfront. The southern bridge extensions in particular, may limit the plans for Lake Shore Boulevard.	– Metrolinx will continue to co-ordinate with the City of Toronto and Waterfront Toronto regarding the public realm elements of the Gardiner EA and East Bayfront Public Art Master Plan that interact with the USRC East Enhancements Project.	– n/a	– n/a
Effects on Other Projects	Detailed Design Construction Operation	– Due to the bridge extensions there will be visual and public realm impacts.	– Improvements to public realm are being examined in consultation with the City of Toronto and Waterfront Toronto and may consider components identified in the East Bayfront Public Art Master Plan and West Don Lands Public Art Strategy. Collaboration with Metrolinx, the City of Toronto and Waterfront Toronto will be required for this component and consultation is ongoing. This Project will not preclude the Public Art Vision identified in the East Bayfront Public Art Master Plan and West Don Lands Public Art Strategy.	- n/a	- n/a
Effects on Other Projects	Detailed Design Construction Operation	– The Cherry Street bridge extension does not preclude the City's plans for the future LRT under the rail corridor and planned connection enhancements under the rail corridor at Parliament Street and Cherry Street; however this project has design components that directly intersects and is in close proximity to the USRC East Enhancements Cherry Street bridge extension.	– When the City of Toronto and TTC's plans for the LRT alignment under the rail corridor at Cherry Street progress, co-ordination with Metrolinx will be required related to the connection enhancements under the rail corridor at Parliament Street and Cherry Street. – Co-ordinate with the City of Toronto and the TTC on their plans for the design of the Light Rail Transit alignment under the rail corridor at Cherry Street and the connection enhancements under the rail corridor at Parliament Street and Cherry Street.	- n/a	- n/a
Effects on Other Projects	Detailed Design Construction Operation	– Construction of other projects within the Study Area may overlap with the USRC East Enhancements Project construction schedule.	– Metrolinx will continue to co-ordinate with the City of Toronto, Waterfront Toronto, developers, TRCA and TTC regarding timelines and construction schedules for all projects that are advancing in the waterfront area. – Although no direct impacts are anticipated related to the City's plans from the Lower Yonge Precinct Plan and Lower Yonge Transportation Master Plan EA, Metrolinx will continue to consult and co-ordinate with the City on their plans as required.	- n/a	- n/a

Feature	Project Phase	Potential Effects	Mitigation Measures	Net Effects	Monitoring Requirements
			– For the Wilson Yard Layover Facility, Metrolinx will continue to co-ordinate with the City of Toronto, Waterfront Toronto and TRCA regarding the Sediment and Debris Management Area, Cherry Street Stormwater Facility, stormwater shaft, sewage pumping station, Lower Don River Trail and Gardiner EA landscape improvements. – Metrolinx will co-ordinate traffic lane closures for the bridge extensions with the City of Toronto, Waterfront Toronto, utilities and TRCA for projects being undertaken within the vicinity, or directly adjacent, to the bridges which will require lane closures. – The Wilson Yard Layover Facility directly interfaces with multiple projects at various stages of design. Co-ordination during Detailed Design and construction is particularly critical in this area, as changes to one project could impact multiple projects in the vicinity.		
Effects on Other Projects	Detailed Design Construction Operation	– Enbridge has proposed replacement of NPS 20 and NPS 30 gas lines in close proximity to the rail corridor, including the potential to cross under the rail corridor, and the potential location of a station in close proximity to the Wilson Yard Layover Facility.	– Discussions with Enbridge will continue during Detailed Design regarding their plans in the vicinity of the Wilson Yard Layover Facility and the USRC, following Metrolinx's Third Party process.	- n/a	- n/a
Connectivity	Detailed Design, Construction and Operation	– While the bridge extensions to the south and north will not change the amount of space or infrastructure for pedestrians/cyclists, the lengthened underpasses may exacerbate the barrier effect experienced by pedestrians, cyclists, and other users of the area.	– The connectivity challenge requires Metrolinx, the City of Toronto, Waterfront Toronto and possibly private developers to work in partnership to arrive at a longer term solution. Metrolinx is committed to funding a separate Pedestrian and Cycling Connectivity Study to look at options to address the connectivity challenge.	- Enhancements to connectivity are anticipated, pending the findings and recommendations from the Pedestrian and Cycling Connectivity Study.	– n/a

E.6 Consultation Process

A Communication and Stakeholder Consultation Plan was developed to describe the approach to all consultation and communication aspects of the Project. Consultation tools used throughout the Project include the following:

- A **Project Master Stakeholder Contact List** was created at the beginning of the USRC East Enhancements Project and was developed from online government websites, the government review team and previous Metrolinx contact lists near the Study Area.
- **Online Engagement**
  - The Project Website (www.metrolinx.com/unionstationeast) was implemented.
  - Following Public Meetings Metrolinx posted online surveys for the public to answer questions and provide feedback on the Project.
  - Social media posts were completed through Facebook and Twitter.
  - A Project Email Account (unionstationeast@metrolinx.com) was set up and monitored, and responses were provided for any incoming e-mails.
  - A subscription email distribution list, called E-Blast, was assembled to keep interested stakeholders informed of the Project.
- **Public and Agency Meetings and Correspondence**
  - *Individual Stakeholder Meetings* were held to discuss ongoing project developments and associated issues of concern to specific stakeholders.
  - *Technical Advisory Committee Meetings* were held with the City of Toronto, Waterfront Toronto and TRCA to provide updates on the Project and to discuss opportunities, concerns, issues and risks related to the design of the Project.
  - *Public Realm Working Groups* for the bridge extensions were co-ordinated with the City of Toronto and Waterfront Toronto and their work on the Gardiner East Public Realm Project.
  - *Councillor Briefings and Municipal Council Meetings* were held with councillors to review information on the Project and to discuss any concerns or suggestions to the Project.
  - Metrolinx consulted with the public prior to officially commencing the TPAP and during the formal TPAP. The *Public Meetings* provided an opportunity to speak directly with the Project Team.

- A *Community Advisory Committee* (CAC) was established to build a shared understanding of the Project, develop key community factors to be considered as part of the project design brief and to provide advice on plans for the surrounding public space.
- A *Walking Tour* was held with local residents and other interested stakeholders to provide an overview of the Project and to identify concerns with the Project and proposed mitigation.
- *Ask Metrolinx Town Hall* was held on December 12, 2017. Members of the public were able to attend in-person or online via Metrolinx's Engage website. Residents of the GTHA had the opportunity to ask questions about Metrolinx services, the Regional Transportation Plan and any other topics or issues of interest. The ten most popular questions submitted online in advance of the event were prioritized to be answered during the session.
- *Public Notices* (i.e., Notice of Public Meeting #1, Notice of Commencement and Public Meeting #2, etc.) were distributed to all stakeholders (i.e., residents, businesses, etc.) within and near the Study Area. Metrolinx provided a French translation of all notices and newspapers ad for the Project.

Pre-Planning Phase Consultation

- **Public Consultation**
  - One Public Meeting was held during the pre-TPAP phase.
    - Public Meeting #1 was held on June 28, 2017 at the George Brown College Campus Lucie and Thornton Blackburn Conference Centre – Grand Room. Forty-one (41) individuals attended the Public Meeting #1, including eight staff from the City of Toronto and/or Waterfront Toronto. The Project Team received nine Feedback Forms at the Public Meeting #1 and two Feedback Forms online between June 28, 2017 and July 26, 2017. The Project Team received 11 public comments and 2 community group comments via email between June 28, 2017 and July 26, 2017.
  - Meetings with public and community groups, including Toronto Community Housing Corporation, West Don Lands Committee, St. Lawrence Market Business Improvement Area (BIA), Cathedral Court Co-op Public Meeting, St. Lawrence Neighbourhood Association, Toronto Railway Historical Association, Gooderham & Worts Neighbourhood Association and Corktown Residents and Business Association, were held.
- Metrolinx developed an Indigenous community engagement plan that was implemented during the pre-TPAP phase to encourage further discussion with

affected or interested Indigenous communities and obtain their feedback and input on the Project.

- Metrolinx consulted with stakeholders, including Federal, Provincial and Municipal review agencies, and other Stakeholders including Utility companies, Developers and Public Realm working groups, Technical Advisory Committee and Community Advisory Committee.
- The draft Environmental Project Report was circulated to review agencies and stakeholders for review.

TPAP Consultation

Following the completion of the Pre-Planning Activities, Metrolinx initiated the TPAP by issuing the Notice of Commencement and Public Meeting #2, which was published on April 19, 2018, and up to 120 days timeline commenced.

- **Public Consultation**
  - One public meeting was held during the TPAP phase.
    - Public Meeting #2 was held on May 3, 2018 at the George Brown College Campus (Residence and Conference Centre – Grand Room and Session Room). In total, 81 individuals attended Public Meeting #2, including, MPP Han Dong as well as two staff members from the City of Toronto. The Project Team received one Feedback Form between May 3, 2018 and May 17, 2018. The Project Team received four public comments via email, one comment from the Indigenous communities, and seven comments from External Agencies between May 3, 2018 and May 17, 2018.
- Metrolinx consulted with stakeholders, including Federal, Provincial and Municipal review agencies, and other Stakeholders including Utility companies, Developers, Public Realm working groups, Technical Advisory Committee and Community Advisory Committee.
- The revised draft Environmental Project Report was circulated to review agencies and stakeholders for review. It was also posted online on July 13, 2018.

Ongoing Engagement

Metrolinx is committed to continuing to engage and communicate with stakeholders beyond the TPAP. Specifically, Metrolinx will:

- Design and implement a response strategy to address/resolve potential construction concerns;

- Maintain the Project website throughout the Detailed Design and construction phases so that the public can access updated information on the Project; and
- Continue discussions/consultation with local stakeholders, members of the public and Indigenous communities with respect to potential impacts during the Detailed Design phase and construction phase, as appropriate.

E.7 Future Commitments and Permits and Approvals

During the pre-planning and TPAP phases, Metrolinx worked closely with key stakeholders to address and resolve any issues or concerns. The table below summarizes the proponent's commitments to future studies, permits and approvals during the Detailed Design phase, construction and operation, and maintenance phases of the Project.

Table E-6: Summary of Future Commitments

Project Components	Discipline	Project Phase	Commitments for Future Work
All Project Components	**All**	N/A	▪ Review the associated Regulations to confirm that that the *Impact Assessment Act* does not apply.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**All**	Detailed Design Construction Operation	▪ Implement mitigation measures and monitoring requirements documented in Tables 5-22, 5-23 and 5-24.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cherry Street Interlocking Tower**	Detailed Design	▪ Prepare a Conservation Plan for the Tower relocation and include its recommendations in Detailed Design. The Conservation Plan must address the mitigation measures and recommendations outlined in the Heritage Impact Assessment. ▪ Ensure that a conservator of heritage industrial equipment (or equivalent qualified professional) is included on the consultant team to document and catalogue the interlocking machinery and all its components and to advise on any selective removal, temporary storage, and reinstatement of components resulting from the structural bracing required to move the Tower.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cherry Street Interlocking Tower**	Prior to Relocation	▪ Ensure that a Condition Assessment is prepared for the Tower and this will document measured drawings, professionally taken photographs and video recordings of the Tower and equipment as it currently functions prior to decommissioning. ▪ Create an inventory of fixed and movable fittings, furnishings and artefacts and salvage them to the extent practical. ▪ Ensure that the interlocking equipment, identified as heritage attributes at the first and second levels of the Tower, remains in the relocated Tower to maintain its cultural heritage value. ▪ Ensure that the lowest storey of the building at the new location is a concrete structure reproducing the existing arrangement. ▪ Undertake any necessary temporary repairs identified in the Conservation Plan. ▪ Implement protective measures (e.g., selective removal, stabilization and bracing systems) identified in the Conservation Plan.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cherry Street Interlocking Tower**	Post Relocation	▪ Prepare a post relocation Condition Assessment Report to identify any necessary repairs resulting from the relocation. ▪ Ensure that the relocated building is restored, including all measures identified in the Condition Assessment Report and heritage attributes such as the masonry, existing windows and doors, existing roof structure, interior components, finishes and the interlocking machinery. Components that cannot be retained in the reconstructed basement should be offered to interested railway heritage agencies for their collections through a recognized process of de-accession, or relocated elsewhere in the Tower. ▪ Ensure that all necessary repairs identified in the Condition Assessment Report are undertaken. ▪ Reinstate the iron guard rail fencing on the extended Cherry Street Bridge. ▪ Prepare and implement an Interpretive Plan or specialized public program for the Tower and equipment to interpret its original function. ▪ Prepare a Strategic Conservation Plan for the Tower.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Consultation**	Detailed Design	▪ Continue to consult and co-ordinate with the City of Toronto on their plans for Lower Yonge Precinct Plan and Lower Yonge Transportation Master Plan EA as required. ▪ Continue to co-ordinate with the developers of the Trinity Street Pedestrian Underpass and the 31R Parliament Street, 370R & 370 Cherry Street Future Development. ▪ Co-ordinate with the City of Toronto and the TTC on their plans for the design of the Light Rail Transit alignment under the rail corridor at Cherry Street and the connection enhancements under the rail corridor at Parliament Street and Cherry Street. ▪ Continued communication with the neighbouring communities will occur throughout the Detailed Design and construction process. ▪ Consult the owners of billboards to be relocated or removed as a result of construction works. Co-ordination will occur with the property owners during the Detailed Design phase to reach an agreement of relocation/removal and future maintenance requirements. ▪ Continue to consult with utility providers with the intent to minimize service interruptions. ▪ Engage TRCA throughout Detailed Design through the Voluntary Project Review Process. ▪ Work with the CAC to develop a shared understanding of commitments/activities to be completed by Metrolinx to address community concerns associated with ongoing existing operational and construction related effects.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Consultation**	Prior to Construction	▪ Notify Transport Canada's Ontario Regional Railway Safety Directorate office, the City of Toronto, and all abutting landowners 60 days before the date of commencement of the proposed railway works.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Contamination**	Detailed Design	▪ Undertake a Phase I ESA investigation for any additional lands required for the Project (both permanent and temporary).

Project Components	Discipline	Project Phase	Commitments for Future Work
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cultural Environment**	Detailed Design	▪ Reassess the need for further archaeological work based on the final LOD. ▪ Ensure that Stage 2 monitoring occurs for areas of archaeological potential identified within or crossing over the LOD if construction disturbance should reach a depth of 76 m ASL (1 to 7 m). ▪ Complete Heritage Impact Assessments for the four underpasses; Lower Jarvis Street Bridge, Lower Sherbourne Street Bridge, Parliament Street Bridge and Cherry Street Bridge. ▪ Continue to engage with the City of Toronto Heritage Preservation Services and MTCS as the Project progresses regarding the findings of any Heritage Impact Assessments and further archaeological assessments.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cultural Environment**	Construction	▪ Ensure that no grading or other activities that may result in the destruction or disturbance of an archaeological site are undertaken until notice of MTCS approval has been received.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Erosion and Sediment Control**	Detailed Design and Construction	▪ Develop an Erosion and Sediment Control Plan in consultation with TRCA (through the Voluntary Project Review process).
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Soil and Groundwater**	Detailed Design	▪ Ensure that registration on the Environmental Activity and Sector Registry (EASR) occurs for dewatering between 50,000 and 400,000 L/day or a Permit to take Water (PTTW) is obtained from the MECP if dewatering exceeds 400,000 L/day. ▪ Obtain approvals for the discharge of pumped water to the City's storm sewer, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval (through the Voluntary Project Review process), and/or MECP Environmental Compliance Approval (ECA) (OWRA, Section 53). ▪ Circulate reports relating to potential impacts on soils and groundwater for lands owned by the City to the City of Toronto's Engineering & Construction Services, Soil & Groundwater Unit for review. ▪ Prepare a Spill Prevention and Response Plan, outlining steps to prevent and contain any contaminant releases and/or to avoid impacts to groundwater.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Natural Environment**	Detailed Design	▪ Complete an Arborist Report which will assess the potential removal, injury, and preservation of trees, as well as permitting details and compensation measures. ▪ Consult the MNRF to confirm the initial SAR screening assessment, to identify the need for any additional SAR-targeted surveys, and to confirm whether an authorization or permit under the ESA, 2007 is required.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Noise and Vibration**	Detailed Design and Pre-Construction	▪ Develop a construction monitoring program, which will include existing condition assessments of adjacent buildings and residences and evaluate the need for monitoring during construction of sensitive features (to be determined during Detailed Design).
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Public Realm**	Detailed Design	▪ Fund a Pedestrian and Cycling Connectivity Study to look at options to address connectivity in the Study Area. The underpass improvements will be studied as part of the Pedestrian and Cycling Connectivity Study. ▪ Continue to work with Waterfront Toronto and the City of Toronto to determine the way forward in terms of funding recommendations and implementation strategies based on the outcomes of the Pedestrian and Cycling Connectivity Study. ▪ Continue to co-ordinate with the City of Toronto and Waterfront Toronto regarding the public realm elements of the Gardiner EA and East Bayfront Public Art Master Plan that interact with the USRC East Enhancements Project. ▪ Continue to meet with the (CAC) to obtain input with respect to the retaining walls, bridge extensions and other issues that have been raised at CAC meetings, as per the CAC Terms of Reference. ▪ Ongoing consultation with the City of Toronto, Waterfront Toronto, TRCA and the neighbouring communities to inform a vision, design and integration approach for public realm and public facing elements.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Public Realm**	Post Construction	▪ Conduct post-planting monitoring of landscaped areas. Should the plantings and/or seed mix not survive, additional seeding and/or plantings shall be undertaken with additional monitoring during the growing season, as per the landscaping warranty. In addition, public facing retaining walls and landscaped areas on Metrolinx property will undergo routine maintenance.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Recreational Uses, Active Transportation, Trails & Parks and Open Spaces**	Construction	▪ Develop a Lighting Plan and implement Best Management Practices related to lighting.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Stormwater Management**	Detailed Design	▪ Develop a Stormwater Management Report to assess drainage impacts of Tracks E0, E7, and E8, and all associated works in the area. Stormwater Management Report will be co-ordinated in consultation with TRCA and through the Waterfront Toronto design process. ▪ Develop a Flood Contingency Plan for any proposed works or temporary laydown areas and staging areas that are located within the floodplain at the Detailed Design phase.

Project Components	Discipline	Project Phase	Commitments for Future Work
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Traffic and Active Transportation**	Detailed Design	▪ Develop staging plans, including potential detour routes, measures to minimize impacts to pedestrians and cyclists such as timing of bridge extension construction and limiting concurrent construction on underpasses that are adjacent to each other, construction ingress and egress and laydown areas, according to traffic impacts, and co-ordinating staging plans with other projects that will be taking place in the area. ▪ Continue to co-ordinate with the City of Toronto, Waterfront Toronto, Emergency Services and transit providers (i.e., the TTC) regarding mitigation of traffic, cyclist and pedestrian impacts during Detailed Design. ▪ Continue to co-ordinate with the City of Toronto and Waterfront Toronto with respect to service access points near intersections with the Gardiner Public Realm project to avoid safety issues and conflicts with the bicycle and pedestrian trails on the north side of the Gardiner. ▪ Notify the City of Toronto and TTC in advance of any closures or detour routes.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Utilities**	Detailed Design	▪ Metrolinx will obtain MECP Environmental Compliance Approval (ECA) for connecting to existing sewers, where applicable. No realignment of sewers are anticipated. ▪ Bridgework for Tracks E0, E7 and E8 works will likely require realignment of watermains, thus, a DWWP will be acquired in Detailed Design. ▪ Ensure that any impacts to existing City owner utilities are noted and adequately resolved during the Detailed Design Submission to the City of Toronto. ▪ Continue to co-ordinate with the City of Toronto and Waterfront Toronto with regard to utility relocation needs between different projects in the area.
Wilson Yard Layover Facility	N/A	N/A	▪ Prepare an Addendum to the USRC East Enhancements Project TPAP (once approved), if required based on the preparation of a more detailed level of design for the Wilson Yard Layover Facility. It is noted that if the TPAP Addendum is required, the City of Toronto, Waterfront Toronto, TRCA, TTC, Hydro One, Toronto Hydro, Enbridge and the neighbouring communities will be engaged as appropriate. ▪ Review the associated Regulations to confirm whether the changes affect permitting requirements once the new the *Fisheries Act* is in place.
Wilson Yard Layover Facility	**All**	Detailed Design Construction Operation	▪ Ensure that all mitigation measures and monitoring requirements documented in Tables 5-22, 5-23 and 5-24 are implemented.
Wilson Yard Layover Facility	**All**	Detailed Design	▪ Confirm retaining wall and embankment requirements as well as access requirements in consultation with the City of Toronto, Waterfront Toronto, TRCA, Hydro One, Toronto Hydro and Enbridge. ▪ Continue to co-ordinate with the City of Toronto, Waterfront Toronto and TRCA regarding the elements of the Sediment and Debris Management Area, Cherry Street Stormwater Facility, Lower Don River Trail and Gardiner EA. ▪ Continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA to ensure that necessary realignments and/or temporary detours of the Lower Don River Trail are in place for the construction of the Wilson Yard Layover Facility and realigned Harbour Lead. ▪ Continue to co-ordinate with Enbridge regarding their plans in the vicinity of the Wilson Yard Layover Facility. ▪ Continue to co-ordinate with Hydro One to obtain an agreement with respect to the relocation of the overhead power lines and buried cables.
Wilson Yard Layover Facility	**Natural Environment**	Detailed Design	▪ Discuss the suitability of the cultural woodlands as potential SAR bat habitat within and adjacent to the Wilson Yard Layover Facility with the MNRF Aurora District office and confirm the need for any additional surveys.
Wilson Yard Layover Facility	**Stormwater Management**	Detailed Design	▪ Prepare a Stormwater Management Report to assess drainage impacts of the Wilson Yard Layover Facility in consultation with TRCA, Waterfront Toronto and the City of Toronto. ▪ Prepare a Drainage Plan as part of Detailed Design.
Wilson Yard Layover Facility	**Utilities**	Detailed Design	▪ Show protection measures for the 3000 mm Storm Tunnel from Cherry Street to Keating Channel for any foreseen impacts, if any, as part of the Detailed Design submission. ▪ Show protection measures for the existing watermain (460 mm) on the east side of Don Yard and the Wilson Yard Layover Facility. ▪ Continue to inform the City of Toronto and Waterfront Toronto of utility relocation plans. ▪ Any connections to and realignment of storm sewers will have the required ECAs where applicable. Confirmation of required approvals for sewer and watermain impacts will be provided during detailed design of Wilson Yard.
Wilson Yard Layover Facility	**Contamination**	Detailed Design	▪ Undertake a Phase I ESA investigation for any additional lands required for the Project (both permanent and temporary).
Wilson Yard Layover Facility	**Soil and Groundwater**	Detailed Design	▪ Circulate reports relating to potential impacts on soils and groundwater for lands owned by the City to the City of Toronto's Engineering & Construction Services, Soil & Groundwater Unit for review.

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C.3e Elected Officials
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C.3f Revised Draft EPR Review

List of Acronyms

AA	Archaeological Assessment
AAF	Avoidance Alternative Form
AM	ante meridiem
ANSI	Area of Natural and Scientific Interest
ATR	Automated traffic recorders
ATRIS	Aboriginal and Treaty Rights Information System
AQ	Air Quality
BCI	Bats Conservation International
BGS	Below Ground Surface
BIA	Business Improvement Areas
BOD	Biochemical Oxygen Demand
BTEX	Benzene, toluene, ethylbenzene, xylenes
CAC	Community Advisory Committee
CEAA	*Canadian Environmental Assessment Act*
CFIA	Canadian Food Inspection Agency
CHER	Cultural Heritage Evaluation Report
CHFT	Co-Operative Housing Federation of Toronto
CHSR	Cultural Heritage Screening Report
CHVI	Cultural Heritage Value or Interest
CNR	Canadian National Railway
CO_2	Carbon Dioxide
Co-Op	Co-Operative
CPTED	Crime Prevention through Environmental Design
CRBA	Corktown Residents and Business Association
CTC	Central Lake Ontario
CUH	Cultural Hedgerows
CUM	Moist Old Field Cultural Meadow
CUT	Mineral Cultural Thicket
CUW	Mineral Cultural Woodland
CWSP	Central Waterfront Secondary Plan
dBA	A-weighted decibels
DBH	Diameter at Breast Height
DFO	Fisheries and Oceans Canada
DMNP	Don Mouth Naturalization and Port Lands Flood Protection
D.U	Data Unavailable
DVP	Don Valley Parkway
DWWP	Drinking Water Works Permit

E	East
EA	Environmental Assessment
EAB	Emerald Ash Borer
EASR	Environmental Activity and Sector Registry
EASR	Environmental Approval Sector Registry
EBA	Event Based Area
EC	Environment Canada
ECA	Environmental Compliance Approval
ECCC	Environment and Climate Change Canada
ELC	Ecological Land Classification
EMMP	Environmental Mitigation and Monitoring Plan
EPR	Environmental Project Report
ESA	Environmentally Significant Areas
ESC	Erosion and Sediment Control
ESMP	Excess Soil Management Plans
FHWA	Federal Highway Administration
FLSA	French Language Services Act
FPL	Flood Protection Landform
FPP	Fisheries Protection Program
FTA	Federal Transit Administration
GHG	Greenhouse Gases
GTA	Greater Toronto Area
GTHA	Greater Toronto and Hamilton Area
GWNA	Gooderham & Worts Neighbourhood Association
ha	Hectares
HCD	Heritage Conservation Districts
HIA	Heritage Impact Assessment
HVA	Highly Vulnerable Aquifer
IGF	Information Gathering From
INAC	Indigenous and Northern Affairs Canada
IO	Infrastructure Ontario
IPZ	Intake Protection Zones
km	Kilometres
Km/h	Kilometres per hour
LOD	Limits of Disturbance
LOS	Level of Service
LRT	Light Rail Transit
m	Metres

m^2	Metres squared
MBCA	*Migratory Birds Convention Act*
MDRP	Metrolinx Design Review Panel
MIRR	Ministry of Indigenous Relations and Reconciliation
MMAH	Ministry of Municipal Affairs and Housing
Mm	Millimetre
Mm/s	Millimeter/second
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of the Environment and Climate Change
MECP	Ministry of the Environment, Conservation and Parks
MTCS	Ministry of Tourism, Culture and Sport.
NAPS	National Air Pollution Surveillance program
NO	Nitric Oxide
NO_x	Nitrogen Oxide
NOA	Notice of Activity
NPA	Navigation Protection Act
NPC	Noise Pollution Control
OASD	Ontario Archaeological Sites Database
OBBA	Ontario Breeding Bird Atlas
OCS	The Overhead Contact System
OGS	Ontario Geological Survey
OHA	Ontario Heritage Act
OHT	Ontario Heritage Trust
OPA	Official Plan Amendment
OPSS	Ontario Provincial Standards Specification
O. Reg.	Ontario Regulation
OWRA	*Ontario Water Resources Act*
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PHC	petroleum hydrocarbons
PHP	Provincial Heritage Property
PHPPS	Provincial Heritage Property of Provincial Significance
PM	Post meridiem
PM	Public Meeting
$PM_{2.5}$	fine particulate matter
PPB	Percentile Ambien Concentration Measures
PPS	Provincial Policy Statement
PSO	Permanent Slow Order

PTTW	Permit to Take Water
PWQO	Provincial Water Quality Objectives
RER	Regional Express Rail
RMSV	Root Mean Square Velocity
RNFP	Ravine and natural feature protection
ROW	Right-of-Way
RQD	Rock Quality Designation
RTP	Regional Transportation Plan
SAR	Species at Risk.
SARA	Federal *Species at Risk Act*.
SARO	Species at Risk in Ontario.
SOCC	Species of Conservation Concern
SWH	Significant Wildlife Habitat
TAC	Technical Advisory Committee
TCLP	Toxicity Characteristic Leaching Procedure
TIA	Transportation and Traffic Impact Analysis
TPAP	Transit Project Assessment Process
TPLC	Toronto Port Lands Company
TPZ	Tree Protection Zones
TRCA	Toronto and Region Conservation Authority
TRHA	Toronto Railway Historical Association
TTC	Toronto Transit Commission
TTR	Toronto Terminals Railway
UITP	International Association of Public Transport
UTM	Universal Transverse Mercator
USRC	Union Station Rail Corridor
V/C Ratio	Volume to Capacity Ratio
VdB	vibration decibels
VOC	volatile organic compounds
ZOI	Zone of Influence

1. Introduction

1.1 Project Overview

In 2008, Metrolinx, an agency of the Province of Ontario, adopted the Regional Transportation Plan (RTP) called 'The Big Move' which provides the vision, goals and objectives for the future development of the regional transportation network within the Greater Toronto and Hamilton Area (GTHA). The RTP identifies the need for increased and improved transit service in the GTHA over a 25-year period and outlines priority transit initiatives which would provide significant improvements to the GTHA transportation network.

As part of the RTP, Metrolinx has proposed expansion and modifications within the eastern portion of the Union Station Rail Corridor (USRC) east of Yonge Street to west of the Corktown Common Park (approximately Mile 0.35E to Mile 1.51E). The environmental effects of the Project have been assessed following the Transit Project Assessment Process (TPAP), as prescribed in *O. Reg. 231/08* under the *Environmental Assessment Act*. As part of the TPAP, this Environmental Project Report (EPR) has been prepared for public review.

The purpose of the Union Station Rail Corridor (USRC) East Enhancements Project is to provide additional mainline track capacity, increased train storage capacity and increased track speed capabilities along the east side of the USRC. This project will facilitate infrastructure improvements to support the planned increases in train and passenger volumes in the USRC as part of the transformational Regional Express Rail (RER) program.

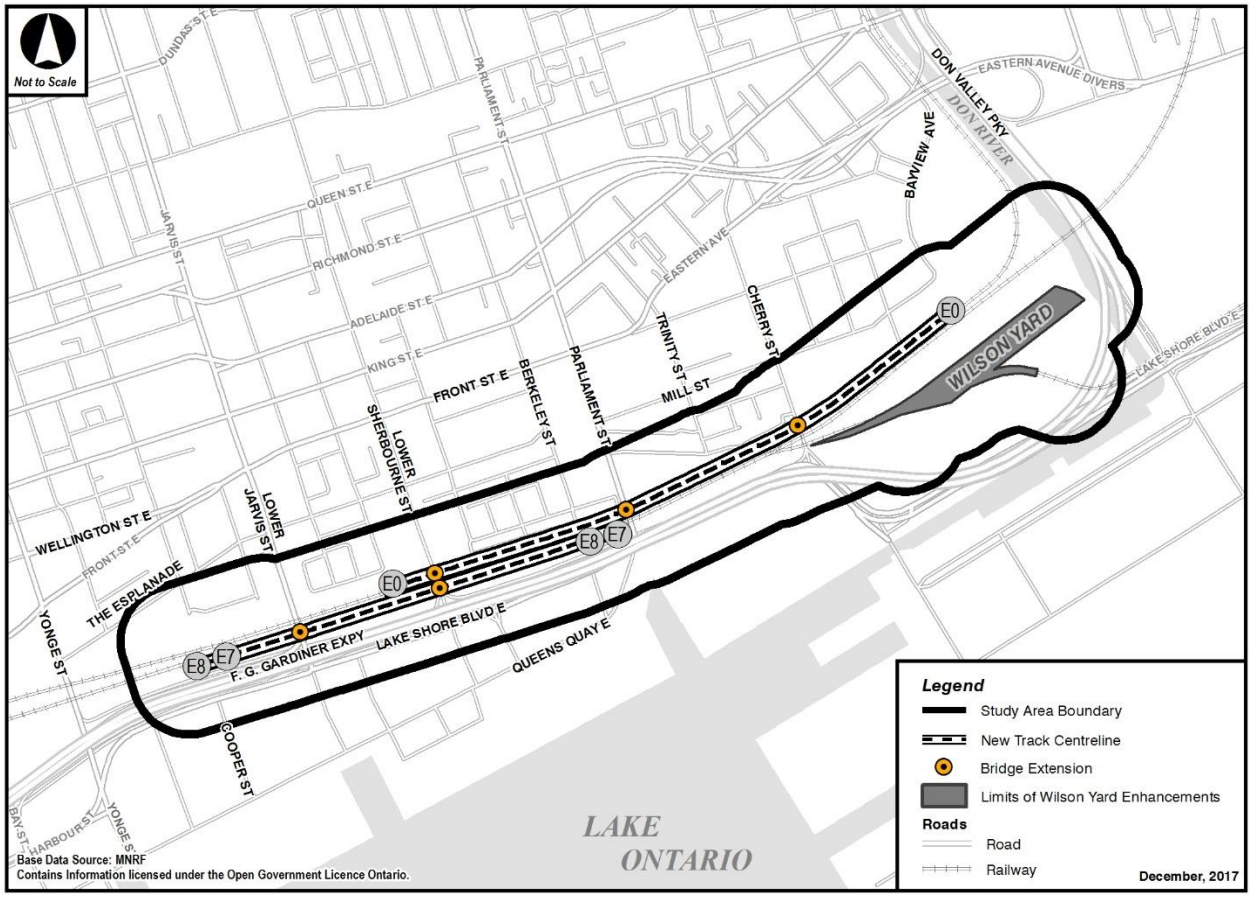
The USRC East Enhancements Project includes the following components (**Figure 1-1**):

- **Provision of a north track (E0)**: track modifications to extend the North Service Track from east of Lower Jarvis Street Bridge (approximately Mile 0.6E) through Cherry Street Bridge where it will connect to the existing mainline (Track E1) leading to the Bala and Belleville subdivisions. The new track will require extensions to the northern sections of the bridges over Lower Sherbourne Street, Parliament Street and Cherry Street with associated retaining and supporting structures.
- **Provision of new south tracks (E7 and E8)**: construction of two new south tracks (E7 and E8) starting west of Lower Jarvis Street (approximately Mile 0.35E) connecting the existing Tracks 13 and 14 in Union Station to future track

realignments connecting west of Parliament Street (approximately Mile 0.9E) to the existing Don Yard. The new E7 and E8 tracks will require extensions to the southern sections of the bridges over Lower Jarvis Street and Lower Sherbourne Street and associated retaining and supporting structures.

- **Wilson Yard Layover Facility**: construction of up to five new storage tracks and reconfiguration of the existing three tracks (i.e., up to eight storage tracks in total) at the Wilson Yard Layover Facility for additional storage and layover capacity for GO trains.

Figure 1-1: USRC East Enhancements Project Components



The 'Big Move', the RTP for the GTHA, identifies the need for a significant increase in rail service across the entire GO Transit network. To this end, Metrolinx will introduce RER over the next ten years – an expanded service that will provide new travel choices on the GO Transit network across the GTHA, including a 15-minute, 2-way, all day transit service on five GO lines with electrified service in core areas. Future RER service will provide more frequent, faster and higher capacity service by upgrading its existing

fleet to include electric propulsion. RER will mean an improved service, shorter travel times for passengers and lower operating costs.

Expanded and improved rail service across the GO Transit network will mean passengers have more options and reduced travel times during weekdays, evenings and on weekends. More people will make GO Transit their transportation of choice – meaning fewer cars congesting our road networks, less time spent commuting and cleaner air.

1.1.1 Changes to Initial Proposed Track E0 Extension Prior to TPAP – Track E0

During the pre-TPAP consultation on this Project, concerns were raised by Toronto and Region Conservation Authority (TRCA) regarding the potential negative impacts of the originally proposed extension of Track E0 to the Flood Protection Landform (FPL) in the Corktown Common area (see **Figure 1-2**). The FPL was constructed by the TRCA as part of the Lower Don River West Remedial Flood Protection Project to protect sections of downtown Toronto from flood waters associated with the Don River. The USRC East Enhancements Project intersects with the FPL through the following activities:

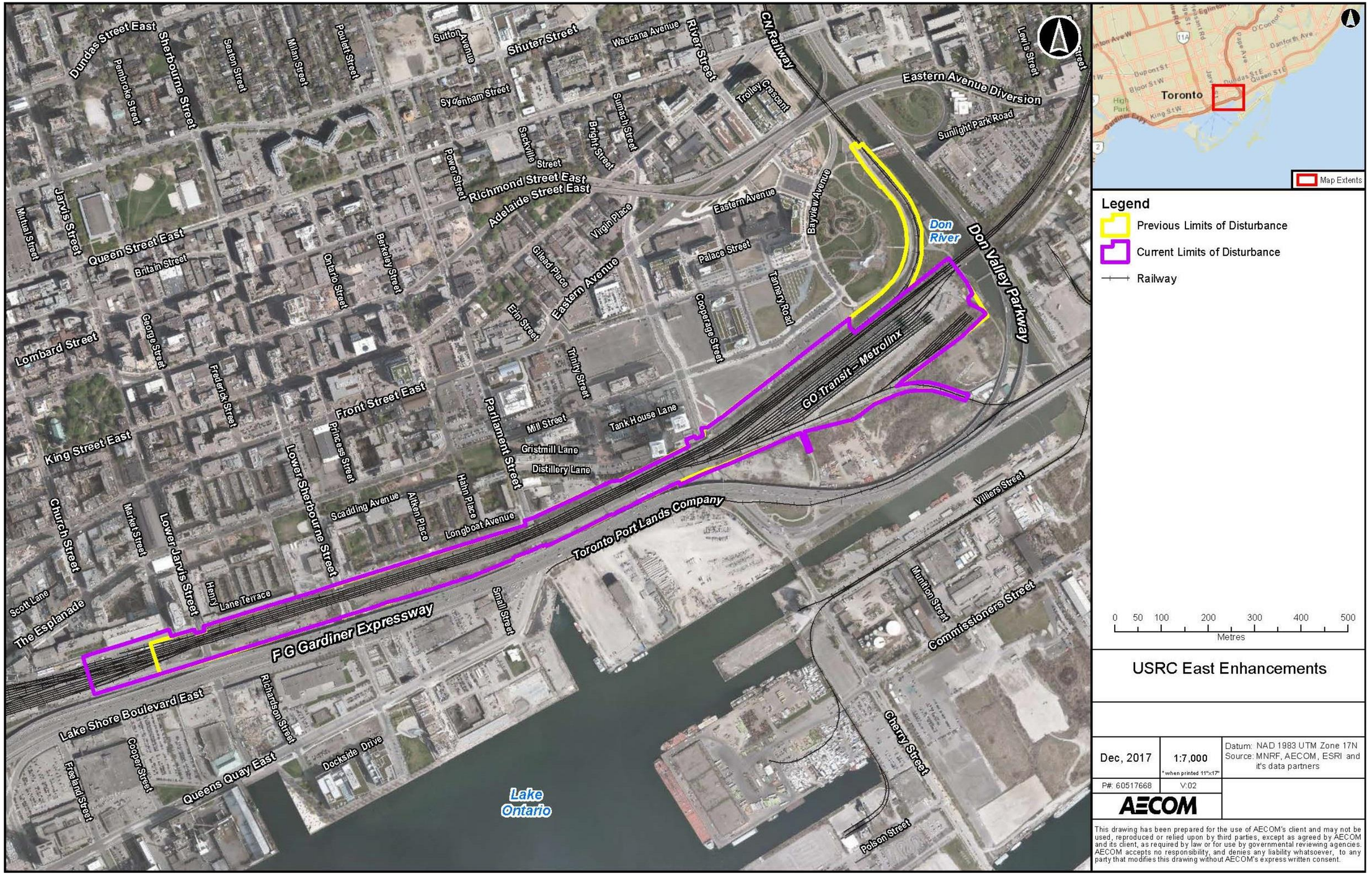
- Constructing the retaining wall through the Corktown Common area and extending the Lower Don River Trail Pedestrian Underpass to support the new Track E0;
- Relocating the multi-use trail; and
- Temporary construction staging area.

A Geotechnical Assessment has been completed as part of this Project and the soils in this area are found to be not compatible for typical retaining wall construction. Due to the poor conditions and depth of bed rock, piling of at least 30 m would be required to safely construct the retaining wall in order to support rail loading. This construction method is expected to result in significant disturbances to the FPL and the floodplain in the Corktown Common area.

To avoid impacts to the FPL, Metrolinx has decided to reduce the length of the proposed Track E0 by approximately 600 m (the new turnout is placed at Mile 1.51E). This change to the design would still enable Metrolinx to achieve its service levels as part of the planned RER program.

As a result of this change to the Project, extending the Lower Don River Trail Pedestrian Underpass (Bala Underpass) and other associated improvements in the Corktown Common area are no longer part of the USRC East Enhancements Project.

Figure 1-2: Revised Limits of Disturbance



1.2 Purpose of the Transit Project

Within the USRC runs three main GO Train Lines: Lakeshore East, Stouffville and Richmond Hill Rail Lines. Building on the 30-minute off-peak service introduced in June 2013, Metrolinx is moving forward with RER, a program that will provide new travel choices on the GO Transit network across the GTHA, including a 15-minute electrified service in core areas. Train movements will therefore continue to increase in these corridors as more frequent service is introduced, despite its importance to the wider GO Transit network.

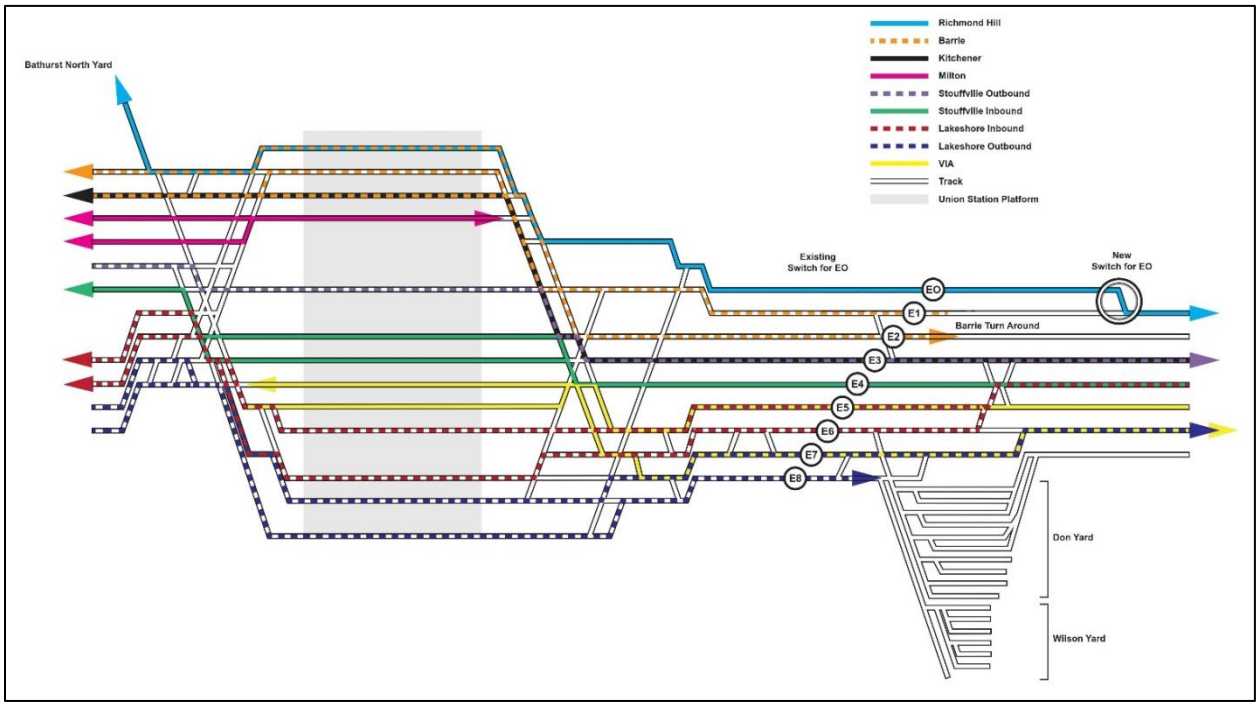
1.2.1 Rationale for Track E0

On the north side of the corridor, Track E0 currently exists just west of Lower Sherbourne Street where it connects with Track E1 to cross the Lower Sherbourne Street Bridge. Metrolinx's plan is to widen the existing embankment and corresponding bridges to extend the existing Track E0 east just past Cherry Street.

This new track is required to accommodate the planned RER and SmartTrack programs to get people moving in the City of Toronto and the region. Track E0 is crucial to building a sufficient number of conflict free train routes that can accommodate the projected train volumes around the eastern approach to Union Station, which is a requirement for RER and SmartTrack to function at the precision needed to operate a high frequency railway.

More specifically, the new track infrastructure will provide one new direct route into Union Station on the north side of the USRC. The construction of the E0 Track will allow for the GO service from Tracks 1, 2 and 3 to run straight out and into Union Station with the minimum use of switches and will increase capacity on the existing tracks. **Figure 1-3** shows the current proposal for train services routes through Union Station as part of RER. During peak periods, some trains that come from the west need to move through Union Station and turn around on the eastern side of the USRC. These movements are expected to use the existing Tracks E1 and E2 which necessitates shifting Richmond Hill trains onto an extended Track E0 to avoid major conflicts and delays on the eastern approach to Union Station.

Figure 1-3: RER Train Services Routes through USRC East



Without the construction of Track E0, the east approach to the USRC would become significantly more congested and much more sensitive to any service disruptions. Specifically, if Track E0 is not built the following will result:

- Reduce the potential throughput capacity of Union Station which is required to accommodate RER/SmartTrack service levels;
- Increase in conflicts/delays which can mean more idling;
- Limit operational recovery; and
- Preclude 2-way all day service on the Richmond Hill Corridor.

1.2.2 Rationale for Tracks E7 and E8

Tracks E7 and E8, which extend from west of Lower Jarvis Street to west of Cherry Street, are expected to handle the majority of the eastbound Lake Shore and VIA trains and all equipment movements to/from Don Yard. They are required to accommodate increased train movements related to RER, while minimizing conflicts that can cause cascading and potentially unrecoverable delays in the entire RER network. Tracks E7 and E8 are essential for reliable RER/SmartTrack service.

Without the construction of Tracks E7 and E8, the east approach to the USRC becomes significantly more congested and much more sensitive to any service disruptions and

the RER service goals to increase capacity and operational flexibility would not be achieved. Specifically, Tracks E7 and E8 will:

- Provide new direct routes into Union Station and improve the ability to move trains quickly through the USRC;
- Provide potential to add four to six additional trains to the capacity of Union Station assuming the operating plan can be designed to support this without undue train conflicts;
- Improve the approach speeds to the south proposed Union Station platform, potentially yielding two additional trains per hour capacity at this platform;
- Track E8 will provide direct access of equipment trains from Don Yard to Union Station, reducing the number of idling trains waiting to enter the station during peak periods;
- Support train movements to and from the Wilson Yard Layover Facility; and
- Provide faster, more frequent GO Trains, operating in both directions throughout.

1.2.3 Rationale for Wilson Yard Layover Facility

Once RER and SmartTrack are operational, there will be a deficit in train storage adjacent to Union Station. The Wilson Yard Layover Facility would be required to allow adequate storage in close proximity to Union Station to accept trains coming out of service in the AM and to stage trains coming into service in the PM. Up to 18 trains require a place to layover on the southeast of the USRC. The Don Yard has ten tracks and the proposed Wilson Yard Layover Facility will provide eight new tracks. Without the Wilson Yard Layover Facility eight of these trainsets would have to remain in service longer or go to much more remote layover facilities, further consuming capacity and increasing operating costs.

1.3 Description of the Study Area

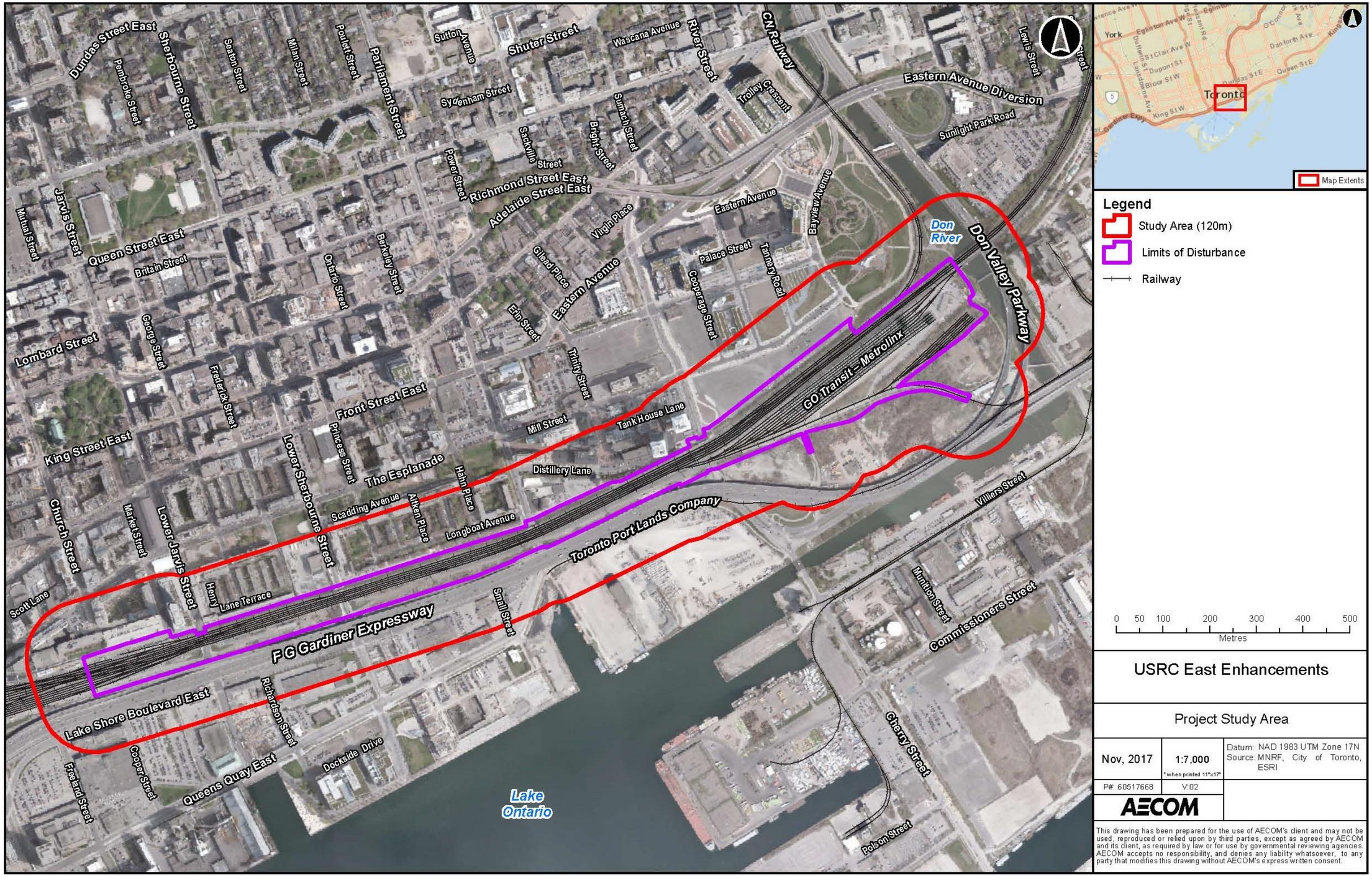
Figure 1-4 shows the USRC encompassing the existing rail right-of-way (ROW) from east of Yonge Street to west of Corktown Common Park (approximately Mile 0.35E to Mile 1.51E). The Study Area for this TPAP includes a 120 m buffer from the Limits of Disturbance (LOD). The LOD are where project effects have a potential to occur.

To complete specific environmental and technical studies required for this TPAP, the Study Area was extended beyond the existing LOD to account for environmental features that may be potentially affected by the proposed Project. Other specific Study Areas delineated for these studies are noted in **Table 1-1** below and **Section 4** of this EPR.

Table 1-1: Study Area by Discipline

Technical Reports	Assessment Area
Natural Environment	The Natural Environment Study Area is defined as extending 120 m from the edge of the LOD.
Tree Inventory	Tree Inventory Study Area is defined as extending 6 m from the edge of the LOD, except in areas designated as Ravine and Natural Features Protection, where the Study Area extends 12 m from the LOD.
Air Quality	The Air Quality Study Area is defined as extending 300 m from the edge of the LOD.
Noise and Vibration	The Noise and Vibration Study Area is defined as extending 300 m from the edge of the LOD.
Socio-Economic and Land Use Characteristics	The Socio-Economic and Land Use Study Area is defined as extending 120 m from the edge of the LOD.
Traffic and Transportation	The Traffic and Transportation Study Area includes all the major intersections potentially impacted by the USRC East Enhancements Project.
Archaeology	The Archaeology Study Area is defined as extending 50 m from the edge of the LOD.
Cultural Heritage	The Cultural Heritage Study Area is defined as extending 5 m from the edge of the LOD.

Figure 1-4: Study Area



1.4 Existing Rail Infrastructure

The existing USRC has trains running east, west and north. Within this rail corridor there are three active GO Train Lines: the Lakeshore East and West, Barrie, Kitchener, Milton, Stouffville and Richmond Hill Rail Lines. These lines provide a mix of weekday rush-hour train service and all-day service seven days a week in and out of Toronto. To accommodate additional capacity and achieve service improvements, Metrolinx intends to increase the number of mainline tracks within the USRC. Refer to **Figure 1-5** for the existing rail infrastructure in place and what is being proposed.

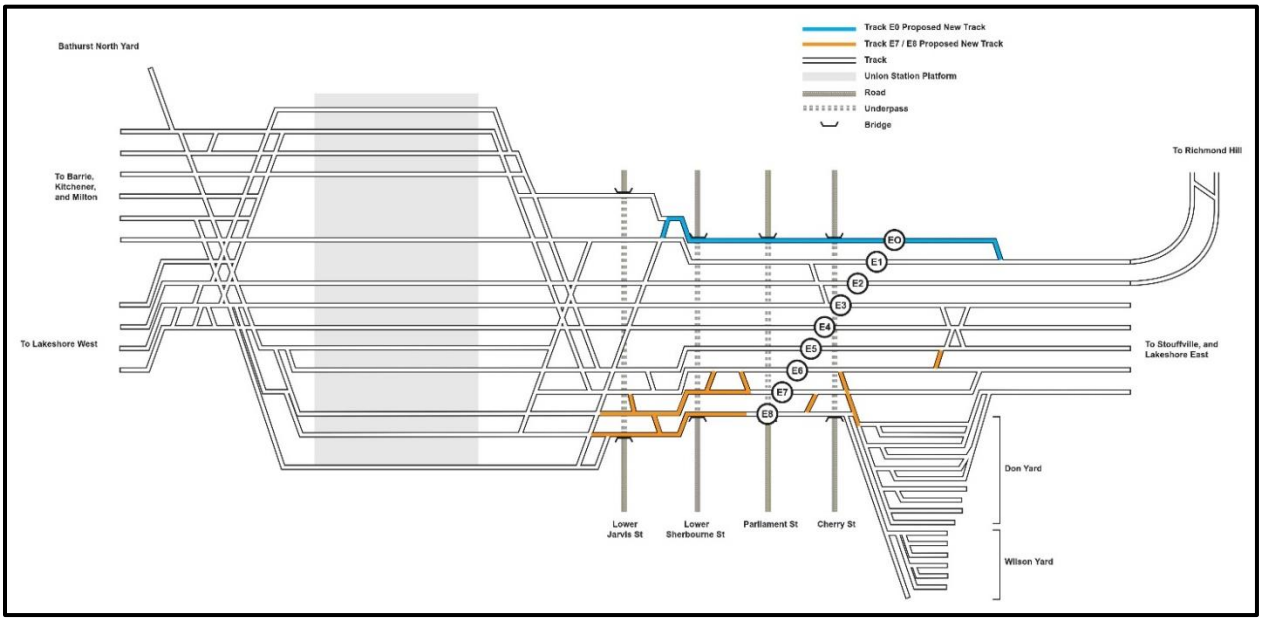
The following municipal roads cross under the USRC within the Study Area:

- Cherry Street (speed limit of 40 km/h);
- Parliament Street (speed limit of 40 km/h);
- Lower Sherbourne Street (speed limit of 40 km/h); and
- Lower Jarvis Street (speed limit of 40 km/h).

The following municipal expressways fall within the Study Area:

- Gardiner Expressway (speed limit of 90 km/h for most of the expressway, 100 km/h for the westernmost portion); and
- Don Valley Parkway (DVP) (speed limit of 90 km/h).

Figure 1-5: Existing and Proposed Rail Infrastructure



1.5 Overview of Environmental Project Report

Table 1-2 below summarizes the information that is required to be included in the EPR as applicable to this Project and as specified in pages 33-34 of the *Guide to Ontario's TPAP* (Ministry of the Environment, Conservation and Park (MECP), formerly known as the Ministry of the Environment and Climate Change, MOECC, 2014), and the associated section of the EPR where it has been addressed.

Table 1-2: Environment Project Report (EPR) Reference

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

2. Study Process

2.1 Transit Project Assessment Process

This EPR was prepared in accordance with *O. Reg. 231/08, Transit Projects and Metrolinx Undertakings* (Transit Projects Regulation). By following the TPAP for certain approved projects, the Transit Projects Regulation exempts the proponent of the transit project (i.e., Metrolinx) from the requirements under Part II of the *Environmental Assessment Act*.

The TPAP is a proponent-driven, self-assessment process that provides a defined framework for the proponent to follow in order to complete the accelerated assessment of the potential environmental effects and decision-making within a 120-day regulated assessment timeline. Following this period, the regulation provides an additional 30-day public and agency review, and a further 35-day review by the Minister of the Environment, Conservation and Parks (i.e., MECP).

Proponents are urged to undertake introductory activities and consultation through Pre-Planning Activities prior to the commencement of the TPAP. Following completion of the Pre-Planning Activities, the proponent initiates the TPAP by issuing the Notice of Commencement and the regulated up to 120-day timeline commences.

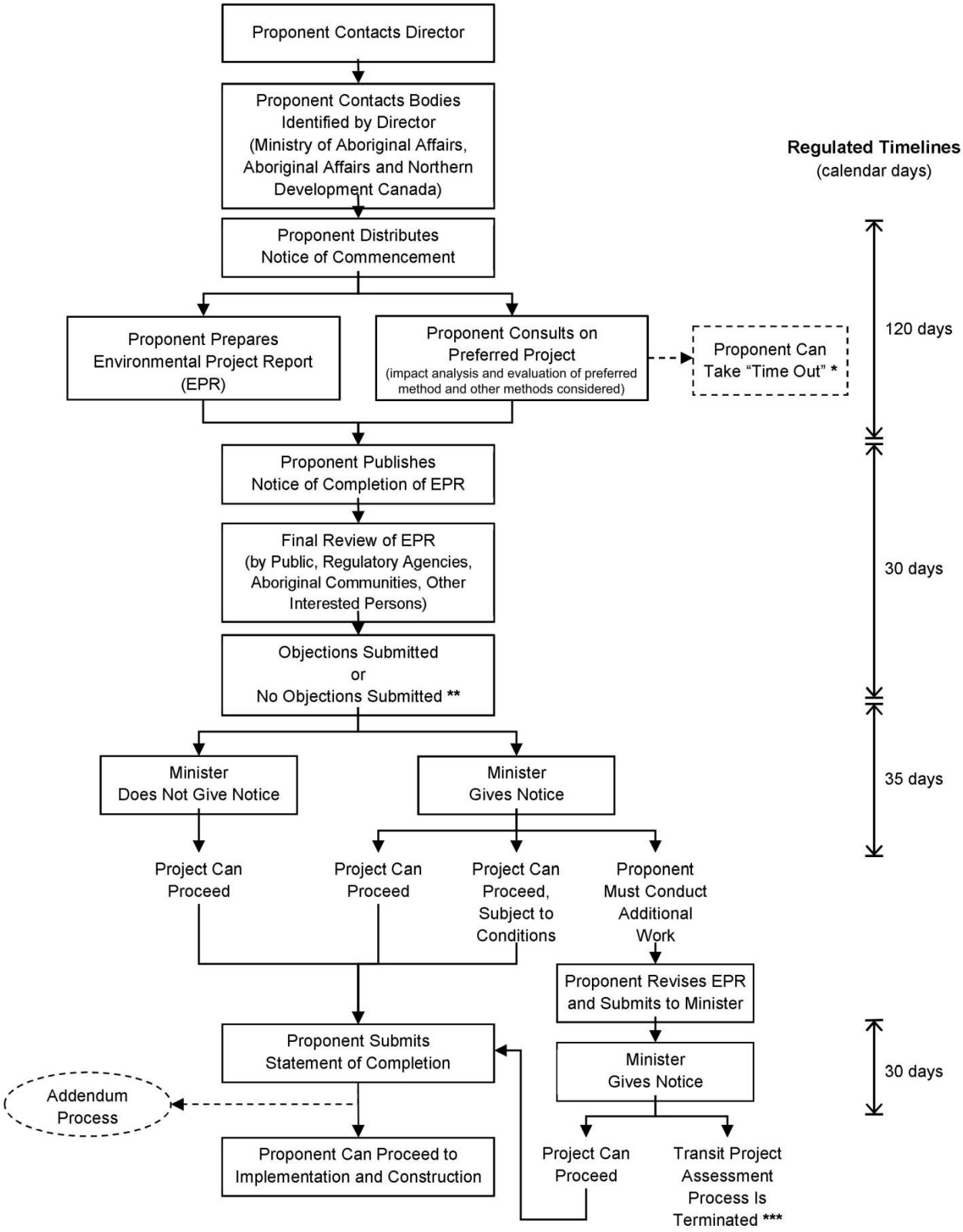
The prescribed steps of the TPAP are outlined in **Figure 2-1**.

2.1.1 Pre-Planning Activities

The existing environmental conditions within the overall Study Area and within discipline-specific study areas were established as part of the Pre-Planning Activities. Each of the primary environmental factors was assessed by practitioners using industry standard techniques. Studies were undertaken to document the existing environmental conditions in the following areas:

- Natural Environment Report;
- Air Quality Assessment;
- Noise and Vibration Impact Assessment;
- Socio-Economic and Land Use Characteristics Study;
- Transportation and Traffic Impact Analysis;
- Cultural Heritage Reports; and
- Stage 1 Archaeological Assessment.

Figure 2-1: Transit Project Assessment Process



2.1.2 Public and Stakeholder Consultation

Consultation for this Project occurred in two main stages – prior to the Notice of Commencement for the TPAP (including the release of the draft EPR for technical agency review); and following the Notice of Commencement of the TPAP. To build strong relationships and get a complete understanding of local issues in the surrounding communities, and to ensure communities stay engaged and informed, Metrolinx consults with the public and a range of stakeholders prior to officially commencing the TPAP. The consultation program has been followed by Metrolinx and is outlined in further detail in **Section 6**.

2.1.3 Key Steps of the TPAP

The TPAP defines a series of activities that allows the process to be completed within approximately six months. These activities involve the following steps:

- Contact with the MECP;
- Issue Notice of Commencement of the TPAP;
- Assessment process and consultation with the public and stakeholders;
- Issue Notice of Completion of the EPR (within 120 days of the Notice of Commencement);
- Provide 30 days for the public, review agencies, Indigenous communities and other interested persons to review the EPR;
- Provide 35 days for the MECP to review the EPR; and
- Submit a Statement of Completion.

It is important to note that *O. Reg. 231/08* provides a process by which the proponent may take a ‘time out’ during the up to 120-day TPAP consultation and documentation process. This may be used only when issues arise during the up to 120-day TPAP consultation period concerning a potential negative impact on a matter of Provincial importance or a constitutionally protected Aboriginal or treaty right. If a time out is taken, then notice of this must be provided to the Director and Regional Director of the MECP and posted on the project website. Once the issue has been addressed, the proponent may resume the TPAP by notifying the Director and Regional Director of the MECP.

2.1.4 Environmental Project Report

The documentation of the TPAP, as provided in this EPR, will be submitted to MECP within 120 days of publishing the Notice of Commencement. This EPR documents the

existing environmental conditions within the Study Area, the potential environmental effects of the Project, recommended mitigation measures, the consultation process followed, and future commitments for the Project.

2.1.5 Objection Process

The submission of this EPR and the issuance of the Notice of Completion triggers the 30-day public and agency review period. During this time, if members of the public, regulatory agencies, Indigenous communities, or other interested persons have concerns about this transit project, objections can be submitted to the Minister. After the 30-day review period has ended, any objections received will not be considered, and the Minister has 35 days within which certain authority may be exercised.

Persons wishing to submit an objection for the Minister to consider should provide the following information:

- Name, mailing address, organization or affiliation (where applicable), daytime telephone number, e-mail address (where possible);
- Contact details of the proponent including name address and telephone number;
- Brief description of the proponent's proposed undertaking;
- Basis for why further study is required, including identification of any negative impacts that relate to a matter of provincial importance or a constitutionally protected Aboriginal or treaty right that was not identified in the proponent's EPR; and
- Summary of how the person(s) objecting have participated in the Project's consultation process.

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

- Notice to proceed with the transit project as planned in its EPR;
- Notice that requires the proponent to take further steps, which may include further study or consultation; or
- Notice allowing the proponent to proceed with the transit project subject to conditions.

The Minister may give notice allowing the proponent to proceed with its transit project but can only take action if there is potential for a negative impact on a matter of Provincial importance that relates to the natural environment or has cultural heritage value or interest, or on a constitutionally protected Aboriginal or treaty right. If the Minister issues a notice to proceed with the transit project as planned, or if they do not

act within the 35-day period, Metrolinx will issue a Statement of Completion and proceed to implementation. The Statement of Completion will indicate that Metrolinx intends to proceed with the transit project in accordance with either:

- The EPR;
- The EPR subject to conditions set out by the Minister; or
- The revised EPR.

The construction or implementation of the transit project subject to the TPAP cannot begin until the requirements of the process have been satisfied.

3. Project Description

The main elements of the Preferred Design are detailed in this section and include the extension of the North Service Track to form a new track (Track E0), an additional two new tracks (E7 and E8) and increased storage capacity at the Wilson Yard Layover Facility. Refer to **Figure 1-2**.

3.1 Preferred Design

Each of the primary project components are discussed in detail below. Please refer to **Appendix A** for the Preferred Design drawings dated January 18, 2018.

Public Realm commitments can be found in **Section 7.4**, **Table 7-1**.

Metrolinx is committed to funding a separate Pedestrian and Cycling Connectivity Study (formerly called the Pedestrian and Cycle Connections Study) to look at options to address the connectivity challenge. The concept design of the renderings below are subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study.

3.1.1 Preferred Track Alignment for Track E0

Track E0 is proposed to mitigate congestion within the USRC through the additional mainline capacity and operational flexibility. The existing North Service Track currently connects into Track E1 approximately 30 m west of Lower Sherbourne Street (approximately Mile 0.73E). The new mainline will extend the existing North Service Track east, parallel to Track E1 across Lower Sherbourne Street, Parliament Street and Cherry Street. To facilitate extension of the Cherry Street Bridge and to create adequate clearance for the new track, the existing Cherry Street Interlocking Tower will need to be relocated.

East of Cherry Street, the new track will connect to the existing mainline (Track E1) leading to the Bala and Belleville subdivisions. The overall length of Track E0, from the existing North Service Track to Track E1 tie-in is approximately 1,436 m. The length of Track E0 will be confirmed through Detailed Design phase.

The Preferred Track Alignment for Track E0 can be found in **Appendix A**. Details associated with Track E0 are provided in the following sections and address:

- Retaining walls;
- Bridges;

- Utilities;
- Access; and
- Property.

3.1.1.1 Enhancements and Retaining Walls along the North Side of Track E0

Construction of Track E0 will require retaining walls along the majority of the north side of the new track to facilitate grading of the new track and associated access gates. The retaining walls will be built along the existing property line from east of Lower Sherbourne Street to approximately 285 m west of the Don River, which will provide the necessary space for the new track. The retaining wall height ranges from 1.5 m to 4.5 m. Existing fences and retaining walls along the property line will be replaced with the proposed retaining wall. The design of public-facing retaining walls and corridor-facing retaining walls that may be notable from a public realm perspective has been reviewed by the Metrolinx Design Review Panel (MDRP) in co-ordination with the City of Toronto and Waterfront Toronto.

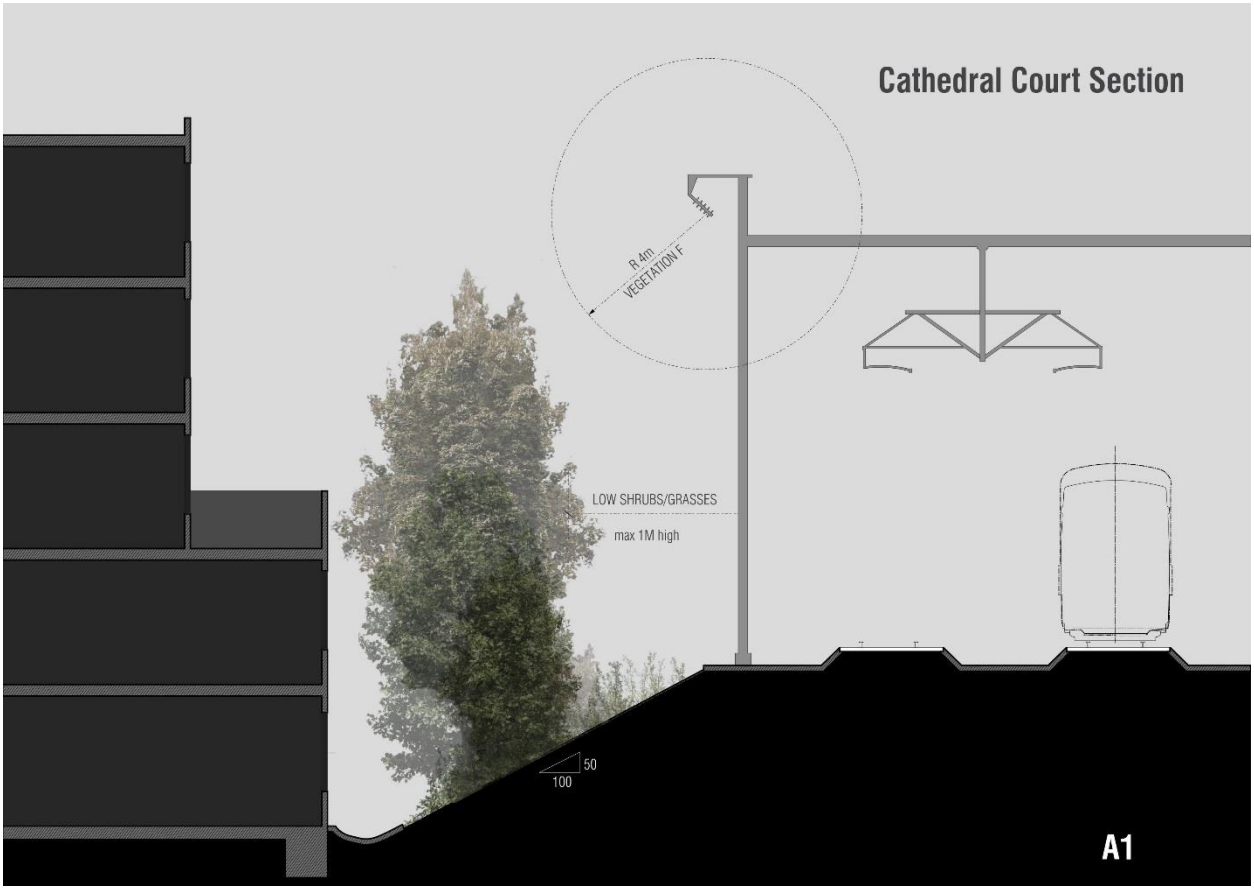
The following sections provide additional details on the proposed retaining walls required for Track E0.

West of Lower Sherbourne Street Enhancements at Cathedral Court Co-op

No retaining walls are proposed for this area. Options to enhance existing property owner fencing are being explored and ongoing consultation with the community is taking place throughout the design process to determine the most desirable design for this area.

Figure 3-1 (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) presents the cross-section and proposed plantings for the enhancements in this area. The 7 m vegetation clearance and 5-8 m wall horizontal clearance from the centerline of the outermost track is required to accommodate electrification safety standards. A Landscaping Strategy is being developed in consultation with the community to determine what type of vegetation can be planted in the area.

Figure 3-1: Cathedral Court Co-op – Proposed Cross-section

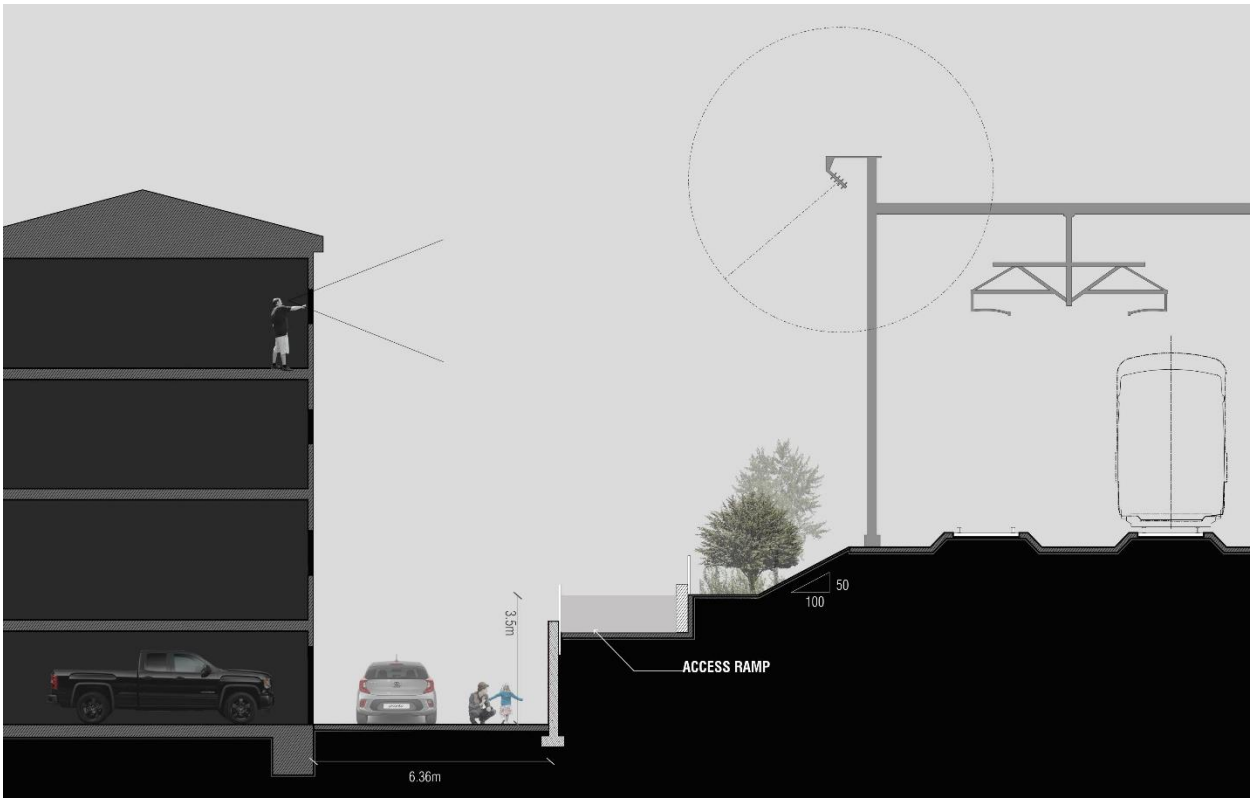


Lower Sherbourne Street to Parliament Street

The new retaining wall situated between east of Lower Sherbourne Street to west of Parliament Street is approximately 407 m in length. This retaining wall will be facing Caroline Co-op and residences on Longboat Avenue. Currently, an existing, private railway access ramp is located east of the Lower Sherbourne Street enhancements, which is required for maintenance, construction and emergency services purposes. Future maintenance activities utilizing the ramp will be similar to what is currently experienced. Access of maintenance vehicles will be minimized, if possible. The proposed public-facing retaining wall will be a structural high performance and durable retaining wall that is approximately 4 m high and 30 m long. The transition of this retaining wall from access ramp to retaining wall decreases from west to east. The security/decorative fence will be a minimum of 1 m high along this entire area to ensure the safety of the residents and security of the rail corridor.

Figure 3-2 (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) shows the proposed cross-section for this area.

Figure 3-2: Caroline Co-op and Residences on Longboat Avenue – Proposed Access Ramp Cross-section



A continuous retaining wall with a decreasing height is situated after the proposed access ramp. To minimize the height of the retaining wall in areas adjacent to residences (i.e., adjacent to Caroline Co-op and residences on Longboat Avenue), an embankment with a 2:1 slope is proposed between the wall and the existing track grade. A minimum 1 m high security/decorative fence at the top of the 2 m bricked faced retaining wall will ensure the safety of the residents and security of the rail corridor. Ongoing consultation is taking place with the community throughout the design process to determine the most desirable design for this area and a Landscaping strategy is being developed in consultation with the community to determine what type of vegetation can be planted in the area.

Please refer to **Figure 3-3** (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) for the retaining wall adjacent to the Caroline Co-op and residences on Longboat Avenue. **Figure 3-4** (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) presents the cross-section for this area.

Figure 3-3: Caroline Co-op and Residences on Longboat Avenue – Proposed Retaining Wall

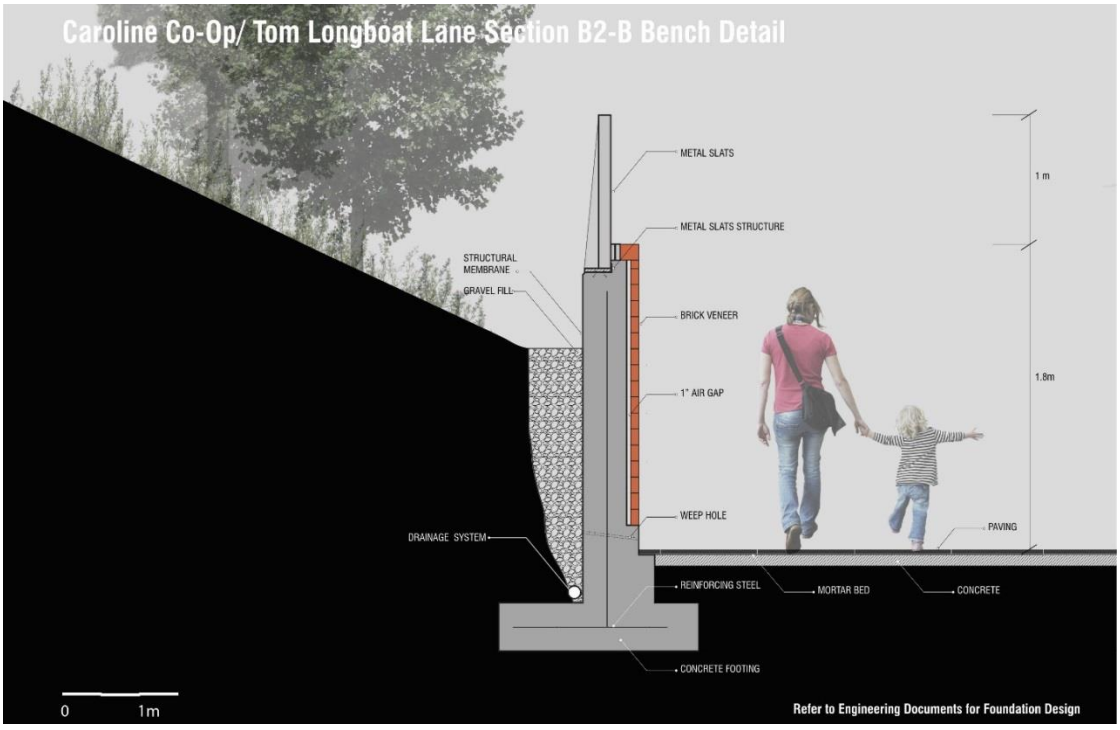
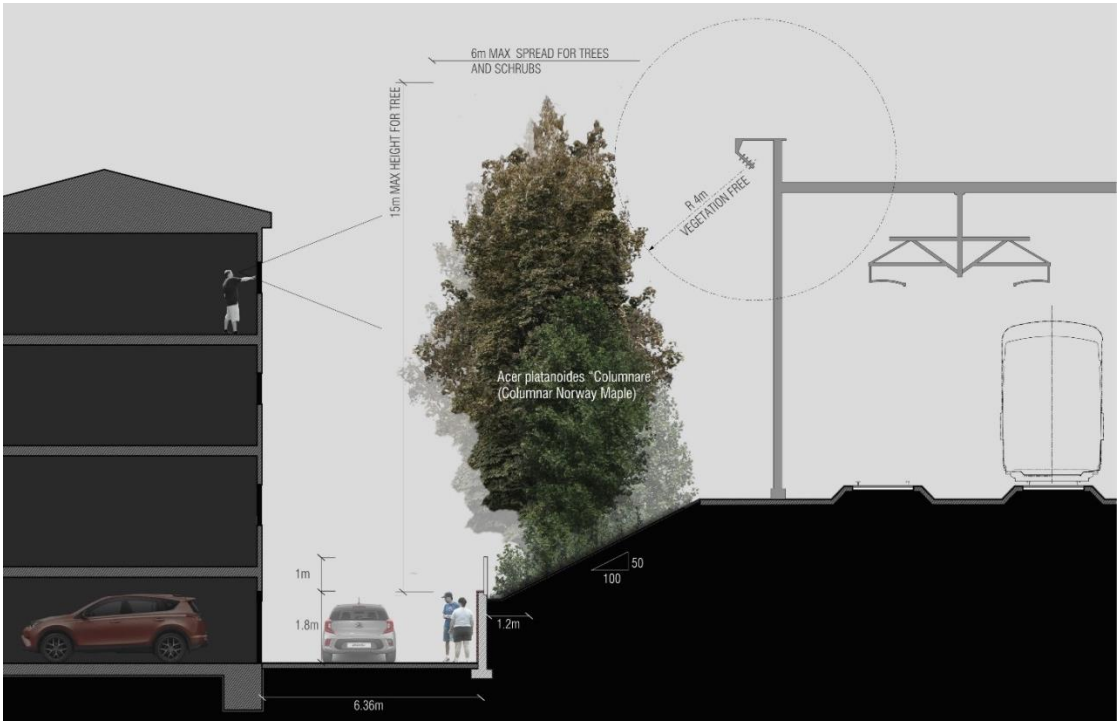
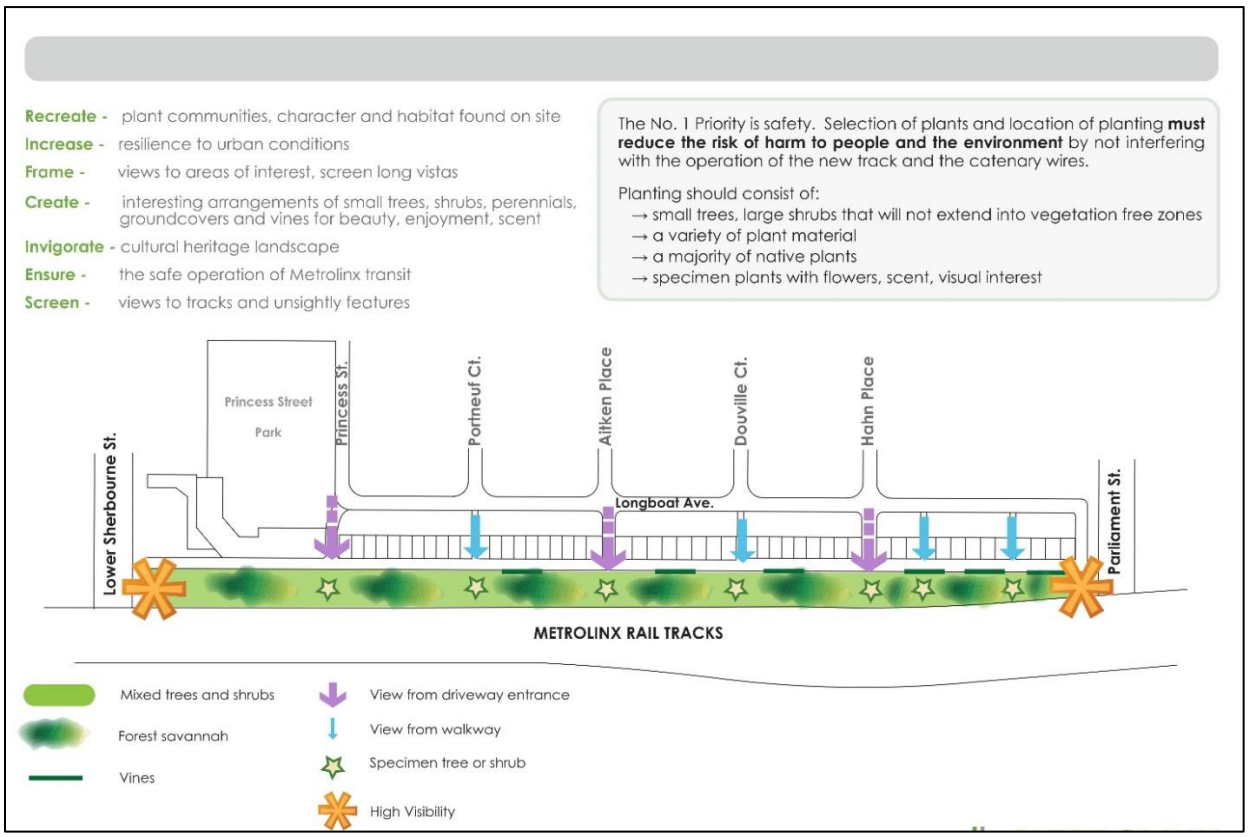


Figure 3-4: Caroline Co-op and Residences on Longboat Avenue Cross-section



A Landscaping Strategy is being developed for this section of the Project to address the removal of trees and other plants, and to re-create the cooling and pollution-filtering effect, and aesthetic, of the existing landscape. Refer to **Figure 3-5** below for the draft Landscaping Strategy which is still in the process of being revised through consultation with the community.

Figure 3-5: Landscaping Strategy – Lower Sherbourne Street – Parliament Street



Parliament Street to Cherry Street:

The length of the new retaining wall from east of Parliament Street to west of Cherry Street is approximately 385 m long. Architectural retaining wall just east of Parliament Street will be built as part of this Project through Metrolinx's Design Excellence process, as well as a service ramp off Parliament Street. Co-ordination with Metrolinx and Cityscape Development (Distillery District) is ongoing for the proposed Ribbon Building Project adjacent to the rail corridor. A crash wall for safety will need to be constructed by the developer given the location of the development in relation to the rail corridor. If the USRC East Enhancements Project advances prior to the development of the crash wall, a retaining wall would be constructed at the property line. Any gap between the retaining wall and the future crash wall will be addressed during the developer's detailed

design phase. More information on this proposed project is discussed in **Appendix B5** *Socio-Economic and Land Use Characteristics Study*.

Cherry Street to west of Corktown Common Park:

The length of the new retaining wall from east of Cherry Street to just west of Corktown Common Park is approximately 323 m and will be a structural high performance and durable retaining wall. This retaining wall will be facing Infrastructure Ontario (IO) property and will have a maximum height of 3 m. Basic retaining walls will be built for Blocks 20 (pending developer design concept) and 9 (TDSB lands, future school, planning for future crash wall). Architectural retaining wall will be built for Block 32 (facing Tannery Road) through Metrolinx's Design Excellence process. Track E0 will not preclude the development of the future school and mixed/residential development in this area. The retaining wall will help support Track E0 in this area, as well as the proposed relocation of the Cherry Street Interlocking Tower. In order to construct and maintain this retaining wall and Track E0, Metrolinx requires a permanent property acquisition, a permanent maintenance easement and a temporary construction license from IO. Refer to **Section 3.1.1.4** for more information on property.

Retaining wall drawings can be found in **Appendix A**.

3.1.1.2 Bridges

Construction of Track E0 will require extensions to the northern sections of the Lower Sherbourne Street, Parliament Street and Cherry Street Bridges with associated retaining and supporting structures.

For each of these bridges, retaining walls will be required to facilitate the extended bridges. The wing walls will be tied to the retaining walls designed to maintain the existing access roads/ramps to the Metrolinx rail corridor while minimizing impacts to adjacent properties. Bents along the sidewalks will be extended at each side, east and west, under the new structure. The middle bent will not be extended, creating a single span across all traffic lanes. The wing walls from the bridge will connect to the new retaining walls along the ROW of the property (i.e., no gap between wing wall and retaining wall). The extensions will be fitted with the existing structure for consistency in profile and integration. The joints between the new and existing structures will be sealed against any leakage. These bridges are considered local heritage. Heritage Impact Assessments will be undertaken in Detailed Design to further guide the design of these bridges.

Enhancements to the underside of the bridges, such as improved lighting, architectural finishings and other public realm improvements are currently being developed in

consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto to improve the pedestrian experience and to provide a better connection between the waterfront and the downtown. These enhancements will be further refined during Detailed Design.

The General Arrangement drawings of the bridges can be found in **Appendix A**.

Lower Sherbourne Street Bridge (north side)

This structure, which has concrete encased beam spans, was built in 1927 with a rehabilitation completed in 2014. To accommodate Track E0, the north side of Lower Sherbourne Street Bridge will be extended approximately 5.3 m to the north. The existing length of the bridge is approximately 26.5 m. The posted clearance is 4.1 m and will be maintained. The typical clear width of the sidewalks under the existing bridge is 2.35 m and will be maintained by the proposed bridge extension.

Key constraints associated with the design of this bridge extension include:

- Large billboard on the northeast corner will need to be removed;
- Close proximity to the driveway entrance onto Metrolinx ROW at the northeast corner of the structure where issues regarding left turns to and from the driveway may be introduced;
- CN signal and communications cable ducts are mounted on the north side of the structure and will need to be relocated;
- The signal bridge west of the Lower Sherbourne Street Bridge will need to be relocated; and
- Public facing designs will be determined in co-ordination with the City of Toronto and Waterfront Toronto.

Rendering (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) for Lower Sherbourne Street Bridge extension is shown in **Figure 3-6**.

Figure 3-6: Proposed Lower Sherbourne Street Bridge Extension

Parliament Street Bridge (north side)

This structure, which has concrete encased beam spans, was built in 1927 with a rehabilitation completed in 2014. The north side of the Parliament Street Bridge will need to be extended approximately 5.2-5.5 m to accommodate Track E0 and the retaining wall. The existing bridge length is approximately 37.5 m. The posted clearance is 4.1 m and will be maintained. The typical clear width of the sidewalks under the existing bridge is 2.35 m and will be maintained by the proposed bridge extension.

There are numerous constraints associated with this bridge extension that are currently being considered in the Preferred Design, including:

- Close proximity to the driveway and service ramp entrances of HD Supply Brafasco at the northeast corner of the structure where issues regarding left turns to and from the driveway may be introduced;
- Tom Longboat Lane runs parallel to the rail corridor at the northwest corner and abuts the corridor fence running (westward) along the property line;
- CN signal and communications cable ducts are mounted on the north side of the structure and will need to be relocated;
- The signal bridge east of the Parliament Street Bridge will need to be relocated;

- There is a future development, 31 Parliament, on the northeast side of Parliament Street and if approved, will require co-ordination with Metrolinx and the developer;
- A gas main is located beneath the sidewalk and connects to a gas metering station at the northeast corner of the structure. This gas main and metering station will be relocated prior to the structure extension work and the new location of the metering station will be determined during Detailed Design;
- Light poles on either side of Parliament Street and a large billboard on the northeast corner may also need to be relocated; and
- Public facing designs will be determined in co-ordination with the City of Toronto and Waterfront Toronto.

The wing walls will tie into the new retaining walls.

Rendering (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) for Parliament Street Bridge extension is shown in **Figure 3-7**.

Figure 3-7: Proposed Parliament Street Bridge Extension

Cherry Street Bridge (north side)

This structure, which has concrete encased beam spans, was built in 1927 with a rehabilitation completed in 2014. The north side of Cherry Street Bridge will need to be extended approximately 3.9 m to 5.6 m to accommodate Track E0 and the retaining wall. The existing length of the bridge is approximately 54.5 m. The posted clearance is 4.0 m and will be maintained. The typical clear width of the sidewalks under the existing bridge is 2.35 m and will be maintained by the proposed bridge extension.

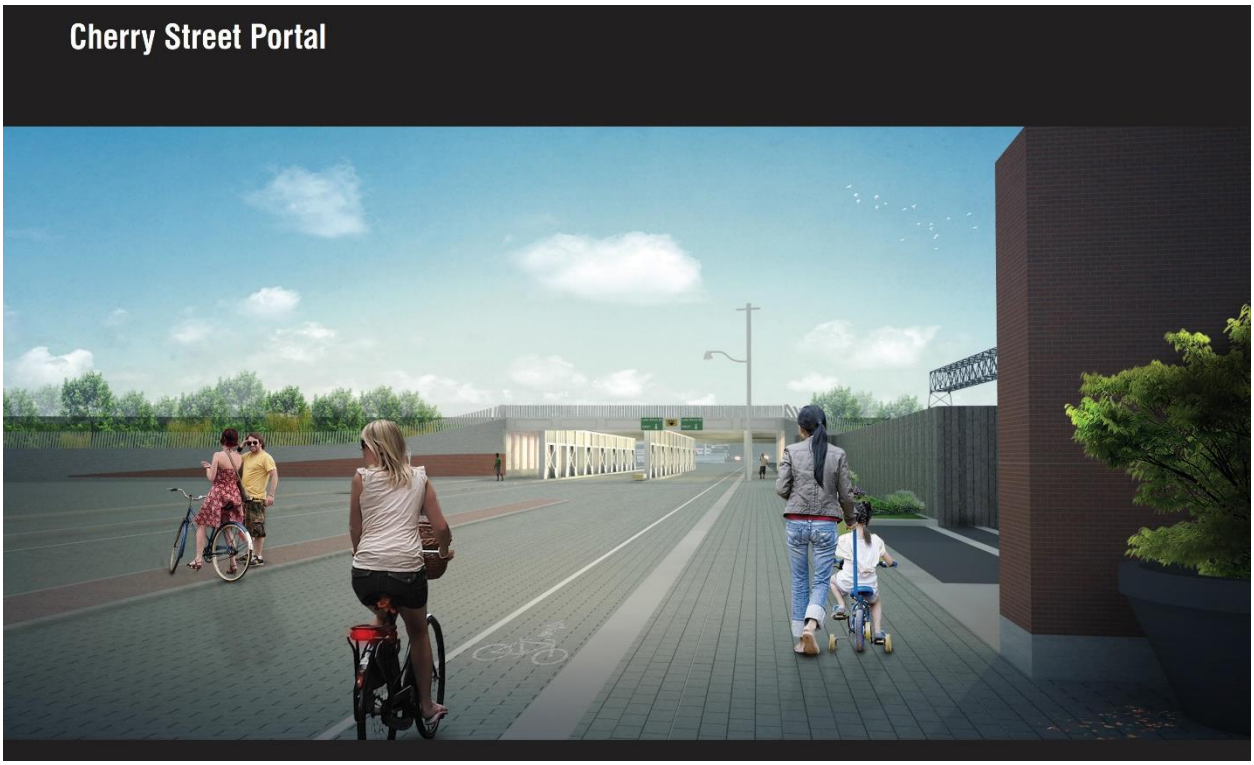
Key constraints associated with the design of the bridge extension include:

- A loading dock is located adjacent to the west side of the Cherry Street Bridge which reduces space available during construction;
- The curvature of the rail in this area;
- There is future development associated with three addresses, 31R Parliament, 370R and 370 Cherry Street, on the west side of Cherry Street that will require co-ordination between Metrolinx and the developer, if approved;
- Future City of Toronto plans have the Cherry Street Light Rail Transit (LRT) extension service continue south under the Cherry Street Bridge;
- The historic Cherry Street Interlocking Tower is directly adjacent to the bridge on the northeast corner. Cherry Street Interlocking Tower will need to be relocated to facilitate the expansion of the bridge, construction of Track E0 and the Cherry Street LRT extension service; and
- A large billboard will need to be removed on the northwest corner.

Due to space constraints, splaying of the wing walls is not an option in this area.

Public facing designs will be determined in co-ordination with the City of Toronto and Waterfront Toronto. Rendering (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) for Cherry Street Bridge extension is shown in **Figure 3-8**.

Figure 3-8: Proposed Cherry Street Bridge Extension



3.1.1.3 Utilities

To accommodate the extension of bridges over Lower Sherbourne Street (North), Parliament Street (North), and Cherry Street (North), existing City of Toronto owned utilities (i.e., Water, Sanitary, and Storm) and third party utilities (i.e., CN, Bell, Rogers, hydro, gas, etc.), above and below grade, may require protection, modification and/or relocation at street level.

Existing cable troughs currently run parallel to the tracks along the existing retaining wall and in proximity to several bridge structures as noted previously. Detailed utility investigations will be undertaken through Detailed Design and utilities will need to be relocated as part of the Preferred Design of the retaining wall.

3.1.1.4 Property

The majority of the proposed USRC East Enhancements Project utilizes existing Metrolinx property within the corridor. In certain sections of the Study Area, portions of private properties and public lands will need to be acquired to accommodate Track E0.

Construction of Track E0 east of Cherry Street will require permanent land acquisition and a temporary construction license. Approximately 4,500 m^2 of temporary

construction license will be required to allow for construction. The required temporary construction license is mainly public land. **Table 3-1** presents the property owner and property requirements.

Table 3-1: Track E0 Potential Temporary and Permanent Property Requirements

Property Owner	Temporary Construction License (m^2)	Permanent Property Requirements (m^2)	Permanent Maintenance Easement (m^2)
IO (PIN 210770324, PIN 210770316, PIN 210770305 & PIN 210770328)	4,500	1,270	940

In addition to temporary access requirements for construction, permanent property acquisition (from IO) is anticipated in order to build the new retaining wall east of Cherry Street.

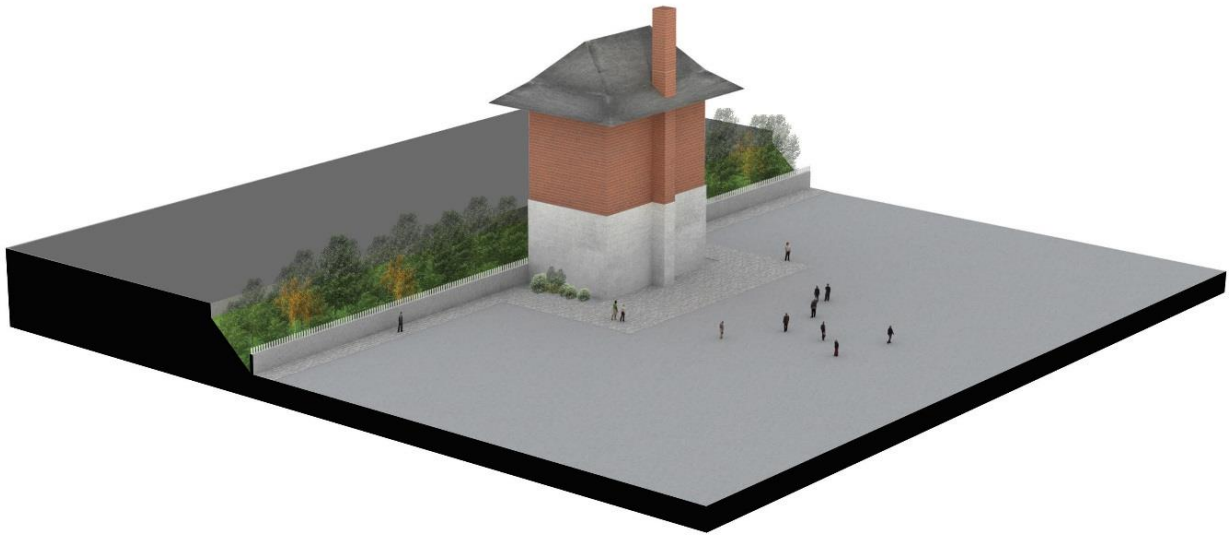
No private property acquisition is anticipated west of Cherry Street to facilitate construction of Track E0 and retaining walls.

Based on stakeholder consultation, a preferred relocation option for the Cherry Street Interlocking Tower was identified within Mill Street Neighbourhood lands south of Tannery Road, on Block 20 (**Figure 3-9**). Permanent acquisition is required from IO for the Cherry Street Interlocking Tower.

Figure 3-9: Proposed Cherry Street Interlocking Tower Relocation

The draft Cherry Street Interlocking Tower Heritage Impact Assessment (HIA) Report can be found in **Appendix B.8** (Note to draft: MTCS review/comments ongoing). Relocation plans are detailed in the HIA and will be refined during Detailed Design, if required. Refer to **Figure 3-10** for the rendering (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) for the relocated Cherry Street Interlocking Tower.

Figure 3-10: Cherry Street Interlocking Tower Relocation Rendering



3.1.2 Preferred Track Alignment for Tracks E7 and E8

Tracks E7 and E8 are proposed to connect existing Tracks 13 and 14 in Union Station to future track realignments proposed for the existing Don Yard to mitigate congestion within the USRC. Tracks E7 and E8 will connect to existing Tracks 13 and 14 west of Lower Jarvis Street at approximately Mile 0.35E and connect to future track realignments west of Parliament Street at approximately Mile 0.9E.

The length of the new tracks E7 and E8 from the tie in point with the existing Tracks 13 and 14 to the eastern extent is approximately 850 m. The new E7 and E8 Tracks will require extension to the design of southern sections of the bridges over Lower Jarvis Street and Lower Sherbourne Street and associated retaining and supporting structures. There will also be six new ladders (switches) installed to allow trains to move from and to Tracks E7 and E8. The construction of Tracks E7 and E8 will occur entirely in the Metrolinx ROW.

The Preferred Design of Tracks E7 and E8 can be found in **Appendix A**.

Details associated with Tracks E7 and E8 are provided in the following sections and addresses:

- Retaining walls;
- Bridges;
- Utilities;
- Access; and
- Property.

3.1.2.1 Retaining Wall

Construction of Tracks E7 and E8 at the south bridge extension at Lower Jarvis Street may require a retaining wall. This retaining wall may be required to facilitate Tracks E7 and E8 and the use of the Metrolinx ROW in this area. Should the retaining wall be required, design of the wall will be co-ordinated with the City of Toronto and Waterfront Toronto. The tie in will be co-ordinated with the Lower Jarvis Bridge wing wall. The status of this work will be confirmed in Detailed Design.

3.1.2.2 Bridges

To accommodate the Tracks E7 and E8 expansion work, both the Lower Jarvis Street Bridge and the Lower Sherbourne Street Bridge must be extended to the south end of the existing structures. The existing wing walls from the bridge will connect to the new retaining walls along the ROW of the property (i.e., no gap between wing wall and retaining wall). The extensions will be tied into the existing structure for consistency in profile and integration. The joints between the new and existing structures will be sealed against any leakage. Bents, a type of pier, are vertical structural components of bridges used to support the bridge beams and/or girders, are usually made of reinforced concrete or steel. Bents along the sidewalks will be extended at each side, east and west, under the new structure. The middle bent will not be extended, creating a single span across all traffic lanes. These bridges are considered local heritage. Heritage Impact Assessments will be undertaken in Detailed Design to further guide the design of these bridges.

Enhancements to the underside of the bridges, such as improved lighting, architectural finishings and other public realm improvements are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto to improve the pedestrian experience and to provide a better connection

between the waterfront and the downtown. These enhancements will be further refined during Detailed Design.

The General Arrangement drawings of the bridges can be found in **Appendix A**.

Lower Jarvis Street Bridge (south side)

This structure, which has concrete encased beam spans, was in built in 1927 with a rehabilitation completed in 2009. The existing Lower Jarvis Street Bridge will be extended by approximately 9.86 m to the south in order to accommodate the new E7 and E8 Tracks. The existing length of the bridge is 30.7 m. The posted bridge clearance is 4.1 m and will be maintained. Horizontal and vertical clearances will not be reduced from existing conditions. The typical clear width of the sidewalks under the existing bridge is 2.35 m and will be maintained by the proposed bridge extension.

Key constraints associated with the design of the bridge extension include:

- Large billboard on the southwest corner that will be removed or relocated;
- West side Gardiner Expressway on-ramp on the south of the existing Metrolinx access road (safety consideration);
- Light poles on either side of Lower Jarvis Street that will need to be relocated;
- An energy attenuator is present at the south end of the middle pier of the bridge and will remain as is;
- The need to maintain the access ramp to Metrolinx ROW;
- A chain link fence delineating the City of Toronto/Metrolinx property boundaries that will need to be removed; and
- Existing concrete retaining walls and toe walls with an attached iron fence that would require removal. The safety of pedestrians and vehicles approaching the Lake Shore Boulevard intersection will need to be addressed with the City of Toronto.

Rendering (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) for Lower Jarvis Street Bridge extension is shown in **Figure 3-11**.

Figure 3-11: Proposed Lower Jarvis Street Bridge Extension

Lower Sherbourne Street Bridge (south side)

This structure, which has concrete encased beam spans, was built in 1927 with a rehabilitation completed in 2014. The existing Lower Sherbourne Street Bridge will be extended by approximately 9.9 m to the south in order to accommodate the new Tracks E7 and E8. The existing length of the bridge is approximately 26.5 m. The posted bridge clearance is 4.1 m and will be maintained. The typical clear width of the sidewalks under the existing bridge is 2.35 m and will be maintained by the proposed bridge extension.

Key constraints associated with the design of the bridge extension include:

- Existing concrete retaining walls and toe walls with an attached iron fence that will require removal;
- Light poles on either side of Lower Sherbourne Street that will need to be relocated;
- A chain link fence delineating the City of Toronto/Metrolinx property boundaries that will also be removed as part of the bridge extension work; and
- There are also two large billboards located at on the southwest and southeast corner of the bridge that will be removed or relocated to facilitate the bridge extension work.

Rendering (concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study) for Lower Sherbourne Street Bridge extension is shown in **Figure 3-12**.

Figure 3-12: Proposed Lower Sherbourne Street Bridge Extension

3.1.2.3 Utilities

To accommodate the extension of bridges over Lower Jarvis Street (South) and Lower Sherbourne Street (South), existing City of Toronto owned utilities (i.e., Water, Sanitary, and Storm) and third party utilities (i.e., CN, Bell, Rogers, hydro, gas, etc.), above and below grade, may require protection, modification and/or relocation at street level.

To accommodate new tracks, existing City of Toronto and third party owned above and below grade utilities, within the rail corridor may require modification and/or relocation.

Fibre optic CN signal and communications conduits are mounted on the south side of the Lower Jarvis Street and Lower Sherbourne Street Bridges. The conduits will require temporary relocation during the bridge extension work. The conduits will be reinstated onto the extended portion of the bridge once construction is complete. Underground Allstream and Telus fibre optic cables are in the vicinity of the Lower Jarvis Street structure. Temporary and/or permanent relocation may be required prior to the bridge extension work.

Stormwater catch basins and associated collector storm sewers occur along both sides of Lower Jarvis Street and will require relocation to accommodate the proposed piers. Temporary stormwater control will be required during relocation. During the Detailed Design phase, a detailed subsurface utility investigation will be required to determine the size and depth of the collector sewers and the works required to accommodate bridge extensions.

Light poles are present on either side of the roadway at both Lower Jarvis Street and Lower Sherbourne Street and will require relocation as part of the bridge extension work.

There are two transmission towers near the southwest side of the Lower Sherbourne Street Bridge. Excavation and foundation construction work may encroach on Hydro One's clearance requirements for the towers. Temporary shoring may be required to ensure no disturbance to the towers.

3.1.2.4 Property

There are pre-existing agreements in place between Metrolinx and the City of Toronto for all bridge extensions that will accommodate Tracks E7 and E8.

3.1.3 Preferred Design for the Wilson Yard Layover Facility

The Wilson Yard Layover Facility upgrade is part of Metrolinx's effort to increase operating and storage capacity within the USRC in order to provide storage of GO trains. There are currently three rail tracks south of the existing Don Yard known as the Wilson Yard Layover Facility, used for holding miscellaneous freight cars. Upgrades to the Wilson Yard Layover Facility tracks will extend the Don Yard south providing additional storage and layover capacity in the USRC. To facilitate expansion of the Wilson Yard Layover Facility, Metrolinx is exploring options to obtain the property required for the Wilson Yard Layover Facility. This will help accommodate the new storage tracks, adjacent utilities, access roads, and storage areas. The Wilson Yard Layover Facility will include up to five new storage tracks and reconfiguration of the existing three tracks (i.e., up to eight storage tracks in total) with capacity for 12 cars. The new tracks will be connected into the existing Don Yard's track layout and will be laid out parallel to the existing Don Yard tracks. Adding this additional track capacity will require shifting the existing Harbour Lead Track to the south.

If required, a detailed assessment of environmental impacts and public/stakeholder consultation related to upgrades to the Wilson Yard Layover Facility will be carried out as part of an addendum to the USRC East Enhancements Project TPAP (following

Statement of Completion), based on the preparation of a more detailed level of design. It is noted that if the TPAP Addendum is required, the City of Toronto, Waterfront Toronto, TRCA, TTC, Hydro One, Toronto Hydro, Enbridge and the local community will be engaged as appropriate. Details associated with Wilson Yard Layover Facility are provided in the following sections and address:

- Retaining Walls/Embankments;
- Access;
- Utilities;
- Stormwater Drainage;
- Lower Don River Trail; and
- Property.

Key constraints associated with the design of the Wilson Yard Layover Facility expansion include:

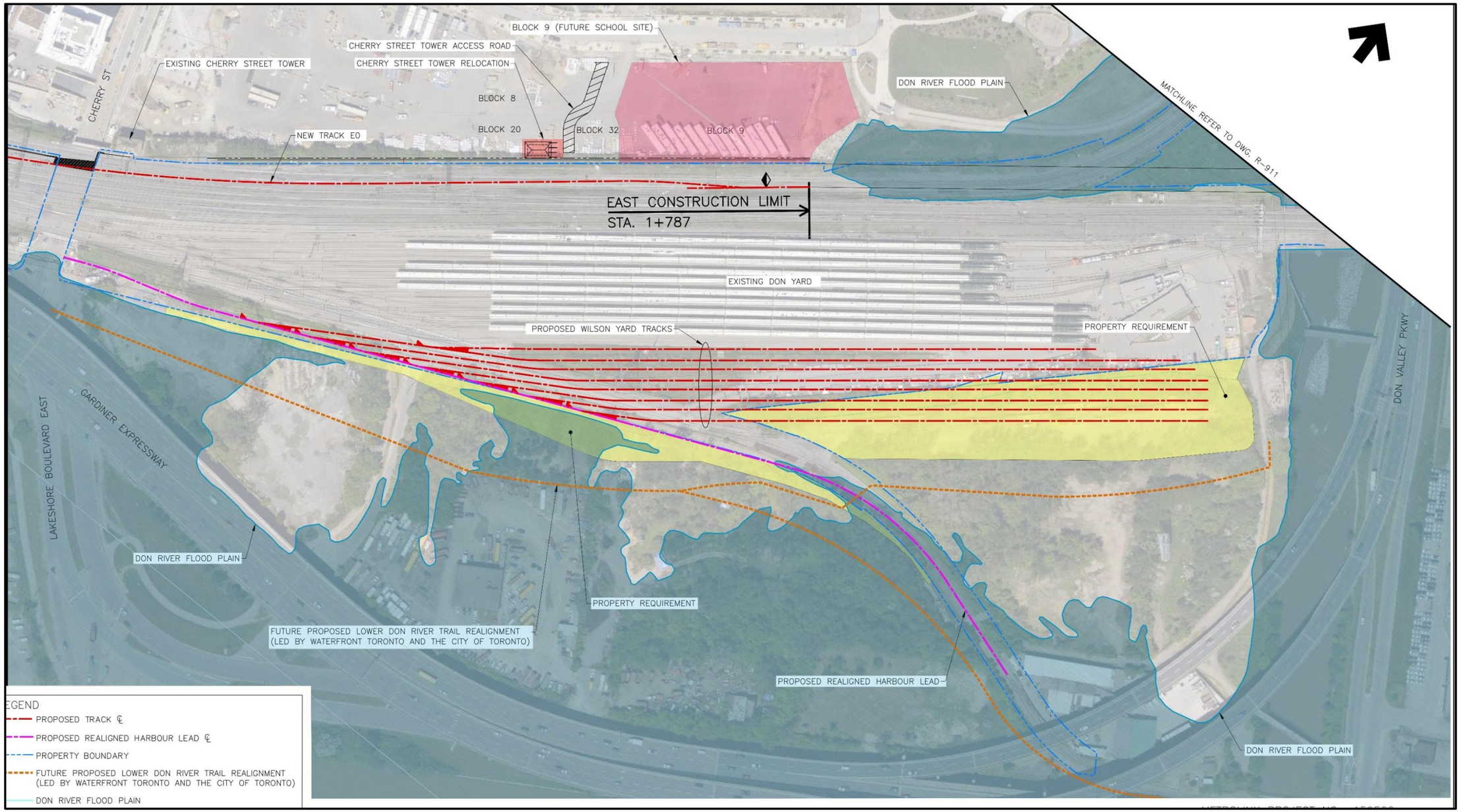
- TRCA's Sediment and Debris Management Area associated with the realigned Don River;
- Proposed realignment of the Harbour Lead for this Project;
- Waterfront Toronto's new Cherry Street Stormwater Facility (CSSWF) and access road;
- The alignment of the Gardiner East ramps;
- The East Gardiner Public Realm Implementation Plan;
- Future realigned Lake Shore Boulevard; and
- Realignment of the Lower Don River Trail.

The Preferred Design of the Wilson Yard Layover Facility can be found in **Figure 3-13** below.

3.1.3.1 Retaining Walls/Embankments

The upgraded Wilson Yard Layover Facility will be elevated to a similar grade as the existing Don Yard. Retaining walls will accommodate the additional tracks, access roads and supporting infrastructure.

Figure 3-13: Preferred Design for the Wilson Yard Layover Facility



Options are being considered for a natural embankment on some sections along the south side of Wilson Yard Layover Facility, instead of retaining walls. This may mean grading along City of Toronto property; therefore further discussions and agreements would be required. If this approach proceeds with an embankment, then there will still be a requirement for some type of fence to be installed for safety purposes. Retaining wall and embankment requirements will be confirmed during Detailed Design in consultation with the City of Toronto, Waterfront Toronto and TRCA.

As information becomes available for the Gardiner East Realignment public realm design, Metrolinx will continue to co-ordinate the architectural design for the Wilson Yard Layover Facility with the City of Toronto and Waterfront Toronto to ensure consistency and integration with their plans.

3.1.3.2 Utilities

Below are the existing utility stakeholders in the Wilson Yard and Don Yard area, as well as the servicing equipment at the existing Don Yard layover tracks.

Hydro

The following Hydro One facilities will also require relocation to the south side of the proposed Wilson Yard Layover Facility tracks:

- Overhead power lines and hydro tower; and
- A strip of land owned by Hydro One for the buried 115kV cables.

The proposed expansion of the existing Don Yard located between Cherry Street and the Don River in downtown Toronto will affect two existing overhead 230 kV circuits and one existing 115 kV underground cable circuit (the “Existing Facility”). As a result of the Project, the Existing Facility will need to be modified and relocated in a new configuration to new locations. The cables will be placed into new conduits that will run along the proposed Wilson Yard Layover Facility site boundary. Discussions with Hydro One will continue during Detailed Design to obtain an agreement from Hydro One with respect to the relocation of the overhead power lines and buried cables.

The Preferred Design of the Wilson Yard Layover Facility proposes the relocation of these facilities along the south side of the proposed Wilson Yard Layover Facility tracks.

There is a 3,000 mm diameter stormwater tunnel, stormwater shaft, and sewage pumping station in the Wilson Yard Layover Facility area that may be impacted. This will be determined in Detailed Design. There is an existing watermain (460 mm) on the east side of the Don Yard and the Wilson Yard Layover Facility.

Toronto Hydro's 13.8 kV power cables at the existing Don Yard access roads will also require relocation, as this is the main power that feeds the existing Don Yard substation.

Gas

The Wilson Yard Layover Facility will be serviced by existing gas lines in the vicinity of the yard to service the snow clearing devices and stand-by generator.

Plumbing and Sanitary

Water hydrants and cold water distribution will be installed as necessary and connected from the nearest available existing watermain. Piping for plumbing will be insulated and/or installed with electric heat tracing if required.

Sanitary wastewater will likely connect to existing adjacent piping systems. Adequate available capacity within the existing sewer system will be confirmed during preliminary design. New sump pits, storage and pumps may be required, if it is not feasible to connect to the local system. Sanitary drainage piping exposed to outdoor conditions will be installed with electric heat tracing and/or insulation.

Fibre Optic

Existing fibre optic cable in the corridor will need to be relocated to suit the track configuration. This may include both Metrolinx-owned fibre optic cables for signals and the Zayo (formerly MTS Allstream) fibre optic cable trunk line. Details on the fibre optic configuration will be confirmed during Detailed Design.

Electrical System

It is anticipated that an upgraded electrical supply service will be required for the Wilson Yard Layover Facility. The existing utility building and substation will require upgrades to supply the operations building, track extensions and heaters. The main power source and communication cables (fibre optic or copper) from the adjacent area will be installed via underground duct banks.

The electrical room and communications room will be accessible from the access road area. The electrical room and other smaller electrical rooms or closets will include switchboards, step-down transformers and panel boards. The communications room will include racks for communication systems (e.g., voice/data, Wi-Fi, PA system, security systems, etc.).

3.1.3.3 Stormwater Drainage

A stormwater drainage treatment system may be installed to mitigate anticipated stormwater runoff. The system will be connected to the nearest storm drainage system on the south side of the tracks with adequate capacity. Stormwater management will be designed to meet all regulatory standards, subject to discussions with TRCA. Due to proximity to the Don River, discussions with TRCA will also explore potential flood mitigation measures. A Drainage Plan will be prepared as part of the Detailed Design.

3.1.3.4 Lower Don River Trail

As part of the Preferred Design of the Wilson Yard Layover Facility, the existing Lower Don River Trail will need to be permanently relocated due to the need to realign the Harbour Lead due to the Wilson Yard Layover Facility expansion, as well as the future Waterfront Toronto's new Cherry Street Stormwater Facility and access road. The permanent shift of the Lower Don River Trail to the south is required for the portion of the trail east of Cherry Street and west of the existing Harbour Lead. Public realm elements will be determined in co-ordination with the City of Toronto and Waterfront Toronto. For Instance, vegetation screening is being considered along the Lower Don River Trail.

Metrolinx will continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA related to the design and construction of the Wilson Yard Layover Facility (as well as the other projects in the vicinity) to ensure that necessary realignments and/or temporary detours of the Lower Don River Trail are in place for the construction of the Wilson Yard Layover Facility and realigned Harbour Lead. The proposed future re-alignment of the Lower Don River Trail, led by the City of Toronto and Waterfront Toronto, can be found at a conceptual level on **Figure 3-13** above.

3.1.3.5 Property

The majority of the proposed USRC East Enhancements Project utilizes existing Metrolinx property within the corridor. Portions of the proposed Wilson Yard Layover Facility are public lands and private properties. Specific property requirements will be confirmed during Detailed Design.

The Wilson Yard Layover Facility design requires approximately 15,000 m^2 of property currently owned by the City of Toronto, Hydro One Networks Inc., Toronto Port Lands Company and Conoco Inc. Refer to **Table 3-2**.

Table 3-2: Potential Temporary and Permanent Property Requirements

Property Owner	Permanent Property Requirements (m^2)
City of Toronto (PIN 21077-0095)	3,000
City of Toronto (TPLC) (PIN 21077–0099)	9,000
Hydro One Networks Inc. (PIN 21077-0097 & PIN 21077-0098)	3,000
Conoco Inc. (PIN 21077-0167)	70

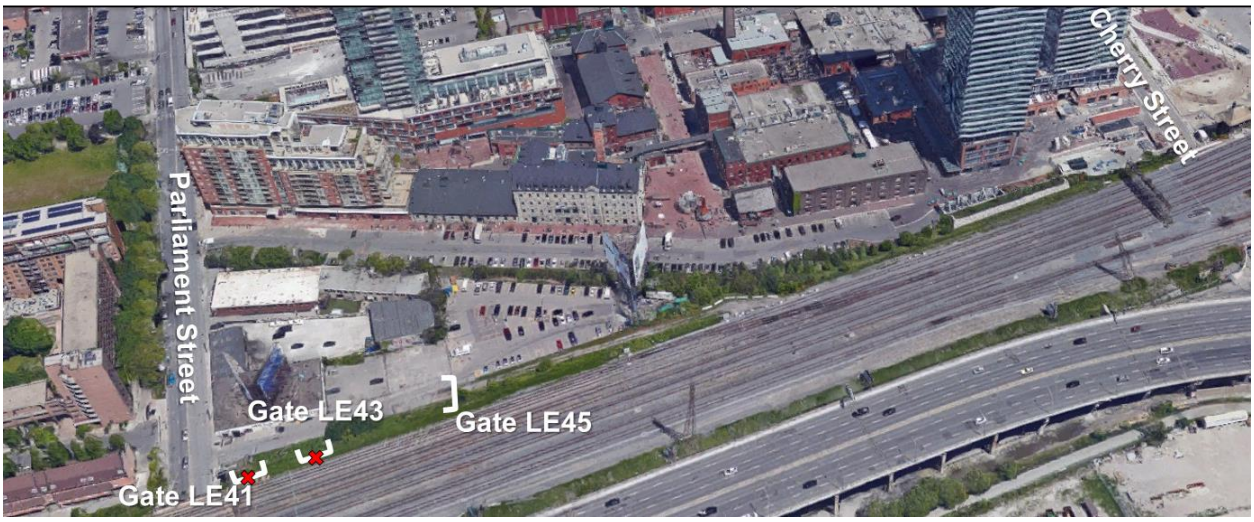
Metrolinx is exploring options to obtain the property required for the Wilson Yard Layover Facility.

3.2 Access Gates

There are currently seven vehicle access gates within and adjacent to the USRC Study Area. As part of the pre-TPAP consultation with the Technical Advisory Committee, some access gates within the Study Area will be consolidated. The minimum width for existing vehicle access is 3.5 m and varies to a maximum of 8 m. Access is required to allow personnel and or maintenance vehicles to enter into the USRC, as well as emergency vehicles in case of emergencies involving equipment, trains, personnel or train passengers. **Figure 3-14** below presents the access gates within the Study Area.

Figure 3-14: Access Gates to the USRC within the Study Area

Figure 3-14: Access Gates to the USRC within the Study Area (continued)



Source: Google Earth 2017

The modifications to the access gates to the USRC within the Study Area include:

- LE14 – Serves Access to Lower Jarvis Street to Lower Sherbourne Street (no change);
- LE 21 – Serves Access to Lower Sherbourne Street to Parliament Street (to be closed);
- LE22 – Serves Access to Lower Jarvis Street to Lower Sherbourne Street (no change);
- LE 24 – Serves Access to Lower Sherbourne Street to east Cherry Street (to be closed);
- LE31 – Serves Access to Lower Sherbourne Street to Parliament Street (no change);
- LE32* – Serves Access to Lower Sherbourne Street to east Cherry Street (Note: Vehicle access no longer possible, no change, however, wider access is required for fire trucks to access the corridor in the event of emergency);
- LE41 – Serves Access to Parliament Street to Cherry Street (to be closed due to construction of access ramp/retaining wall);
- LE43 – Serves Access to Parliament Street to Cherry Street (to be closed due to construction of access ramp/retaining wall);
- LE45 – Serves Access to Parliament Street to Cherry Street (no change);
- LE51 – Serves Access to the Cherry Street Interlocking Tower (to be closed upon relocation of Cherry Street Interlocking Tower);
- LE52 – Serves Lower Sherbourne Street due to vehicle access constraints at Gate LE32 (no change);
- LE53 –Serves Access to the Cherry Street Interlocking Tower (to be closed upon relocation of Cherry Street Interlocking Tower);
- LE62 – Serves Access to the Don Yard (LE62 and LE64 to be consolidated upon the completion of Wilson Yard); and
- LE64 – Serves Access to the Don Yard (LE62 and LE64 to be consolidated upon the completion of Wilson Yard).

*Public realm enhancements were completed by the City on the southeast side of the bridge near the Metrolinx LE32 vehicle access road. Co-ordination between the City of Toronto and Metrolinx will occur to determine how to best access the bridge and the corridor in this location.

The existing access roads/ramps will be maintained. Opportunities for access and staging consolidation will be further reviewed and determined during Detailed Design.

Access to the Wilson Yard Layover Facility will continue to be from 470 Lake Shore Boulevard and will be maintained for Emergency Services, since this is a commonly used access road. Where possible, access will be consolidated and will be determined during Detailed Design.

3.3 Electrification

Electrification of the USRC (among other Metrolinx corridors) was addressed in a separate GO Rail Network Electrification TPAP (2017).

The track design accommodates the proposed Overhead Contact System (OCS) pole layout locations, in addition to other electrification requirements, for future electrification of the USRC. Once electrified, the USRC will continue to accommodate diesel trains (e.g. VIA Rail and freight trains).

To accommodate the electrification of the tracks and also provide space for the final locations of the longitudinally running utilities (CN Fibre Optic/GO Signals), a ductbank may be installed along the corridor.

Construction is anticipated to occur from 2018 through 2021 in co-ordination with the Electrification of this segment of the USRC. Electrification-related construction is anticipated to extend beyond 2021.

4. Existing Conditions

This section of the EPR describes the Study Area in the context of the USRC East Enhancements Project, the existing natural, socio-economic and cultural environments and provides the baseline conditions against which the effects of the Project have been measured.

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

- Natural Environment;
- Soils and Groundwater;
- Air Quality;
- Noise and Vibration;
- Rail Corridor Contamination;
- Land Use and Planning;
- Traffic and Transportation;
- Utilities; and
- Cultural Environment.

4.1 Natural Environment

A Natural Environment Report was conducted to document existing natural features, provide an assessment of their significance and sensitivity to the proposed construction and operation of the USRC East Enhancements Project, outline potential environmental effects and mitigating measures to minimize impacts, identify anticipated future project permitting needs and inform the preparation of the natural environment components of the TPAP. The Natural Environment Report can be found in **Appendix B1**.

4.1.1 Methodology

The existing terrestrial and aquatic natural environment conditions were determined through a combination of desktop background literature review as well as field investigations, conducted in 2016. The methods and results of these are further described below.

For the purpose of the background information review, terrestrial and aquatic features and functions that may be relevant to the USRC East Enhancements Project were identified within the Study Area (i.e., 120 m from the outermost LOD) via desktop review. The Study Area boundaries are mapped on **Figure 4-1**.

4.1.2 Designated Features

There are no unevaluated wetlands, Areas of Natural and Scientific Interest (ANSI), or Environmentally Significant Areas (ESA) identified within the Study Area. The Study Area is within the jurisdiction of the TRCA, under Section 28 of the *Conservation Authorities Act* (1998). Regulated Areas are established where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. The entire Study Area falls within TRCA's regulation limit (refer to **Figure 4-1**).

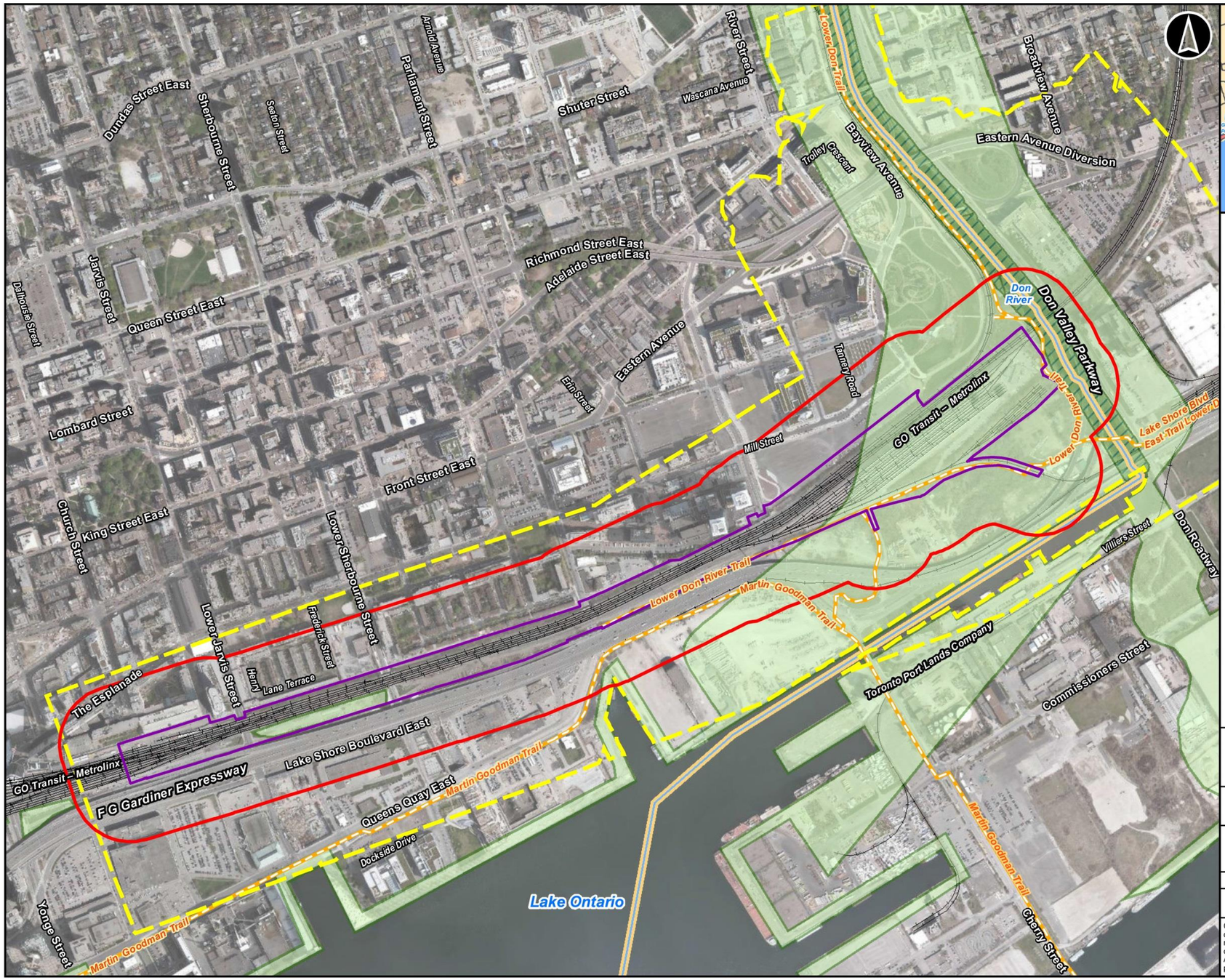
4.1.2.1 City of Toronto Natural Heritage System

The City of Toronto's Official Plan, the Natural Heritage System (NHS) comprises the following features:

- Significant landforms and physical features;
- Watercourses and hydrological features;
- Valley slopes, riparian zones;
- Terrestrial natural habitat types;
- Significant aquatic features; and
- Species of concern and significant biological features that are subject to the Provincial Policy Statement (MMAH, 2014).

Portions of the NHS as shown on **Figure 4-1** are located within the Study Area. According to the City's Official Plan (2015), all proposed development in or near the NHS require that a Natural Heritage Impact Study (NHIS) be prepared. The NHIS must outline the existing site conditions, potential negative impacts, associated mitigation measures and possible compensation to minimize potential negative impacts and, when possible, restore and enhance the City's NHS. To meet this requirement, the environmental effects of the USRC East Enhancements Project, including potential adverse effects on the NHS, are assessed under the TPAP and are addressed in **Section 5.1**.

Figure 4-1: Existing Natural Heritage Features



4.1.2.2 Ravine and Natural Feature Protection By-law – City of Toronto

The Ravine and Natural Feature Protection By-law is enforced by the City of Toronto and protects natural features that are vulnerable to degradation due to the removal of trees, changes in grade or lack of management (City of Toronto, d.u.-b).

Portions of the Study Area fall within the Ravine and Natural Feature area, which are located along the west side of the Don River as mapped on **Figure 4-1**.

Typically, a permit would be required to conduct any work in a Ravine or Natural Feature area including removing a tree, placing fill, or altering the grade of the land (City of Toronto, d.u.-b). In this case, Metrolinx is not subject to City of Toronto permitting requirements (within Metrolinx-owned lands) but works closely with the municipality through the voluntary review process. Metrolinx obtains permits on behalf of property owners for cases where trees on private lands are impacted by the USRC East Enhancements Project. An inventory and assessment of trees in the Study Area is documented in the Tree Inventory Report found in **Appendix B2**. An Arborist Report will be completed during Detailed Design, which will further identify trees to be preserved, removed or injured and associated permitting requirements.

4.1.3 Naturalized Areas and Vegetation Communities

4.1.3.1 Ecological Land Classification Communities

The TRCA completed Ecological Land Classification (ELC) surveys in 2003, which is the most current data available, and described ELC vegetation communities generally following the *First Approximation Ecological Land Classification for Southern Ontario* (Lee et al., 1998). The TRCA provided ELC data and the locations of select flora and fauna within the Natural Environment Study Area on September 22 and October 19, 2016. These records were used for desktop analysis purposes in preparation for field investigations and confirmed in the field.

Field Methods

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

Prior to conducting field studies, vegetation communities within 120 m of the USRC LOD were initially delineated and classified as a desktop exercise through interpretation

of digital aerial imagery. ELC field investigations were conducted by qualified AECOM Ecologists within the LOD on September 21, 22 and October 28, 2016 where permission to enter was granted. In some cases, surveys were conducted from fence lines where access to the site was restricted. Where possible, the naturalized areas were classified to the vegetation type level.

A vascular plant inventory was also completed for each type of vegetation community; these inventories provide a record of vascular plants observed onsite during the field investigations (**Appendix B1**). Inventories are used to determine the rarity of species and calculate metrics such as species diversity and percent of non-native and invasive plants. It should be noted that field investigations were conducted in the fall 2016, past the peak blooming period for most plants (June/July), and thus some plants may have been missed.

Field Results

The same few vegetation communities that are commonly encountered in urban settings were identified along the length of the USRC during the ELC surveys. The Natural Environment Study Area lacks much of the naturalized vegetation communities, given it is located in an intensely urban setting where there are only small patches of adventive succession vegetation. All of the vegetation communities were cultural, meaning that they resulted from, or have been maintained by, cultural or anthropogenic disturbances (Lee et al., 1998). Refer to **Appendix B1** showing the ELC delineations.

The ELC communities include:

- **CUT1: Mineral Cultural Thicket**

  The cultural thickets within the USRC could not be classified further than the Ecosite level due to a species composition which did not match any of the pre-determined thicket communities in Lee et. al (1998). Despite the varied species composition, the trees in these communities covered less than 25% of the landscape and were dominated by tree species such as: Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*) and Tree-of-heaven (*Ailanthus altissima*). Less common trees noted in the canopy included Green Ash (*Fraxinus pennsylvanica*), White Mulberry (*Morus alba*), Carolina Poplar (*Populus Xcanadensis*) and Wych Elm (*Ulmus glabra*).

  Shrub species included Staghorn Sumac (*Rhus hirta*), Common Buckthorn (*Rhamnus cathartica*), Gray Dogwood (*Cornus racemosa*), Russian Olive (*Elaeagnus angustifolia)* and Oriental Bittersweet (*Celastrus orbiculatus*). Ground species made up more than 60% of this community, including especially Tall Goldenrod, European Swallow-wort (*Cynanchum rossicum*) and Mugwort (*Artemisia vulgaris*).

- **CUW1: Mineral Cultural Woodland**

  The species composition of cultural woodlands varied depending on the location along the USRC. Tree canopy cover was 25-60% and mainly dominated by Manitoba Maple (*Acer negundo*), Tree-of-heaven or Eastern Cottonwood (*Populus deltoides*). Less common tree species included Black Cherry (*Prunus serotina*) and Green Ash.

  The shrub cover generally consisted of Tartarian Honeysuckle (*Lonicera tatarica),* Japanese Knotweed (*Polygonum cuspidatum*), Red-osier Dogwood (*Cornus sericea*), and Common Buckthorn. Ground cover was largely dominated by Stinging Nettle (*Urtica dioica*) and Garlic Mustard, both highly invasive species. Where these invasive plants were not present, other ground species consisted of Thicket Creeper (*Parthenocissus inserta*), Riverbank Grape (*Vitis riparia*), and Common Plantain (*Plantago major*).

- **CUH: Cultural Hedgerows**

  For the purpose of this investigation, cultural hedgerows were roughly defined as narrow strips or rows of trees, either planted or naturally growing as remnants of old vegetation communities that were removed in the past, with minimal vegetative cover underneath. One cultural hedgerow identified in the Natural Environment Study Area was dominated by Manitoba Maple, Common Buckthorn and Russian Olive. Ground cover consisted of the same herbaceous species described above for cultural thickets and woodlands.

- **CUM1-1: Dry – Moist Old Field Cultural Meadow**

  Cultural meadows were identified through interpretation of aerial imagery outside of the USRC. These communities were generally dominated by grasses, weeds, and other herbaceous species.

Vascular Plant Inventory

A comprehensive list of all recorded vascular plants is provided in **Appendix B1**. A total of 61 vascular plant species were recorded. Of these, 19 (31%) are native and 42 (69%) are non-native species. No Species at Risk (SAR) or Species of Conservation Concern (SOCC) plants were noted within the vegetation communities investigated in fall 2016. Similarly, no SOCC or SAR plants were identified through the flora records provided by TRCA. However, one plant species considered to be regionally rare within the City of Toronto has been identified within the Natural Environment Study Area, which is Eastern Red Cedar (*Juniperus virginiana*).

4.1.3.2 Tree Inventory

The Tree Inventory Report outlines the methods and results of the Tree Inventory and Assessment completed within the USRC East Enhancements Project Study Area. Preliminary impacts and recommendations for mitigation and next steps during Detailed Design are documented. Further assessments of the potential removal, injury, and preservation of trees, as well as permitting details and compensation measures will be completed in the Detailed Design phase of this Project and documented in the Arborist Report (refer to **Section 5.10** for further detail). Please also refer to **Appendix B2** for the Tree Inventory Report.

Field Methods

The tree inventory and assessment was conducted on September 21 and 22, 2016, October 28, 2016 and between the dates of April 5 to April 25 and May 25 and 26, 2017. The tree inventory and assessment was completed using accepted standard arboriculture techniques as outlined in the *Council of Tree & Landscape Appraisers Guide for Plant Appraisal, 9th Edition* (2000). The inventory and assessment was also done in accordance with the City of Toronto's *Guidelines for Completion of an Arborist Report (2011)* and the City of Toronto's *Tree Protection Policy and Specifications for Construction Near Trees* (2016). Figures provided in **Appendix B2** illustrate the proposed LOD, the Study Area and the location of all trees included in the inventory and assessment.

As per page 2 of the *Guidelines for Completion of an Arborist Report* (2011) document from the City's Parks, Forestry & Recreation department, trees protected by the by-laws are classified in five categories. Due to the complexity of property ownership within the Study Area, the categories have been redefined for the purposes of this report. The Tree Inventory Study Area includes the LOD plus 6 m, except in areas designated as Ravine and Natural Features Protection, where the Study Area includes the LOD plus 12 m. As such, the categories have been redefined as follows:

1. Trees with diameters of 30 cm or more, situated on private property on the subject site.
2. Trees with diameters of 30 cm or more, situated on private property, within 6 m of the subject site.
3. Trees of all diameters situated on City owned parkland within 6 m of the subject site.
4. Trees of all diameters situated on lands designated under City of Toronto Municipal Code, Chapter 658, Ravine and Natural Feature Protection.
5. Trees of all diameters situated within the City road allowance adjacent to the subject site.

The categories outlined above are written such that the 'subject site' represents a private property owned by the permit applicant; however, the Tree Inventory Study Area includes some lands currently owned by Metrolinx and some lands owned by other public or private property owners. North of the rail corridor (along Track E0) there are temporary and permanent land requirements from IO; however, no trees were present in these required lands. The proposed Wilson Yard Layover Facility incorporates lands currently owned by the Hydro One Networks Inc. (Hydro One) and Conoco Inc., as well as the City of Toronto/Toronto Port Lands Company (TPLC). To facilitate expansion of the Wilson Yard Layover Facility Metrolinx is exploring options to obtain the property required for the Wilson Yard Layover Facility.

Multiple City of Toronto Tree By-Laws were followed in order to correctly inventory tree species, including:

- **City of Toronto Private Property Tree By-Law**
  - Trees of all diameters situated on Metrolinx property within the Study Area (LOD plus 6 m) have been identified as Category 1.
  - Trees of all diameters situated on private property within the Study Area (LOD plus 6 m) have been identified as Category 2.
- **City of Toronto's Parks Tree By-Law**
  - Trees of all diameters situated on City owned parkland within the Study Area (LOD plus 6 m) have been identified as Category 3.
- **City of Toronto Ravine and Natural Feature Protection By-Law**
  - Trees regulated under this code are classified as Category 4, which includes trees of all diameters situated within 12 m of any construction activity.
- **City of Toronto's City Street Tree By-Law**
  - Trees of all diameters situated on City road allowance, as well as other City-owned property within the Study Area (LOD plus 6 m) have been classified as Category 5.
- **Toronto and Region Conservation Authority Regulated Areas**
  - TRCA regulates development within valley and stream corridors, as well as interference with wetlands and the alteration of the Lake Ontario waterfront. The activities of all federal and provincial Crown corporations are exempt from conservation authority permitting activities under Section 28 of the *Conservation Authorities Act* and under *O. Reg. 166/06* – TRCA Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses. Projects on lands owned by a Crown corporation and on behalf of a Crown

corporation are also exempt. As a provincial Crown corporation, Metrolinx will follow the Voluntary Project Review process as per the Proponents and Projects Exempt from the TRCA Regulatory Approval Process and request that TRCA reviews and comments on Detailed Design activities associated with project construction, maintenance or emergency activities.

- **City of Toronto Natural Heritage System**
  - Portions of the NHS are located within the Study Area. Correspondence with the City of Toronto indicated that trees located in the City's NHS are protected under the Ravine and Natural Feature Protection (RNFP) By-Law where the RNFP limits overlap the NHS. Otherwise, trees within the City's NHS are protected by the City Parks Tree By-Law, the City Street Tree By-Law, or the Private Tree By-laws depending on location.

Field Results

A total of 1,436 trees were inventoried during field investigations. Of these, 1,299 are within or adjacent to the current Study Area and, as such, this report documents a total of 1,299 trees. **Table 4-1** provides a summary of trees inventoried and their re-defined City of Toronto by-law category (as described in **Section 4.1.3.2.1**).

Table 4-1: Summary of Total Trees in Each Category

Category	Description	Total
1	Trees of all diameters situated on Metrolinx property within the LOD	622
1	Trees of all diameters situated on Metrolinx property within 6 m of the LOD	1
2	Trees with diameters of 30 cm or more situated on private property (Hydro One and Conoco Inc.) within the LOD	3
2	Trees with diameters of 30 cm or more situated on private property (Hydro One and Conoco Inc.) within 6 m of the LOD	0
2	Trees with diameters less than 30 cm situated on private property (Hydro One and Conoco Inc.) within the LOD	210
2	Trees with diameters less than 30 cm situated on private property (Hydro One, and Conoco Inc.) within 6 m of the LOD	14
3	Trees of all diameters situated on City owned parkland within the LOD	0
3	Trees of all diameters situated on City owned parkland within 6 m of the LOD	3
4	Trees of all diameters situated on lands designated under City of Toronto Municipal Code, Chapter 658, Ravine and Natural Feature Protection within the LOD	0

Category	Description	Total
4	Trees of all diameters situated on lands designated under City of Toronto Municipal Code, Chapter 658, Ravine and Natural Feature Protection within 12 m of the LOD	1
5	Trees of all diameters situated within the City road allowance within the LOD	233
5	Trees of all diameters situated within the City road allowance within 6 m of the LOD	91
Shared 1, 2	Trees with diameters of 30 cm or more situated on the boundary between Metrolinx property and private property within the LOD	0
Shared 1, 2	Trees with diameters less than 30 cm situated on the boundary between Metrolinx property and private property within 6 m of the LOD	14
3, 4	Trees of all diameters situated on City owned parkland that fall within the Ravine and Natural Features protection area within the LOD	0
3, 4	Trees of all diameters situated on City owned parkland that fall within the Ravine and Natural Features protection area within 12 m of the LOD	0
N/A**	Trees situated outside of the Study Area (including LOD and the buffer)	107
TOTAL		**1,299**

Notes: * Trees located within the Metrolinx ROW are exempt from Municipal by-laws but have been included as Category 1 for the purposes of this report.

** Trees outside of the current Study Area were included in the inventory during fall 2016 surveys as the Study Area at that time was larger. Refer to Table 2 for general location of these trees.

Figures provided in **Appendix B2** illustrate the location of all trees included in the inventory and assessment. Due to the close proximity of many of the trees, not all identifying tree numbers are illustrated on the figures. Additionally, due to the scale of the figures, the location of each tree should be considered approximate. In order to determine tree ownership and the corresponding category, the Universal Transverse Mercator (UTM) co-ordinates of each tree were referred to and are provided in **Appendix B2**. Tree Protection Zones (TPZ) for each tree have also been included in the mapping, which represent an area around a tree in which no grading, excavation or construction related activities are to occur without arborist supervision. Further information regarding TPZ will be discussed in the Arborist Report during the Detailed Design stage of this Project.

In general, the Study Area was represented by non-native tree species such as Tree of Heaven (*Ailanthus altissima*) and Norway Maple (*Acer platanoides*) representing 20% and 11% of the trees respectively.

In addition to structural defects, some biotic disorders can cause a decline in tree health and even result in tree mortality. One commonly encountered biotic stressor observed during the tree inventory and assessment included the presence of Emerald Ash Borer (EAB) (*Agrilus planipennis*). The EAB is a highly destructive invasive insect that attacks and kills all species of Ash trees native to North America. As such, the Canadian Food Inspection Agency (CFIA) has declared it an invasive alien species that must be quarantined (Government of Canada 2015).

Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx RER projects. Vegetation that is removed will be compensated for in accordance with the provisions of this protocol. See **Section 5.1.2.3**.

4.1.4 Wildlife

4.1.4.1 Significant Wildlife Habitat

The Study Area is located within the Ecoregion – 7E (Lake Erie-Lake Ontario Ecoregion). The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015d) contains information and criteria for identifying Significant Wildlife Habitat (SWH), which are defined as areas that have important ecological features and functions and support sustainable populations of plants, wildlife and other organisms within this Ecoregion. Ministry of Natural Resources and Forestry (MNRF) generally categorizes SWH into the following:

- Seasonal concentration areas;
- Rare vegetation communities or specialized habitats for wildlife;
- Habitats of species of conservation concern; and
- Animal Movement Corridors.

The results of the terrestrial field investigations were used to identify the presence of SWH in the Study Area.

Seasonal Concentration Areas

There were no seasonal concentration areas for wildlife identified within the Study Area. Although there are several bat species that possibly can be found within and in the vicinity of the Study Area, suitable bat maternity roosting habitat is unlikely to be present. Bats prefer to roost in suitable cavity trees with a Diameter at Breast Height (DBH) of at least 25 cm in deciduous, mixed or coniferous swamps or forests (MNRF, 2015e). None of those ELC communities were identified within the Study Area.

A cultural woodland (CUW1) and several isolated trees were identified within and immediately adjacent to the USRC; however, no suitable bat cavity trees were observed during the terrestrial field investigations or tree inventory. Given the recently-released survey protocol for SAR bats "*Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis & Tri-coloured Bat*" (MNRF, April 2017), SAR bats may use cultural treed areas for these purposes. Notwithstanding the new MNRF direction, it remains unlikely that SWH seasonal concentration areas in the form of bat maternity colonies are located within the Natural Environment Study Area, given the urban and highly disturbed nature of the Natural Environment Study Area, the limited size and availability of potentially suitable vegetation communities.

Rare Vegetation Communities or Specialized Habitats for Wildlife

No rare vegetation communities were identified during ELC surveys conducted in fall 2016.

There is very low potential for specialized habitats for wildlife to occur in the Study Area. Woodland amphibian breeding habitat is unlikely to be present within any of the cultural woodlands (CUW1). The largest block of quasi-natural habitat consists of about two ha of cultural woodland on the south side of railways and just west of the Don River. From aerial photography there does not appear to be any seasonal pooling. The site is too isolated and surrounded by inhospitable terrain to support a viable amphibian population. Consequently it is reasonable to assume that this SWH is not present in the Study Area.

Habitats of Species of Conservation Concern

Potential habitat for SOCC within the Study Area was identified during the background information review. No provincially rare (S1-S3, SH) or Special Concern plants were observed during ELC surveys conducted in fall 2016.

Animal Movement Corridors

No potential animal movement corridors were identified within the Study Area, which is significantly urbanized and contains many barriers to animal movements (i.e., railways, roads, construction areas, fences, etc.).

4.1.4.2 Herpetofauna

The Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015) was reviewed as part of the desktop background review. The most recent results (i.e., within 20 years) indicated records of 17 reptile and amphibian species which have been recorded within the 10x10 km^2 grid (ID: 17PJ33) that encompasses the Study Area. These species can

be found in **Appendix B1**. Blanding's Turtle (*Emydoidea blandingii*), listed as Threatened under the ESA, and Northern Map Turtle (*Graptemys geographica*) and Snapping Turtle (*Chelydra serpentina*) are listed as Special Concern under the ESA. Due to the highly urbanized nature of the Study Area, with only small pockets of low quality vegetation, it is likely that very few of the 17 species are actually present.

4.1.4.3 Mammals

According to the Atlas of the Mammals of Ontario (Dobbyn, 1994) and Bats Conservation International (BCI; 2016), several mammals are known to be present in the vicinity of the Study Area, including bats, carnivores such as raccoon and coyote, hares, moles, and rabbits. These species can be found in **Appendix B1**. Many of the mammals are common in the City of Toronto and tolerant to disturbances. Due to the highly urbanized nature of the Study Area with only small pockets of low quality vegetation, it is likely that very few species listed in **Appendix B1** are actually present.

4.1.4.4 Breeding Birds

The Atlas of the Breeding Birds of Ontario (OBBA; BSC et al., 2006) was reviewed as part of the desktop background review. Results indicated records of 107 breeding birds have been recorded within the 10x10 km^2 grid (ID: 17PJ33) that encompasses the Study Area. These species can be found in **Appendix B1**. The majority of these birds are common and variably tolerant to the urban landscape. Due to the highly urbanized nature of the USRC East Enhancements Project Natural Environment Study Area with only small pockets of low quality vegetation, it is likely that very few species listed in the **Appendix B1** are actually present.

Terrestrial field investigations were conducted outside of the peak breeding bird and herpetofaunal survey season (i.e., April to June); as such, few incidental wildlife observations were made. Several common birds such as Black-capped Chickadee (*Poecile atricapillus*), Downy Woodpecker (*Picoides pubescens*), Northern Cardinal (*Cardinalis cardinalis*), Dark-eyed Junco (*Junco hyemalis*) and American Robin (*Turdus migratorius*) were observed. Due to high noise levels, high levels of disturbance and limited habitat availability, it is expected that the Study Area supports a very low diversity of breeding birds.

4.1.5 Fish and Fish Habitat

The Study Area lies within the Don River watershed which falls under the jurisdiction of the TRCA. The USRC passes through the Lower Don River sub-watershed (TRCA, 2009b). The Don River is approximately 80% urbanized with almost half of the

watershed dedicated to residential development (TRCA, 2009a; TRCA 2009c). There are no watercourse crossings identified for the USRC East Enhancements Project (refer to **Figure 4-1**).

TRCA correspondence indicates that the Don River is considered a warmwater thermal regime providing habitat for a mixture of generally common cool to warmwater forage and sport fish species intermittently tolerant of environmental perturbation with a few records for coldwater migratory fish. Based on TRCA fish community records American Eel was identified in the Lower Don River in 2014 just beyond but in close proximity to the 120 m Study Area buffer shown in **Figure 4-1**. American Eel (*Anguilla rostrata*) is afforded general habitat protection designated as an Endangered Species under the ESA.

4.1.5.1 Field Methods

On September 30, 2016, AECOM Ecologists conducted an aquatic habitat assessment to document the existing conditions of the Don River within the Study Area. For the purposes of aquatic habitat assessment, the discipline specific Study Area (hereafter referred to as the assessed reach) is defined as 400 m upstream (north) and 400 m downstream (south) of the existing Metrolinx rail corridor and includes a section of the Don River. The purpose of the aquatic habitat assessment is to document existing conditions, and to inform the future Detailed Design and permitting phases of the Project.

The field investigations focused on visually identifying habitat features that may be impacted by Project works, and influence fish community composition. As a result, no fish sampling was conducted. The watercourse features identified within the limits of the reach are shown on **Figure 4-1**. A photographic record of the aquatic habitat assessment completed for the assessed reach of the Don River is provided in **Appendix B1**.

The following habitat characteristics were documented during the site visit:

- Substrate composition;
- Cover and refuge;
- Bank stability;
- Riparian vegetation;
- Barriers to fish movement;
- Flow observations;
- Surrounding land uses;
- Sources of pollution;
- Stream morphology;

- Habitat limiting factors;
- Channel hardening or straightening; and,
- Visual observations of springs or seeps

4.1.5.2 Field Results

The assessed reach shows evidence of prior re-alignment to accommodate urban transportation corridor development and is hardened with little natural features present. Overall, the upstream reach of the Don River is considered representative of direct fish habitat important for migration, feeding and refuge. Habitat conditions were generally non-limiting throughout, with no specialized (critically limiting spawning habitat) identified within the assessed reach. Migratory coldwater species (i.e., Salmon and trout) may use the lower Don River as a seasonal migratory corridor to and from Lake Ontario as no barriers to fish use were identified.

Based on Fisheries and Oceans Canada (DFO) SAR Mapping, and MNRF correspondence, no aquatic SAR or SOCC were identified within the Natural Environment Study Area. Based on TRCA fish community records however, American Eel was identified in the Lower Don River in 2014 just beyond but in close proximity to the Natural Environment Study Area shown in **Figure 4-1**.

4.1.6 Rare Species (Species at Risk and Species of Conservation Concern)

4.1.6.1 Methods

A review of the MNRF's NHIC database (MNRF, 2015a), *Significant Wildlife Habitat (SWH) Technical Guide* (MNRF, 2000) and Ontario Breeding Bird Atlas (OBBA) (BSC et al., 2006) was conducted to identify rare species records within the Study Area. The results are discussed in the following sub-sections.

4.1.6.2 Results

Agency Consultation

There are records of the following SAR (i.e., Endangered and Threatened) and Special Concern species in or in the immediate vicinity of the Study Area:

- Chimney Swift (*Chaetura pelagica*) – Threatened; and
- Peregrine Falcon (*Falco peregrinus*) – Special Concern.

According to the *Significant Wildlife Habitat (SWH) Technical Guide* (MNRF, 2000), SOCC include those species that are listed on the SARO list as Special Concern and/or provincially significant with a provincial ranking of S1 (extremely rare), S2 (very rare) or S3 (rare to uncommon) by Natural Heritage Information Centre (NHIC). Additionally, TRCA provided flora and fauna records for the Study Area on October 14, 2016. A total of 14 plant species and 8 animal species have been recorded in the vicinity of the Study Area by TRCA, all of which are common and abundant in Ontario (i.e., they are designated as S4 or S5). TRCA has no records of SAR or SOCC within the Study Area.

NHIC Rare Species Records

Thirty provincially rare species, including three Endangered species, three Threatened species and four Special Concern species are within or in the vicinity of the Study Area listed under the ESA. The majority of the records are much greater than 20 years old and are therefore considered to be historical as these species are unlikely to still persist in the Study Area given the ongoing urbanization in the area. The most recent record was that of Peregrine Falcon (*Falco peregrinus*), which was last recorded in 2008 within or in the vicinity of the Study Area.

OBBA Rare Bird Species Records

According to the OBBA (BSC et al., 2006), five Threatened and five Special Concern bird species, as listed under the ESA, have been recorded within or in the vicinity of the Study Area. Another three species are ranked as S2 or S3 which are rare and uncommon, and are considered to be SOCC. Note that Tommy Thompson Park and Toronto Island are both within 3 km from the Study Area, and are significant natural areas known to harbour many significant species. It is likely that most of the species were recorded therein and not likely within the Natural Environment Study Area itself.

Terrestrial Species at Risk and Species of Conservation Concern

Based upon the results of background review and agency consultation, screening of the 21 potential terrestrial and aquatic SAR and SOCC identified through the background review is provided in **Appendix B1**. This includes five Endangered species, six Threatened and ten SOCC species. In order to better understand which SAR may be affected by the proposed development, a habitat assessment of each SAR and SOCC species was completed to refine possible candidate species that are more likely to be present within the Study Area. This assessment included screening the preferred habitat of each SAR and SOCC against the habitat conditions present in the Study Area to determine whether there is potential for that SAR or SOCC to occur. Aquatic SAR species are further discussed below.

The results of this screening indicate that the following terrestrial SAR and SOCC have the potential to occur within the Natural Environment Study Area based on the presence of suitable habitat:

- Barn Swallow;
- Common Nighthawk;
- Eastern Wood-pewee;
- Peregrine Falcon; and
- Chimney Swift.

Aquatic Species at Risk and Species of Conservation Concern

Based on DFO's SAR Mapping and MNRF correspondence, no aquatic SAR or SOCC were identified within the Natural Environment Study Area. Based on TRCA fish community records however, American Eel, listed as Endangered under the ESA, 2007, was identified in the Lower Don River in 2014, just beyond but in close proximity to the Natural Environment Study Area shown in **Figure 4-1**. Eel are an intermediately tolerant species that are considered to be bottom dwellers. They hide in burrows, tubes, snags, masses of plants, other types of shelters. They are found in a variety of habitats including streams, rivers, and muddy or silt-bottomed lakes during their freshwater stage, as well as oceanic waters, coastal bays and estuaries. American Eels tend to hide or rest in silt and muck substrates similar to that of the Don River. With no observed barriers to fish passage, it is possible that eels may move upstream in the Don River from Lake Ontario. The Don River is likely a migratory route for the species.

4.2 Soils and Groundwater

4.2.1 Methodology

For this assessment, a desktop study was conducted to provide a general characterization of existing local geological and hydrogeologic conditions of the Study Area. Available background data and information used to characterize the general soils and hydrogeologic conditions of the Study Area, as it relates to regional physiographic and hydrogeological regimes, was interpreted from available secondary source data including:

- Quaternary geological mapping from the Ontario Geological Survey (OGS);
- Bedrock geological mapping from OGS;
- Bedrock topography mapping from OGS;
- MECP Water Well Records; and
- Soil survey reports from the Agriculture and Agri-Food Canada.

4.2.2 Soil Classification

Land use within the Study Area is comprised primarily of urban and industrial development. Soil classification for the metropolitan area of Toronto, for which the Study Area resides, is omitted from the Soil Survey of York County (Hoffman, D.W. and Richards, N.R., 1955). According to the MNRF (2015) soils within the Study Area are classified as urban soils.

4.2.3 Geological Setting

4.2.3.1 Topography and Physiography

The Study Area lies within the Iroquois Plain physiographic region, as mapped by Chapman and Putnam (1984). The Iroquois Plain is described as lowlands bordering on Lake Ontario, representing the historic shoreline of Lake Iroquois during the last glacial period. Permeable sands and depositional features such as cliffs, bars, beaches and boulder pavements comprise much of the northern portion of the region. Along the present-day shoreline of Lake Ontario within the City of Toronto, the Iroquois Plain is dominated by sand plains, bevelled till plains, and beaches. The eastern and northern portion of the Study Area overlies an island of till surrounded by the extensive sand plains that extend along the City of Toronto's Lake Ontario shoreline and the southern portion of the Study Area.

The ground surface topography within the Study Area is characterized as level to nearly level, with a general southward decline toward Lake Ontario. The existing rail corridor and the Gardiner Expressway form artificial topographic highs within the Study Area as shown on **Figure 4-2**.

4.2.3.2 Overburden Geology

Review of published bedrock topography mapping (Rogers *et. al*, 1961) indicates that the Study Area is underlain by less than 10 m of overburden sediments in some areas. Surficial geology within the Study Area (**Figure 4-3**) is reported by Sharpe (1980) to consist of i) modern alluvial deposits (clay, silt, sand, gravel, and organic remains) within the Don River Valley, and ii) undifferentiated till and stratified deposits (silty clay to silt till), commonly referred to as the Sunnybrook Till, dominating the central and western portions of the Study Area. The Sunnybrook Till is a fine-grained silt to silty-clay till that is comprised of multiple massive diamicton (till-like) beds giving it a stratified texture. Stratigraphy of overburden sediments, illustrated by Sharpe (1980), indicates the Sunnybrook Till directly overlies shale bedrock within the Study Area.

Figure 4-2: Topography and Drainage

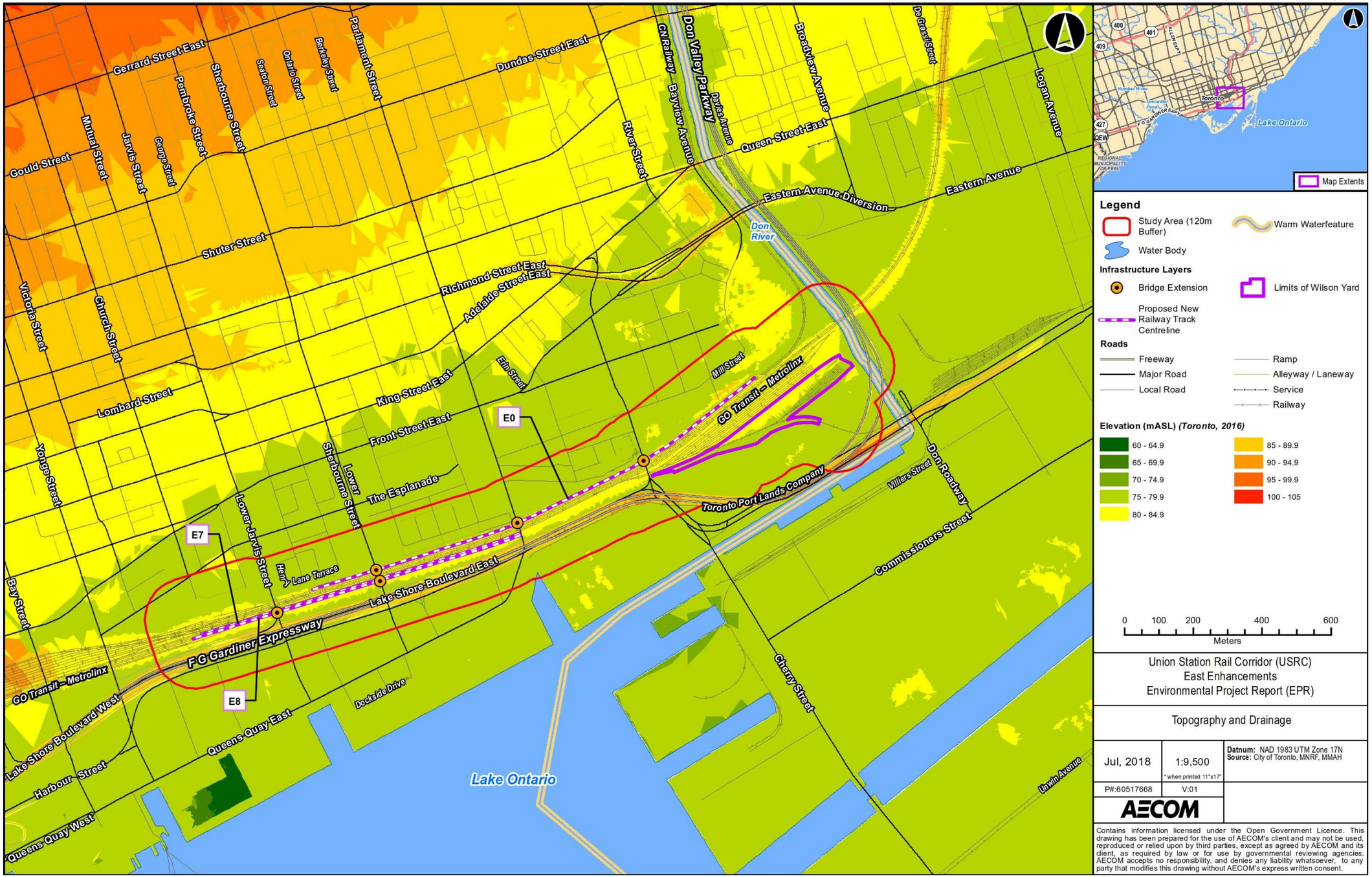
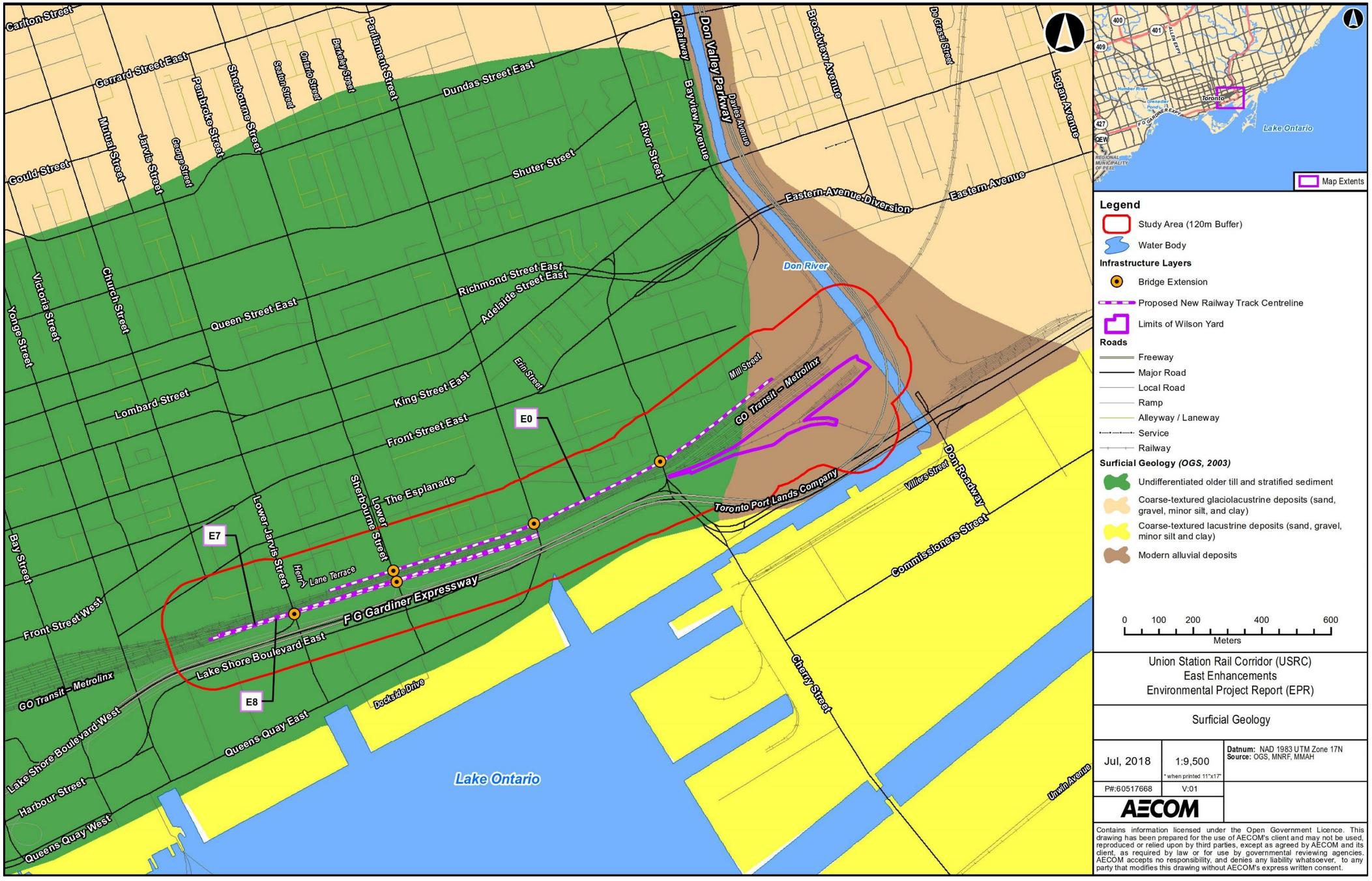


Figure 4-3: Surficial Geology



4.2.3.3 Bedrock Geology

According to the OGS (1991), the Upper Ordovician age Georgian Bay Formation underlies the Study Area. The Georgian Bay formation is an interbedded grey-green to dark grey shale and fossiliferous calcareous siltstone to limestone.

Due to a lack of MECP water well records that encounter bedrock within the Study Area, the depth to bedrock can only be interpreted from bedrock topography mapping available from the Ministry of Northern Development and Mines (Gao, *et. al*, 2006). In this mapping, the upper bedrock contact locally occurs at depths ranging between 8 m and 15 m Below Ground Surface (BGS), with bedrock closest to surface within the Don River valley.

4.2.4 Hydrogeological Setting

Surficial geology and physiography of the City of Toronto provides a foundation to characterize the general hydrostratigraphy of the lands within the Study Area. Hydrostratigraphy is the classification of various 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. Aquifer units are typically comprised of coarse-textured unconsolidated (overburden) sediments or highly fractured/permeable bedrock units. Surficial coarse-textured overburden sediments within the Study Area are limited to local alluvial deposits within the Don River valley. These alluvial sediments possess limited depth and areal extent, and thus are considered poor groundwater aquifers. A large portion of the Study Area is underlain by fine-textured till deposits (Sunnybrook Till) consisting of silt and clay. Typically, fine-textured tills such as those observed within the area typically possess low hydraulic conductivity and a limited ability to transmit groundwater, however, heterogeneities, secondary porosity, permeability features and fractures may locally permit a low yield, and/or provide groundwater recharge-discharge pathways.

As described in **Section 4.2.3**, shale bedrock of the Georgian Bay Formation is described as an interbedded siltstone and limestone unit. Groundwater is known to occur within the upper 5 m of the Georgian Bay Formation, however, according to Singer et al. (2003) it is described as a poor aquifer with low water-yielding capability.

The following summarizes the local surficial sediments and subsurface units into hydrostratigraphic units:

- Modern Alluvial Deposits (Clay, Silt, Sand, Gravel) – ***Unconfined Aquifer or Aquitard***
- Undifferentiated older tills and stratified sediments (Sunnybrook Till) – ***Aquitard***
- Shale Bedrock (Georgian Bay Formation) – ***Aquitard***

4.2.4.1 Groundwater Resources

Municipal Water Supply

The MECP identifies a number of source water areas of significance/concern. These include:

- Wellhead Protection Areas;
- Intake Protection Zones;
- Issue Contributing Areas;
- Significant Groundwater Recharge Areas;
- Highly Vulnerable Aquifers; and
- Event Based Areas.

The presence of these areas within the Study Area is described below.

According to the Credit Valley, Toronto and Region, and Central Lake Ontario (CTC) Source Water Protection Plan (CTC Source Protection Region, 2015), there are no municipal groundwater supply wells or associated Well Head Protection Areas (WHPA) within the Study Area. Intake Protection Zones (IPZs) associated with the five Lake Ontario surface water intakes is located within the Study Area.

The Source Water Protection Information Atlas developed by the MECP (2016) identifies the Study Area as being located in a Highly Vulnerable Aquifer (HVA), defined as an underground water supply, or aquifer that can easily be contaminated because overlaying soil layers are thin or permeable. The Study Area has a Score of six, which is considered to be moderate groundwater vulnerability.

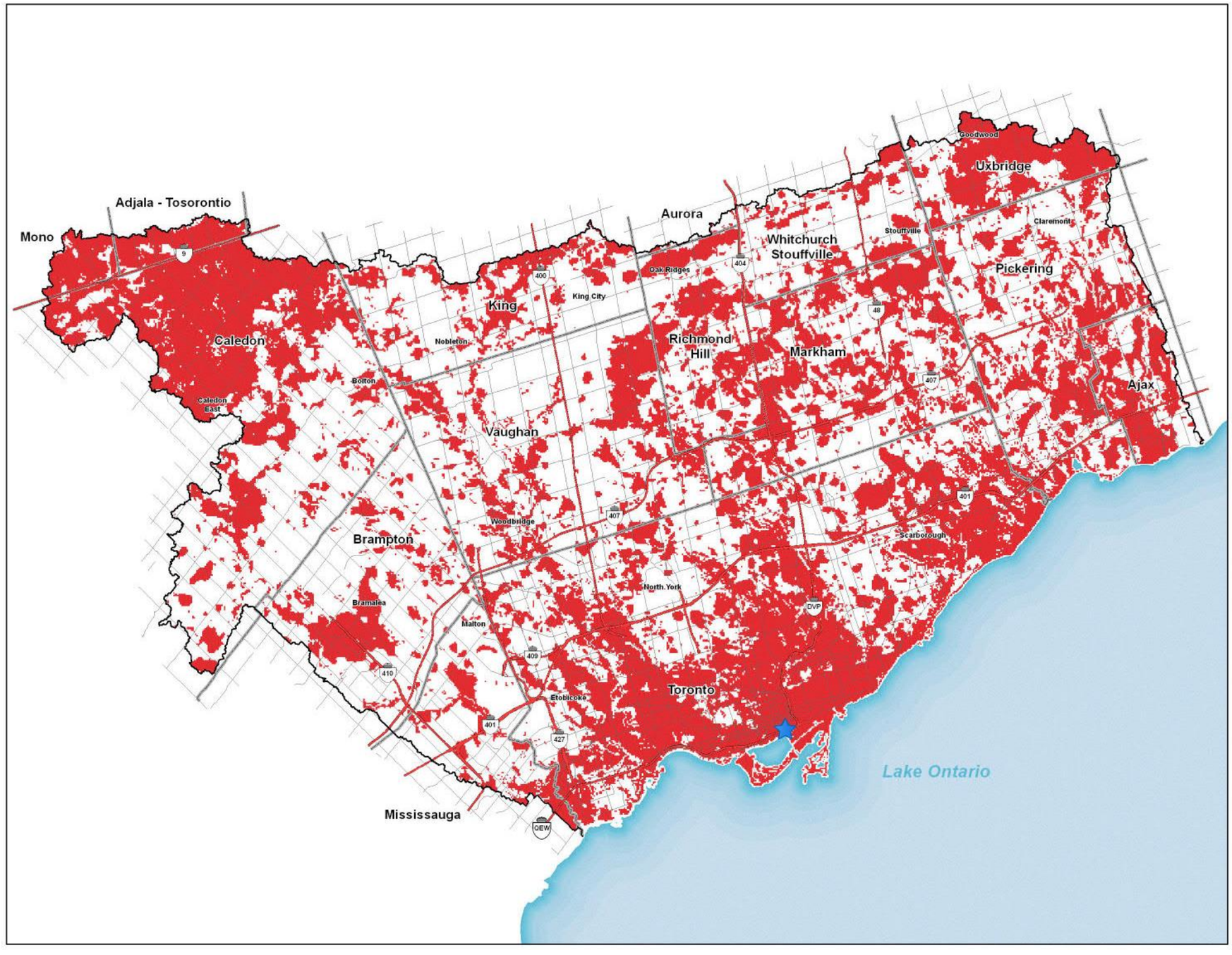
The Study Area is located in an Event Based Area (EBA), which is an area within a watershed where a spill could pollute the drinking water supply because of sanitary sewers, sewage treatment plants or pipelines that are close to rivers, streams or other water bodies. The types of events categorized for this area include stored/transported fuel/oil, pipeline fuel/oil spill, and wastewater treatment plant/sanitary sewer (refer to **Table 4-2** for a list of source water protection areas/features and results/scores for the Study Area and **Figure 4-4** for Highly Vulnerable Aquifer Areas in the vicinity of the Study Area).

Table 4-2: Source Water Protection Areas of Significance/Concern for the Study Area

Source Water Areas of Significance/Concern	Definition	Result / Score
Wellhead Protection Area	Land area around a well where contaminants from land activities can reach and pollute the well water supply. Subdivided concentrically to show risk; scores range between 2 (lowest) and 10 (highest). In general, 8 or 10 indicate there are policies for certain activities to prohibit or manage them.	No
Wellhead Protection Area	The area around a well where water quality could be impacted by surface water.	No
Intake Protection Zone	The area around an intake pipe in a lake or river that draws in the surface water used to supply the municipal drinking water system. Three zones, from the closest to the farthest from the intake, rate the vulnerability threat. Zone 3 is the third and largest zone around the intake where activities can impact the source water, but there is time to take action to ensure the intake and municipal water is not impacted.	Zone 3
Issue Contributing Area	An area where land-based activities contribute to the presence of an unwanted substance in the water source. Activities producing the substance may be prohibited or need to be managed more effectively.	No
Significant Groundwater Recharge Area	The areas where precipitation recharges the groundwater source or aquifer.	No
Highly Vulnerable Aquifer	An underground water supply, or aquifer, that can easily be contaminated because overlaying soil layers are thin or permeable.	Yes; Score 6: moderate groundwater vulnerability
Event Based Area	An area within a watershed where a spill could pollute the drinking water supply because of sanitary sewers, sewage treatment plants or pipelines that are close to rivers, streams or other water bodies. Types of Events: Stored/Transported Fuel/Oil; Pipeline Fuel/Oil Spill; Wastewater Treatment Plant/Sanitary Sewer	Yes

Source: Source Water Protection Information Atlas (Ministry of Environment and Climate Change, June 2016).

Figure 4-4: Highly Vulnerable Aquifer Areas



The Toronto & Region Source Protection Area

Highly Vulnerable Aquifer Areas

Legend

Highly Vulnerable Aquifer

Vulnerability Score - 6

Transportation Network

Provincial Highway

Major Roads

Municipal Boundary

Union Station Rail Corridor Location*

*Note: Location star added by AECOM to place USRC project within context of TRCA data. It is not meant to suggest association with the TRCA.

2 1 0 2 4 6 8 10
Kilometres

Source: TRCA, 2010; DMTI Spatial, 2010; MNR, 2010.

This map has been prepared to meet provincial requirements under the Clean Water Act, 2006 and should be used for other purposes ONLY after consultation with the responsible conservation authority or source protection authority. The analysis used to produce this map relies on best available information as of the date of the map. Priority should be given to site specific information collected in accordance with accepted scientific protocols when being used for other purposes.

DRINKING WATER SOURCE PROTECTION
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TORONTO AND REGION Conservation for The Living City

Ontario

MECP Water Well Records

A review of the MECP Water Well Database was completed within a radius of 500 m from the proposed track expansions (E0, E7 and E8) and the Wilson Yard Layover Facility. Results are shown in **Figure 4-4**, and include the primary use of each well (i.e., dewatering, commercial, industrial, etc.). A total of 1,170 water well records were found within the search area. Several wells are "cluster wells" and have multiple wells associated with one record number. A review of the information within the well records indicates that the majority of wells extend to a depth of less than 10 m and are used for the purpose of monitoring/test boreholes and dewatering. It should be noted that shallow wells, including dug wells, bored wells and sand points, are not typically reflected in the MECP database and thus the actual proportion of overburden well sources in the area may be greater than reported. It should also be noted that the MECP database may be missing information for drilled wells, as records either were not submitted, are incomplete, or the physical well location is incorrect, etc.

As shown in **Table 4-3**, available well records indicate that 9.5% of groundwater use in the Study Area is for dewatering purposes, 38.6% of wells are for monitoring and/or test holes, followed by industrial (<1%) and municipal (<1%). Through further investigation of the one municipal water well record it was determined the well is a monitoring well. Approximately 48% of the MECP water well records did not specify the well use and are therefore classified as 'Unknown'. Approximately 3.5% of the MECP water well records indicate the well is not used/other.

Table 4-3: Summary of MECP Water Well Record Information (500 m Study Area Radius)

Primary Water Use	Number of Well Records	Range of Well Depth (m)	Primary Well Type
Industrial	1	11.30	1 Overburden
Municipal (Monitoring well)	1	9.00	1 Overburden
Monitoring/Test Hole	452	1.30 to 70.00	452 Unknown
Dewatering	112	6.00 to 15.30	112 Unknown
Not Used/Other	42	3.90 to 35.05	5 overburden, 5 bedrock, 32 unknown
Unknown	562	1.83 to 35.00	6 overburden, 4 bedrock, 552 unknown

MECP Permit-to-Take-Water

A search of MECP Permit-to-Take-Water (PTTW) records returned 66 results located within a 500 m radius from the proposed track expansions (E0, E7 and E8) and Wilson Yard Layover Facility. Sixty-one (61) permits are for groundwater/surface water dewatering purposes, two permits are for industrial use, one is for remediation, one is for a pumping test and one permit is for a surface water taking for recreational/aesthetic purposes (**Table 4-4**). Results are shown in **Figure 4-5**, along with the primary water taking source (groundwater or surface water).

Table 4-4: Summary of MECP Permit to Take Water Information

Primary Water Use	# of Permits	Source
Recreational – Aesthetics	1	1 surface water
Dewatering – Construction	59	46 groundwater, 13 surface & groundwater
Other – Dewatering	2	2 groundwater
Other – Industrial	2	2 surface water
Other – Remediation	1	1 groundwater
Miscellaneous – Pumping Test	1	1 groundwater

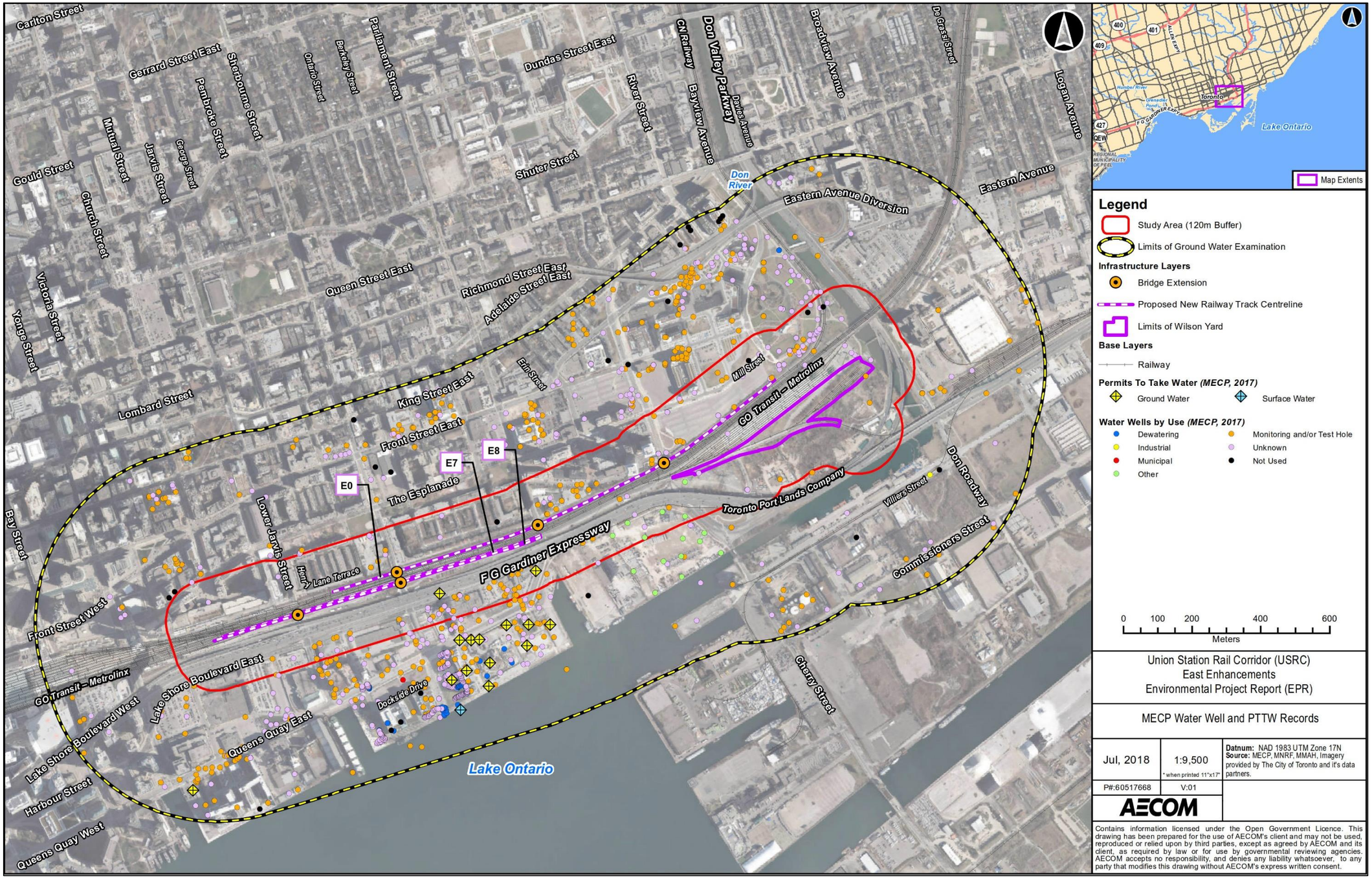
4.2.4.2 Depth to Groundwater Table

The depth to the water table was characterized by reviewing the static water level recorded in the MECP water well records. Thirty-eight (38) records were identified that report a static water level. The static water levels within these well records range between about 0.6 m and 6.0 m BGS. Static water levels may fluctuate considerably in response to changes in nearby pumping/dewatering activities, precipitation patterns and seasonal fluctuations. The large number of MECP water well records with dewatering well use indicates the presence of a shallow groundwater table within the Study Area. Given the close proximity, the shallow groundwater table may be hydraulically connected to Lake Ontario.

4.2.5 Geotechnical Investigations

A geotechnical and hydrogeological investigation in support of the construction of the URSC East Enhancements Project (i.e., bridge extensions, retaining structures, track infrastructure, etc.) was completed and two reports were prepared – Part A - Investigation Procedures and Factual Data, and Part B - Geotechnical Interpretation and Design Recommendations.

Figure 4-5: MECP Water Well Records



A drilling program which included the advancement of 38 boreholes and installation of 11 monitoring wells was completed. The boreholes and monitoring wells are distributed across the Study Area, with groups of boreholes at the proposed bridge structures. Information collected from the boreholes included: sediment description, water content, sediment samples (including rock coring) at 0.75 to 1.5 m intervals, blow counts, water depth/saturation depth, select grain size distribution, and laboratory analysis of the soil for parameters under *O.Reg. 153*. Additional information was collected from the bedrock, where encountered, which included Rock Quality Designation (RQD), fracture/fracture index, weathering observations, point load test and photographs. Borehole target depths ranged from 8.8 to 39.6 m below grade, with the exception of two locations where refusal was encountered at a shallower depth. Monitoring wells installed had groundwater level monitoring and hydraulic conductivity testing completed. Groundwater samples were collected in three monitoring wells and submitted for laboratory analysis which included parameters listed under the City of Toronto Storm/Sanitary Sewer by-law and the Provincial Water Quality Objectives (PWQO).

Several metals, inorganics, and PAH parameters exceeded standards in soil samples, predominately at shallow depths (0 to 3.7 metres below ground surface). PHC fractions, Benzene, toluene, ethylbenzene, xylenes (BTEX) and n-hexane exceedances were reported at greater depths, from 2.3 to 9.8 metres below ground surface. None of the samples submitted exceeded PCB standards. The soil would be considered non-registrable and non-hazardous based on Toxicity Characteristic Leaching Procedure (TCLP) analysis for metals and inorganics, and VOCs.

Exceedances of the City of Toronto's storm sewer criteria in the groundwater samples collected included: total suspended solids (TSS), total metals, Biochemical Oxygen Demand (BOD), and total PAHs. Exceedances of the City of Toronto's sanitary sewer criteria included TSS, total metals (aluminum only), and total PAHs. Total metals, PAHs, and total PCBs exceeded the PWQO standards. Treatment and a discharge permit will be required if groundwater is discharged to the City's sewers or any watercourse.

4.3 Air Quality

An air quality impact assessment was conducted for the operational stages of the Project to determine the air quality and greenhouse gas (GHG) impacts. A detailed Air Quality Assessment is provided in **Appendix B3**.

4.3.1 Methodology

The Study Area for the purposes of the air quality assessment is defined as a 300 m radius on each side of the railway. The spatial extent of the Study Area was selected to

encompass potential impacts to air quality as a result of the Project. It includes the layer of air near the earth's surface, known as the troposphere, which extends from the surface to approximately 10 km in altitude.

The following scenarios of the Project were modelled:

- Current/Existing Conditions (year 2016); and
- Future "Build" Conditions (year 2025) with Electrification - Proposed infrastructure with the proposed mix of electric/diesel trains at RER service levels (in accordance with data provided by Metrolinx).

The baseline ambient air quality was based on publicly available historical data from ambient air quality monitoring stations within Ontario. Data utilized were the latest publicly available at the time of this air quality assessment (March 27, 2017). It was assumed that the historic ambient air quality will be the same for the future scenario. The following sources were used for extracting 5-year air quality data:

- For CO, $PM_{2.5}$, NO_2 and SO_2, data were obtained from the MECP website for years 2011 to 2015 from stations Toronto East, Toronto West and Toronto Downtown;
- For formaldehyde, acetaldehyde and acrolein, data were obtained from the National Air Pollution Surveillance (NAPS) network on the Environment Canada website for years 2002 to 2006 from station Toronto Perth (# 60418); and
- For benzene, 1-3-Butadiene and benzo(a)pyrene, data were obtained from the NAPS network on the Environment Canada website for years 2008 to 2012 from station Toronto College Street (# 60427).

Ambient monitoring data for air quality pollutants were utilized as follows for CO, $PM_{2.5}$, NO_2, SO_2, formaldehyde, acetaldehyde, benzene, 1,3-butadiene, acrolein and benzo(a)pyrene:

- 1 hour, 8 hour, and 24 hour ambient concentrations for the contaminants were obtained from the 90^{th} percentile of hourly measurements from the representative AQ monitoring stations (the average value was calculated over the available years).
- Annual ambient concentrations for the contaminants were obtained from the mean measurements from the representative AQ monitoring station (the average value was calculated over the available years).

Details of the monitoring stations with their associated pollutants closest to the Study Area are provided in **Table 4-5**.

Table 4-5: GTA Air Quality Monitoring Stations Information

Station Name:	Toronto College Street	Toronto East	Toronto West	Toronto Downtown	Toronto Perth
NAPS Number:	60427	60410	60430	60433	60418
Address:	223 College St., Toronto, ON	Kennedy Rd. and Lawrence Ave, Toronto, ON	125 Resources Rd., Toronto, ON	Bay St. and Wellesley St. W., Toronto, ON	Perth/Ruskin (Junction Triangle), Toronto, ON
Latitude:	43.65	43.74	43.70	43.66	43.66
Longitude:	-79.39	-79.27	-79.54	-79.38	-79.45
Station Type:	Urban	Urban	Urban	Urban	Urban
Height of Air Intake:	9 m	4 m	8 m	8 m	-
Elevation ASL:	122 m	172 m	149 m	107 m	-
Pollutants Measured:	Benzene and 1,3-Butadiene & Benzo(a)Pyrene	NOx, NO, NO_2, $PM_{2.5}$ and Ozone	CO	NOx, NO, NO_2, CO, $PM_{2.5}$ & Ozone	Formaldehyde, Acetaldehyde and Acrolein
Years Available:	2008-2012	2011-2015	2011-2015	2011-2015	2002-2006

4.3.2 Background Concentrations

The Ozone Limiting Method was used to estimate short-term NO_2 concentration resulting from emissions of NOx. **Table 4-6** outlines the ozone background concentrations.

Table 4-6: Ozone Background Concentrations

Contaminant	Averaging Period	90th percentile Ambient Concentration Measured (ppb)
Ozone	1 hour	43.0
Ozone	24 hours	38.1

It is assumed that the rate of conversion of NO to NO_2 is controlled by the availability of ozone. The 1-hour and 24-hour concentration of NOx predicted by the model were compared to the 90th percentile ozone background levels as measured by the Toronto West, Toronto Downtown and Toronto East air quality monitoring stations from 2011 to 2015. The largest 90th percentile was used from the value calculated at each of the three stations.

A factor of 0.10 was assumed for the thermal conversion of NOx to NO_2. If the remaining concentration of NOx was less than the 90th percentile ozone concentration, then it was assumed that 100% of the NOx is transformed to NO_2 as per the following equation:

$$\text{If } 0.90\ NO_X\ (\text{ppb}) < \text{Ozone (ppb)}, \text{ then } NO_2\ (\text{ppb}) = \text{NOx (ppb)}$$

However, if the concentration of NOx is greater than 90th percentile ozone concentration, then ozone is the limiting factor as per the following Equation:

If 0.90 NO_X (ppb) > Ozone (ppb), then NO_2 (ppb) = 0.1 NOx (ppb) + Ozone (ppb)

4.3.3 Air Quality at Critical Receptors

Ten critical receptors have been identified within the Study Area. Those receptors have been added to the modelling and are listed in **Table 4-7**. Examples of such receptors are day care centers, retirement homes, school and hospitals. There are no hospitals within the Study Area. The list has been sorted from West to East.

Table 4-7: Critical Receptors within the Study Area

Receptor ID	Name	Address
R01	St. Lawrence Co-Operative Day Care Inc.	4 Market Street
R02	Brant Street Daycare & Downtown Alternative School	85 Lower Jarvis Street
R03	St. Michael Catholic School (Day Care)	47 Henry Lane Terrace
R04	St. Michael Catholic School	50 George Street South
R05	St Lawrence Co-operative Day Care Inc.	2 Princess Street
R06	Market Lane Jr and Senior Public School	246 The Esplanade
R07	Les Centres d'Accueil Héritage	33 Hahn Place
R08	Distillery District Early Learning Centre	8 Distillery Lane
R09	Voice Integrative School	50 Gristmill Lane
R10	Future School (West Don Lands Precinct Plan, 2005)	South of Mill Street (Corner of Bayview Avenue)

The following emissions sources were assessed:

- Mobile GO Transit Locomotives;
- Idling GO Transit Locomotives at the Don Yard;
- CN and VIA Locomotives; and
- Road traffic on key public roads (Gardiner Expressway, Don Valley Parkway, Lower Jarvis Street, Lower Sherbourne Street, Parliament Street and Cherry Street) within the Study Area.

The Exposure Assessment was limited to inhalation. The main Exposure Assessment has been conducted through a "Comprehensive Analysis". This type of analysis combines actual/measured meteorological, air quality obtained from MECP, and traffic data/projections to estimate exposure by dispersion modelling over five years for which

meteorological and air quality data are available. The study also included a “Predictable Worst-Case Analysis” as a way to model the highest pollutant concentrations of any day over all the possible meteorological conditions of the 5-year meteorological dataset.

In all cases, maximum concentrations are below air quality threshold levels with exceptions of acrolein (24-hr), benzene (annual), benzo(a)pyrene (24-hr and annual), and $PM_{2.5}$ (annual) for the Current (2016) scenario.

The reason for most exceedances is the significant contribution of background concentration to the total concentrations for contaminants showing exceedance. It should be noted that for each pollutant, the 90^{th} percentile background concentrations were used to represent background air quality levels as a conservative approach. In the case of exceedances for the Benzo(a)Pyrene (BaP) pollutant, the roadway source group has been contributing to 89% of the highest cumulative concentration.

4.4 Noise and Vibration

Potential noise and vibration effects during the construction and operation stages of the Project were assessed based on the requirements of the Ontario Ministry of Environment and Energy / GO Transit *Draft Protocol for Noise and Vibration Assessment* (the Protocol; MOEE/GO Transit, 1995). The Protocol provides a framework for noise and vibration assessments of GO Transit rail projects. A detailed Noise and Vibration Impact Assessment Report is included in **Appendix B4**.

4.4.1 Methodology

Based on US Federal Transit Administration (FTA) guidelines and direction from Metrolinx, noise and vibration was assessed up to 300 m from each side of the railway. GO, VIA and CN freight rail traffic operate within the Study Area.

Noise and vibration monitoring was conducted at two sample locations to characterize the baseline ambient conditions adjacent to the rail corridor. The baseline noise and vibration measurement data provide a benchmark for comparison, however operational impacts are based on predicted noise and vibration levels to provide an assessment of the predictable worst-case impacts.

Noise monitoring was undertaken using 3M Quest SoundPro sound level meters, fitted with microphone wind shields and strapped to poles such that the microphone height was approximately 2 m above local ground surface. The sound level meters were field calibrated immediately prior to the measurement period and checked upon completion of the measurements to confirm that no significant drift in calibration was observed. Measurements were recorded in 15-minute samples.

Vibration monitoring was undertaken using Instantel Minimate vibration meters with the triaxial geophones buried approximately 0.3 m below the local ground surface. Measurements were recorded in 15-minute samples.

Weather data have been obtained from a nearby Environment Canada weather station (Pearson International Airport). The noise and vibration measurement data have been cross-referenced against the weather data and any measurements recorded during periods of inclement weather have been omitted from the dataset. For noise, inclement weather includes wind speeds greater than 20 km/h or any precipitation. For vibration, inclement weather includes wind speeds greater than 50 km/hr or any precipitation.

Sensitive receptors have been visually identified using aerial and street photography. Within the groupings of sensitive receptors (i.e., sensitive land use area), a sample receptor has been selected to represent the worst case receptor. These assessed points of reception are at the closest sensitive properties to the railway within each sensitive land use area. Note that planned and approved developments have also been considered. **Table 4-8** below presents the representative points of reception to be assessed. It is not necessary to undertake calculations for every receptor along the corridor as locations further removed from the corridor than sample receptors will have equal or lower noise impacts. No noise or vibration sensitive commercial or industrial properties have been identified.

Table 4-8: Representative Noise and Vibration Sensitive Receptors

Receptor ID	Location
R1	# 55 Bremner Boulevard (Multi-storey residential building)
R2	#1 The Esplanade (Multi-storey residential building)
R3	#2 Church Street (Multi-storey residential building)
R4	#1 Market Street (Multi-storey residential building)
R5	#91 Henry Lane Terrace (Multi-storey residential building)
R6	#133 Longboat Avenue (Townhouse)
R7	#70 Distillery Lane (Multi-storey residential building)
R8	Planned Mixed/Residential Development (as per West Don Lands Precinct Plan)
R9	Planned School location (as per West Don Lands Precinct Plan)

4.4.1.1 Construction Noise

Construction noise levels have been predicted at noise sensitive areas using reference equipment source levels and estimated equipment operations and quantities for the different stages of construction. The US Federal Highway Administration *Roadway*

Construction Noise Model (FHWA, 2011) was used for this assessment. This model was developed as a construction noise screening tool and allows users to activate and analyze multiple pieces of equipment simultaneously at multiple receptor locations using simplified prediction assumptions. The model uses an extensive database of equipment sound levels; however the contractor's equipment may vary from these.

Refer to **Appendix B4** for an estimated equipment quantity and a list of expected construction noise sources.

4.4.1.2 Construction Vibration

Construction vibration impacts have been predicted using reference equipment source levels and estimated equipment operations for the different construction sites. The US FTA *Transit Noise and Vibration Impact Assessment* guide (FTA, 2006) includes procedures for predicting vibration transmission. These procedures include a distance attenuation equation to estimate vibration levels from reference source levels, which provides a reasonable estimate for a wide range of soil conditions. The reference vibration levels used in this assessment are summarized in **Appendix B4 (Table 8)** and the distance attenuation equation is as follows:

$$\textbf{Vibration velocity} = \textbf{(Reference vibration velocity)} \times \left(D_{ref}/D\right)^{1.5}$$

Where: D_{ref} is the reference distance at which the reference vibration level is given and
D is the distance from the equipment to the receiver.

The building damage limits are based on in-ground vibration levels, adjacent to the building. Perceptible vibrations would result from in-building floor vibrations, but the limits for construction vibration perceptibility are also taken as in-ground vibration levels. This approach is consistent with the FTA procedures.

4.4.1.3 Operational Noise

The Protocol states that noise impact of GO Transit rail projects "shall be assessed using prediction methods acceptable to the MOEE". Reference is made to *STEAM, Sound from Trains Environmental Analysis Method* (MOE, 1990). Although STEAM has proved to be a robust calculation method, there are several aspects that cannot be modelled with the method, which may previously have been modelled separately and added to the results to augment the model. For this assessment, the noise assessment method presented in the US FTA *Transit Noise and Vibration Impact Assessment* guide (FTA, 2006) has been used, with implementation in the Cadna/A acoustic software package. Cadna/A is a more sophisticated 3-dimensional modelling system, implementing a more flexible prediction methodology, and is considered more accurate.

A single point test prediction has been conducted for an actual receptor in the Study Area to provide a comparison between railway noise predictions from the FTA method (implemented in Cadna/A software) and calculations prepared in accordance with STEAM (implemented in STAMSON software). This comparison is provided in **Appendix B4**.

Noise modelling has taken account of the proposed track alignment and elevation, as well as new infrastructure elements, such as significant grading, according to the design information available. The track type will be continuous welded.

The following scenarios were modelled:

- Current/Existing Conditions (year 2016); and
- Future "With Project" Conditions (year 2025) with Electrification – Proposed infrastructure with the proposed mix of electric/diesel trains at RER service levels (in accordance with data provided by Metrolinx).

Electrification is a fully funded project and has been committed to by the Province as part of its plans for RER service in the GTHA. If the Province's plans to provide electrified RER service is significantly delayed or otherwise changed, Metrolinx will commit to undertaking a review of the assumptions made in this Study.

Normally a 10-year post-construction horizon would be used for environmental assessments, but the future train volume data provided are based on year 2025, which is a notional milestone year. The credible worst-case scenario is based on maximum service goals consistent with the planned infrastructure and safety standards. The future service volumes account for anticipated ridership demands and infrastructure constraints; therefore it is considered to be a credible worst case scenario.

Noise sources other than locomotive engines and wheel-rail interactions were modelled based on the following assumptions:

- **Crossovers/switches**: Modelled with equivalent sound level to the reference provided in the FTA guide (90 dBA at 15.2 m; FTA 2006). Event duration determined based on total crossover/switch pass-by time per period (day/night) calculated from train speeds and lengths.
- **Whistles**: Special instructions prohibit whistling within USRC. This does not apply for whistling as a warning to workers on or around the track which requires it (Rule 42). As this is not part of the regular operations, whistles have not been included in the noise model.
- **Snow Clearing Devices**: Modelled based on manufacturer's sound level data for gas fired blowers. Snow clearing devices were included in the 'With Project' scenario noise predictions only and were modelled as operating continuously (throughout day and night), for a conservative assessment.

In practice, there may be some influence in the overall noise level at any receptor from ambient noise sources including road traffic. Ambient noise sources are not generally included, this assessment is therefore considered to have used a conservative approach because the baseline level used for determining the impact will be lower than if ambient sources were included. However, the Gardiner Expressway and the Don Valley Parkway have been included and are considered special cases where road traffic noise is likely to be significant due to the proximity of these major highways to noise sensitive areas.

Consideration of Roadway Traffic

For the purposes of the USRC Project, existing ambient noise levels were modelled based on current road traffic conditions on the Gardiner Expressway and Don Valley Parkway.

The Protocol does not include consideration for mitigating road traffic noise, unless the rail project may produce a road traffic noise impact, in which case the road traffic noise impacts would be assessed in accordance with methods approved for Environmental Assessments of roadway projects. An example would be a grade separation project, where a road-over-rail structure may result in road traffic noise impacts. There are not expected to be road traffic noise impacts as a result of the USRC East Enhancements Project, therefore mitigation will not be considered to address future road traffic noise, such as from changes to the Gardiner alignment proposed to be implemented under a separate capital works project. It should also be noted that a Traffic Noise Impact Study was completed by Dillon Consulting in January 2017 as part of the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment. For the purposes of that study, effects were assessed against an assumed future 2031 baseline condition for road traffic and future rail corridor volumes were not considered in the assessment.

4.4.1.4 Operational Vibration

As with the noise assessment, vibration levels were predicted at sample receptors selected to represent the most exposed receptor within each sensitive area. Vibration levels have been predicted in accordance with the General Vibration Assessment procedures described in the US FTA *Transit Noise and Vibration Impact Assessment* (FTA, 2006) guidance document. Vibration levels have been corrected for the train speed and set-back distance based on the existing and proposed track alignments. The reference vibration curves are based on measurements of ground-borne vibration at representative North American transit systems and are generally considered to be conservative. In accordance with the assessment procedure, adjustments have been made to account for the presence of crossovers/switches and elevated transit structures.

The FTA assessment procedure includes a 10 VdB correction for special trackwork. The additional vibration is due to the wheels passing over the frog gap, switch point, and joints between continuous welded rail and frog, generating impulsive vibration. Since the impacts at frog gaps and joints are point sources, the vibration attenuates more rapidly than vibration from tangent track. For distances over 15 m, it is assumed that the correction for vibration from switches is varied with distance according to the function 10-15*log(*distance*/15) VdB.

4.4.1.5 Layover Site Noise

The following layover noise sources have been reviewed for this assessment:

- Diesel trains idling simultaneously within 1-hour periods (**Table 4-9**):

Table 4-9: Diesel Trains Idling at Layover Sites

Location	Hour of the Day	Max. No. Idling Trains (With Project)
Don Yard	07:00-08:00	1
Don Yard	08:00-09:00	2
Don Yard	09:00-10:00	1
Don Yard	13:00-14:00	1
Don Yard	14:00-15:00	2
Don Yard	15:00-16:00	4
Don Yard	16:00-17:00	3
Wilson Yard	Any hour (24 hr/day)	2

- Small tractor to pull honey wagon – similar to a John Deere Model 3033R (at Don Yard) as it is the worst case for proximity to sensitive points of reception;
- Honey wagon trailer – custom built to fit facility requirements (at Don Yard) as it is the worst case for proximity to sensitive points of reception;
- Electric E truck – similar to model Mighty E manufactured by Canadian Electric Vehicles Ltd. – not included in noise model (insignificant noise source);
- Boom lift truck – similar to JLG Model E450AJ or Genie Z™-34/22 N – not included in noise model (insignificant noise source);
- Mobile locomotive sanding unit at Don Yard as it is the worst case for proximity to sensitive points of reception; and
- Snow Clearing Devices: Modelled based on manufacturer's sound level data for gas fired blowers. Snow clearing devices were modelled as operating continuously (throughout day and night), for a conservative assessment.

The noise sources above were input into an environmental noise model (ISO 9613-2 algorithm implemented in CadnaA software) to predict the noise levels at the sample receptors, representative of the most exposed receiver locations within each surrounding noise sensitive area.

4.4.2 Baseline Measurement Data

A summary of key baseline measurement data at two sample locations adjacent to the rail corridor is provided in **Table 4-10**. These locations were chosen to provide a representative distribution of baseline noise and vibration levels within the Study Area.

The baseline noise levels are typical of an urban environment, where noise levels are dominated by man-made noise sources, including road traffic.

Table 4-10: Summary of Baseline Noise and Vibration Monitoring Data

Location	Monitoring Dates	**Noise** Existing Daytime Noise (dBA) Leq,07:00-23:00	**Noise** Existing Night-time Noise (dBA) Leq,23:00-07:00	**Vibration** Existing Average Daily Maximum Root Mean Square Velocity (RMSV) (mm/s) *
NV1 - Track Section near Lower Sherbourne Street (Gate LE31)	November 1, 2016 – November 8, 2016	65.5	60.9	0.122
NV2 - Track Section near Cherry Street (Gate LE51)	November 1, 2016 – November 8, 2016	67.3	61.1	0.508

Note:* RMSV estimated from measured Peak Particle Velocity (PPV) data assuming a crest factor of 4. Crest factor is the ratio of PPV to maximum RMS amplitude, which is usually 4 to 5 for ground-borne vibration from trains (FTA, 2006).

The point of vibration reception for assessment is within 5-10 m of the building foundation in a direction parallel to the tracks or adjusted as required to accommodate site conditions. The vibration monitors were set up at the edge of the rail corridor where the sensors (geophones) could be buried in the ground, to establish a firm mounting for the duration of the monitoring period. The sensor used at the first measurement location (NV1), near Lower Sherbourne Street, was located at a lower elevation than the rail tracks; whereas the sensor used at the second measurement location (NV2), near Cherry Street, was located at a similar elevation to the tracks. This may help to explain why the baseline vibration levels measured at the first location are lower than at the second location. Both measurements are representative of the locations at which they

were recorded, but levels at residential buildings would be lower. At the nearest residential buildings, vibration levels are expected to be lower as they are further from the rail corridor. But it is possible that some residents close to the rail corridor currently feel occasional vibrations from vehicle pass-bys, including road and rail traffic.

The operational vibration assessment is based on predicted vibration levels using the FTA's General Vibration Assessment method. As baseline measurement locations were adjusted based on site conditions and were not recorded at the building foundations, vibration levels have been predicted at the baseline measurement locations and at the nearest buildings to provide a comparison with the measurement data. This comparison is provided in **Table 4-11**.

Table 4-11: Vibration Measurement vs. Prediction

Location	**Vibration Measurement** *Existing Average Daily Maximum RMSV (mm/s) **	**Vibration Prediction** *At Measurement Location RMSV (mm/s)*	**Vibration Prediction** *Ground Adjacent to Nearest Building RMSV (mm/s)*
NV1 - Track Section near Lower Sherbourne Street (Gate LE31)	0.122	0.37	0.25
NV2 - Track Section near Cherry Street (Gate LE51)	0.508	0.74	0.16

The results in **Table 4-11** above show that the predicted vibration levels at the measurement locations are a conservative estimate since they indicate higher vibration levels. At the ground adjacent to the nearest building to each measurement location, vibration levels are predicted to exceed the typical threshold of perception of 0.1 mm/s RMSV and the Protocol objective baseline level of 0.14 mm/s RMSV.

4.5 Rail Contamination

Metrolinx will undertake a Phase I Environmental Site Assessment (ESA) investigation for any additional lands required for the Project (both permanent and temporary) during Detailed Design. A Phase I ESA will be conducted and based on those findings a Phase II ESA may be required.

Sections of the Study Area have undergone subsurface investigations initiated during the late 1980s, and have been continued throughout the 1990s to present. The contaminants of concern potentially present near the West Don Lands in the Study Area are mostly associated with the composition of lakefill materials, industrial operations including underground and aboveground storage tanks, as well as with historical harbour operations.

Based on the *Gardiner Expressway and Lake Shore Boulevard East Reconfiguration EA Geo-Environmental Baseline Conditions Report, 2014* and the *West Don Lands Class EA Master Plan, 2005* the overall soil contamination of concern in and adjacent to the USRC consists mainly of petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), volatile organic compounds (VOC), various metals, and polychlorinated biphenyls (PCB). There is also evidence of petroleum hydrocarbon impact evidenced by odour during previous investigation borehole drilling.

Golder Associates Limits (Golder) completed a subsurface investigation for the 480 Lake Shore Boulevard East area, near Wilson Yard Layover Facility (Golder 2006), and noted that the soil is contaminated by heavy metals, petroleum hydrocarbons, and semi-volatile organic compounds impacts in fill materials.

4.6 Land Use and Planning Policy

The existing land use and planning policy context of the Study Area is documented in greater detail in the Socio-Economic and Land Use Characteristics Study Report provided in **Appendix B5**.

4.6.1 Methodology

The purpose of the Socio-Economic and Land Use Characteristics Study is to understand the current socio-economic and land use conditions within the Study Area and assess any potential effects the Project may have on those features. The Study Area is defined as extending 120 m from each side, as a radius, of the LOD.

A desktop review of the Study Area was conducted using municipal documents and open data sources to identify relevant socio-economic features and land use, including:

1. Residential and Commercial Uses;
2. Institutional Uses, including educational, religious and retirement institutions;
3. Employment Areas, including areas of business and economic activity, including industrial operations;
4. Recreational Uses, including pedestrian and cycling access gates;
5. Parks and Open Spaces;
6. Transportation, including transit; and,
7. Utilities.

The desktop review included research and review of documentation from publicly available sources such as published literature, government agency websites (federal, provincial, and municipal), public maps, land use plans, and other public reports.

The desktop review was supplemented with a field reconnaissance conducted on October 19, 2016 to verify the desktop data and document additional socio-economic features and land use within the Study Area.

4.6.2 Policies and Plans

4.6.2.1 Provincial Policy Statement (April, 2014)

The Provincial Policy Statement (PPS) is the Ontario government's policy statement on land use planning. Key policy directives include the efficient use of land and infrastructure, the protection of the environment and its resources, and ensuring that there are opportunities for employment and residential development.

The Project is consistent with the objectives of the PPS that call for transportation, transit and infrastructure facilities to be planned to meet current and projected needs, providing for an efficient, cost effective and reliable multi-modal transportation system that supports long-term economic prosperity. The PPS also indicates that public transit and other alternative modes of transportation are to be supported to improve energy efficiency and air quality.

Investments in transit infrastructure within the Study Area must support a range of planning, transportation and economic development objectives. While improvements to the GO Transit network will help reinforce the function of infrastructure corridors, these transit investments must simultaneously support multiple modes of travel, foster improved connectivity, and allow for the development of compact, vibrant and mixed use communities.

4.6.2.2 The Growth Plan for the Greater Golden Horseshoe (2017)

The Growth Plan for the Greater Golden Horseshoe (GGH) (2017) was established under the *Places to Grow Act*, *2005*. It is a long-term plan which aims to manage growth, build complete communities, curb urban sprawl and protect the natural environment. The GGH Growth Plan identifies Downtown Toronto as an Urban Growth Centre which should achieve, by 2031 or earlier, a minimum density target of 400 residents and jobs combined per hectare.

This Plan recognizes transit as a first priority for major transportation investments. It sets out a regional vision for transit, and seeks to align transit with growth by directing growth to Major Transit Station Areas and other strategic growth areas, including Urban Growth Centres (MMAH, 2017).

4.6.2.3 The Big Move (2008) and the 2041 Regional Transportation Plan (2041 RTP)

Metrolinx manages transportation planning within the GTHA. The Regional Transportation Plan (entitled “The Big Move” Transforming Transportation in the Greater Toronto and Hamilton Area) was adopted on November 28, 2008. The Big Move contains a vision, goals and objectives for the future in which the GTHA is seamless, co-ordinated, efficient, equitable and user-centered. A Technical Update was prepared to refine certain elements of the plan and fully integrate the GO 2020 10-year plan within the longer term transportation goals and objectives of The Big Move. The Technical Update was approved in February 2014 by Metrolinx’s Board of Directors.

While The Big Move has many goals and objectives for the future of transportation, the more salient goals include improving transportation choices, providing comfort and convenience, promoting an active and healthy lifestyle, providing safe and secure mobility, and reducing dependence on non-renewable resources by way of increasing the number of trips taken by transit, walking and cycling.

The 2041 Regional Transportation Plan (2041 RTP) guides the work to transform the transportation system in the GTHA. It is a blueprint for creating an integrated multimodal regional transportation system that will serve the needs of residents, business and institutions.

The 2041 RTP builds on the success of The Big Move (2008), the first Regional Transportation Plan for the GTHA, by putting traveller needs at the core of planning and operations. Centered on three goals of creating strong connections, complete travel experiences, and sustainable communities, the 2041 RTP outlines five strategies and a set of strategic objectives to achieve the 25 year vision for the region, including the following:

- Completing the delivery of current regional transit projects,
- Connecting more of the region with frequent rapid transit,
- Optimizing the transportation system,
- Integrating transportation and land use, and
- Preparing for an uncertain future.

4.6.2.4 The Greenbelt Plan (2017)

An updated Greenbelt Plan (2017) came into effect on July 1, 2017. The majority of the Study Area is identified as a "*Settlement Area Outside the Greenbelt*" in the Plan, and the Plan policies do not apply. However, the Don River, which is within the Study Area but not directly impacted by the Preferred Design, is designated as an "*Urban River Valley*". The Urban River Valley goals, as defined in the Greenbelt Plan (2017), are:

- Protection of natural and open space lands along river valleys in urban areas which will assist in ecologically connecting the rest of the Greenbelt Area to the Great Lakes and other inland lakes;
- Protection of natural heritage and hydrologic features and functions along urban river valleys, including coastal wetlands;
- Conservation of cultural heritage resources;
- Provision of a gateway to the rural landscape of the Greenbelt; and
- Provision of a range of natural settings on publicly owned lands for recreational, cultural and tourism uses, including parkland, open space land and trails.

The Urban River Valleys policies are applicable to publicly owned lands (e.g., ownership of the Province, a municipality or a local board, including a conservation authority). For this Project the key applicable Urban River Valley policy is:

> *"All existing, expanded or new infrastructure which is subject to and approved under the Environmental Assessment Act, or which receives a similar approval, is permitted provided it supports the needs of adjacent settlement areas or serves the significant growth and economic development expected in southern Ontario and supports the goals and objectives of the Greenbelt Plan." (Greenbelt Plan, 2017)*

This Project is consistent with the goals and objectives of the Greenbelt Plan (2017) as it is supporting the need for increased and improved transit service for adjacent settlement areas and the GTHA. This in turn will contribute to growth of the regional transportation network and support southern Ontario's economic development. Through the TPAP, this Project considers the protection of natural heritage, conservation of cultural resources, and provision of recreational uses.

4.6.3 Official Plans

4.6.3.1 City of Toronto Official Plan (July, 2015)

The City of Toronto Official Plan (July, 2015) was reviewed to gather local and regional land use policy context for the Study Area. This Official Plan is in effect for the lands to

the north of the USRC from Yonge Street to Cherry Street, within the Study Area. Key principles and visions from the Official Plan include: vibrant neighbourhoods that are a part of complete communities; comprehensive and high quality affordable transit system to allow people to move around the City quickly and conveniently; a strong and competitive economy; green spaces; recreational opportunities; connectivity to the waterfront; and interesting architecture and urban design (City of Toronto, 2015). The Official Plan acknowledges the collaboration required with the provincial government and Metrolinx regarding regional transportation and growth.

The City of Toronto's Official Plan includes policies related to the waterfront. In particular, the Official Plan seeks to improve connectivity between the waterfront and the downtown, primarily by addressing the barrier effect posed by the rail corridor, the Gardiner Expressway, and Lake Shore Boulevard. Some of the key Waterfront Policies for consideration in this Project include:

- Seek ways and means to reduce the barrier effect of the rail corridor through a number of measures
- Reduce the physical and perceptual isolation of parts of the waterfront from the rest of the City
- Increase the amount of public parkland across the entire Waterfront
- Enhance the quality of the Waterfront as a place
- Protect and, where possible, improve the Martin Goodman Trail as a continuous waterfront route for cyclists, pedestrians and people with disabilities
- The creation of a connected open space within the Lower Don, including 480/520 Lake Shore Boulevard East
- The disposal of City-owned lands designated Open Space is not permitted
- The replacement of lost parkland with equivalent area of parkland, with preference in the immediate vicinity
- 480/520 Lake Shore Boulevard East is designated Open Space and Green Space System
- Actions will be taken to improve, preserve and enhance the Green Space System by improving public access and enjoyment of lands under public ownership
- Public agencies and Torontonians will be encouraged to support the protection, enhancement and restoration of links within and between elements of the Green Space System
- The sale or disposal of publically owned lands in the Green Space System will be discouraged. No City owned land in the Green Space System will be sold or

disposed of. However, City owned land in the Green Space System may be exchanged for other nearby land of equivalent or larger area and comparable or superior green space utility

The land use designations (City of Toronto Official Plan, July 2015) within the Study Area are found below in **Figure 4-6**. Land uses within the Study Area are generally made up of:

- Regeneration Areas both north and south of the rail corridor;
- Apartment Neighbourhoods, including low, mid -rise residential apartments between Lower Jarvis and Parliament Street and high-rise residential apartments between Parliament Street and Cherry Street;
- Parks and Natural Areas with the majority east of Cherry Street;
- Mixed Use Areas north of the GO Transit Rail Corridor; and,
- Utility Corridors.

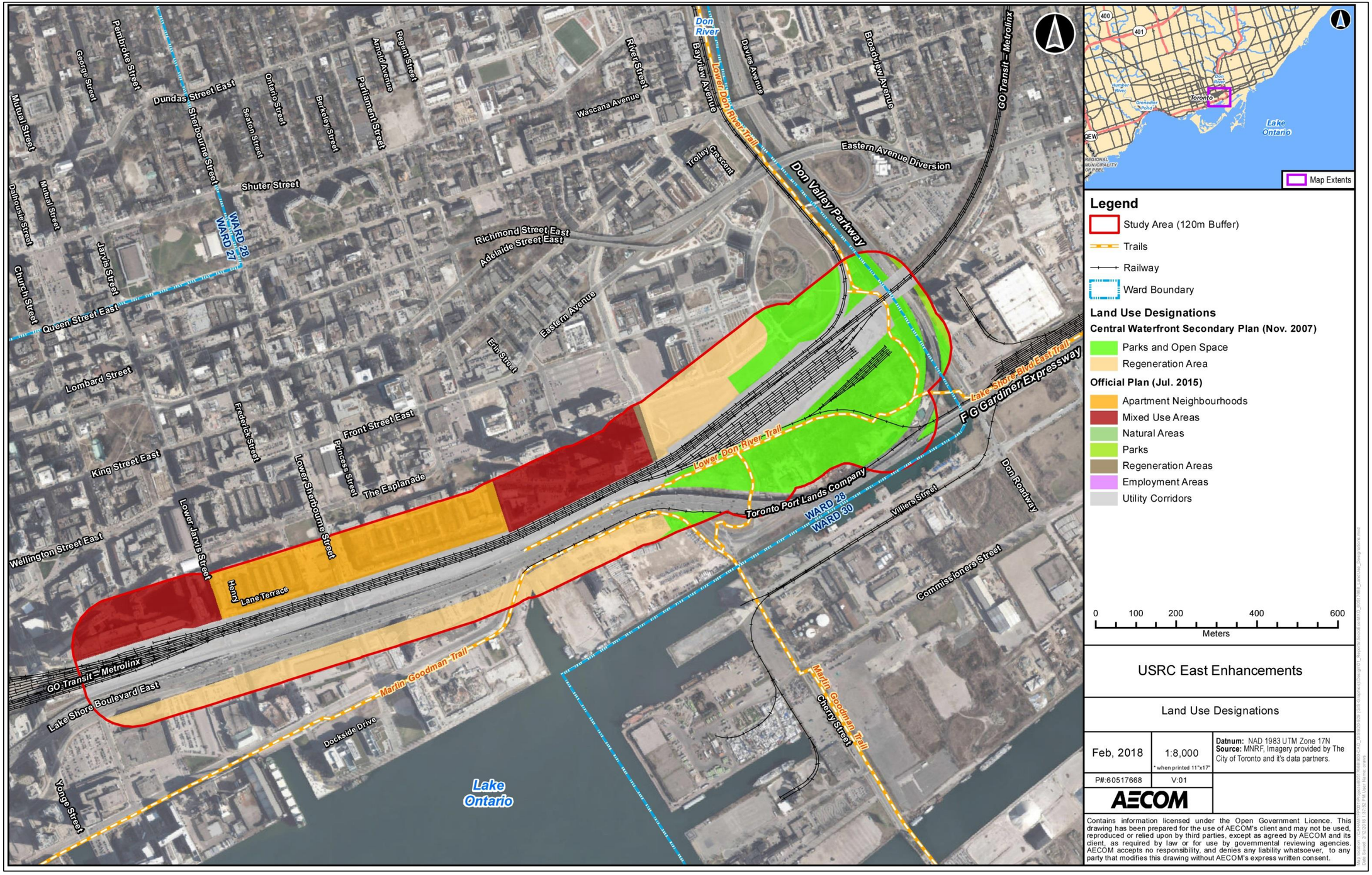
Land use designation are further explained in **Appendix B5**.

4.6.3.2 Former City of Toronto Official Plan (1993) and Central Waterfront Secondary Plan (November, 2007)

The former City of Toronto Official Plan, along with the Metropolitan Toronto Plan (refer to **Section 4.6.2.7**) are the in-force policy documents for the Central Waterfront. These are the in-force Official Plan policies for the Central Waterfront including: East Bayfront (with the exception of 162 Queens Quay East), Keating Channel West (with the exception of 351-369 LSB-E) and West Don Lands.

The land uses contained within the consolidated Central Waterfront Secondary Plan (CWSP) follow the 1993 Former City of Toronto Official Plan and 1994 Metropolitan Official Plan. More information on the CWSP is found in **Section 4.6.2.8**.

Figure 4-6: Land Use Designations



4.6.3.3 Special Policy Area

Lower Don: Don River (not approved by Ontario Municipal Board)

The Official Plan policies generally prohibit development in areas that could be affected by natural hazards, with the exception of lands located within a Special Policy Area. Most of the Study Area is located within the Lower Don: River Special Policy Area. However, since this Special Policy Area is under appeal at the Ontario Municipal Board (OMB), thus the former City of Toronto Official Plan (1993) policies are in force and effect. Some portions of the Study Area are located within the Don River Floodplain

Metropolitan Waterfront Plan (1994)

The Metropolitan Waterfront Plan (the “Plan”) is designed to achieve a waterfront that is healthy, vibrant and publicly accessible. As the upper tier level of municipal government, the Municipality of Metropolitan Toronto (Metropolitan Corporation) represents the interests across the Metropolitan Waterfront and promotes a mutual co-operation among a variety of jurisdictions and private concerns. This Plan, which includes the CWSP, also articulates the policy that applies to the Central Waterfront area.

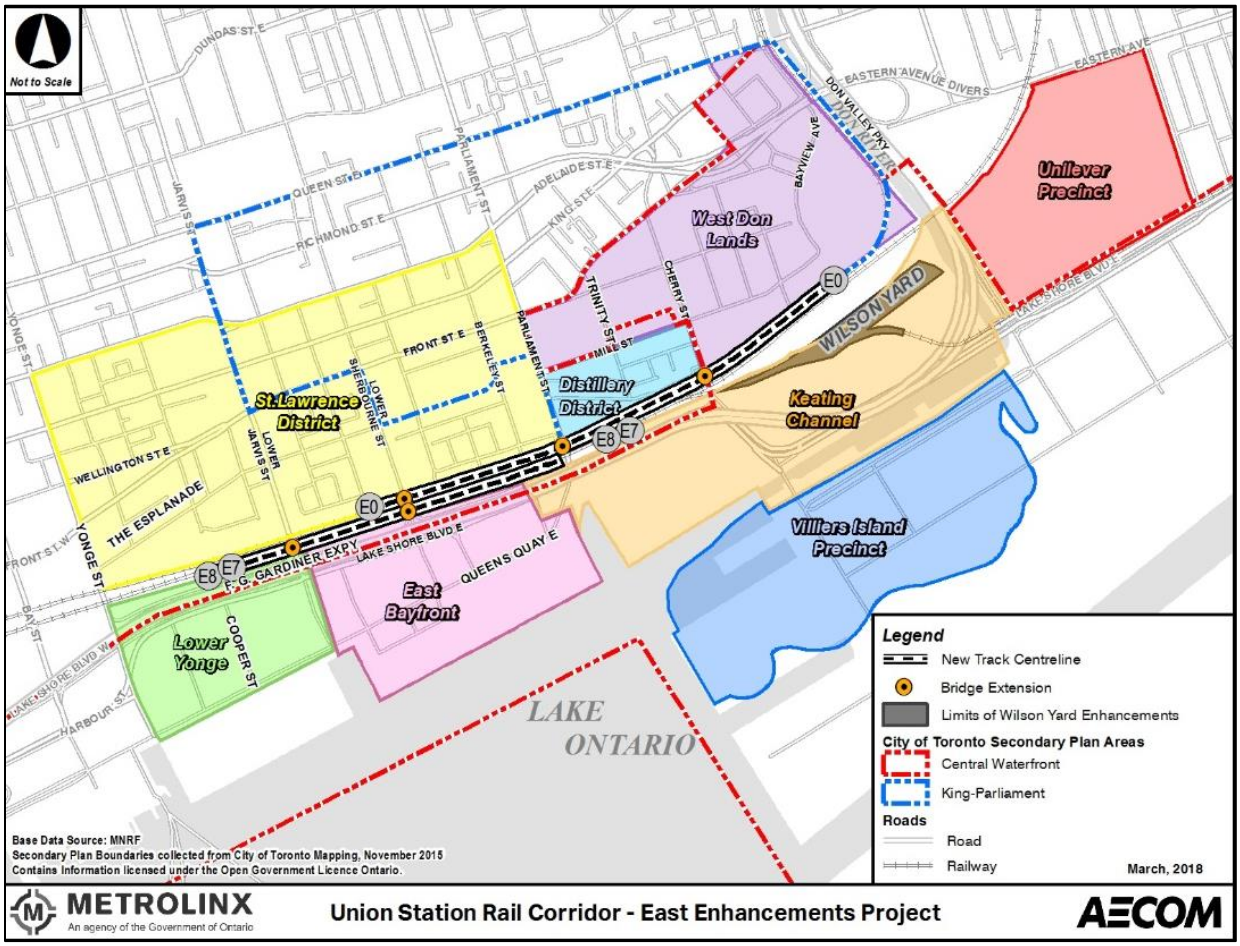
The Plan provides a comprehensive planning strategy for the waterfront. The plan’s policies reflect and reinforce the integrated approach to land use planning and management of environmental, economic and social change, which are also identified in the CWSP. It replaces the 1967 Metropolitan Waterfront Plan.

- The policies focus on the following themes: Waterfront Green Space System;
- Access and Movement;
- Development and Economic Vitality;
- Regional Identity: Waterfront Key Destinations; and
- Implementation.

4.6.3.4 Secondary Plans and Precinct Plans

Refer to **Figure 4-7** for Secondary Plans and Precinct Plans within and adjacent to Study Area.

Figure 4-7: Secondary Plans and Precinct Plans Within and Adjacent to the USRC East Enhancements Project



The Study Area covers two Secondary Plans:

King-Parliament Secondary Plan (2006)

The King-Parliament Secondary Plan is bounded by Queen Street to the north, Jarvis Street to the west, the Don River to the east and the USRC to the south. An extensive list of policies and principles was developed to achieving the City's goal of supporting the growth of commercial, institutional, industrial, entertainment, recreational, residential and live/work activities. However, since the King-Parliament Secondary Plan (2006) is not in force for the West Don Lands, the CWSP (1993, as modified by OMB Decision in 2005) is in force and effect for the West Don Lands. Land use designation within the Study Area set out in the Central Waterfront Secondary Plan prevail over the King Parliament Plan.

The lands within the Distillery District and Triangle Lands are also subject to OPA 304 to the King-Parliament Secondary Plan, which has been adopted by Council. This can be

found under the City of Toronto By-Law 847-2017 and is an amendment 304 to the Official Plan, which aims to refine some of the maps and policies found within the King-Parliament Secondary Plan.

Central Waterfront Secondary Plan (CWSP, 2007)

The CWSP from April 2003 is still in effect and intersects the Study Area, specifically at the Wilson Yard Layover Facility and north towards the West Don Lands. The land use designations in the consolidated CWSP (1993 Former City of Toronto Official Plan) apply to the Central Waterfront and West Don Lands.

Within the Study Area the CWSP has two (2) precincts undergoing zoning changes: East Bayfront and North Keating. These precincts span east from the foot of Lower Jarvis Street to Cherry Street and extend to the edge of Lake Ontario, generally south of Lake Shore Boulevard East. They contain private and public owned lands. The City and Waterfront Toronto have been working closely with private land owners/developers within the two precincts. The CWSP (2007) has yet to be approved by the OMB[1].

The City of Toronto passed the CWSP in April 2003. The CWSP intends to implement policies to 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 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.

Some of the key CWSP policies for consideration in this Project include:

- The need for a detailed study to inform the redesign of the Gardiner Expressway.
- Physical connection between the City and Waterfront will be enhanced through high-quality urban design on north-south streets.
- Railway underpasses will be transformed into more pedestrian friendly corridors.

1. *OPA 257 Adopted by Toronto City Council on April 16, 2003; further approved in part as modified for the West Don Lands in 2005 by OMB Decision/Order No. 3227; further approved in part as modified for the First Waterfront Place lands in 2007 by OMB Decision/Order No.1905, further approved in part as modified for the lands south of Queens Quay by the OMB Decision/Order delivered on November 16, 2007, issued on November 27, 2007 (City of Toronto, 2016)*

- Building a Network of Spectacular Waterfront Parks & Public Spaces.
- Parks and Open Space Areas, which designates park areas and defines the approximate alignment of Martin Goodman Trail.
- Prioritizing sustainable modes of transportation and flood protection to unlock redevelopment opportunities within the Central Waterfront.
- Reducing dependence on cars, creating pedestrian and cycling routes that are safe, attractive, comfortable and landscaped, protecting natural heritage areas and being a model for the environment.

The land use within the Study Area is comprised of:

- Parks and Open Space, found north of the rail corridor near and within Corktown Common Park, as well as east of Cherry Street south of the rail corridor and all the way to the Don River.
- Regeneration Area, found south of the rail corridor from Yonge Street to Cherry Street and north of the rail corridor from Cherry Street to Corktown Common Park.

Precinct Plans

The Study Area is located within six Precinct Plans:

- Lower Yonge Precinct Plan;
- Keating Channel Precinct Plan;
- East Bayfront Precinct Plan;
- Villiers Island Precinct Plan;
- West Don Lands Precinct Plan; and
- Unilever Precinct Plan.

More information on each Secondary Plan, Precinct Plan and a map is provided in **Appendix B5**.

4.6.3.5 Heritage Conservation Districts

Heritage Conservation Districts (HCD) are historically or culturally significant neighbourhoods protected by a municipal by-law under Part V of the *Ontario Heritage Act* (OHA). HCDs require special care and attention in the planning process. In Toronto there are a number of HCDs that are either approved by City Council or are undergoing studies to become an HCD or to extend their boundaries. In the Study Area there are

currently two HCDs undergoing studies: The St. Lawrence Heritage Conservation District and the Distillery District Heritage Conservation District.

4.6.3.6 City of Toronto Zoning By-law

The current City of Toronto Zoning By-law (Zoning By-law 569-2013 with amendments up to March 22, 2018) covers part of the Study Area to the north of the rail corridor. This Zoning By-Law regulates the use of land, the bulk and location of buildings, parking and loading space requirements, and other related matters to the City of Toronto. These zoning categories are intended to reflect and compliment the policies set out in the Official Plan. The interactive Zoning map (By-law 569-2013) to find zoning on a property can be found on the City of Toronto website here: http://map.toronto.ca/maps/map.jsp?app=ZBL_CONSULT

Land that has not been covered under Zoning By-law 569-2013 falls within the area south of the rail corridor bounded to the west by Parliament Street, Eastern Avenue to the north, Keating Channel to the south and by the Don Valley Parkway to the east. These lands are subject to the zoning requirements of former City of Toronto Zoning By-law 438-86, as amended.

Under By-law 438-86, the majority of the Project is located within the T district, which permits non-residential uses including public transit, railway (including service and repair yards), and railway tracks. The proposed Wilson Yard Layover Facility falls within the I2 and I3 districts. Permitted non-residential uses in I2 include public transit, railway station, and railway tracks. Permitted non-residential uses in I3 are the same as in I2 with the addition of railway (including service and repair yards).

Refer to **Appendix B.5** for the zoning mapping and Zoning By-Law No. 438-86.

4.6.4 Existing Land Use

The most notable socio-economic features within the Study Area are presented in **Figure 4-8A/B** below.

4.6.4.1 Neighbourhood Profiles

Established communities and neighbourhoods contribute to the identity of their surroundings. Profiles for affected neighbourhoods in the City of Toronto were reviewed to capture the various communities comprising the socio-economic environment of the Study Area. Data were obtained from the City of Toronto Official Plan website.

Waterfront Communities – The Island

Waterfront Communities – The Island is a neighbourhood that is bounded by Bathurst Street, Queen Street, Simcoe Street, Front Street, Eastern Avenue, the Don River, the Toronto Shoreline and the Toronto Islands. Waterfront Communities – The Island contains two (2) wards: Trinity-Spadina (Ward 20) and Toronto Centre Rosedale (Ward 28). The Study Area is found within the Toronto Centre Rosedale Ward 28 limits (City of Toronto, 2016) as seen in **Figure 4-6**.

As of 2016, Toronto Centre Rosedale holds a population of 65,913 people (+52% growth from 2011). Approximately 96% live in apartment buildings of five or more storeys, 1% live in apartment building of less than five storeys high, 1% live in row/townhouses and 1% live in houses (City of Toronto, 2016).

South Riverdale

South Riverdale is a neighbourhood that is bounded by the Don Valley Parkway, Gerrard Street East, the Lakeshore East Rail Corridor, Greenwood Avenue, Queen Street East, Leslie Street, Lake Shore Boulevard, and the Lake Ontario shoreline (City of Toronto, 2016).

South Riverdale contains one (1) ward, Toronto Danforth (Ward 30), which is within the Study Area (**Figure 4-6**). As of 2016, it has a population of 27,876 (+8.7% growth from 2011). A total of 18% live in apartment buildings of five (5) or more storeys, 35% live in apartment buildings of less than 5-storeys high, 14% live in row/townhouses and 41% live in houses (City of Toronto, 2016).

Figure 4-6 contain ward boundaries within the Study Area.

4.6.4.2 Residential Uses

The Study Area is currently comprised of predominantly mid-density residential apartments. There is mid-density residential housing, in the form of a townhouse development just north of the rail corridor between Lower Jarvis Street and Parliament Street. This area is comprised of some private dwellings (between Lower Jarvis Street and Aitken Place), Toronto Community Housing Corporation residences and Co-Operative Housing Federation of Toronto (CHFT) residences. CHFT is a non-profit that oversees co-ops in Durham, Toronto and York Region. These residential buildings within the Study Area are shown on **Figure 4-8A/B** below and summarized in **Table 4-12** and **Table 4-13**, along with additional residences presented further below.

Table 4-12: Toronto Community Housing Corporation Buildings within the Study Area

Toronto Community Housing Name (Figure 4-6A/B - Feature #)	Address
St Lawrence Townhouses (Figure 4-6A - Feature 39)	10, 12, 13, 15 Aitken Pl; 11, 13, 14, 16 Douville St; 9, 11 Portneuf Ave
Scadding Ave (15) (Figure 4-6A – Feature 40)	4-52 Princess St; 15, 21-35 Scadding Ave
Crombie Park (Figure 4-6A - Feature 44)	1-21, 25, 31A-45D, 49 Henry Ln Terrace
1 Church St (Figure 4-6A - Feature 56)	1 Church St
55 The Esplanade (Figure 4-6A – Feature 54)	55 The Esplanade

Table 4-13: Co-operative Housing Federation of Toronto Buildings within the Study Area

Co-operative Name (Figure 4-6A/B Feature #)	Address
Woodsworth Housing Co-operative (Figure 4-6A - Feature 32)	133 Wilton St #201, Toronto, ON M5A 4A3
Cathedral Court Co-operative (Figure 4-6A - Feature 31)	85 Henry Ln Terrace, Toronto, ON M5A 4B8
Caroline Co-operative (Figure 4-6A - Feature 30)	93 Longboat Ave, Toronto, ON M5A 4C6
Harmony Housing Co-operative (Figure 4-6A - Feature 42)	32a Henry Ln Terrace, Toronto, ON M5A 4A1
Windmill Line Co-operative (Figure 4-6A - Feature 49)	125 Scadding Ave, Toronto, ON M5A
Harmony B Housing Co-operative (Figure 4-6A - Feature 38)	150 Longboat Ave, Toronto, ON M5A 4G3
New Hibret Co-op Homes Inc. (Figure 4-6A - Feature 20)	2 Market St, Toronto, ON M5E 1Y9, Canada

Other residential uses include:

- Mid-rise apartment building (e.g., Parliament Square –**Figure 4-8A**: Feature 61 & Elites Suites One Bedroom Townhouse Condo – **Figure 4-8B**: Feature 60);
- Seniors housing (e.g., Old York Tower Seniors Housing – **Figure 4-8A**: Feature 57);
- Mid-rise and high-rise apartment buildings and condominiums (e.g., Market Wharf – **Figure 4-8A**: Feature 47); and,
- Residential apartments/condominiums (e.g., The Gooderham – **Figure 4-8B**: Feature 51).

4.6.4.3 Commercial Uses

There are a variety of commercial uses within the Study Area, primarily within the Distillery Historic District. Some examples include:

- Retail stores (e.g., Shoppers Drug Mart – **Figure 4-8A**: Feature 46);
- Services (e.g., H&R Block– **Figure 4-8A**: Feature 45);
- Museums and galleries (e.g., Distil Gallery, Monte Clarke Gallery, Theatre Museum Canada – **Figure 4-8B**: Feature 6, Feature 25 and Feature 24);
- Theatres (e.g., DvxT Theatre and Soulpepper Theatre Company – **Figure 4-8B**: Feature 05 and 03); and,
- Restaurants (e.g., Mill St Brew Pub, El Catrin, Cluny Bistro – **Figure 4-8B**: Feature 35, Feature 33 and Feature 34).

There are a number of performing arts facilities within the Study Area, as shown on **Figure 4-8B**.

These include:

- Soulpepper Theatre Company (Feature 03);
- DvxT Theatre (Feature 05);
- The Watah Theatre (Feature 08);
- Pleiades Theatre (Feature 11);
- Theatre Museum Canada (Feature 24); and,
- The Young Centre for Performing Arts (Feature 04).

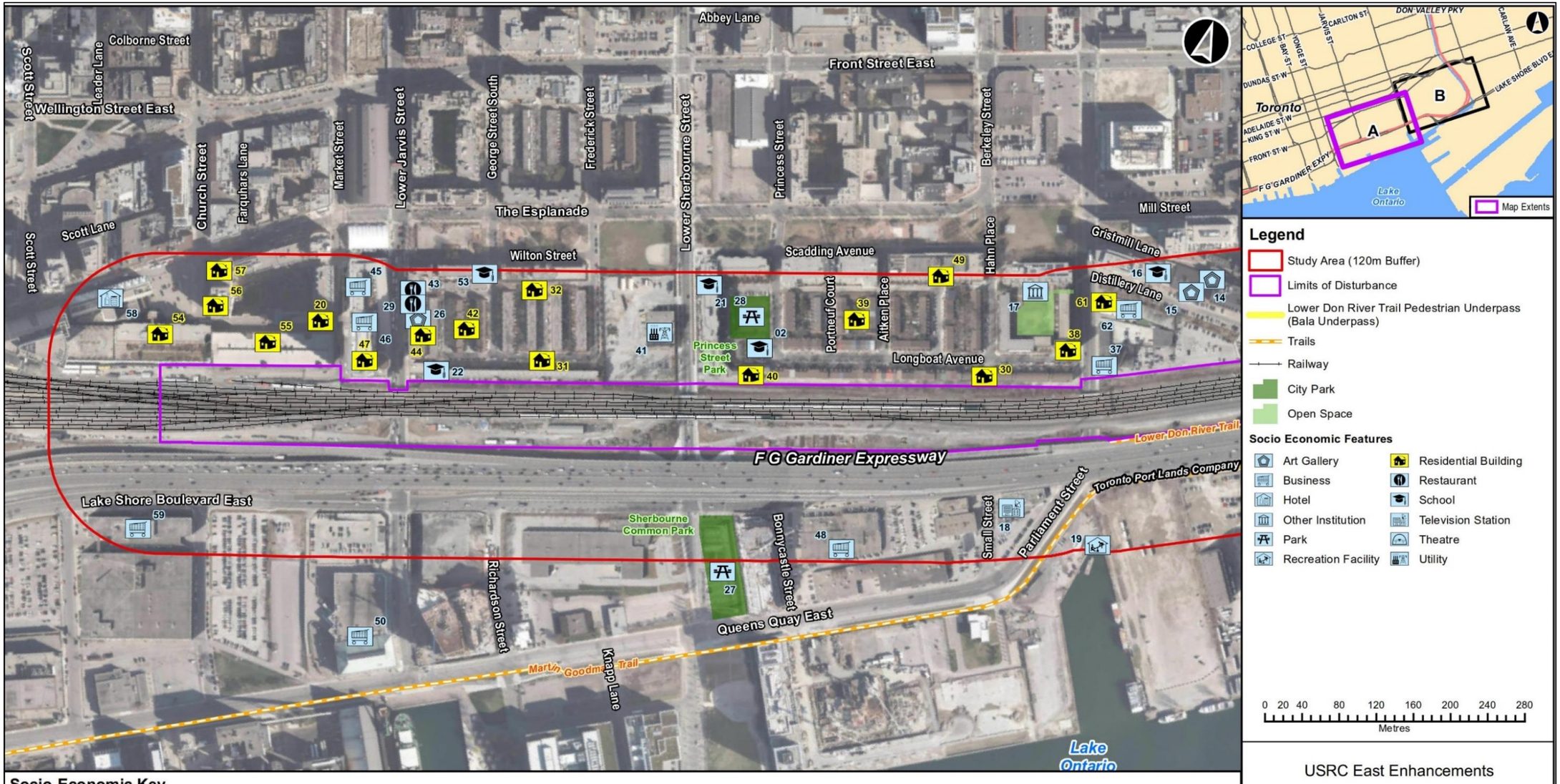
4.6.4.4 Institutional Uses

Educational Institutions

There are several schools and day care centres within the Study Area (see **Figure 4-8A/B** and **Table 4-14**):

Table 4-14 outlines the schools within the Study Area and indicates the approximate distance from the LOD.

Figure 4-8A: Existing Socio-Economic Features



Socio-Economic Key

01) Voice Integrative School
02) St. Lawrence Cooperative Day Care Inc
03) Soulpepper Theatre Company
04) Young Centre for the Preforming Arts
05) DvxT Theatre
06) Distil Gallery
07) Corkin Gallery
08) The Watah Theatre
09) Eskimo Art Gallery
10) Caffe Furbo
11) Pleiades Theatre
12) The Ernest Balmer Studio
13) Dancemaker Studio
14) Thompson Landry Gallery
15) Emerging Young Artists
16) Distillery District Early Lerning Centre
17) Les Centres D'accueil Heritage
18) Leafs TV
19) Toronto Harbour Cruises
20) New Hibret Co-Op Homes Inc.
21) Downtown Alternative School
22) St. Michael Catholic School (Day Care)
23) Corktown Common Park
24) Theatre Museum Canada
25) Monte Clarke Gallery
26) Orgio Books Gallery
27) Sherbourne Common Park
28) Princess Street Park
29) Tim Hortons
30) Caroline Co-Operative
31) Cathedral Court Co-Operative
32) Woodsworth Housing Co-Operative
33) El Catrin
34) Cluny Bistro
35) Mill St. Brew Pub
36) Artscape Distillery Studios
37) HD Supply Brafasco
38) Harmony B Housing Co-Operative
39) St. Lawrence Townhouses
40) Scadding Ave. (15)
41) Ontario Power Generation
42) Harmony Housing Co-Operative
43) Pizza Hut
44) Crombie Park
45) H&R Block
46) Shoppers Drug Mart
47) Market Wharf
48) Volvo of Toronto
49) Windmill Line Co-Operative
50) Loblaws
51) The Gooderham
52) Clear Spirit Condos
53) St. Michael Catholic School
54) 55 The Esplanade
55) Green P Parking
56) 1 Church Street
57) Old York Tower Seniors Housing
58) Hotel Novotel Toronto Centre
59) LCBO
60) Elites Suites - One Bedroom Townhouse Condo
61) Parliament Square
62) Distillery District Urban Dog Playcare

USRC East Enhancements

Socio-Economic Existing Conditions

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Figure 4-8B: Existing Socio-Economic Features

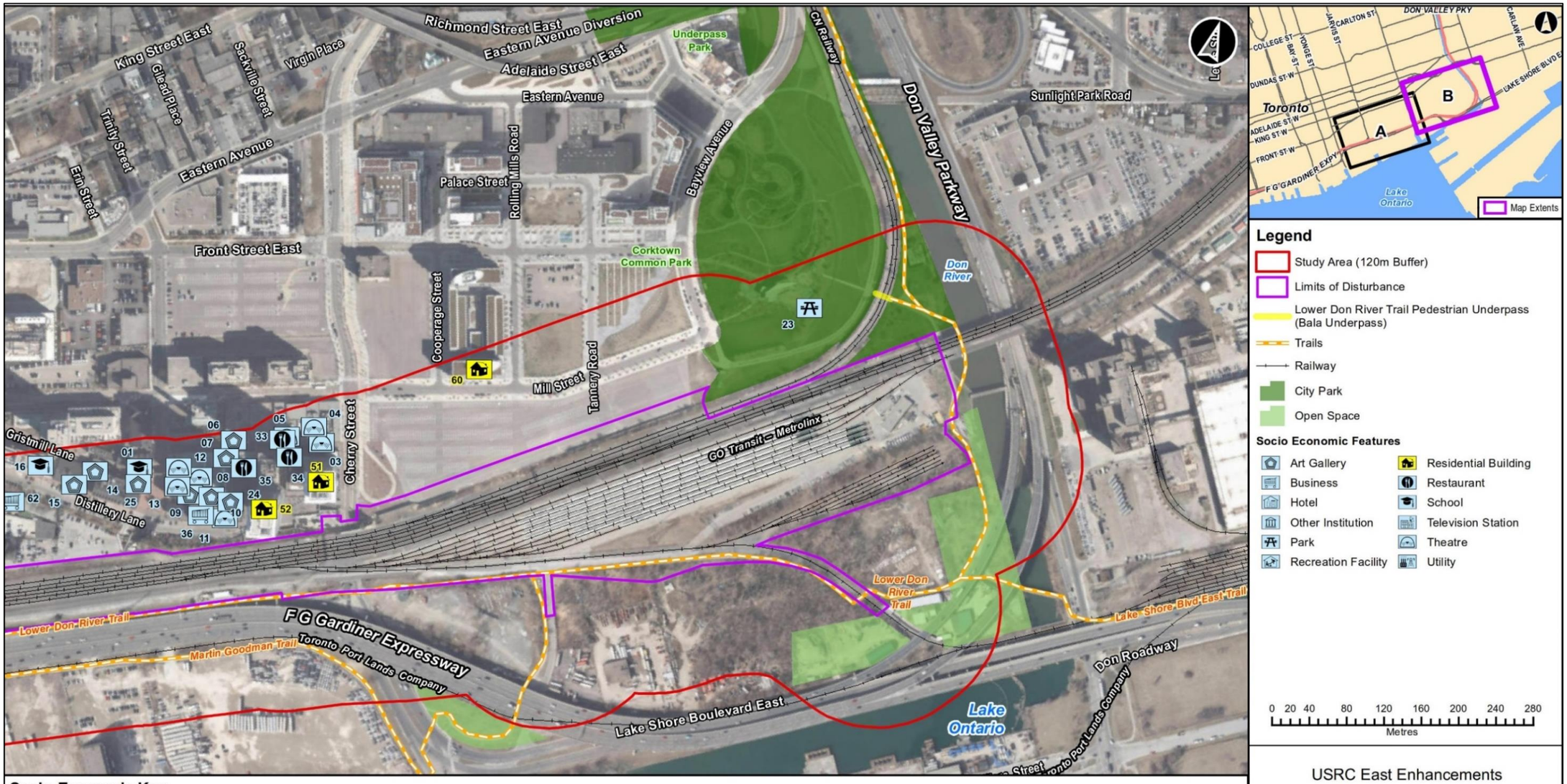

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Table 4-14: Schools and Day Cares in Close Proximity to the LOD

School	Address	Distance from LOD
Downtown Alternative School (Primary School) (**Figure 4-8A** Feature 21)	85 Lower Jarvis Street, Toronto ON M5E 1R8	Approximately 120 m
St. Michael Catholic School (**Figure 4-8A** Feature 53)	50 George Street South, Toronto ON M5A 4B2	Approximately 120 m
Voice Intermediate School (**Figure 4-8B** Feature 01)	50 Gristmill Lane, Toronto, ON M5A 3C4	Approximately 100 m
Day Care	**Address**	**Distance from LOD**
St. Lawrence Co-Operative Day Care Inc. (**Figure 4-8A** Feature 02)	2 Princess Street, Toronto, ON M5A 4G6	Approximately 30 m
Distillery District Early Learning Centre (**Figure 4-8A** Feature 16)	8 Distillery Lane, Toronto, ON M5A 3C4	Approximately 110 m
St. Michael Catholic School (Day Care) (**Figure 4-8A** Feature 22)	47 Henry Lane Terrace, Toronto, ON M5A 4B5	Approximately 30 m

A future school is planned for the West Don Lands area; refer to **Section 5.6.1.1** for more information.

Religious Institutions

There are no religious institutions found within the Study Area.

Other Institutions

Les Centre D'accueil Heritage is a centre that aims to assist French speaking seniors. Les Centres D'accueil Heritage is approximately 120 m from the LOD, as presented in **Figure 4-8A** (Feature 17).

4.6.4.5 Recreational Use

Parks

There are three parks located within the Study Area. **Table 4-15** and **Figure 4-8A/B** identify the parks found within the Study Area.

Table 4-15: Parks within the Study Area

Park Name	Distance from LOD
Sherbourne Common Park (**Figure 4-8A** Feature 27)	Approximately 100 m
Corktown Common Park (**Figure 4-8B** Feature 23)	Approximately 40 m
Princess Street Park (**Figure 4-8A** Feature 28)	Approximately 70 m

Trails

There are a number of off-road cycling routes and park trails identified within the Study Area. These include:

- The Lower Don River Trail;
- The Lower Don River Trail Pedestrian Underpass (also called Bala Underpass); and,
- The Martin Goodman Trail (also called Waterfront Trail).

The trails can be found in **Figure 4-8**.

The Lower Don River Trail is a multi-use walking/biking trail, owned/maintained by the City of Toronto, which extends approximately 4.7 km along the Don River, from Pottery Road to Corktown Commons. The Lower Don Trail links to the Don Trail system and extends to Steeles Avenue and the City of Toronto limits. The Lower Don River Trail is also part of the larger Pan Am Path, a trail system that extends 80 km from the west end of Toronto to the Scarborough waterfront and the Rouge River.

A portion of the Lower Don River Trail that extends approximately 185 m east from Cherry Street is closed to pedestrian and cyclist traffic to facilitate construction of the Cherry Street Stormwater Facility. A detour is currently in place with an entrance south of the Gardiner Expressway, on the east side of Lake Shore Boulevard East. The detour extends east, following the curvature of Lake Shore Boulevard East and then curves north towards the USRC, where it joins the Lower Don River Trail.

The Lower Don River Trail Pedestrian Underpass (also called Bala Underpass) allows pedestrians and cyclists to cross under the USRC tracks along the Lower Don River Trail into the area known as Corktown Common Park in the West Don Lands. This underpass was built by the TRCA approximately six years ago and underwent a public art transformation in 2015.

The Waterfront Trail is made up of a series of interconnected trails along the shores of Lake Ontario, starting in Niagara-on-the-Lake, Ontario and spanning to Brockville, Ontario. When the Waterfront Trail crosses through Toronto it is referred as the Martin

Goodman Trail. The Lake Shore Boulevard East Trail is outside of the USRC Study Area and starts east of the Don River.

Other Pedestrian/Cyclist Infrastructure

North of the rail corridor, the street network is considered pedestrian-friendly (Gardiner EA, 2017), through features such as short block spacing, vehicle turning restrictions and pedestrian countdown signals.

Waterfront access from north of the rail corridor by bicycle or walking, is provided by the four underpasses that are being extended as part of this Project. These underpasses are generally considered to be unwelcoming spaces for cyclists and pedestrians given the lack of natural light and the industrial nature of the design.

Under each of the rail underpasses in the Study Area (Lower Jarvis, Lower Sherbourne, Parliament and Cherry Streets) sidewalks are present on both the east and west sides of the street creating the north-south connection. As identified in the Gardiner EA 2017, the sidewalks meet the general standards of minimum sidewalks width.

South of the rail corridor, the sidewalks have obstructions (e.g., fire hydrants, bus shelters, traffic signal poles, etc.) (Gardiner EA, 2017). Furthermore, it was also identified that pedestrian facilities along and across Lake Shore Boulevard are generally poor.

There is existing cycling infrastructure (i.e., Bike Lanes and Cycle Tracks) that intersects the Study Area. These street routes include:

- Sherbourne Street – Cycle Tracks run from Bloor Street to Lake Shore Boulevard (and under the USRC) and then bike lanes to Queens Quay; and
- Cherry Street – Bike lanes from King Street to Lake Shore Boulevard, but currently end north of the USRC underpass. There are plans to extend the bike lanes south of the rail corridor.

In addition, there is a Bike Share Toronto bicycle rental rack east of the Cherry Street underpass adjacent to the rail corridor.

4.6.5 Landscape Composition

Lands adjacent to the USRC within the Study Area are highly developed and urbanized. Residential and recreational developments are built adjacent to the USRC ROW throughout the majority of the Study Area.

4.6.5.1 Northern Section of the USRC

The northern section of the USRC is mostly made up of residential uses west of Cherry Street and a regeneration and park area east of Cherry Street. Vegetation located adjacent to the corridor acts as visual screening between the existing tracks and the residential area. There are four ecotones found on site and are appropriate for the site conditions, as they represent the species that established themselves after the slope was planted years ago.

4.6.5.2 Southern Section of the USRC

The southern portion of the USRC faces Lake Shore Boulevard and the Gardiner Expressway west of Cherry Street, and Natural Areas around the Wilson Yard Layover Facility are found east of Cherry Street. Lands west of Cherry Street facing the USRC are developed by municipal roadways and run parallel to the Lower Don River Trail and the Martin Goodman Trail. Existing vegetation in this area is minimal. Vegetation within the Wilson Yard Layover Facility acts as visual screening for the adjacent Lower Don River Trail.

4.6.6 Property Owners within 30 m

A buffer of 30 m from the LOD was established to determine all the property owners within proximity of direct impacts. **Table 4-16** lists the properties with their corresponding address within the 30 m buffer.

In addition, east of Cherry Street properties adjacent to the USRC include undeveloped lands owned by IO, and TRCA (Corktown Common Park). In the vicinity of the proposed Wilson Yard Layover Facility key property owners include the Toronto Port Lands Company (TPLC), City of Toronto, Hydro One, IO and Conoco Inc.

A map showing where these addresses are in relation to the 30 m buffer can be found in **Figure 4-9A-C**.

Table 4-16: Property Owners within 30 m from the LOD

		Property Name	Address within 30 m	Unit Type
Residential Property	Toronto Community Housing Residence	Crombie Park	2, 25, 49 & 55 Henry Lane Terrace, Toronto, ON	Complex
		Scadding Avenue (15)	4, 6, 8, 10, 12, 14, 18, 20 Princess Street	Complex
		55 The Esplanade	55 The Esplanade, Toronto, ON	Complex
	Co-Ops	Cathedral Court Co-Operative	85 Henry Lane Terrace (Residences #53 to #101)	Complex
		Caroline Co-Operative Homes	77-153 (Odd numbers) Longboat Avenue	Complex
	Condominiums	Market Wharf	1 Market Street Toronto, ON	Condominium Complex
		The Gooderham	390 Cherry Street Toronto ON	Apartment
		Clear Spirit Condos	70 Distillery Lane	Apartment
	Private Residences	Private Residences of Longboat Ave	1-75 (Odd numbers) Longboat Avenue	Homes
Utility		Ontario Power Generation	106 Lower Sherbourne Street	Utility Complex
Schools		St Lawrence Co-operative Day Care	2 Princess Street	Day Care
		St Michael Catholic School	50 George Street South	Catholic School
Business	Artscape Distillery Studios (Part of the Distillery SE Development Corp – owners of Distillery District)	Akroyd- Furniture Designers and Makers	15 Case Goods Lane #101-102	Store Front
		Proof Studio Gallery	15 Case Goods Lanes #104	Store Front
		TANK Jewelry & Beads	15 Case Goods Lanes #105	Store Front
		Lilith	15 Case Goods Lanes #106	Store Front
		Mehoi	15 Case Goods Lanes #107	Store Front
	Other Business	HD Supply Brafasco	31 Parliament Street	Construction and Industrial supplies
Other		Green P Parking	2 Church Street, Toronto, ON	Parking

Figure 4-9A: Property Owners within 30 m from the LOD

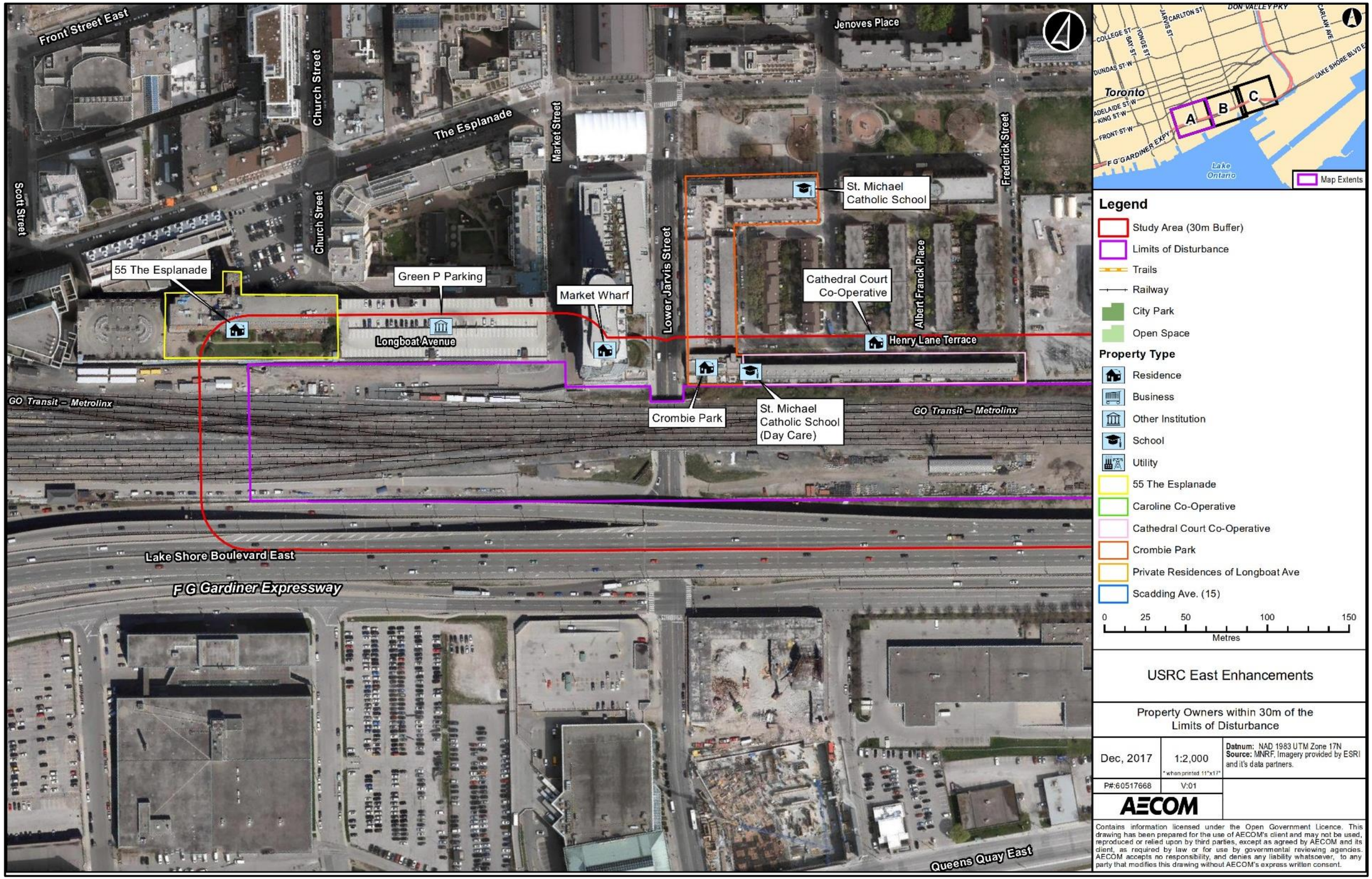


Figure 4-9B: Property Owners within 30 m from the LOD

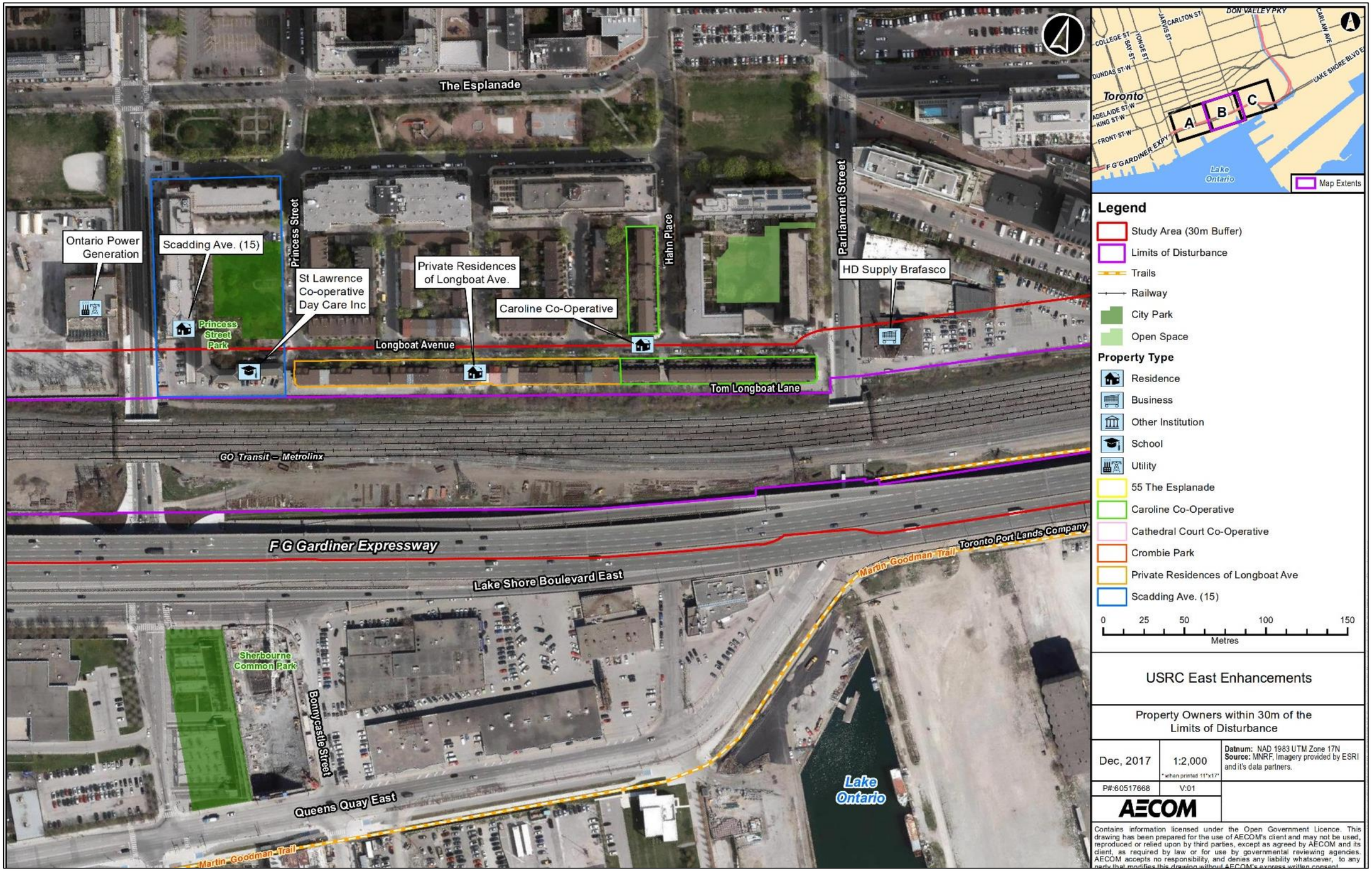
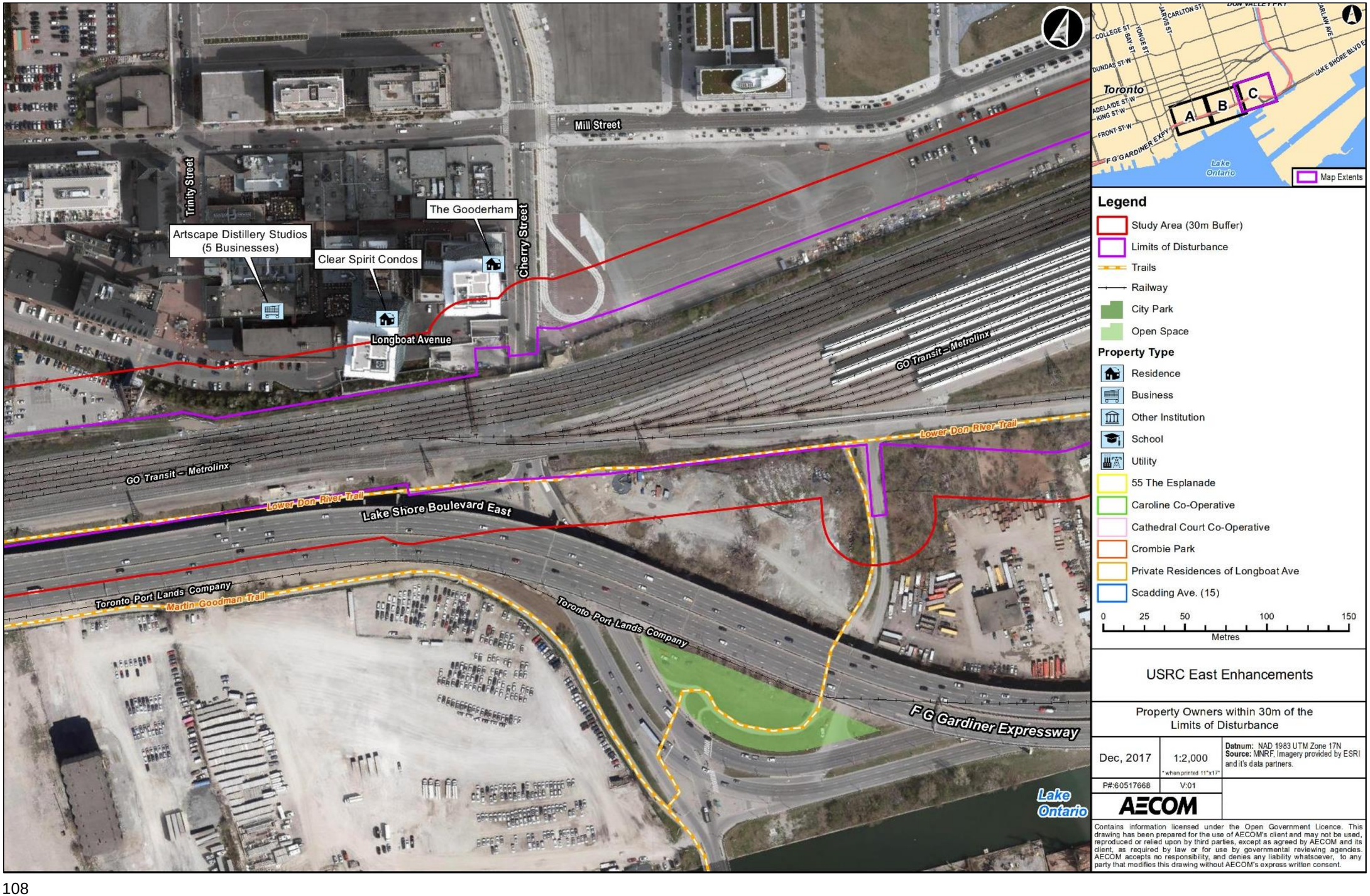


Figure 4-9C: Property Owners within 30 m from the LOD



4.6.7 Future Developments

There are several development applications throughout the Study Area, including a large number of proposed high-density residential mixed use buildings and office buildings. **Table 4-17**, provides information and locations of the proposed future developments.

A map showing these Development Applications can be found in **Appendix B5**.

One development in particular, the Red Brick Promenade Trinity Street Connection, is located immediately adjacent to the rail corridor. The plan is to add 2.4 million square feet of mixed-use urban development including residential, commercial, office, retail and parking space to the waterfront. This includes a plan to connect the Distillery District with a Red Brick Promenade underpass, which will run north and south under the USRC, near Cherry Street. Its main purpose is to be used as a concourse and passageway. There is currently no funding in place for the underpass.

Metrolinx is working together with the developer, 3C Lakeshore Inc., to determine the best way to develop and plan for the USRC East Enhancements Project and the Red Brick Promenade Trinity Street Connection.

Developments within the Study Area that are currently under construction include:

- 12 Bonnycastle Street - A 9-storey podium and 44-storey tower consisting of 550 residential dwelling units called The Monde.
- 143 Lake Shore Boulevard East - The building will consist of 45 and 35-storey towers that are connected by a 5-storey podium, which will house a post-secondary academic institution (Daniels City of the Arts Phase 1). Phase 1 is nearing completion and Phase 2 (residential mixed use component) is under construction, although still under site plan review.

Table 4-17: Proposed and Approved Development Applications within the Study Area

Ward	Address	Description	Status
28	55-95 Lake Shore Boulevard East, 33-53 Freeland Street and 2 and 15 Cooper Street	Mixed-use development with a variety of retail, service and community uses, 5 residential towers, 1 office building and a new park. Subdivision approval, Official Plan Amendment, and Rezoning application in May 2016. Site plan applications were submitted for Blocks 1 and 2 in December 2016.	**Under Review***
28	143-177 Lake Shore Boulevard East, 130-132 Queens Quay East	Mixed-use building containing residential, commercial, and institutional uses. The building will consist of 45 and 35-storey towers that are connected by a 5-storey podium, which will house a post-secondary academic institution (Daniels City of the Arts Phase 1). Phase 1 is nearing completion and Phase 2 (residential mixed use component) is under construction, although still under site plan review.	**Under Review***
28	75 The Esplanade	A 34-storey mixed use building consisting of 1,496 m^2 of retail space and 350 residential units, and 3-storeys of underground parking.	**Under Review***
28	31 Parliament Street	A 49-storey mixed-use building consisting of 495 residential units, 404 m^2 of retail space, and 201 vehicular parking spaces.	**Under Review***
28	33-37 Parliament Street	A 39-storey residential tower with retail at-grade.	**Under Review*****
28	351-369 Lake Shore Boulevard East	Official Plan Amendment (OPA) and Rezoning file no. 07 143093 STE 28. This property is current the subject of an OMB appeal of the Central Waterfront Secondary Plan.	**Under Appeal****
28	31R Parliament Street, 370R & 370 Cherry Street	A 57-storey mixed use building containing 496 units and a 4 to 5-storey mixed use “Ribbon Building” (Cityscape Development).	**Approved by OMB*****
28	390 Cherry Street	An Official Plan Amendment and Zoning By-law Amendment for the subject lands located at 31A Parliament Street, 370 and 370A Cherry Street to permit a 57-storey mixed use building containing 496 dwelling units and the 4 to 5-storey mixed use "Ribbon Building".	**Under Review***

Ward	Address	Description	Status
28	215 Lake Shore Boulevard East	A residential mixed use development with a GFA of 132,184 m2, with retail at grade, six residential towers and a north south Privately Owned Publicly accessible Space (POPS) that bisects the site. A Draft Plan of Subdivision Application is under review and a Site Plan Application for Phase 1 was recently submitted.	**Under Review *** **
28	21 Lower Jarvis Street	Two-storey GO Transit/Metrolinx operational support facility which includes 1,300 m^2 of office space and 1,382 m^2 for a maintenance workshop and storage.	**Under Review***
28	475 Front Street East	A Site Plan application for a mixed-use building with ground floor retail along Front Street, including 389 residential units, 353 parking spaces and 506 bicycle parking spaces.	**Under Review***
28	1-7 Yonge Street	The development proposal includes three mixed-use buildings on the north block, comprising a 95-storey building (including a future hotel) on the west side of the block, a 80-storey building at the northeast corner of the block, and a 65-storey building (including a Community Centre) on the southeast corner of the block. The south block retains the existing 25-storey Toronto Star building, with a 35-storey tower built adjacent to the existing building (13 storeys above), and a separate 22-storey office building.	**Under Appeal****

Notes: * Development Application Data Source: City of Toronto Development Projects Web Application (**http://app.toronto.ca/DevelopmentApplications/mapSearchSetup.do?action=init**). Current as of February 8, 2018
** Based on information provided by the City of Toronto, December 2, 2016 and March 21, 2017.
*** Based on information provided by the City of Toronto, January 31, 2018 and March 12, 2018.

4.6.8 Existing and Future Plans in the Vicinity of the Study Area

There are several future planned projects adjacent to the USRC East Enhancements Project that have undergone (EA) or may undergo an EA in the near future. Where elements of these other projects intersect with the USRC East Enhancements Project components, consultation and co-ordination will continue to take place with key stakeholders involved with the other projects. For example, the planning and development of the Wilson Yard Layover Facility is an area where effective co-ordination is required, as there is an overlap with the City of Toronto, Waterfront Toronto, TRCA, and Hydro One Networks Inc. for these project components. Co-ordinating with the various organizations (e.g., City of Toronto, Waterfront Toronto, TRCA, utilities and private developers) during the development of the project plans will help identify potential conflicts and achieve informed decisions.

Some of these projects include, but are not limited to:

- **The Gardiner Expressway and Lake Shore Boulevard Reconfiguration**

  The Gardiner Expressway and Lake Shore Boulevard Reconfiguration project (Gardiner EA) examined the future of the Gardiner Expressway and Lake Shore Boulevard East between Lower Jarvis Street and Leslie Street. The City of Toronto and Waterfront Toronto are co-proponents of this Individual EA. One of the main goals of the EA is to revitalize the waterfront, partly through the removal of barriers between the downtown and the waterfront such as the Gardiner Expressway and Lake Shore Boulevard. The EA also acknowledges the rail corridor as a barrier.

  A preferred alternative has been selected to improve transportation flow within the southern portion of the Study Area along the Gardiner Expressway and Lake Shore Boulevard including the Gardiner-DVP ramps. The final Gardiner EA documents were submitted to the MECP for review in January 2017. The EA for the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration was approved by the MECP on November 22, 2017.

- **Don Mouth Naturalization and Port Lands Flood Protection Project EA and Port Lands Acceleration Initiative Plan**

  The Don Mouth Naturalization and Port Lands Flood Protection (DMNP) Project aims to create a more naturalized outlet into Lake Ontario and remove the risk of flooding to the Port Lands and areas east of the Don River. This project, which was led by TRCA, Waterfront Toronto, and the City of Toronto, was initiated in 2004 with preparation of the Terms of Reference. The DMNP EA received MECP approval on January 28, 2015.

- **Lower Yonge Transportation Master Plan Environmental Assessment**

  The Lower Yonge Transportation Master Plan Environmental Assessment is an EA prepared by the City of Toronto and Waterfront Toronto in 2014. The main purpose of the Lower Yonge Transportation Master Plan is to define the transportation network to support redevelopment in the area and to allow for improved traffic flow.

- **Lower Don Lands Infrastructure Master Plan Environmental Assessment, 2010**

  The study area for this EA is bounded by the Don Rail Yard and Gardiner Expressway to the north, the tip of Parliament Street to the west, the Ship Channel to the south and Don Roadway to the east. This EA was completed in 2010 by City of Toronto, Waterfront Toronto and Toronto Transit Commission (TTC). The main purpose of this project was to create a Master Plan for transportation, water, wastewater and stormwater to support redevelopment of the Port Lands.

- **Waterfront Sanitary Servicing Master Plan, 2012**

  In 2012, the City of Toronto completed the Waterfront Sanitary Servicing Master Plan (WSSMP) Class EA Study, which recommended a strategy to provide sanitary servicing for development along the City's waterfront to 2031. The WSSMP 2017 Update has been completed following Approach 2 of the Master Planning process as set out in the Municipal Class EA document (amended in 2007, 2011 and 2015). The preferred servicing strategy from the WSSMP 2017 Update proposes an upgrade to a sanitary sewer along Lower Jarvis Street under the Gardiner Expressway within the Study Area.

  Waterfront Transit "Reset", 2018

  The City of Toronto, TTC, and Waterfront Toronto are undertaking a multi-phase Waterfront Transit "Reset" study. This study is assessing needs and options for transit improvements along the entire waterfront area. The study area is from Long Branch in the west to Woodbine Avenue in the east, and south of the Queensway/Queen Street. Phase 1, which identified preferred improvement concepts for further consideration, was completed in 2016. The outcome of Phase 2, which was completed in early 2018, was the development of an overall Waterfront Toronto Network Plan, which City Council endorsed on January 31, 2018 and February 1, 2018.

Other planning initiatives and projects include, but are not limited to:

- Lower Don Lands Framework;
- Port Lands Planning Framework;
- Port Lands and South of Eastern Master Plan;

- City of Toronto Ten-Year Cycling Network Plan;
- Power Downtown Toronto;
- East Bayfront Public Art Master Plan; and
- West Don Lands Public Art Strategy.

A much more comprehensive and detailed list of these Plans and Projects are explained in further depth with regard to how they interact with USRC East Enhancements Project and can be found in **Appendix B5**.

4.7 Traffic and Transportation

Transportation and Traffic Impact Analysis (TIA) was completed to document existing road traffic volumes and to assess future road traffic volumes during and after construction of the Project. The TIA is included in **Appendix B6**.

4.7.1 Methodology

A road traffic counting program was commissioned to collect turning movement count data at key intersections within and adjacent to the Study Area and at the overpass rail crossing locations. The counts data were classified according to cars, trucks, buses, cyclists, streetcars, and pedestrians, in 15-minute intervals between the hours of 7:00 AM to 10:00 AM and 4:00 PM to 7:00 PM. The counts took place in January 2017.

To assess the existing traffic operating conditions during the AM and PM peak hours, a Level of Service (LOS) and capacity analysis was undertaken for the subject intersections using Synchro 9.1 software, which implements the methods of the 2000 Highway Capacity Manual.

Automated traffic recorders (ATR) were used to conduct seven-day, 24-hour counts at the following locations:

- Lower Jarvis Street (at rail structure);
- Lower Sherbourne Street (at rail structure);
- Parliament Street (at rail structure);
- Cherry Street (at rail structure); and
- Lake Shore Boulevard East (adjacent to Wilson Yard Layover Facility Access).

The counts were conducted beginning January 24, 2017, and ending January 30, 2017. The counts were collected in 15-minute intervals. The full ATR count data can be found in **Appendix B6**.

Existing pedestrian and cyclist count data was collected on Tuesday April 25, 2017. The pedestrian data was collected in late April to obtain a more accurate count of pedestrians than the time period when the vehicular traffic was captured in January 2017. It is acknowledged that April counts may not be reflective of the peak demand for active modes of transportation within the study area with demand possibly being higher during the summer months. Despite this, a qualitative assessment was performed knowing where the active transportation infrastructure currently exists while recognizing that actual demand during summer months could be higher than that the April counts show. The weekday counts were taken for a 12-hour period between 7:00 AM and 7:00 PM. Raw data can be found in **Appendix B6**.

It should be noted that the counts at the Lower Don River Trail were performed during a temporary closure further north along the trail which would likely have resulted in lower counts than normal. Future summer counts would likely show higher pedestrian and cyclist demand along the trail at the count locations.

4.7.2 Existing Traffic Volumes and Operations

Existing transportation conditions are described in more detail in the *Traffic and Transportation Impact Assessment Report* (**Appendix B6**) undertaken as part of this Project. This section presents a brief overview of the existing conditions. **Table 4-18** shows a summary of the directional daily traffic volumes. **Table 4-19** and **Table 4-20** show the number of pedestrians and cyclists by direction.

Table 4-18: Directional Daily Traffic Volumes

Location	Direction	24-Hour Volume (Weekday Average)
Lower Jarvis Street	Northbound	12,040
Lower Jarvis Street	Southbound	15,310
Lower Sherbourne Street	Northbound	4,340
Lower Sherbourne Street	Southbound	4,570
Parliament Street	Northbound	6,470
Parliament Street	Southbound	5,550
Cherry Street	Northbound	1,940
Cherry Street	Southbound	3,230
Lake Shore Boulevard East	Eastbound	3,660
Lake Shore Boulevard East	Westbound	5,470

Table 4-19: Pedestrian and Cyclist 12-Hour Counts – Rail Crossings

#	Location	Pedestrians West Sidewalk *NB*	Pedestrians West Sidewalk *SB*	Pedestrians East Sidewalk *NB*	Pedestrians East Sidewalk *SB*	Cyclists *NB*	Cyclists *SB*
1	Lower Jarvis Street	738	770	289	371	108	105
2	Lower Sherbourne Street	120	240	255	289	318	405
3	Parliament Street	36	83	152	119	144	121
4	Cherry Street	57	70	181	140	155	123

Table 4-20: Pedestrian and Cyclist 12-Hour Counts - Vicinity of Metrolinx Don Yard

#	Location	Pedestrians EB	Pedestrians WB	Cyclists EB	Cyclists WB
5	Lower Don River Trail at South Access to Wilson Yard Layover Facility	83	148	343	303
#	**Location**	**Pedestrians NB**	**Pedestrians SB**	**Cyclists NB**	**Cyclists SB**
6	Pedestrian underpass below Lakeshore East Rail Corridor	155	155	326	305
7	Lower Don River Trail Pedestrian Underpass (to Corktown Common Park)	124	169	212	143

4.7.3 Existing Transit Service

The Study Area road network accommodates several TTC bus routes as listed in **Table 4-21** below:

Table 4-21: Transit Routes within the Study Area

Bus Routes	Direction	Route Stops Within the Study Area
6 Bay	North-South	• Queens Quay East/Lower Jarvis Street • Queens Quay East/Lower Sherbourne Street
65/365 Parliament	North-South	• The Esplanade/Princess Street
72 Pape	North-South	• Cherry St/Commissioners Street • Queens Quay East/Parliament Street • Queens Quay East/Lower Jarvis Street

Bus Routes	Direction	Route Stops Within the Study Area
75 Sherbourne	North-South	• Lower Sherbourne Street/The Esplanade • Lower Jarvis Street/Queens Quay East • Lower Jarvis Street/The Esplanade
121 Fort York-Esplanade	East-West	• Cherry Street/Commissioners Street • Cherry Beach Loop
Street Car Routes	**Direction**	**Route Stops Within the Study Area**
514 Cherry	East-West	• Terminal Point at the Distillery District via Cherry Street

Transit route scheduling information was obtained from the TTC website and bus blockages were implemented into the Synchro models to represent real-world operation. Buses stopping at the near side of an intersection were implemented within Synchro as bus blockages for the through and right turning vehicles.

The following TTC bus routes were considered in the Synchro model with respect to the impact of transit operations on the operation of key intersections:

- 65 Parliament
- 75 Sherbourne
- 97 Yonge
- 121 Fort York-Esplanade

4.8 Utilities

Utility owners have been identified within the USRC East Enhancements Project Study Area based on the existing Utility Crossing Agreements with Metrolinx. The below utility owners have been consulted during the TPAP; impacts to utilities will be determined and confirmed in Detailed Design. **Table 4-22** provides a list of utility owners which will be verified through Detailed Design:

Table 4-22: Utilities within the Study Area

Utility Type	Company Name
Power, Cables, Conduits and Lighting	▪ Hydro One Networks Inc.(power) ▪ Toronto Hydro Corporation (power) ▪ CN Railway Company (power) ▪ Metrolinx (power cables)
Gas and Oil	▪ Enbridge Gas Distribution Inc. (gas) ▪ Metrolinx (gas line-feed from Enbridge)

Utility Type	Company Name
Potable Water	▪ City of Toronto (water service)
Communications	▪ Bell Canada (telephone lines and fibre optic cable) ▪ 360 Communication (internet service) ▪ Rogers Communications Inc. (fibre optic cable) ▪ Sprint Corporation (fibre optic cable) ▪ TELUS Corporation (fibre optic cable) ▪ CN Railway Company (fibre optic cable) ▪ CN Railway Company (signal cables) ▪ Cogeco Inc. (fibre optic cable) ▪ Metrolinx (signal cables) ▪ Beanfield Metroconnect (fibre optic cable) ▪ Zayo Group, formerly Allstream (fibre optic cable)
Sewers and Drains	▪ City of Toronto

4.9 Cultural Environment

4.9.1 Cultural Heritage

4.9.1.1 Methodology

AECOM completed a *Cultural Heritage Screening Report (*CHSR) in January 2017 in accordance with the *Metrolinx Draft Terms of Reference for Consultants: Cultural Heritage Screening Report for Built Heritage Resources and Cultural Heritage Landscapes* (2013) and the *Metrolinx Interim Cultural Heritage Management Process* (2013). The CHSR serves to identify major historical themes and activities within and adjacent to the rail corridor, cultural heritage landscapes, built heritage resources, sensitivities to change, and develop mitigation recommendations. In addition, the CHSR serves to quickly and efficiently allow Metrolinx to identify properties with recognized or potential cultural heritage value or interest.

Based on research and the findings of the CHSR, recommendations as to whether a Cultural Heritage Evaluation Report (CHER) would be required were made. The recommendation for CHERs was based on whether the property has been screened as a Potential Provincial Heritage Property or a Potential Conditional Heritage Property. A Potential Provincial Heritage Property is a property that is owned or occupied by Metrolinx. A Potential Conditional Heritage Property is a property that is not owned or occupied by Metrolinx. Where the outcome of the CHSR recommends that a CHER would be required and the property is directly impacted by the Project, the CHER is completed during the TPAP phase of the Project.

Impacts to properties are defined as:

- **Direct** – A direct impact would have a permanent effect on the cultural heritage value or interest of a property or result in the loss of a heritage attribute on all or part of the Provincial Heritage Property. For example: removal or demolition of a building or structure of all or part of the structure, including individual heritage attributes.
- **Indirect** – An indirect impact would be the result of an activity on or near the property that may affect its cultural heritage value or interest and/or heritage attributes, but it does not affect the use of the building or physically alter any heritage attribute. For example: isolation of a Provincial Heritage Property from its surrounding environment, context or a significant relationship, vibration damage to a structure due to construction.

The CHERs were prepared according to the Metrolinx Interim Cultural Heritage Management Process and utilizes the criteria in *O. Reg. 9/06* and *O. Reg. 10/06*, as required by the MTCS Standards and Guidelines for the Conservation of Provincial Heritage Properties (2010). In addition, the CHERs were prepared according to the Metrolinx document Draft Terms of Reference for Consultants: Cultural Heritage Evaluation Report and Cultural Heritage Evaluation Report Recommendations.

The outcome of the CHER process determines if a property is a Provincial Heritage Property (PHP), Provincial Heritage Property of Provincial Significance (PHPPS), or if the property has no cultural heritage value or interest (not a PHP or a PHPPS). A property may meet the criteria outlined in *O. Reg. 9/06* (Criteria for Determining Cultural Heritage Value or Interest) in which the property is designated as a PHP. Furthermore, a property may meet the criteria outline in *O. Reg. 10/06* (Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance), in which the property is designated *as a* PHPPS. The outcomes of the completed CHERs are discussed below.

4.9.1.2 Findings

The CHSR is provided in **Appendix B7.1**. CHERs completed in advance of this Project include the following:

- CHERs were previously completed for the four Subways (bridges) at Lower Jarvis Street, Lower Sherbourne Street, Parliament Street, and Cherry Street in 2016 (**Appendix B7.2**) by Taylor Hazell Architects (THA). The four Subway bridges were identified as PHPs. The outcomes of the CHER determined that all four Subway bridges met the criteria outlined in *O. Reg. 9/06* and as a result, have cultural heritage value or interest (**Appendix B7.3**). The Statements of Cultural Heritage Value can be found in **Appendix B7.3**.

- In 2013, a CHER was prepared for the three interlocking towers (John Street Tower, Scott Street Tower and Cherry Street Interlocking Tower) (**Appendix B7.2**) by THA. The three interlocking towers were identified as PHPPS. The outcomes of the CHER determined that all three towers met the criteria outlined in *O. Reg. 10/06* and as a result, have cultural heritage value or interest of provincial significance. For this Project a Heritage Impact Assessment (HIA) for the Cherry Street Interlocking Tower has been prepared and can be found in **Appendix B8**. John Street Tower and Scott Street Tower are not within the Study Area, however, the 2013 CHERs recommended that the towers be considered for contextual relationship when evaluating alternatives for Cherry Street Interlocking Tower.

A Subway is a passage below grade that is typically used to separate traffic flows, such as a pedestrian Subway below a busy highway. In railway parlance, a Subway is a grade separation structure in which a road is depressed in a cutting below the railway. The track is carried over the road on a bridge.

The CHSR undertaken for the USRC East Enhancements Project identified the requirement to conduct a CHER for the Lower Don River Trail to assess the potential cultural heritage value or interest of the property. The CHER prepared for the Lower Don River Trail determined that it does not meet *O. Reg. 9/06* or *O. Reg. 10/06* (**Appendix B7.3**).

The Cherry Street Interlocking Tower, identified in a 2013 CHER as a PHPPS is located immediately adjacent to the Cherry Street Subway; additionally, the Distillery District, a National Historic Site is located adjacent to the Subway.

There are four signal bridges built right over the tracks and their adjacent properties include the continuation of the railway corridor in their respective locations. The signal bridges were evaluated within the *USRC East Enhancements CHSR* in accordance with the *Metrolinx Draft Terms of Reference for Consultants: Cultural Heritage Screening Report for Built Heritage Resources and Cultural Heritage Landscapes* (2013) and the *Metrolinx Interim Cultural Heritage Management Process* (2013). Upon completion of the Screening Questions, AECOM determined the signal bridges did not meet the requisite threshold for heritage potential as they did not have design/physical value, associative value or contextual value. The signal bridges are not recognized at a municipal, provincial, or federal level and do not require a CHER.

Table 4-23 provides a summary of the cultural heritage existing conditions within and adjacent to the Study Area. The table also describes the outcome of the CHSR completed in 2017 and the outcome of the CHERs completed.

Table 4-23: Summary of Existing Cultural Heritage Existing Conditions

CHR #	Mile	Name	Municipal Address	Existing Heritage Recognition	Cultural Heritage Screening Report Outcome	CHER Outcome
BHR-1	N/A	John Street Interlocking Tower	N/A	Provincial Heritage Property of Provincial Significance	No further work as part of this Project. A CHER was previously completed in 2013*.	Provincial Heritage Property of Provincial Significance in accordance with *O. Reg. 10/06*.
BHR-2	Between 333.32 and 333.63	Scott Street Interlocking Tower	N/A	Provincial Heritage Property of Provincial Significance	No further work* as part of this Project. A CHER was previously completed in 2013*.	Provincial Heritage Property of Provincial Significance in accordance with *O. Reg. 10/06*.
BHR-3	333.32	Lower Jarvis Street Subway	N/A	None	CHER required (Completed January 2016) HIA to be completed in Detailed Design.	Provincial Heritage Property in accordance with *O. Reg. 9/06*.
BHR-4	N/A	Signal Bridges	N/A	None	CHER not required (as explained in paragraph above)	Non-heritage property
BHR-5	333.12	Lower Sherbourne Street Subway	N/A	None	CHER required (Completed January 2016) HIA to be completed in Detailed Design	Provincial Heritage Property in accordance with *O. Reg. 9/06*.
BHR-6	332.85	Parliament Street Subway	N/A	None	CHER required (Completed January 2016) HIA to be completed in Detailed Design	Provincial Heritage Property in accordance with *O. Reg. 9/06*.
BHR-7	332.60	Cherry Street Subway	N/A	None	CHER required (Completed January 2016) HIA to be completed in Detailed Design	Provincial Heritage Property in accordance with *O. Reg. 9/06*.
BHR-8	332.4	Cherry Street Interlocking Tower	385 Cherry Street Toronto	Provincial Heritage Property of Provincial Significance	CHER required (completed 2013) HIA completed as part of this Project during the Preliminary Design phase (see **Appendix B.8**).	Provincial Heritage Property of Provincial Significance in accordance with *O. Reg. 10/06*.
CHL-9	N/A	Lower Don River Trail	N/A	None	CHER required (Completed in 2017)	Does not meet *O. Reg. 9/06* or *O. Reg. 10/06* and is not a Provincial Heritage Property.

Note: * Not located within the Study Area however recommendations were made that the towers be considered for contextual relationship when evaluating alternatives for Cherry Street Interlocking Tower.

4.9.2 Archaeology

The Stage 1 AA Report was submitted to the Ministry of Tourism, Culture and Sport (MTCS) on April 25, 2018 for review and acceptance. On June 5, 2018, the MTCS confirmed that the Ministry is satisfied that the field work and reporting for the archaeological assessment are consistent with the Ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences. The Stage 1 AA Report was entered into the Ontario Public Register of Archaeological Reports.

4.9.2.1 Methodology

The work was completed in accordance with the provisions of the *Ontario Heritage Act* (2005) and with the MTCS' *Standards and Guidelines for Consultant Archaeologists* (2011).

AECOM completed a Stage 1 Archeological Assessment (AA) in July 2017 using background research to describe the geography, land use history, archaeological management plans (ASI 2004), previous archaeological field work and current condition of the lands within this Study Area. The Archaeology Study Area is defined as extending 50 m from the edge of the LOD to create a slightly larger Study Area (**Figure 4-10**) that is required in order to allow for slight variances in the proposed expansion. In addition, a Stage 1 field review was completed on October 19, 2016. The Stage 1 AA is provided in **Appendix B9**.

4.9.2.2 Conclusions and Recommendations

The results of the Stage 1 AA indicate that the majority of the lands within the Study Area are comprised of artificial lake fill, or have been deeply disturbed by construction of the railway and commercial / industrial development. However, there are portions of the Study Area which still retain potential for deeply buried intact archaeological resources.

The following recommendations are made:

- The majority of the areas within the current LOD for the USRC East Enhancements Project have been identified as deeply disturbed and therefore require no further archaeological work. These areas are marked in orange in **Figure 4-10**. This includes the Cherry Street Interlocking Tower at 385 Cherry Street, City of Toronto. This property (marked in dark green in **Figure 4-10**) was previously assessed by ARA (2015) and cleared of further archaeological concern.

- Areas of archaeological potential within or crossing over the LOD (including the Toronto Rolling Mills Wharf (WD-12), the Gooderham & Worts Distillery Wharves (WD-20), and the Gooderham and Worts Distillery Complex National Historic Site (WD-19) which are believed to be located at a depth of approximately 76 m above sea level (ASL) (ASI 2016) will require Stage 2 monitoring if construction disturbance should reach this depth. Stage 2 monitoring of these areas would be conducted as per Section 2.1.7, Standard 4*; Survey in Deeply Buried Conditions* of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).
- There are areas of archaeological potential well outside the LOD, but within the larger USRC East Enhancements Project Archaeological Study Area that may be present at unknown depths. Should the Don Breakwater (LDP-1) and the Toronto Dry Dock (LDP-3) (**Figure 4-10**) be impacted by the construction of the USRC East Enhancements Project, they shall be subject to Stage 2 monitoring, following *Section 2.1.7, Standard 4; Survey in Deeply Buried Conditions* of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). Monitoring should only be completed in these areas if they cannot be avoided by future construction (see ASI 2007, 2008b).
- The areas of proposed impact for the USRC East Enhancements Project will be refined during the Detailed Design phase of the Project. It is recommended that the need for further archaeological work shall be re-assessed in comparison to the final LOD for the Project.

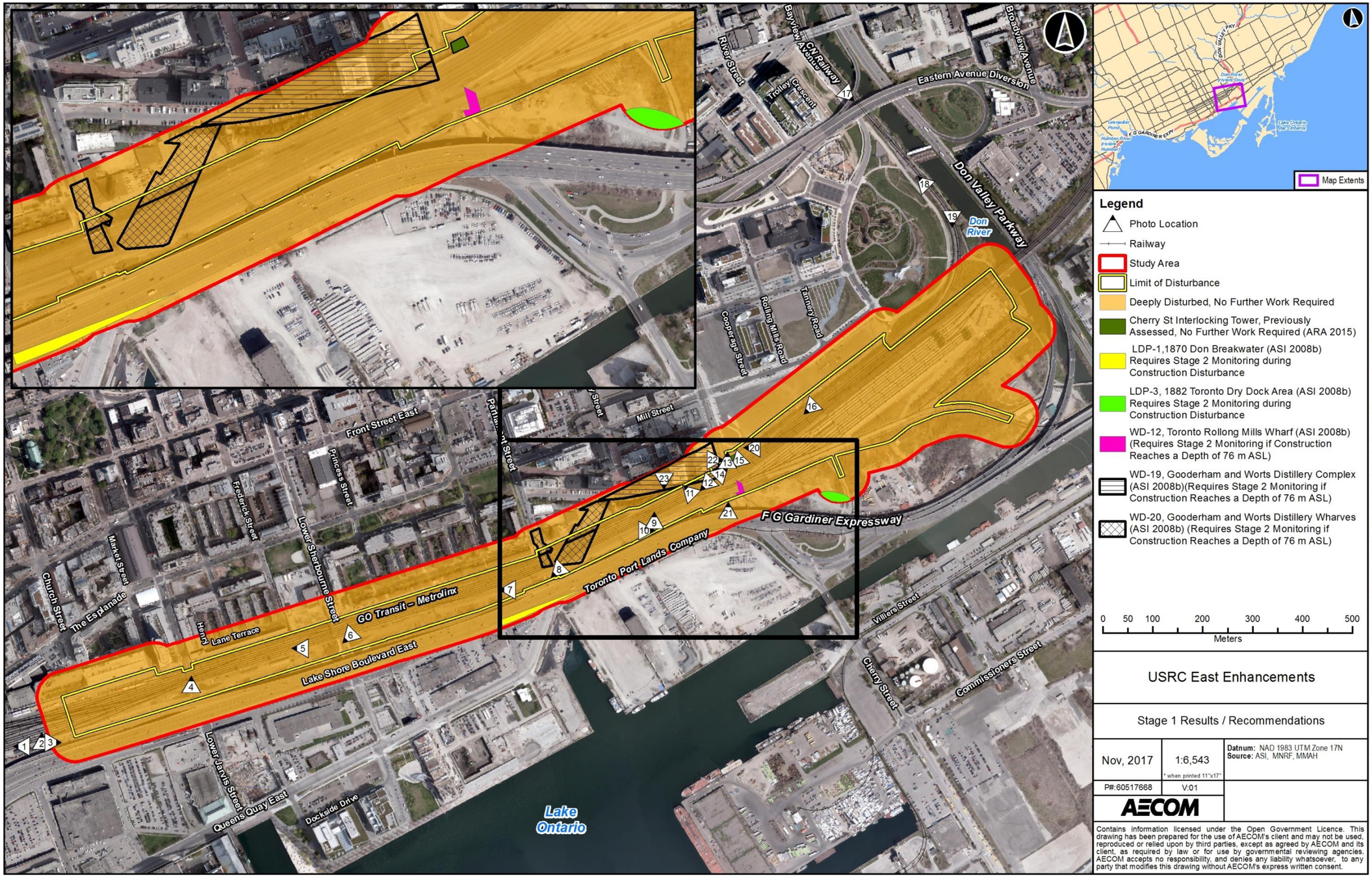
Depth of Potential Archaeological Resources and Depth of Construction

Due to the varied topography / grading in the USRC East Enhancements Project Study Area, it is not known exactly how deep the potential archaeological resources may be buried in relation to the modern day ground surface.

ASI's 2016 report Stage 1 Archaeological Assessment GO Rail Network Electrification TPAP, City of Toronto, Regional Municipalities of Peel, Halton, York and Durham, County of Simcoe, Ontario, described that the summit of the existing railway viaduct stands at a maximum elevation of approximately 83 mASL. This indicates that approximately 7 m of fill was put down on top of the original 19th century shoreline (where remains of wharves and shore walls are potentially intact) in order to accommodate the leveling off the rails. However, based on existing site information, 76 mASL may be approximately 1 m below street level in some areas.

Therefore, based on background review and existing site information, 76 mASL could be approximately 1-7 m depth below the surface within the USRC East Enhancements Project Study Area. While exact construction impacts and depths have not yet been determined for the USRC East Enhancements Project, construction of foundations for the bridge extensions and retaining walls are expected to go below 76 mASL.

Figure 4-10: Results of the Stage 1 Archaeological Assessment, with Recommendations and Photo Plates



4.10 Stormwater Management and Drainage

The Study Area consists of three drainage areas:

- Bala and Belleville Subdivision Rail Corridor;
- Harbour Lead Rail Corridor; and
- The Don Yard and Wilson Yard Layover Facility.

According to TRCA flood and hazard mapping, the Study Area is inside the TRCA regulation limit. The Don River Floodplain covers the low-lying sections of the Study Area, which mainly exist beyond the proposed works. The existing area south of the Wilson Yard Layover Facility slopes southward towards the lake and is a part of the Don River Floodplain. The existing Harbour Lead track, which passes south of the Wilson Yard Layover Facility and continues east, also falls within the Don River Floodplain.

A Stormwater Management Report will be completed during Detailed Design to assess drainage impacts of Tracks E0, E7, and E8, and all associated works in the area, and shared with the MECP and TRCA. A separate Stormwater Management Report to assess drainage impacts at the Wilson Yard Layover Facility will occur during Detailed Design of the Wilson Yard Layover Facility.

5. Assessment of the Potential Effects and Proposed Mitigation Measures of the Preferred Design

This section describes the potential effects and proposed mitigation measures associated with construction and operation of the Preferred Design. Where applicable, the effects are broken out by project component.

5.1 Natural Environment

The following sections identify terrestrial and aquatic features that may be potentially affected by the proposed construction and operation of each of the three proposed project components and their associated sub-components based on the Preferred Design.

Environmental effects were assessed for the LOD associated with construction and operation activities of the proposed development, plus a 120 m buffer (e.g., the Natural Environment Study Area). The construction footprint consists of the areas where vegetation removal is anticipated to be required for the USRC East Enhancements Project. As a conservative approach, the following was assumed:

- All vegetation overlapped by the permanent project components within the LOD will be permanently removed during construction; and
- Vegetation removal in temporary work areas and construction easements as identified above will be considered to be temporary.

Areas of permanent and temporary removal are also shown in **Appendix B1**.

A discussion of these potential effects, the mitigation and compensation measures, and environmental monitoring recommended to avoid or minimize these potential effects for each USRC East Enhancements Project component is provided in the following sections.

5.1.1 Vegetation Cover and Designated Natural Areas

5.1.1.1 Potential Construction Effects

Provincially or Locally Significant Wetlands, ANSIs or ESAs were not identified within the Natural Environment Study Area and therefore no further assessments of these

natural heritage features are required. Furthermore, no wetland vegetation communities were identified within the Natural Environment Study Area and similarly, no further assessments for wetlands are required.

Although the majority of the Natural Environment Study Area is comprised of residential, commercial and industrial development, there are approximately 7.1 ha occupied by natural or quasi-natural vegetation communities and 2.6 ha occupied by the anthropogenic Corktown Common Park. Generally, the vegetation communities surveyed by AECOM had high concentrations of invasive species indicating that habitat conditions are highly disturbed and are of poor quality. Given the highly developed landscape, the area is largely comprised of vegetation that tolerates frequent disturbance including invasive and/or non-native woody and herbaceous species. These species are quick to re-colonize bare ground soon after disturbance; potential effects on these vegetation communities are not considered to be significant.

Breakdowns of natural vegetation community removals potentially required for each USRC East Enhancements project component and further discussions are provided in the subsections below.

Portions of the City's NHS and RNFP Areas lie within the LOD for the USRC East Enhancements Project. In addition, the Natural Environment Study Area also overlaps with the Utility Corridor and Natural Areas land use designations. According to the City's Natural Heritage Impact Terms of Reference (2006), development will recognize natural heritage values and potential impacts on the natural ecosystem as much as possible, minimize adverse impacts, and restore and enhance the NHS when possible. Potential adverse effects on the NHS and RNFP areas as a result of construction are also discussed in the subsections below.

Track E0

Approximately 1.2 ha of these thickets will be permanently removed for the proposed Track E0; portions of these removed thickets fall within the City's NHS. The anthropogenic Corktown Common Park will not be affected by the USRC East Enhancements Project. Any trees within and outside of the Metrolinx ROW affected by the construction of the proposed Track E0, along with preliminary permitting needs, are discussed in the *USRC East Enhancements TPAP Tree Inventory Report* (AECOM, 2016) in **Appendix B2**. An Arborist Report will be completed during Detailed Design, which will further identify trees to be preserved, removed or injured and associated permitting requirements. See **Table 5-1** below for more information.

Table 5-1: ELC Vegetation Communities Affected by Vegetation Removal in Track E0

Permanent vs. Temporary Removal	ELC Code	ELC Community	Area (ha) Removed
Permanent	CUT1	Mineral Cultural Thicket	1.2

Tracks E7 and E8

Removal of natural vegetation communities for the proposed Tracks E7 and E8 is not anticipated, given that there were no natural vegetation communities identified along the south side of the existing tracks within the LOD / Metrolinx ROW. Although grubbing may be required for installation of the proposed tracks, this will involve removal of small, fragmented and disturbed patches of grass and a few isolated trees. Any trees within and outside of the Metrolinx ROW affected by the construction of the proposed Tracks E7 and E8, along with preliminary permitting needs, are discussed in the *USRC East Enhancements TPAP Tree Inventory Report* (AECOM, 2016) in **Appendix B2** and in **Section 5.1.1**. An Arborist Report will be completed during the Detailed Design phase of the Project, which will further identify trees to be preserved, removed or injured and associated permitting requirements.

Wilson Yard Layover Facility

All vegetation within the Wilson Yard Layover Facility is assumed to be permanently removed. As such, approximately 0.7 ha and 0.3 ha of mineral cultural woodlands and mineral cultural thickets, respectively, are anticipated to require permanent removal; portions of these also fall within the City's NHS. Any individual trees within and outside of the Metrolinx ROW affected by the construction of the proposed Wilson Yard Layover Facility, along with preliminary permitting needs, are discussed in the *USRC East Enhancements TPAP Tree Inventory Report* (AECOM, 2016) in **Appendix B2** and in **Section 5.1.1**. An Arborist Report will be completed during the Detailed Design phase of the Project, which will further identify trees to be preserved, removed or injured and associated permitting requirements. See **Table 5-2** below for more information.

Table 5-2: ELC Vegetation Communities Affected by Vegetation Removal in Wilson Yard Layover Facility

Permanent vs. Temporary Removal	ELC Code	ELC Community	Area (ha) Removed
Permanent	CUT1	Mineral Cultural Thicket	0.3
Permanent	CUW1	Mineral Cultural Woodland	0.7

5.1.1.2 Potential Operation Effects

During operation of increased GO service, it is anticipated that there will be no potential effects on vegetation cover or designated natural areas beyond the initial removal at the construction phase for all components of the USRC East Enhancements Project.

5.1.1.3 Mitigation

The following mitigation measures apply to all USRC East Enhancements Project components where vegetation removal may be required:

- Vegetation removal will be kept to a minimum and limited to within the construction footprint and should be scheduled to occur outside of the overall bird nesting season of April 1st to August 31st, following the mitigation measures described for Breeding Birds in **Section 5.1.4.3**.
- Areas for vegetation removal will be refined during the Detailed Design phase of the Project, if required (e.g., change in construction footprint, final staging areas). Areas that should be protected during construction will be delineated prior to construction start and no activities will be permitted in these areas.
- Stockpiled materials or equipment will be stored within the construction footprint, but shall be kept away from adjacent natural areas or parks and be kept at least 30 m away from the watercourse.
- Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage to vegetation, or intrusion to adjacent vegetated areas. Fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction.
  - Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.
- On-site inspection will be undertaken on a monthly basis during construction to ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities.
- Exposed soils shall be stabilized and re-vegetated as soon as possible to reduce erosion using native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site. Slopes greater than 2:1 will have a slope retention material (e.g., Erosion Control Blanket) applied to reduce soil erosion.

- Adhere to the mitigation measures specific to trees, including City of Toronto Tree By-law permitting requirements, that summarized in the *USRC East Enhancements TPAP Tree Inventory Report* (AECOM, 2016) in **Appendix B2** and which will be further detailed in an Arborist Report completed during Detailed Design.

5.1.2 Tree Inventory

5.1.2.1 Potential Construction Effects

Table 5-3 below identifies the approximate number of trees that may require removal or be injured due to each project component including trees within the Metrolinx ROW, as well as lands where property is required. Please refer to **Appendix B2 (Figures 1A-1T)** for current design locations and boundaries. Of the 1,299 trees inventoried, 1,082 are within the LOD and 110 are within the Study Area buffer. The remaining 107 trees are located outside of the Study Area and it is anticipated that there will be no impact to these trees. Track E0 and its associated retaining wall impact the greatest number of trees. No trees were recorded within the temporary construction license or the Track E0 Permanent Land Requirement located along the north side of the rail corridor.

Table 5-3: Summary of Impacted Trees by Project Component

Component Project Component	Total Number of Trees Potentially Impacted	Trees Within LOD	Trees within Study Area Buffer[+]	Trees Outside of LOD and Buffer[++]
Track E0	616*	614	2	80
Tracks E7 / E8	21	8	13	0
Wilson Yard Layover Facility	555**	460	95	27
Total	**1192**	**1082**	**110**	**107**

Note: [+] 6 m or 12 m from LOD, as required by the appropriate by-laws.

[++] Trees outside of the current Study Area were included in the inventory during fall 2016 surveys as the Study Area at that time was larger.

* Trees are all present within Metrolinx ROW. There are no trees present in the temporary construction license and permanent land requirement (currently owned by I O) areas for Track E0

** Includes trees within the Metrolinx ROW as well as lands where property is required. Refer to Table 4 for further breakdown of the trees within the different parcels of property required.

Shrubs within the Metrolinx ROW that may require removal were tallied, although their removal does not require a permit. These estimates are summarized in **Table 5-4**. Shrub species noted include Common Buckthorn (*Rhamnus cathartica*), Staghorn Sumac (*Rhus typhina*) and highbush-cranberry species (V*iburnum sp*).

Table 5-4: Shrubs Which May Require Removal

Common Name	Scientific Name	Size and Quantity 0-9 cm DBH	Size and Quantity 10-20 cm DBH
Red-osier Dogwood	*Cornus sericea*	15	0
Common Buckthorn	*Rhamnus cathartica*	85	5
Staghorn Sumac	*Rhus Typha*	169	24
Highbush Cranberry Species	*Viburnum sp.*	126	0
TOTAL			**424**

Wilson Yard Layover Facility Required Property

A summary of the quantity and category of trees on property required for the Wilson Yard Layover Facility (in the LOD and not including trees within the Metrolinx ROW) has been identified in **Table 5-5**. Specific property requirements will be confirmed during the Detailed Design phase of the Project.

Table 5-5: Summary of Trees within Wilson Yard Layover Facility Required Property

Wilson Yard Layover Facility Property Owner	Total Number of Trees Potentially Impacted in the Project Component	Trees within LOD	Trees within Study Area Buffer+	Trees Outside of LOD and Study Area Buffer
City of Toronto (PIN 21077-0095) (Tree Category – 5)	117	61	56	9
City of Toronto (also TPLC) (PIN 21077-0099) (Tree Category – 5)	181	168	13	0
Hydro One (PIN 21077-0097) (Tree Category – 2)	148*	134	14	0
Hydro One (PIN 21077-0097) **Metrolinx** (201770276) (Tree Category – Shared (1, 2)	14	14	0	0
Hydro One (PIN 21077-0098) (Tree Category – 2)	78**	78	0	0
Conoco Inc. (PIN 21077-0167) (Tree Category – 2)	0	0	0	0
TOTAL Number of Trees within Required Property	**538**	**455**	**83**	9
TOTAL Number of Trees outside of Required Property	**17**	**5**	**12**	18
TOTAL Number of Trees within Wilson Yard Layover Facility *(as shown in Table 2)*	555	460	95	27

Notes: + 6 m or 12 m from LOD, as required by the appropriate by-laws.

* > 30 cm DBH = 1, < 30 cm DBH = 147, Trees less than 30 cm DBH on private property do not require a permit

** > 30 cm DBH = 1, < 30 cm DBH = 77, Trees less than 30 cm DBH on private property do not require a permit

At the Detailed Design phase, an Arborist Report will be completed for all trees that may be impacted by the proposed new infrastructure, including trees to be preserved, removed or injured. The Arborist Report will provide further details regarding construction disturbances and staging area impacts on trees, identify suitable restoration/ compensation to accommodate site-specific impacts, mitigation and replacement measures to offset vegetation loss and provide the appraisal values of trees to be removed. Determination of trees to be preserved, removed or injured will be based on the Detailed Design in consideration of each tree's location, size, species and condition. Vegetation protection measures will be developed in accordance with the City of Toronto's *Tree Protection Policy and Specifications for Construction Near Trees* (2016).

5.1.2.2 Potential Operation Effects

During operation of increased GO service, it is anticipated that there will be no potential effects on the remaining trees for all components of the USRC East Enhancements Project.

5.1.2.3 Mitigation

Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx RER projects. Vegetation that is removed will be compensated for in accordance with the provisions of this protocol.

- **For Municipal/Private Trees:** Metrolinx will work with each municipality to develop a municipality-wide streamlined tree permitting / compensation approach for municipal and private trees. The goal is to reduce administrative permitting burden for trees along long stretches of rail corridor.
- **For Trees within Metrolinx Property:** Metrolinx is developing a methodology to compensate for trees located within Metrolinx's property. This will involve categorizing trees' community types / ecological value and establishing the appropriate level of compensation. Metrolinx will be looking to partner with Conservation Authorities and municipalities to develop the final compensation plan.
- **Conservation Authorities:** For vegetation removals within conservation authority lands where required, applicable removal and restoration requirements will be followed.
- **Federal lands:** For vegetation removals within Federally-owned lands where required, applicable removal and restoration requirements will be followed.
- **Tree End Use:** Metrolinx will develop options for the end use of trees removed from Metrolinx property e.g., reuse / recycling options.

Preliminary mitigation measures and recommendations for the Detailed Design phase of the Project are outlined below:

- Further refine the number and location of impacted trees during the Detailed Design phase when further details regarding construction disturbances and staging area impacts are available. This will inform the Arborist Report (see below) which will be completed at the Detailed Design phase.
- Undertake further consultation with potentially impacted property owners when detailed tree impacts are known.
- During the Detailed Design phase of the Project, prepare an Arborist Report which will refine and build upon this Tree Inventory Plan. Specifically, the Arborist Report will include:
  - The identification of all trees on private, conservation authority, and/or municipal property that will be impacted by the Project, including trees to be preserved, removed or injured.
  - Details of proposed work and impacts.
  - Recommendations for tree/vegetation and protection and preservation measures for all trees/vegetation that are to be retained.
  - Details of tree pruning.
  - Details of all trees/vegetation recommended for removal, including removal measures.
  - Appraised values of trees/vegetation to be removed.
  - Mitigation and monitoring measures recommended to ensure success of preservation and removal measures.
  - Identification of suitable restoration/compensation to accommodate site-specific impacts, mitigation and replacement measures to offset vegetation losses and to achieve a net gain in vegetation areas.
  - Where required, property specific landscaping and/or restoration plans for tree removals permitting and approvals.
- Where replanting is required, planting on or as close to the impacted site will be considered, to the extent feasible.
- Schedule potential removal of impacted trees to occur outside of the overall bird nesting season of April 1st to August 31st, following the mitigation measures described for Breeding Birds (refer to **Section 5.1.4.3** or **Appendix B1**).
- Explore the use of Tree Protection Barriers and Tree Protection Signage where required.

- Ensure that stockpiling of soil materials is outside of Tree Protection Zones. Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage to trees. Fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction.
  - Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.
- Undertake on-site inspection on a monthly basis during construction to ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities.
- Obtain permits and approvals, as required.

5.1.3 Significant Wildlife Habitat

5.1.3.1 Potential Construction Effects

As previously described, existing cultural communities potentially affected are largely disturbed in nature and contain a high proportion of non-native and invasive species. Furthermore, the small sizes of the naturalized communities, their proximity to developed areas, and lack of connectivity to other significant natural features means that these communities provide limited suitable habitat for a limited number of wildlife species (i.e., common and abundant species that occupy a variety of habitats and have a high tolerance to human activity). As such, there were no SWH that met the descriptions and criteria described in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF, 2015d) identified within the Natural Environment Study Area. No potential effects to SWH are anticipated as a result of construction of the USRC East Enhancements Project.

5.1.3.2 Potential Operations Effects

There were no SWH identified within the Natural Environment Study Area that could be potentially affected by the USRC East Enhancements Project and therefore no potential effects to SWH are anticipated as a result of operation of the USRC East Enhancements Project.

5.1.3.3 Mitigation

No mitigation measures are recommended as no SWH were identified.

5.1.4 Migratory Breeding Birds

5.1.4.1 Potential Construction Effects

The Natural Environment Study Area is located within a heavily urbanized portion of Toronto, consisting of residential, commercial and industrial areas where natural vegetation is limited to city parks, open spaces, residents' front and backyards and in road and rail corridor ROW. All of these vegetated areas, excluding mown lawn, have the potential to provide breeding and nesting habitat for some species of birds. Most bird species breeding in the Study Area are likely to be common and tolerant to disturbances associated with urban settings. Regardless, many of the recorded bird species are protected under the *MBCA, 1994* while others receive protection under the *Fish and Wildlife Act*. As such, any harm or destruction to the migratory birds, their eggs and/or their active nests is prohibited listed under the *MBCA, 1994*. Vegetation removal during the regional overall nest period (April 1 to August 31) can cause displacement of breeding migratory birds and/or destruction of their active nests, which is prohibited under the *MBCA, 1994*. This overall nesting period covers most federally-protected migratory bird species that may occur in the Natural Environment Study Area but varies with species and habitat type (ECCC, 2014).

The potential effects on breeding birds as a result of construction of all project components are considered low, provided that the avoidance and mitigation measures described below are implemented.

5.1.4.2 Potential Operation Effects

Breeding birds will not be significantly affected by the potential increase in noise and vibration during the operations phase of the USRC East Enhancements Project, as the species occurring in the area within and in the vicinity of the USRC are tolerant to disturbances associated with urban settings.

5.1.4.3 Mitigation

The following mitigation measures apply to all project components with respect to potential effects to breeding birds where vegetation removal may be required:

- To reduce the possibility of a contravention of the *MBCA, 2014*, vegetation removal should be scheduled to occur outside of the overall bird nesting season of April 1st to August 31st and strictly should not occur within complex habitat, as defined by Environment and Climate Change Canada (ECCC), during the core bird nesting season of May 1st to July 31st, when a minimum of 60% of nesting activity occurs in

each of the three habitat types, as per ECCC's Nesting Calendar for Zone C2 (ECCC, 2014). However, it should be noted that some birds may nest before and after this peak bird nesting season due to annual seasonal fluctuations. Therefore, if a nest of a migratory bird is found within the construction area outside of this nesting period it still receives protection.

  - Simple habitats refer to habitats that contain few nesting spots or few species of migratory birds, where identification of active nests or confirmed nesting activity can be completed with confidence. According to ECCC (2014), examples of simple habitat include the following:
    - Urban parks consisting mostly of lawn with a few isolated trees;
    - Vacant lot with few possible nest sites;
    - Previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil); or
    - Structures such as a bridge, beacon, tower or building (often chosen as a nesting spot by robins, swallows, phoebes, nighthawks, gulls and others).
  - Complex habitats are defined as large habitats with many potential nesting sites where the presence of nests would be too difficult to locate by qualified nest searchers due to obstructions in visibility (e.g., high vegetation cover). Examples of complex habitats include woodlands, grassland and meadows.
  - The vegetation, isolated trees or shrubs, and the bridge extension structures identified along Tracks E0, E7 and E8 are considered to be simple habitat; while vegetation south of the Metrolinx Don Yard is considered to be complex habitat.

- If vegetation must be removed during the overall bird nesting season, nest and nesting activity searches will be conducted in areas defined as simple habitat by a qualified Biologist no more than 24 hours prior to vegetation removal. Nesting activity will be documented when it consists of confirmed breeding evidence, as defined by OBBA criteria (OBBA, 2001).
  - If an active nest or confirmed nesting activity of a migratory bird is observed, regardless of the timing window recommended, a species-specific buffer area following ECCC guidelines will be applied to the nest or confirmed nesting activity wherein no vegetation removal will be permitted until the young have fledged from the nest. The radius of the buffer will depend on species, level of disturbance and landscape context (ECCC, 2014), which will be confirmed by a qualified Biologist, but will protect a minimum of 10 m around the nest or nesting activity.
  - The results of all nest searches will be documented at the end of each survey day in a technical memorandum, including information on the searcher, date,

time conducted, weather conditions, habitat type, vegetation community type, observations of breeding activity, observations of confirmed nests including co-ordinates, and, if required, the buffer applied to identified breeding/nesting sites.

- If vegetation removal must occur in complex habitats within the above-listed timing windows and absolutely cannot be avoided, the same best management practices such as nest and nesting activity searches described above will be undertaken.
- Any bridge extension structures (e.g., those crossing Lower Jarvis Street, Lower Sherbourne Street, Parliament Street, and Cherry Street) and other suitable man-made structures within the USRC East Enhancements Project Study Area should be inspected for evidence of active bird nests during the breeding bird season prior to the onset of construction activities in order to determine appropriate nesting preventative measures (e.g., netting).

5.1.5 Aquatic Features

Based on the Preferred Design, no in-water works are planned for any of the proposed construction activities for the USRC East Enhancements Project. In addition, none of the project components are proposed to cross the Don River; however, construction of the Wilson Yard Layover Facility is proposed to be within 30 m of the Don River. The aquatic systems within the Natural Environment Study Area exist in a highly urbanized, pre-disturbed environment, demonstrating their resilience to change. Works are not anticipated to have an effect or cause serious harm to the recreational, commercial or Aboriginal value of the fishery. The following subsections outline the potential effects during the construction and operation phases of the USRC East Enhancements Project, proposed mitigation to minimize effects and highlight the anticipated potential permitting needs for the Project as they relate to aquatic ecosystems.

5.1.5.1 Potential Construction Effects

The use of machinery in or around water poses risks of fuel contamination and spills from equipment use. Fuel contamination and spills of any kind can potentially limit aquatic species ability to carry out their life processes. Removal of vegetation and earth moving activities may result in increased exposed soils and greater risk for soil erosion and sedimentation to the watercourse; however the riparian area along the western bank of the Don River is currently manicured, outside of the project disturbance limits and is not expected to be disturbed. Appropriate measures to avoid harm (as outlined in **Section 5.1.6.3**) should be implemented and refined as appropriate during the Detailed Design phase to mitigate/minimize the impacts of construction.

5.1.5.2 Potential Operations Effects

The potential operation effects of the USRC East Enhancements Project will be negligible and are not expected to have any effect on the Don River.

5.1.5.3 Mitigation

The following mitigation measures apply to construction activity within 30 m of the Don River:

Timing of Construction Near Water

- Where feasible, follow best management practices for near water works (i.e., construction portion of Wilson Yard Layover Facility). This includes working within permissible timing windows for the protection of the sensitive life stages/processes of migratory and resident fish.

Erosion and Sediment Control

- Construction activities near water should be scheduled in order to avoid wet, windy and rainy periods that may increase erosion and sedimentation;
- An Erosion and Sediment Control (ESC) Plan for the work site should be prepared and implemented during construction to minimize the risk of sedimentation to the waterbody during all phases of construction;
- Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized. The plan should, where applicable, include:
  - Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody; and
  - Measures for managing water flowing onto the site.
- Measures should be undertaken to contain and stabilize any waste material (e.g., construction waste and materials);
- Inspection and maintenance of erosion and sediment control measures and structures should happen regularly and after storm events during the course of construction;
- Repairs to erosion and sediment control measures and structures should take place if damage occurs; and,
- Non-biodegradable erosion and sediment control materials should be removed once site is stabilized.

Operation of Machinery

- Machinery should arrive on site in a clean condition and be maintained free of fluid leaks, invasive species and noxious weeds. Machinery should be washed, refuelled, and serviced properly away from any waterbody (at a minimum of 30 m). Storage of fuel and other materials for the machinery at least 30 m away from the watercourse and in such a way as to prevent any deleterious substances from entering the water;
- Activities near water should be planned to insure that such materials such as paint, primers, blasting abrasives, rust, solvents, degreasers, grout or other chemicals do not enter the watercourse;
- A response plan for spills should be developed before work commences. This plan should be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site; and,
- All construction materials should be removed from site upon project completion.

Shoreline Re-vegetation and Stabilization

- If any clearing/removal of riparian vegetation and/or manicured grass is required, it should be kept to a minimum. When practicable, prune or top the vegetation instead of grubbing/uprooting, if required.
- The shoreline and/or banks disturbed by any activity associated with the USRC East Enhancements Project should be immediately stabilized to prevent erosion and/or sedimentation, preferably through re-vegetation with native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site.

5.1.6 Rare Species (Species at Risk and Species of Conservation Concern)

5.1.6.1 Rare Plants – Potential Construction Effects

Our background review indicated that there are no recent records (i.e., less than 20 years old) of plant SAR or SOCC identified within the Natural Environment Study Area. In addition, no plant SAR or SOCC were identified during the terrestrial field investigations (i.e., ELC and vascular plant inventory) or tree inventory. Therefore, no potential effects on plant SAR or SOCC are anticipated as a result of construction of the USRC East Enhancements Project.

However, one plant species, Eastern Red Cedar, considered to be regionally rare within the City of Toronto and locally rare within TRCA's jurisdiction has been identified.

According to the *USRC East Enhancements TPAP Tree Inventory Report* (AECOM, 2016), there were three recorded specimens of Eastern Red Cedar identified: two of which was located south of the Lower Don River Trail and within a permanent removal area for the Wilson Yard Layover Facility. Eastern Red Cedar is a common tree in much of southern Ontario (MNRF, 2014) and is an early successional species that frequently occurs along roadsides, in abandoned fields and disturbed areas and therefore is not an indicator of habitat quality. Given that this species is common in Ontario, does not receive any legal protection and the potential removal of two Eastern Red Cedars will be compensated, potential effects associated with removal of this species are considered to be negligible.

5.1.6.2 Rare Plants – Potential Operations Effects

Plant SAR or SOCC were not identified within the Natural Environment Study Area; therefore no potential effects are anticipated as a result of operation of the USRC East Enhancements Project.

5.1.6.3 Rare Plants – Mitigation

No mitigation measures are recommended as potential effects on plant SAR or SOCC are not anticipated as a result of construction or operation of the USRC East Enhancements Project given that no plant SAR or SOCC were identified. However, if Eastern Red Cedar is removed during construction, compensation for this species will be determined in consideration of the Metrolinx Vegetation Compensation Protocol and through consultation with the TRCA.

5.1.6.4 Mammal Species at Risk – Potential Construction Effects

The MNRF has recently released a new survey protocol for SAR bats "*Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis & Tri-coloured Bat*" (MNRF, April 2017), indicating their potential use of cavity trees greater than 10 cm DBH in treed habitats, including cultural treed areas. A cultural woodland (CUW1) consisting of largely non-native trees and several isolated trees was identified within and immediately adjacent to the USRC. Although this cultural woodland is not anticipated to be suitable bat maternity roosting habitat given the degree of disturbance, invasive species and lack of cavity trees, the need for surveys should be confirmed with the MNRF Aurora District Office during the Detailed Design phase of the Project.

Generally, no suitable SAR bat roosting habitat was identified within the Natural Environment Study Area, and as such no effects on SAR bats are anticipated as a result of construction of the USRC East Enhancements Project. The presence of cavity

trees in areas where access to enter was not available could not be confirmed from fence line surveys. However, interpretation of aerial photography confirmed a lack of large trees and site visits confirmed that cultural woodlands consisted largely of non-native species. SAR bats may use cultural treed areas for these purposes.

The suitability of the cultural woodlands as potential SAR bat habitat within and adjacent to the Wilson Yard Layover Facility should be discussed with the MNRF Aurora District office during Detailed Design and the need for any additional surveys confirmed, as both the aerial photographic interpretation/analysis and the field investigations did not include a detailed assessment of this community type (i.e., snag density plot based on the new survey protocol) with respect to potential bat maternity roosting habitat, which also provide habitat for bat SAR.

5.1.6.5 Mammal Species at Risk – Potential Operations Effects

Suitable SAR bat roosting habitat was not identified within the Natural Environment Study Area and therefore no potential effects are anticipated as a result of operation of the USRC East Enhancements Project.

5.1.6.6 Mammal Species at Risk – Mitigation

No mitigation measures are recommended, as potential effects on SAR bats are not anticipated as a result of construction or operation of the USRC East Enhancements Project given that no suitable SAR bat roosting habitat is anticipated to be present within the Natural Environment Study Area. If the need for additional surveys is required from consultation with the MNRF during the Detailed Design phase of the Project, mitigation measures will be developed depending on the outcome of the additional survey work.

5.1.6.7 Rare Birds – Potential Construction Effects

There is an abundance of man-made structures within and in the vicinity of the Natural Environment Study Area, including buildings and bridges, which could provide suitable nesting habitat for Barn Swallow and Chimney Swifts. Although it is unlikely that these species are nesting within the Natural Environment Study Area, given the many anthropogenic disturbances (e.g., noise and vibrations from train traffic), a nest search of the bridge extension structures and other structures within the Natural Environment Study Area should be conducted if construction activities are scheduled during the breeding bird window (April 1 to August 31). This nest search will ensure that no Barn Swallows, Chimney Swifts or migratory birds protected under the *MBCA, 1994*, *Fish and Wildlife Act* or *ESA, 2007* are nesting on these structures that may be affected by construction activities.

Supporting habitat was identified within the Natural Environment Study Area for the remaining SOCC (Eastern Wood-pewee, Peregrine Falcon and Common Nighthawk).

There are numerous skyscrapers in downtown Toronto within close proximity to the Natural Environment Study Area that may provide suitable nesting habitat for Peregrine Falcon but no habitat which would support this species (e.g., ledges of tall buildings and skyscrapers) will be affected by construction or operation of the USRC East Enhancements Project. Peregrine Falcons may be observed flying over the USRC preying on the abundant supply of pigeons and Starlings but are not anticipated to be affected by the construction of the USRC East Enhancements Project.

There is a low likelihood that Eastern Wood-pewee will be found within the cultural woodland present within the Natural Environment Study Area, as this species does not favour woodlands dominated by non-native tree species. Approximately 0.7 ha will be removed for the construction of the Wilson Yard Layover Facility. The magnitude of potential effects (habitat loss, disturbance and/or mortality) to these species is considered low, given that measures to avoid and minimize effects to breeding birds will be implemented and there is a low likelihood of the species utilizing the portion of the cultural woodlands slated for removal.

The gravel along the USRC may provide marginally potentially suitable nesting habitats for Common Nighthawk (MNRF, 2015h); however, these areas are narrow and immediately adjacent to the busy tracks such that it is highly unlikely that this species nests there. The magnitude of potential effects (habitat loss, disturbance and/or mortality) to the Common Nighthawk is considered low provided that the avoidance and mitigation measures described below are implemented, given that little to no suitable habitat is available or affected in the Natural Environment Study Area.

5.1.6.8 Rare Birds - Potential Operations Effects

Bird SAR or SOCC nesting in or immediately adjacent to the Natural Environment Study Area may be negatively affected by the potential increase in noise and vibration during the operations phase of the USRC East Enhancements Project. However, the potential operation effects are considered negligible, given that any individuals nesting in the area would exhibit high tolerance to the level of disturbance of anthropogenic activities in the general area, and given that the anticipated increase in noise levels is not expected to be significant when compared to the current level of noise and vibration.

5.1.6.9 Rare Birds - Mitigation

Mitigation measures associated with vegetation removal as described in **Section 5.1.1.3** will be implemented to reduce potential habitat loss.

Vegetation removal will be scheduled to occur in accordance with the timing windows specified for breeding birds as specified in **Section 5.1.1.3**. This will avoid mortality and/or disturbance to any SAR or SOCC birds that may nest in or immediately adjacent to the Natural Environment Study Area and/or cultural woodland communities. If vegetation must be removed during the overall bird nesting season (April 1 to August 31), nest and nesting activity searches will be conducted as specified in **Section 5.1.1.3**.

5.1.6.10 Aquatic Species at Risk - Potential Construction Effects

No aquatic SAR were identified by DFO or MNRF however based on TRCA records it is expected that American Eel may use the Don River as a migratory corridor. American Eel should not be affected by the USRC East Enhancements Project, as no in-water work is proposed.

5.1.6.11 Aquatic Species at Risk - Potential Operation Effects

There are no potential operational effects anticipated on aquatic SAR as a result of operation of the USRC East Enhancement Project.

5.1.6.12 Aquatic Species at Risk - Mitigation

Mitigation for any near water works during construction to avoid harm to fish and fish habitat are provided in **Section 5.1.5.3** below.

5.2 Soils and Groundwater

The following sections identify soil and groundwater features that may be potentially affected by the proposed construction and operation of each of the three proposed project components and their associated sub-components based on the Preferred Design. Where applicable, mitigation measures are proposed.

5.2.1 Soil Management

Sections of the Study Area have undergone subsurface investigations initiated during the late 1980s and continued throughout the 1990s to present. The areas of concern potentially present near the West Don Lands in the Study Area are mostly associated

with the contaminated composition of lakefill materials, industrial operations including underground and aboveground storage tanks, as well as historical harbour operations. Specific contamination of concern in and adjacent to the USRC consists mainly of petroleum hydrocarbons (PHC), polycyclic aromatic hydrocarbons (PAH), volatile organic compounds (VOC), various metals, and polychlorinated biphenyls (PCB). There is also evidence of petroleum hydrocarbon impact through odour observed during previous drilling programs. Golder completed a subsurface investigation for the 480 Lake Shore Boulevard East area, near Wilson Yard Layover Facility, and noted that the soil is contaminated by heavy metals, petroleum hydrocarbons, and semi-volatile organic compounds in fill materials (Golder 2006).

5.2.1.1 Potential Construction Effects

General construction activities such as vehicle and equipment operations have the potential to change soil quality through minor contaminant releases. Spills consisting of materials that constitute a contaminant (fuels, lubricating oils and other fluids) may affect soils.

Disturbance of contaminated soils and/or subsoils during construction activities may result in an accidental release of contaminants to the environment due to erosion and sedimentation of contaminated soil stockpiles and/or the improper handling and disposal of contaminated soils.

Construction of the railway expansion, Wilson Yard Layover Facility, and construction works at the bridge locations is expected to generate excess soil that cannot be reused on site due to its geotechnical properties and/or quality.

Construction activities will result in the creation of bare soil surfaces, soil stock piles, and sloped surfaces. These features will be susceptible to erosion by subsequent action by foot and vehicular traffic, wind and water flow, etc.

5.2.1.2 Potential Operation Effects

Potential effects could include a reduction in soil quality due to accidental release of contaminants during operations. General operations activities such as maintenance vehicle and equipment operations have the potential to change soil quality through minor contaminant releases. Equipment maintenance activities do not typically involve the use of large quantities of fuel so the likely risk of contaminant release is from maintenance trucks or other vehicles.

5.2.1.3 Mitigation

An Erosion and Sediment Control Plan will be developed during the Detailed Design phase of the Project in consultation with TRCA and will include the requirement for a spill kit to be on site at all times during construction. Implementation of the erosion and sedimentation control measures will conform to recognized standard specifications such as Ontario Provincial Standards Specification (OPSS) and the requirements of the TRCA. Sediment and erosion control measures (e.g., silt curtains, silt fence) shall be installed prior to site clearing, grubbing, excavation or grading works.

Stockpiled material shall be stored at a safe distance from the waterway to ensure no deleterious substances enter watercourses.

Prior to construction, a Waste Management Plan will be developed to address proper handling of all excess materials that may be potentially contaminated. Signs of soil impacts (i.e., visual and/or olfactory indicators) will be managed according to standard industry best practices during construction activities.

Management of excess soil will be explored by the Project Team during the Detailed Design phase of the Project and will be undertaken in accordance with *Excess Soil – A Guide to Best Management Practices* (MECP, January 2014). It is noted that the MECP has drafted and proposed a new Excess Soil Reuse Regulation under the Ontario *Environmental Protection Act* (EPA) to govern when excess soil is designated as "waste" and requirements related to Excess Soil Management Plans (ESMP). The window for public comment closed on June 23, 2017. Should this Regulation come into force within the implementation of the Project, the requirements will be incorporated as applicable.

All contaminated materials will be handled according to applicable provincial and federal legislation, regulations and standard procedures. *O. Reg. 347* under the *EPA* outlines requirements for on-site handling, mixing and processing of waste, disposal sites, and waste management systems.

A site specific Health and Safety Plan and a Spill Prevention and Response Plan outlining steps to prevent and contain any chemicals and/or spills in a timely and effective manner and to avoid soil contamination will be required to be developed and implemented during construction.

Mitigation measures will be required to limit the movement of unstabilized soil and to protect potential receptors such as water courses/water bodies.

If additional potential areas of contamination are identified during operations, further investigations will be completed to determine if impacts are present and the necessary

remedial action. All contaminated materials found during operation and maintenance activities will be handled in accordance with applicable provincial and federal legislation, regulations and standard procedures.

It should be noted that Metrolinx will undertake a Phase I ESA investigation for lands to be acquired for the Project (both permanent and temporary) during the Detailed Design phase. Based on the findings of the Phase I ESA, a Phase II ESA may be required.

5.2.2 Groundwater Quantity

5.2.2.1 Potential Construction Effects

Construction dewatering activities may result in decreases in baseflow to groundwater-fed watercourses, groundwater discharge to wetlands, yield of private water wells and groundwater flow patterns, which could have potential effects to groundwater quantity. Given the urban location of the site, it is anticipated that few, if any, water supply wells are used as a primary water supply source. Construction dewatering activities may result in a decrease in groundwater contribution to nearby groundwater-dependent natural features (i.e., wetlands, watercourses, ponds and lakes) resulting in declines in surface water levels/flow, temperature changes, and potential loss of habitat. Previous rail corridor and/or adjacent land use may also have resulted in local contamination of groundwater which may be encountered during construction excavation and/or dewatering activities. Determination of water taking quantities, quality and resultant dewatering ZOI will be determined during the Detailed Design phase of the Project through a hydrogeological investigation and Water Taking Assessment. Given the proximity of this site to Lake Ontario and the Don River, higher dewatering rates may be required for construction of retaining walls, bridge footings, utilities, etc., depending on the depth of excavations and elevation of the water table.

Dewatering causes a local depression of the shallow water table within the ZOI. Depending on the nature of the affected soils this can result in soil subsidence and impacts to structures above or within the ZOI. The potential geotechnical impacts associated with construction dewatering will be evaluated during the Detailed Design phase as a component of the Water Taking Assessment.

Track E0

Subsurface excavation below the water table may be required to allow for the construction of structural elements (e.g., retaining walls, culverts, embankments, foundations, footings, abutments and/or piers) necessary for the proposed rail expansion and required bridge extensions at the north side of Lower Sherbourne Street,

Parliament Street, and Cherry Street. In addition, City of Toronto and/or third party below ground utilities may require relocation and associated excavation. As a result, construction dewatering may be required to achieve dry working conditions. The Site is in close proximity to the Don River and the shoreline of Lake Ontario and may require high associated dewatering rates. Where construction dewatering volumes are expected to exceed 400,000 L/day, a PTTW will be required from the MECP, in accordance with *Section 34* of the *Ontario Water Resources Act (OWRA)*. Similarly, approvals for the discharge of dewatering effluent also will be required, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval, and/or MECP ECA (*OWRA, Section 53*).

Tracks E7 and E8

Subsurface excavation below the water table may be required to allow for the construction of structural elements (e.g., retaining walls, culverts, embankments, foundations, footings, abutments and/or piers) necessary for the proposed rail expansion and required bridge extensions at the south side of Lower Jarvis Street and Lower Sherbourne Street. In addition, City of Toronto and/or third party below ground utilities may require relocation and associated excavation. As a result, construction dewatering may be required to achieve dry working conditions. The Site is in close proximity to the shoreline of Lake Ontario and may require high associated dewatering rates. Where construction dewatering volumes are expected to exceed 400,000 L/day, a PTTW will be required from MECP, in accordance with *Section 34* of the *OWRA*. Similarly, approvals for the discharge of dewatering effluent also will be required, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval, and/or MECP ECA (*OWRA, Section 53*).

Wilson Yard Layover Facility

Subsurface excavation below the water table may be required to allow for construction of structural elements necessary for the proposed Wilson Yard Layover Facility enhancements. As a result, construction dewatering may be required to achieve dry working conditions. The work at the Wilson Yard Layover Facility is in close proximity to the Don River and Lake Ontario and may require high associated dewatering rates. Where construction dewatering volumes are expected to exceed 400,000 L/day, a PTTW will be required from the MECP, in accordance with Section 34 of the *OWRA*. Similarly, approvals for the discharge of dewatering effluent also will be required, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval, and/or MECP ECA (*OWRA, Section 53*).

5.2.2.2 Potential Operations Effects

Tracks E0, E7 and E8

In areas where ‘cut’ or ‘fill’ is required that result in permanent changes to the original ground topography, corresponding changes to groundwater flow and recharge patterns (i.e., rate, direction, gradient, etc.) may occur. Since the proposed rail line will be constructed at the same grade as the existing rail, changes in groundwater flow patterns from the proposed tracks is expected to be negligible at the present time. Similarly, reduction in groundwater recharge as a result in increases in impervious surfaces or the placement of fill at the bridge extensions is considered to be negligible as these areas are already heavily developed.

Wilson Yard Layover Facility

In areas where ‘cut’ or ‘fill’ is required that result in permanent changes to the original ground topography, corresponding changes to groundwater flow and recharge patterns (i.e., rate, direction, gradient, etc.) may occur. The proposed track expansion and reconfiguration will be constructed at the same grade as the existing yard area, which may require removal of existing fill, and changes in groundwater flow patterns and recharge regimes from the proposed expansion may result.

5.2.2.3 Mitigation

Prior to construction, a detailed Water Taking Assessment will be conducted to determine anticipated groundwater and surface water taking quantities, groundwater quality, predicted ZOI, evaluate potential impacts to groundwater dependent features, evaluate potential for ground settlement, and identify groundwater discharge options (i.e., sanitary and/or storm sewer, or natural environment). This assessment will be sufficient to obtain a water taking permit (PTTW or EASR registration), as required. Similarly, approvals for the discharge of pumped water will be acquired based on the anticipated dewatering volumes, geochemical quality of the groundwater source, and relative location of dewatering activities with respect to potential receiving infrastructure (i.e., sanitary and/or storm sewer) and/or nearby natural features (i.e., watercourses, wetlands and/or ponds). The quantity and quality of discharge water will be managed/treated to meet permitted limits under the applicable discharge permit. Site-specific mitigation measures and a monitoring program for groundwater-dependent natural features, private water wells, and structures susceptible to ground settlement within the anticipated dewatering ZOI will be determined during the Detailed Design phase of the Project.

The Groundwater Management Plan will include mitigation/treatment measures and monitoring requirements to manage any contaminated groundwater encountered during construction dewatering as a result of previous rail corridor and/or adjacent land use.

Where appropriate, based on local groundwater quality, other mitigation measures will be identified to reduce groundwater taking quantities and related impacts, such as implementing groundwater cut-off measures (i.e., sheet piling) to restrict or alleviate any necessary dewatering requirements. Potential impacts will be further mitigated by limiting the duration of dewatering, when possible, through effective construction staging.

Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Groundwater Management Plan are fulfilled.

5.2.3 Groundwater Quality

5.2.3.1 Potential Construction Effects

General construction activities such as vehicle and machinery operation have the potential to affect groundwater quality through minor contaminant releases. Spills consisting of materials that constitute a contaminant may affect the in situ groundwater quality and potentially water quality in nearby water wells. In addition, improperly managed construction dewatering activities may result in an accidental release of contaminated groundwater to the environment and/or result in the migration of existing impacted groundwater.

5.2.3.2 Potential Operations Effects

General operational activities such as train operation and rail maintenance have the potential to affect groundwater quality through minor contaminant releases. Spills consisting of materials that constitute a contaminant or long term release of petroleum hydrocarbons (i.e., grease, oils, and/or fuel) from trains and other maintenance vehicles may potentially affect the water quality in nearby water wells and surface water features.

5.2.3.3 Mitigation

A Spill Prevention and Response Plan, outlining steps to prevent and contain any contaminant releases and/or to avoid impacts to groundwater will be developed during the Detailed Design phase. The Spill Prevention and Response Plan will include the requirement for a spill kit to be on site at all times during construction. General mitigation measures may include: ensuring machinery and trains are maintained and free of leaks to reduce the possibility of fluid release and storing any potential contaminants (e.g., oils, fuels and chemicals) in designated areas using appropriate secondary containment, where necessary. Staff will also be educated regarding appropriate handling procedures, including spill response and reporting requirements. Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the

construction team to ensure mitigation measures and monitoring requirements prescribed in the Spill Prevention and Response Plan are fulfilled.

Groundwater quality testing will be performed at all construction dewatering locations prior to discharge to the natural environment or sewer and compared to the appropriate regulatory guidelines (i.e., Provincial Water Quality Objectives (PWQO) for environmental releases, storm and sanitary by-laws for discharge to municipal sewers). Appropriate water quality management (i.e., filtration systems and/or water treatment systems) will be implemented in the event exceedances to regulatory guidelines or limits are detected.

5.2.3.4 Source Water Protection

There are specific activities listed in the Table of Drinking Water Threats (*O.Reg.287/07*) that may pose a potential threat to the quality and/or quantity of drinking water within a vulnerable area. As previously discussed, the Study Area is mapped as an HVA. Listed activities that may occur as part of the project require mitigation measures to be defined.

Activities that may occur in the Study Area include:

- The application/handling and storage of road salt; and
- The handling and storage of a dense non-aqueous phase liquid (DNAPL) / organic solvent.

The applicability of these activities to the Project should be evaluated during the Detailed Design process. If it is determined that the activities will occur during operation the following actions presented in **Table 5-6** are recommended, as a minimum, to meet the requirements of the CTC Source Protection Plan.

Table 5-6: Recommended Actions for CTC Source Protection Plan

Prescribed Drinking Water Threat	Action
The application / handling and storage of road salt	Develop or update risk management plan/salt management plan that shall include a goal to minimize salt usage through alternative measures, while maintaining safety for users. Mitigation measures regarding design of road/parking/etc. that shall minimize the need for repeat application. Ensure best management practices are established and followed. Require use of trained individuals in the application/handling of road salt.

Prescribed Drinking Water Threat	Action
The handling and storage of a DNAPL / organic solvent.	Ensure best management practices are established and followed.

The Study Area is also within the modelled EBA for the Don River which discharges to Lake Ontario and may impact several surface water intakes on Lake Ontario. Specific actions related to the potential for a Railway spill to impact Lake Ontario are required under the CTC Source Protection Plan. However, the policies are specific to action(s) required by other stakeholders, including MECP, municipalities, etc. Although direct action is not required by Metrolinx in order to operate the USRC in compliance with the CTC Source Protection Plan (relative to the EBA), it is recommended that Spill Prevention best management practices be followed, a Spill Response Protocol be generated/updated as necessary, and that a Communication Protocol be established/updated for use in the event of a spill.

5.2.3.5 Mitigation

There are Source Protection policies related to areas that are designated as HVA and EBA. For HVAs the following scenarios require mitigation measures / management plans / monitoring:

HVA Policies

- Handling / storage of DNAPL; and
- Handling / storage of Organic solvent.

For EBAs the following scenarios require mitigation measures / management plans / monitoring:

EBA Policies

- All Lake Ontario threats - Spill prevention/contingency and emergency response;
- Storm sewers proximity to site (spill migration risk); and
- Handling/storage of fuel.

Existing Metrolinx programs for these areas will continue to be implemented, as well as planned initiatives as follows:

- Construction Safety Management Program which includes a spill prevention program;
- Spill kits located in various locations in the corridor; and

- As part of the ongoing works in Don Yard, oil grit separators and drip pans will be installed as a permanent prevention system.

5.3 Stormwater Management and Drainage

A Stormwater Management Report will be completed during Detailed Design to assess drainage impacts of Tracks E0, E7, and E8, and all associated works in the area, and shared with the MECP and TRCA.

A separate Stormwater Management Report to assess drainage impacts at the Wilson Yard Layover Facility will occur during Detailed Design of the Wilson Yard Layover Facility.

5.4 Air Quality

5.4.1 Potential Construction Effects

Construction related air quality impacts are of a temporary nature and not likely to pose a major risk to human health.

5.4.2 Potential Operations Effects

The results from the “Predictable Worst-Case Analysis” methodology show that all maximum cumulative concentrations (including background levels) are below their corresponding air quality threshold, therefore no impacts are anticipated based on this analysis.

Key findings and impacts from the Comprehensive Analysis are as follows:

- Maximum cumulative pollutant concentrations from the impact assessment indicate that concentrations are below accepted air quality thresholds for the majority of pollutants analyzed. The exceptions are:
  - Current Scenario: acrolein (24-hr), benzene (annual averaging time) and benzo(a)pyrene (24-hr and annual averaging time), $PM_{2.5}$ (annual averaging time); and
  - Future Build (2025) Scenario: benzene (annual averaging time), benzo(a)pyrene (24-hr and annual averaging time), $PM_{2.5}$ (annual averaging time).
- The reason for most of the exceedances above is the significant contribution of background concentration to the total concentrations for contaminants showing exceedance. It should be noted that for each pollutant, the 90^{th} percentile

background concentrations were used to represent background air quality levels as a conservative approach. In the case of exceedances for the benzo(a)pyrene pollutant, the roadway source group has been contributing to 89% of the highest concentration, leaving a contribution of only 0.04% by GO Transit sources.

- The Future Build (2025) scenario shows a reduction in predicted contaminant concentration relative to the current (2016) scenario for all contaminants analyzed.
- For 24-hr average NO_2, GO train emissions contribute 4.7% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average $PM_{2.5}$, GO train emissions contribute 0.7% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average acrolein, GO train emissions contribute 0.2% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average benzene, GO train emissions contribute 0.1% to the highest cumulative concentration for the Future Build (2025) scenario.
- For 24-h average benzo(a)pyrene, GO train emissions contribute only 0.04% to the cumulative concentration for the Future Build (2025) scenario.
- For 24-hr average benzo(a)pyrene, it was found that the 24-hr benzo(a)pyrene cumulative concentrations exceed the 24-hr benzo(a)pyrene air quality threshold of 0.00005 $\mu g/m^3$ at all times for all scenarios evaluated. This is also the case for the annual average of 0.00001 $\mu g/m^3$.
- Regional impact analysis shows that relative to the Current scenario, the Future Build (2025) scenario will result in a decrease in emissions for all pollutants analyzed and GHGs. In addition, the projects related emissions are very small compared with latest Ontario and National rail transportation emissions for 2014 and 2015, whether it's regarding pollutants or GHGs.

In summary, the results of the modelled scenarios suggest that the Future Build (2025) Scenario emissions from locomotives are significantly less than Current Scenario emissions. The main reason for this reduction is the electrification of most of the train traffic passing on the USRC corridor. Another reason is that the remaining diesel locomotives will meet the more stringent Tier 4 standards.

Therefore, no operational impacts are anticipated as a result of this Project.

5.4.3 Mitigation

Means of mitigating exposure to construction related emissions can include:

- Ensuring the use of heavy equipment that is in good condition and compliant with applicable federal regulations for off-road diesel engines;
- Ensuring all machinery is maintained and operated in accordance with the manufacturer's specifications;
- Using equipment sized for the particular job and operating equipment at optimum rated loads;
- Minimizing idling time and posting signage to this effect around the construction site;
- Locating stationary equipment (e.g., generators, compressors etc.) as far away from sensitive receptors as practical; and,
- Implementing those measures to minimize the generation of dust via materials handling, vehicle movement and wind erosion.
- Dust suppressants can be used to control dust. This measure should comply with the MECP recommendation against the use of chloride containing dust suppressants.

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

As no impacts to air quality are anticipated due to the operation of the Project, no mitigation measures are proposed.

5.5 Noise and Vibration

5.5.1 Potential Construction Effects

5.5.1.1 Noise

Predicted construction noise levels are presented in **Tables 5-7** and **5-8** below. The assumed baseline noise levels presented in the table are based on the noise measurement data from the nearest baseline measurement location to each receptor.

Temporary construction noise impacts are anticipated to be significantly higher than baseline levels at most of the assessed points of reception. Predicted noise levels exceed the US FTA guideline limit of 80 dBA $L_{eq, 8hr}$ for daytime construction work at

four locations. At seven locations, predicted noise levels exceed the US FTA guideline limit of 70 dBA $L_{eq, 8hr}$ for night-time construction work. Noise levels are expected to be lower than those presented in **Tables 5-7** and **5-8** because the predictions for each phase of construction are based on the assumed equipment operating together at the same conservative set-back distance, rather than distributed around the work site. Noise will be controlled to ensure that the guideline limits are not exceeded, where possible.

5.5.1.2 Vibration

The construction vibration impacts depend on the type of equipment and proximity to buildings. At the majority of receptor locations, the use of a vibratory roller is anticipated to generate the highest construction vibration levels. However, where the caisson drilling is expected to be in close proximity, this will result in higher vibration levels at the nearest building. The predictable worst case construction vibration levels are presented in **Table 5-9** for the most affected points of reception during construction.

Peak construction vibration velocity levels are predicted to be lower than the City of Toronto's zone of influence threshold of 5 mm/s at all assessed points of reception. The RMSV vibration levels are generally predicted to be below the human perceptibility threshold of 0.1 mm/s, except at receptors closer than 40 m from vibratory rollers and other similar equipment, and at receptors closer than 25 m from caisson drilling and other similar equipment. Some temporary disturbance may be expected at these locations. Building occupants may be able to feel some vibrations but people are sensitive to vibration at much lower levels than can cause building damage. The vibration impacts are generally not considered to be significant, given their low level and temporary nature. Therefore construction vibration mitigation measures are not anticipated to be required.

Table 5-7: Predicted Construction Noise Levels – Corridor Grading and Track Installation

ID	Assessed Point of Reception	Assumed Set-back Distance (m)	Assumed Baseline Noise Level (dBA) Daytime (07:00-23:00)	Assumed Baseline Noise Level (dBA) Night-time (23:00-07:00)	Predicted Equivalent Average Noise Level, Leq (dBA) Site Preparation and Utility Relocation	Predicted Equivalent Average Noise Level, Leq (dBA) Temporary Staging Roads	Predicted Equivalent Average Noise Level, Leq (dBA) Excavation and Grading	Predicted Equivalent Average Noise Level, Leq (dBA) Track Installation
R1	# 55 Bremner Boulevard (Multi-storey residential building)	333	65.5	60.9	61.1	59.4	60.3	56.5
R2	#1 The Esplanade (Multi-storey residential building)	265	65.5	60.9	63.1	61.4	62.3	58.5
R3	#2 Church Street (Multi-storey residential building)	83	65.5	60.9	73.2	71.5	72.3	68.6
R4	#1 Market Street (Multi-storey residential building)	40	65.5	60.9	79.4	77.8	78.5	74.8
R5	#91 Henry Lane Terrace (Multi-storey residential building)	12	65.5	60.9	89.9	88.3	89.1	85.3
R6	#133 Longboat Avenue (Townhouse)	13	65.5	60.9	91.5	87.6	90.7	87.0
R7	#70 Distillery Lane (Multi-storey residential building)	33	67.3	61.1	81.3	79.5	80.4	76.7
R8	West Don Lands Precinct Plan future residential building	20	67.3	61.1	85.5	83.8	84.7	80.9
R9	West Don Lands Precinct Plan future school	43	67.3	61.1	78.9	77.1	78.1	74.3

Table 5-8: Predicted Construction Noise Levels – Bridge Modification and Retaining Structures

ID	Assessed Point of Reception	Assumed Set-back Distance (m)	Assumed Baseline Noise Level (dBA) Daytime (07:00-23:00)	Assumed Baseline Noise Level (dBA) Night-time (23:00-07:00)	Predicted Equivalent Average Noise Level, $L_{eq,8hr}$ (dBA) Bridge Modification and Retaining Structures
R1	# 55 Bremner Boulevard (Multi-storey residential building)	837	65.5	60.9	50.8
R2	#1 The Esplanade (Multi-storey residential building)	746	65.5	60.9	51.8
R3	#2 Church Street (Multi-storey residential building)	500	65.5	60.9	55.2
R4	#1 Market Street (Multi-storey residential building)	301	65.5	60.9	59.6
R5	#91 Henry Lane Terrace (Multi-storey residential building)	96	65.5	60.9	69.6
R6	#133 Longboat Avenue (Townhouse)	6	65.5	60.9	93.2
R7	#70 Distillery Lane (Multi-storey residential building)	10	67.3	61.1	89.4
R8	West Don Lands Precinct Plan future residential building	17	67.3	61.1	84.6
R9	West Don Lands Precinct Plan future school	32	67.3	61.1	79.1

Table 5-9: Predicted Construction Vibration Impacts

ID	Assessed Point of Reception	Assumed Set-back Distance (Vibratory Roller) (m)	Predicted Vibration Level (Vibratory Roller) (mm/s) Peak Particle Velocity (PPV)	Predicted Vibration Level (Vibratory Roller) (mm/s) Root-Mean-Square Velocity (RMSV)	Assumed Set-back Distance (Auger Rig) (m)	Predicted Vibration Level (Auger Rig) (mm/s) Peak Particle Velocity (PPV)	Predicted Vibration Level (Auger Rig) (mm/s) Root-Mean-Square Velocity (RMSV)
R1	# 55 Bremner Boulevard (Multi-storey residential building)	333	0.02	0.00	837	0.00	0.00
R2	#1 The Esplanade (Multi-storey residential building)	265	0.03	0.01	746	0.00	0.00
R3	#2 Church Street (Multi-storey residential building)	83	0.15	0.04	500	0.00	0.00
R4	#1 Market Street (Multi-storey residential building)	40	0.44	0.11	301	0.01	0.00
R5	#91 Henry Lane Terrace (Multi-storey residential building)	12	2.67	0.67	96	0.05	0.01
R6	#133 Longboat Avenue (Townhouse)	13	2.37	0.59	6	3.05	0.76
R7	#70 Distillery Lane (Multi-storey residential building)	33	0.59	0.15	10	1.57	0.39
R8	West Don Lands Precinct Plan future residential building	20	1.24	0.31	17	0.69	0.17
R9	West Don Lands Precinct Plan future school	43	0.39	0.10	32	0.27	0.07

5.5.2 Potential Operations Effects

5.5.2.1 Noise

Table 5-10 below outlines the predicted noise levels and impacts without any specific noise mitigation measures implemented. Where impacts of 5 dB or more are predicted, mitigation investigation is required. This information is based on the Ontario Ministry of Environment and Energy / GO Transit Draft Protocol for Noise and Vibration Assessment (the Protocol). It provides a framework for noise and vibration assessments of GO Transit rail projects.

The noise impacts are all below 5 dB so there are no significant impacts and no requirement for mitigation.

5.5.2.2 Vibration

Table 5-11 outlines the predicted RMSV vibration levels and impacts without any specific vibration mitigation measures implemented. The impacts are relative to 0.14 mm/s or the existing level – whichever is higher. Where impacts of 25% or more are predicted, mitigation investigation is required. The introduction of new special trackwork has been accounted for by incorporating the distance to the nearest building within a sensitive area. So the results presented below represent the worst case impacts within each sensitive area and may be higher than the impacts that actually occur at the specific points of reception identified.

Significant vibration impacts (above 25% impact) are predicted at three locations within the Study Area (R5, R6 and R9) as a result of future tracks being aligned closer to these points of reception and introduction of new special trackwork adjacent to R5 and R9. Consideration for mitigation is warranted at these locations.

5.5.3 Layover Site Noise

The 1-hour equivalent sound level ($L_{eq, 1hr}$) limits for noise from the layover sites (Don Yard and Wilson Yard) were calculated based on the layover site noise criterion described in *USRC East Enhancements project TPAP Noise and Vibration Impact Assessment Report* (**Appendix B4**). The predicted sound levels from the future layover operations were then compared against these limits. The 1-hour periods during day and night with the most anticipated activity have been used for the layover sound levels.

A summary of the layover site noise assessment results is presented in **Table 5-12** below for the two closest points of reception identified in the operational noise

Table 5-10: Predicted Operational Noise Impacts

ID	Assessed Point of Reception	Predicted Noise Level (dBA) Existing $L_{eq,16hr}$ (Day)	Predicted Noise Level (dBA) Existing $L_{eq,8hr}$ (Night)	Predicted Noise Level (dBA) Future (With Project) $L_{eq,16hr}$ (Day)	Predicted Noise Level (dBA) Future (With Project) $L_{eq,8hr}$ (Night)	Predicted Noise Impact (dB) Day	Predicted Noise Impact (dB) Night	Mitigation Investigation Requirement Yes/No
R1	# 55 Bremner Boulevard (Multi-storey residential building)	76.0	71.0	78.2	72.7	2.2	1.7	No
R2	#1 The Esplanade (Multi-storey residential building)	74.5	69.4	78.0	72.1	3.5	2.7	No
R3	#2 Church Street (Multi-storey residential building)	69.6	70.1	72.3	71.3	2.7	1.2	No
R4	#1 Market Street (Multi-storey residential building)	76.0	71.0	78.8	72.4	2.8	1.4	No
R5	#91 Henry Lane Terrace (Multi-storey residential building)	71.9	66.3	72.9	66.2	1.0	0	No
R6	#133 Longboat Avenue (Townhouse)	69.7	66.8	70.7	66.2	1.0	0	No
R7	#70 Distillery Lane (Multi-storey residential building)	70.7	65.6	72.8	67.2	2.1	1.6	No
R8	Planned Mixed/Residential Development (as per West Don Lands Precinct Plan)	68.3	63.5	70.7	64.4	2.4	0.9	No
R9	Planned School location (as per West Don Lands Precinct Plan)	66.1	N/A	68.9	N/A	2.8	N/A	No

Note: Schools are considered noise-sensitive during daytime only, so night-time noise levels for R9 are not applicable to the assessment.

Table 5-11: Predicted Operational Vibration Impacts

ID	Point of Reception	Predicted Vibration Level, RMSV (mm/s) Existing	Predicted Vibration Level, RMSV (mm/s) Future (With Project)	Predicted Vibration Impact (%)	Mitigation Investigation Requirement (Yes/No)
R1	# 55 Bremner Boulevard (Multi-storey residential building)	0.34	0.34	0%	No
R2	#1 The Esplanade (Multi-storey residential building)	2.12	2.12	0%	No
R3	#2 Church Street (Multi-storey residential building)	0.19	0.19	0%	No
R4	#1 Market Street (Multi-storey residential building)	0.48	0.48	0%	No
R5	#91 Henry Lane Terrace (Multi-storey residential building)	0.96	1.45	51%	**Yes**
R6	#133 Longboat Avenue (Townhouse)	0.41	0.53	30%	**Yes**
R7	#70 Distillery Lane (Multi-storey residential building)	0.17	0.19	13%	No
R8	Planned Mixed/Residential Development (as per West Don Lands Precinct Plan)	0.34	0.34	0%	No
R9	Potential School location (as per West Don Lands Precinct Plan)	0.20	0.33	69%	**Yes**

Table 5-12: Layover Site Noise Assessment

ID	Point of Reception	Layover Site Noise Limit (dBA) Day ($L_{eq,1hr}$)	Layover Site Noise Limit (dBA) Night ($L_{eq,1hr}$)	Predicted Layover Site Noise (dBA) Day ($L_{eq,1hr}$)	Predicted Layover Site Noise (dBA) Night ($L_{eq,1hr}$)	Predicted Noise Impact (dB) Day	Predicted Noise Impact (dB) Night	Mitigation Investigation Requirement Yes/No
R8	Planned Mixed / Residential Development (as per West Don Lands Precinct Plan)	60.3	56.6	52.2	48.7	0	0	No
R8b	Planned Mixed / Residential Development (as per West Don Lands Precinct Plan)	60.5	57.0	55.2	51.7	0	0	No
R9	Potential School location (as per West Don Lands Precinct Plan)	58.3	N/A	58.1	N/A	0	N/A	No

assessment. A third point of reception (R8b) has been added to represent the closest location sensitive to both daytime and night-time operations. Any other points of reception would be further from the layover facility and/or closer to sources of higher background noise (major roadways) so would not have such high impacts as the three assessed locations.

As shown above, the future layover site operations are anticipated to be compliant with applicable sound level limits at the surrounding noise-sensitive land uses.

5.5.4 Mitigation

5.5.4.1 Construction Noise

Noise from construction activities can be controlled in numerous ways, including operational restrictions, source mitigation measures, as well as receptor-based mitigation measures. The following measures will be implemented throughout construction to reduce the noise impacts at sensitive receptors:

- Operate in accordance with local by-laws whenever possible;
- If construction needs to be undertaken outside of the normal daytime hours, local residents shall be informed beforehand of the type of construction planned and the expected duration;
- Use construction equipment compliant with noise level specifications in MECP guidelines Noise Pollution Control (NPC)-115 and NPC-118;
- Keep equipment well-maintained and fitted with efficient muffling devices;
- Idling of equipment will be restricted to the minimum necessary to perform the specified work;
- Ensure vehicles employed continuously on site for extended periods of time (two days or more) are fitted with sound reducing back-up (reversing) alarms*;
- Avoid unnecessary revving of engines and switch off equipment when not required (do not idle);
- Minimize drop heights of materials; and
- Route haulage/dump trucks on main roads where possible, rather than quieter residential roads.

* Note that Ministry of Labour requirements and *Ontario's Occupational Health & Safety Act* and Regulations (Reg. 231/91-105) specify obligations for dump trucks to be equipped with automatic audible reversal alarms when operated in reverse.

The following additional mitigation measures may be considered and implemented to further reduce noise effects during construction, if required:

- Offset usage of active heavy equipment (schedule non-concurrent use);
- Implement noise compliance checks to ensure equipment levels are in compliance with MECP guidelines NPC-115 and NPC-118;
- Reroute construction and truck traffic, when possible;
- Co-ordinate 'noisy' operations such that they will not occur simultaneously, where possible;
- Where possible, investigate and implement the use of alternative construction equipment or methods to reduce noise emissions from construction. Utilize alternative equipment that generates lower noise levels or optimize silencer/ muffler/ enclosure performance;
- Use rubber linings in chutes and dumpers to reduce impact noise;
- Install acoustic enclosures, noise shrouds or noise curtains around noisy equipment; and
- Install temporary noise barriers/solid construction hoarding on site boundary to screen affected locations.

5.5.4.2 Construction Vibration

No specific construction vibration mitigation measures are anticipated to be required.

5.5.4.3 Operational Noise

No specific operational noise mitigation measures are anticipated to be required.

5.5.4.4 Operational Vibration

Operational mitigation measures have been based on the criteria defined in the Protocol, subject to administrative, operational, economic and technical feasibility.

The performance of the vibration mitigation to achieve the existing vibration levels is up to an equivalent of 4 dB overall insertion loss at the most affected location. This means the mitigation to be implemented must be capable of reducing vibration levels by at least 4 dB. There are several options that may be considered for this level of vibration isolation, with some options described in **Table 5-13** below. It is anticipated that one of these options will be selected for the locations where mitigation is recommended. The

insertion loss performance can be achieved with readily available products that have been tested and are known to be effective to the level of performance required.

Table 5-13: Examples of Site Specific Vibration Mitigation

Mitigation Measure	Description
Resilient Rail Fasteners	Resilient fasteners are used to fasten the rails to the ties. By making use of fasteners that are less stiff in the vertical direction, it is possible to reduce the ground-borne vibration by as much as 4 to 8 dB at frequencies above 30 to 40 Hz.
Resilient supported ties	Resiliently supported tie system involves attaching thick rubber pads directly to the underside of ties in ballast. By making use of rubber pads between the ties and the foundation it is possible to reduce the vibration by at least 10 dB. The rails are fastened directly to the concrete ties using standard rail clips.
Ballast Mats	A ballast mat consists of a rubber or other type of elastomer pad that is placed under the ballast. Ballast mats are less effective if placed directly on the soil or the sub-ballast and in some instances may require an asphalt or concrete layer under the ballast. Ballast mats can provide 10 to 15 dB attenuation at frequencies above 25 to 30 Hz.

5.6 Socio-Economic and Land Use

This section examines and documents the impact assessment and mitigation for the socio-economic environment and land use within the USRC East Enhancements Project Study Area.

5.6.1 Residential, Commercial and Institutional Uses

5.6.1.1 Potential Construction Effects

Track E0

Residents, businesses and institutions may experience temporary nuisance effects resulting from increased noise and vibration levels and/or air and dust due to construction equipment and activities. An impact assessment addressing construction noise is provided in the *USRC East Enhancements TPAP Noise and Vibration Impact Assessment* in **Appendix B4**. Similarly, an impact assessment addressing air quality is provided in the *USRC East Enhancements TPAP Air Quality Assessment* in **Appendix B3**.

For project works that will take place during the night, temporary flood lights will be used to illuminate work areas. These flood lights have the potential to alter the light levels normally present in adjacent areas.

Construction activities, including the presence of construction equipment, staging areas and temporary fencing, may result in undesirable temporary aesthetic impacts for the residences adjacent to the corridor.

Access to and from properties (e.g., Tom Longboat Lane, HD Supply Brafasco, municipal Green P parking lots, loading dock entrance at Cherry Street, etc.) may be affected as a result of construction activities. Access to these properties may be temporarily restricted during construction to accommodate construction activities and equipment.

The Distillery District Artscape businesses are not anticipated to be adversely impacted by construction. Although the south facing façades of some of these businesses are within 30 m of the rail corridor, they are part of the larger Distillery District area, and are located at a different grade than the rail corridor. There are also multiple ways to access the businesses (i.e., south entrance from Case Good Lanes / parking lot, northern access from within the Distillery District etc.).

There is an existing driveway on the northeast side of the Parliament Street underpass (HD Supply Brafasco) which may be impacted. Sightlines for this driveway are already affected by the existing bridge and wing-wall and are not likely to be made worse by the proposed bridge extension. This will be verified and addressed as required during Detailed Design.

A loading dock entrance is located at the northwest quadrant of the Cherry Street underpass. This entrance provides access for deliveries to the Distillery District businesses and potential closures to the Cherry Street underpass could limit access.

Temporary traffic delays associated with construction activities may cause disruptions to residents, businesses and institutions within the Study Area, and in particular in relation to construction activities for bridge extensions north of the rail corridor at Lower Sherbourne Street, Parliament Street, and Cherry Street. There will also be minor increases in traffic volume with the addition of construction vehicles associated with the Project.

Partial and/or full lane closures will be required to facilitate construction activities associated with the bridge extensions. Lane reductions will result in increased congestion periodically throughout the construction period. Full closure of bridge underpasses would only occur in very rare circumstances to permit activities such as girder setting. Full closure of an underpass is considered a worst-case scenario during construction. A modelling scenario was included in the *USRC East Enhancements TPAP Transportation and Traffic Impact Analysis* (**Appendix B6**) to capture the worst case scenario.

Existing TTC routes with the potential to be directly impacted as a result of traffic delays or lane closures include the 75 Sherbourne route, which travels south through the Lower Sherbourne Street rail underpass, west on Queens Quay and north on Lower Jarvis Street. Other bus routes in the vicinity (e.g., 65 Parliament, 97 Yonge, and 121 Fort York-Esplanade) may experience longer travel times as a result of additional traffic on their routes.

The proposed future school and mixed/residential development identified in the West Don Lands Precinct is adjacent to the rail corridor. The additional Track E0 infrastructure will not impact the land requirements for this proposed school and construction of the USRC East Enhancements Project will be completed prior to construction of the school. Therefore, no impacts are anticipated.

The USRC East Enhancements Project does not preclude 12 Bonnycastle Street and 143 Lake Shore Boulevard East from completing their developments.

To accommodate the north bridge extensions over Lower Sherbourne Street, Parliament Street and Cherry Street, three billboards (owned by Astral) will require removal or relocation, as follows:

- Billboard Number 271 (Astral) – Lower Sherbourne Street Underpass, northeast corner, one face, facing north;
- Billboard Number 356 (Astral) – Parliament Street Underpass, northeast corner, one face, facing north; and
- Billboard Number 244/245 (Astral) – Cherry Street Underpass, northwest corner, two faces, facing north and south.

Refer to **Appendix B5**, **Figure 4-1** for approximate locations of the impacted billboards. During operation, potential access for maintenance within the USRC East Enhancements Project may be required.

Tracks E7 and E8

Residents, businesses and institutions may experience temporary nuisance effects resulting from increased noise and vibration levels and/or air and dust due to construction equipment and activities. An impact assessment addressing construction noise is provided in the *USRC East Enhancements TPAP Noise and Vibration Impact Assessment* (**Appendix B4**). As well an impact assessment addressing air quality is provided in the *USRC East Enhancements TPAP Air Quality Assessment* (**Appendix B3**).

No residences or businesses or institutions are present within 30 m of the rail corridor at the southern end of the Study Area, therefore no direct impacts related to property access or aesthetics are anticipated.

Temporary traffic delays associated with construction activities related to the Lower Jarvis Street and Lower Sherbourne Street Bridge extensions may cause disruptions to residents, businesses and institutions within the Study Area, especially for those travelling to or from Lake Shore Boulevard. In particular, Lower Jarvis Street carries high traffic volumes to and from Lake Shore Boulevard and the Gardiner Expressway ramps. There will also be minor increases in traffic volume with the addition of construction vehicles associated with the Project.

Temporary partial and/or full lane closures will be required to facilitate construction activities associated with the bridge extensions. Lane reductions will result in increased congestion periodically throughout the construction period. Full closure of bridge underpasses would only occur in very rare circumstances to permit activities such as girder setting.

Existing TTC routes with the potential to be directly impacted as a result of traffic delays or lane closures include the 75 Sherbourne route, which travels south through the Lower Sherbourne Street rail underpass, west on Queens Quay and north on Lower Jarvis Street. Other bus routes in the vicinity (e.g., 65 Parliament, 97 Yonge, and 121 Fort York-Esplanade) may experience different travel times as a result of additional traffic on their routes.

The Project does not preclude 12 Bonnycastle Street and 143 Lake Shore Boulevard East from completing their developments.

To accommodate Track E7/E8 and/or the south bridge extensions over Lower Jarvis Street and Lower Sherbourne Street, five billboards will require removal or relocation:

- Billboard Number 4083 (Outfront) – Lower Jarvis Street Underpass, southwest corner, one face, facing south;
- Billboard Number 2045 (Outfront) – Lower Sherbourne Street Underpass, southwest corner, one face, facing south;
- Billboard Number 2112 (Outfront) - Lower Sherbourne Street Underpass, southeast corner, one face, facing south;
- Billboard Number 111 (Owner Unknown) - North of Lake Shore Boulevard and ~80 m east of Lower Jarvis Street, two faces, facing east and west; and
- Billboard Number 111 (Owner Unknown) - North of Lake Shore Boulevard and ~130 m west of Lower Sherbourne Street, two faces, facing east and west.

Refer to **Appendix B5**, **Figure 4-1** for approximate locations of the impacted billboards.

Wilson Yard Layover Facility

No residential, commercial or institutional impacts are anticipated due to the construction and operation of the Wilson Yard Layover Facility.

5.6.1.2 Potential Operation Effects

Track E0

Potential noise and vibration effects for residential and institutional properties are assessed in the *USRC East Enhancements Noise and Vibration Impact Assessment* (**Appendix B4**). Operational air quality impacts are not anticipated during operations and are discussed in the *Air Quality Assessment* (**Appendix B3**).

Once the future school and residential buildings have been constructed as part of the West Don Lands Precinct Plan, the public in these areas will experience noise due to train operations. As part of this Project, a noise and vibration impact assessment was undertaken and it has confirmed that the noise impacts are all below 5 dB so there are no significant impacts and no requirement for mitigation. With respect to vibration impacts, the school location was identified as potentially experiencing significant vibration impacts. Mitigation have been recommended to reduce these impacts. Refer to the *USRC East Enhancements Noise and Vibration Impact Assessment*, available in **Appendix B.4**, for more information.

There are also concerns from the City of Toronto regarding safety for the users of the future school due to rail derailment.

The removal of existing vegetation adjacent to the corridor will eliminate some of the visual screening currently provided between the residential areas and the existing tracks. Refer to **Section 5.6.1.3** for the Landscaping Strategy.

Based on information from the *Gardiner EA Report (2017)*, the future transit travel demand within the Gardiner EA study area (which largely overlaps with the USRC East Enhancements Project Study Area) is expected to grow substantially. This Project is necessary to support this growth. This Project's contribution to the RER Program is also intended to increase use of public transit in the GTA which is intended to reduce traffic congestion in the downtown core including in the Study Area.

Tracks E7 and E8

No adverse effects to residential, commercial and institutional uses are anticipated due to the operational phases of the Project.

Wilson Yard Layover Facility

The minor indirect economic benefits described for the Preferred Track Alignment for Track E0 also apply to the Preferred Design for the Wilson Yard Layover Facility.

5.6.1.3 Mitigation Measures

Track E0 – Construction

The surrounding community will be notified of initial construction plans, as well as any future modifications as they occur. Access to all residential, commercial and institutional uses will be maintained, where possible. Where this is not possible, consultation will occur with the affected property owners in advance of any access disruptions to establish a suitable mitigation strategy.

The following mitigation measures will be implemented during construction to reduce potential noise effects:

- Operate in accordance with applicable noise guidelines and/or local by-laws;
- Construction activities will be restricted to daylight hours as much as possible;
- If construction needs to be undertaken outside of normal daytime hours, the City of Toronto local residents will be informed beforehand of the type of construction planned and the expected duration;
- Use construction equipment compliant with noise level specifications in MECP guideline NPC-115;
- Keep equipment well-maintained and fitted with efficient muffling devices;
- Avoid unnecessary revving of engines and switch off equipment when not required (do not idle);
- Decrease heights at which materials are dropped in order to reduce noise resulting from vibration of large structures and materials; and,
- Construction vehicles will use main roads where possible, rather than quieter residential roads.

To address impacts from light pollution during construction, lighting will be controlled by angling the lights in a way to safely light the work area, but, as much as practical, shine away from residences.

Communications with stakeholders to identify local and site-specific issues may include discussion on topics such as:

- Construction access;
- Construction schedule; and,
- Enquiries/complaint procedures.

A construction monitoring program will be implemented prior to construction, based on the recommended mitigation measures in the other technical studies for this Project (e.g., traffic, noise and vibration, etc.). The construction monitoring program will include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, Metrolinx claim protocol will be followed.

With respect to mitigation for potential traffic-related effects, staging plans will be developed during the Detailed Design phase, including detour routes, construction access areas, and changes to signal timings as required. Prior to the commencement of construction, a Traffic Staging and Management Plan will be developed to implement during construction. The Traffic Staging and Management Plan will, at a minimum, include measures to:

- Ensure impacts related to access to and from properties are minimized during construction activities;
- Warn on-coming motorists of construction activity and identify detours when required;
- Restrict the movement of personnel and materials to and from construction sites;
- Control traffic at active construction sites;
- Reduce temporary lane disturbances and closures, where possible;
- Store equipment as far away from the roadway as possible; and,
- Utilize and install construction barricades where necessary.

As construction proceeds, the proposed Traffic Staging and Management Plan may be adjusted by the Contractor based on changes to activity in the surrounding area.

Metrolinx will consult closely with the TTC and City of Toronto Emergency Services to inform them of construction activities that may result in service delays or if any closures

have the potential to affect their routes. Also, in the case of a full lane closure, the City of Toronto will be notified in advance.

Transit service mitigation measures can include updating schedules and routes to inform transit riders of changes/detours to scheduled service, and posting signage at key transit stops in the Study Area. In the case of closures affecting transit routes, the City of Toronto and the TTC must be notified well in advance.

Consultation with the City of Toronto and Waterfront Toronto will continue through the Detailed Design phase regarding traffic, cyclist and pedestrian impacts and mitigation during construction.

With regard to aesthetics, construction will be completed as expediently as possible to reduce the duration of any temporary aesthetic effects associated with construction activity. Continuous consultation with the community will occur throughout the Detailed Design and construction phases of the Project.

Metrolinx will consult the owners of billboards to be relocated or removed as a result of construction works. Co-ordination will occur with the property owners during the Detailed Design phase to reach an agreement of relocation and future maintenance requirements. Additional billboards requiring relocation will be determined during the Detailed Design phase of the Project.

Track E0 – Operation

The following mitigation measures are being proposed to address visual impacts from Lower Jarvis Street to Lower Sherbourne Street (at Cathedral Court Co-op) during operation (refer to the renderings and cross-sections in **Appendix B5**, concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study):

- A sloped embankment will be constructed and will be landscaped with low growing vegetation that is drought resistant and bird and insect friendly to provide a light and colourful visual experience throughout the growing season;
- Options to enhance the existing property owner fence will be explored during Detailed Design; and
- Continued consultation with the community will occur throughout the Detailed Design and construction process.

The following mitigation measures are being proposed to address visual impacts from Lower Sherbourne Street to Parliament Street (at Caroline Co-op and residences on Longboat Avenue) during operation (refer to the renderings and cross-sections in

Appendix B5, concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study):

- A minimum 2 m high brick faced retaining wall will be constructed. The brick faced wall will echo the masonry of the residential units. A 1.1 m decorative fence will be included atop of the retaining wall.
- A sloped embankment will be constructed and landscaped with suitable plantings that are drought resistant, bird and insect friendly and provide colour and interest through the growing season.
- The retaining wall, decorative fence, and sloped embankment will continue through the length of Tom Longboat Lane eventually connecting to the wing-wall of the Parliament Street bridge extension (**Appendix B5**).
- Options for vegetation and retaining wall design to prevent graffiti and vandalism will be considered during Detailed Design.
- Continued consultation with the community will occur throughout the Detailed Design and construction process.

To mitigate safety concerns, TDSB/Toronto Lands Corporation and its developers will lead the installation of a crash wall, if required, on Block 9 (TDSB lands, future school) in consultation with Metrolinx.

During the Detailed Design phase, potential impacts to the driveway at the northeast quadrant of the Parliament Street underpass and the loading dock in the northwest quadrant of the Cherry Street underpass will be confirmed and consultation will take place to identify mitigation measures, as required.

Track E0 – Landscaping Strategy

A Landscaping Strategy is being developed for this section of the Project between Lower Sherbourne Street and Parliament Street, to address the removal of trees and other plants, and to re-create the cooling and pollution-filtering effect, and aesthetic, of the existing landscape. The Landscaping Strategy is being developed in consultation with the community to determine what type of vegetation should be planted in the area. With regard to effects on vegetation, post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty. In addition, public facing retaining walls and landscaped areas on Metrolinx property will be maintained.

To increase resilience, Metrolinx will intersperse the two ecotones in appropriate locations, thereby creating a diverse landscape that will not encourage unwanted

species to become established. Choice of plant species will be selected from those known to flourish in a sloped, exposed landscape in harsh growing conditions, and must not encroach into the safety setbacks for railway equipment at maturity

Tracks E7 and E8 – Construction

The construction mitigation measures outlined in Track E0 also apply to the preferred track alignment for Tracks E7 and E8.

Due to the high level of traffic carried through the Lower Jarvis Street underpass, it is recommended that closures at this location be minimized. Planning of lane closures on Parliament Street, Lower Sherbourne Street, and Cherry Street should be avoided while the Lower Jarvis structure is fully closed due to a lack of residual capacity on the adjacent streets to accommodate all of the traffic from Lower Jarvis Street. Continued discussions will occur with the City of Toronto regarding construction traffic impacts at the Lower Jarvis Street and Lake Shore Boulevard intersection to identify any site specific mitigation measures required.

Transit service mitigation measures can include updating schedules and routes to inform transit riders of changes / detours to scheduled service, and posting signage at key transit stops in the Study Area. In the case of closures affecting transit routes, the City of Toronto and the TTC must be notified well in advance.

Additional billboards requiring relocation or removal will be determined during the Detailed Design phase of the Project. Metrolinx will consult the owners of billboards to be relocated as a result of construction works. Co-ordination will occur with the property owners during the Detailed Design phase to reach an agreement of relocation and future maintenance requirements.

Tracks E7 and E8 – Operation

Consultation with the City of Toronto regarding potential operational impacts at Lower Sherbourne Street will continue during the Detailed Design phase. A potential mitigation measure may be to alter signal timings to facilitate traffic flow and prevent lane blockages.

Wilson Yard Layover Facility – Construction and Operation

No mitigation measures are required, as there are no potential adverse effects.

5.6.2 Recreational Uses, Active Transportation, Trails & Parks and Open Spaces

5.6.2.1 Potential Construction Effects

Track E0

Some recreational uses within the Study Area and near bridge extensions, will experience temporary nuisance effects during construction due to increased noise and vibration levels and aesthetic effects due to construction equipment and activities. Further details regarding the noise and vibration impact assessment is provided in the *USRC East Enhancements TPAP Noise and Vibration Impact Assessment* (**Appendix B4**).

Minor visual effects may also temporarily affect user enjoyment of parks and trails, such as in Corktown Common Park during construction.

The roadway underpasses currently support a large volume of pedestrian and cyclist traffic. During construction of the northern bridge extensions for Lower Sherbourne Street, Parliament Street and Cherry Street, some impacts to pedestrians and cyclist access are anticipated due to partial or full closures of the structures. This includes the sidewalks under the Lower Sherbourne Street, Parliament Street and Cherry Street underpasses, as well as the bike lanes/cycle tracks under the Lower Sherbourne Street and Cherry Street underpasses.

Construction activities, including the presence of construction equipment, staging areas and temporary fencing, may temporarily affect recreational user enjoyment around the northern bridge extensions. Additionally the Bike Share rack north of the rail corridor near the Cherry Street underpass may require relocation for the construction (and operation) of the Project.

Tracks E7 and E8

The roadway underpasses currently support a large volume of pedestrian and cyclist traffic. During construction of the southern underpass extensions for Lower Jarvis Street and Lower Sherbourne Street, some impacts to pedestrians and cyclist access are anticipated due to potential partial or full closures of the structure. This includes the sidewalks under the Lower Sherbourne and Lower Jarvis Street underpasses, as well as the Cycle Tracks under the Lower Sherbourne Street underpass.

Construction activities, including the presence of construction equipment, staging areas and temporary fencing, may temporarily affect recreational user enjoyment around the southern underpass extensions.

Visual impacts may temporarily affect user enjoyment around Lower Jarvis Street and Lower Sherbourne Street. In particular, Lower Sherbourne Street has recently received public realm enhancements, such as landscaping and pedestrian walkways that could be disrupted or altered. Metrolinx is in discussion with City of Toronto and Waterfront Toronto on how the access in this location will be impacted and restored.

Wilson Yard Layover Facility

Users of recreational areas in the vicinity of the Wilson Yard Layover Facility (e.g., Lower Don River Trail) will experience temporary nuisance effects during construction due to increased noise and vibration levels. Further details regarding the noise and vibration impact assessment are provided in the *USRC East Enhancements TPAP Noise and Vibration Impact Assessment Report* (**Appendix B4**).

Construction activities, including the presence of construction equipment, staging areas and temporary fencing, may result in undesirable temporary aesthetic effects at the Wilson Yard Layover Facility, which may affect user enjoyment for those using the Lower Don River Trail.

During construction of the realigned Harbour Lead, there may be temporary impacts to trail users. The impacts are expected to last only during the construction activity at the specific location where the trail and Harbour Lead overlap, and may involve short term closure and detour. No additional trail impacts are anticipated due to the construction of Wilson Yard Layover Facility; however the existing detour route to facilitate construction of the Cherry Street Stormwater Management Facility may remain in place.

5.6.2.2 Potential Operation Effects

Track E0

Based on information from the Gardiner EA Report (2017), the future pedestrian/cyclist travel demand within the Gardiner EA study area (which largely overlaps with the Study Area) is expected to grow substantially.

The railway bridge underpasses represent key north-south connection points to the waterfront. The bridge extensions to the north will not change the amount of existing space or infrastructure for pedestrians/cyclists, but there will be impacts to the overall pedestrian experience and public realm due to the lengthened underpasses. Track E0 and its associated retaining walls and bridge extensions will not preclude the future planned north-south connection for the Trinity Street Underpass (refer to **Section 5.6.5** for further discussion).

Tracks E7 and E8

The access point to the Metrolinx ROW at the southwest quadrant of Lower Jarvis Street, near the extended bridge underpass, may impact safe pedestrian movements, especially with regard to left turns in and out of the access corridor.

Based on information from the Gardiner EA (2017), the future pedestrian/cyclist travel demand within the Gardiner EA Study Area (which largely overlaps with the USRC East Enhancements Project Study Area) is expected to grow substantially. Tracks E7/E8 and its associated bridge extensions will not preclude the future planned north-south connection for the Cooper Street Tunnel or the proposed east-west trail along Lake Shore Boulevard (refer to **Section 5.6.5** for further discussion).

The railway bridge underpasses represent key north-south connection points to the waterfront. The bridge extensions to the south will not change the amount of existing pedestrian/cyclists space or infrastructure, but there will be impacts to the overall pedestrian experience due to the lengthened underpasses.

Wilson Yard Layover Facility

Due to the realignment of the Harbour Lead for this Project, as well as Waterfront Toronto's future Cherry Street Stormwater Facility and access road, a permanent shift of the Lower Don River Trail to the south is required for the portion of the trail west of the existing Harbour Lead. Furthermore, due to the plans for the Gardiner East Reconfiguration as well as TRCA's sediment and debris management area, the trail alignment will also be shifted east of the Harbour Lead and then connect into the existing trail alignment at the southeast corner of the Wilson Yard Layover Facility. The trail will continue to provide the same function to recreational users as the current trail so no long term adverse effects are anticipated.

The Wilson Yard Layover Facility will remove approximately 3 ha of land from an area designated for Parks and Open Spaces.

Tree/vegetation removal and new retaining walls/embankments for the Wilson Yard Layover Facility may affect the overall recreational experience of trail users. In particular the public-facing retaining walls required for the Wilson Yard Layover Facility may result in permanent visual effects and obstruction of views and sense of connection to the waterfront. Further details regarding vegetation removal are provided in the *USRC East Enhancements TPAP Tree Inventory Report*.

5.6.2.3 Mitigation Measures

Track E0 – Construction

For mitigation measures related to construction noise and vibration effects refer to **Sections 5.5.4 and 5.6.1.3**.

During temporary partial closures of the roadway rail underpasses (e.g., lane closure), sidewalk and/or bike lane access will be maintained to the extent feasible. If sidewalk and/or bike lane access cannot be maintained during a temporary partial closure or when full closure of an underpass is required, detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. A construction staging plan will also be developed during Detailed Design and will consider measures to minimize impacts to pedestrians and cyclists such as timing of bridge extension construction and limiting concurrent construction on underpasses that are adjacent to each other. Lower Sherbourne Street and Cherry Street are to be closed simultaneously, however, one bike lane will remain open in each direction (opposite direction for Cherry Street and Lower Sherbourne Street). Preliminary construction staging concepts were assessed as part of the *USRC East Enhancements TPAP Transportation and Traffic Impact Analysis* (**Appendix B6**).

Directional signage will be strategically placed along the bridge underpasses to indicate alternative access routes around construction activities when temporary underpass closures (partial or full) are required for the north bridge extensions.

Metrolinx will work closely with the City of Toronto and Waterfront Toronto in the Detailed Design stage to develop appropriate mitigation plans (e.g., signage, detours, advance notice of closures, safety fence, etc.) associated with the temporary trail diversion, trail and roadway underpass construction and closures.

Co-ordination with the City of Toronto required for the optimal location of the Bike Share rack along the north of the rail corridor near the Cherry Street underpass.

Track E0 – Operation

The following mitigation measures are being proposed to address visual and public realm impacts at the northern bridge extensions (refer to the preliminary renderings in **Appendix B5** and **Figures 3-6** to **3-8** above, concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study):

- Splaying of wing-walls has been incorporated into the design of the Lower Sherbourne Street and Parliament Street underpasses where feasible – this will be

further refined during Detailed Design. Splaying allows more light to penetrate under a structure by creating a larger opening, and improves sightlines. Opportunities for splaying were limited on the north side of the underpasses due to the location of existing infrastructure and buildings.

- Enhancements to the underside of the bridges, such as improved lighting and architectural finishings, are being incorporated and will be considered further during Detailed Design to improve the pedestrian experience and to provide a better connection between the waterfront and the downtown.
- Bridge extension aesthetics are being examined in consultation with the City of Toronto and may consider Public Art Visions identified in the *East Bayfront Public Art Master Plan*. Future improvements to the aesthetics on the underside of the bridges will be co-ordinated with the City of Toronto and Waterfront Toronto as part of their work for the *Gardiner East Reconfiguration Public Realm Phasing and Implementation Plan*
- Consultation with the City of Toronto, Waterfront Toronto, TRCA and the community will inform a vision, design and integration approach for all public realm and public facing elements associated with the Project.
- Landscaping and/or repairs to the pedestrian infrastructure at Lower Sherbourne Street will be determined in consultation with the City of Toronto and Waterfront Toronto.
- With regard to effects on vegetation, post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty. In addition, public facing retaining walls and landscaped areas on Metrolinx property will undergo maintenance by Metrolinx. Further details regarding vegetation removal are provided in the *USRC East Enhancements TPAP Tree Inventory Report*.
- Metrolinx will also explore opportunities to restrict turning movements into and out of access corridors near the bridge underpasses (e.g., restrict left turns in and out) to enhance pedestrian/cyclist safety on the north-south corridors.

Tracks E7 and E8 – Construction

During temporary partial closures of the roadway rail underpasses (e.g., lane closure), sidewalk and/or bike lane access will be maintained to the extent feasible. If sidewalk and/or bike lane access cannot be maintained during a temporary partial closure or when full closure of an underpass is required, detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. A construction staging plan will also be developed during Detailed Design and will consider measures

to minimize impacts to pedestrians and cyclists such as timing of bridge extension construction and limiting concurrent construction on underpasses that are adjacent to each other. Preliminary construction staging concepts were assessed as part of the *USRC East Enhancements TPAP Transportation and Traffic Impact Analysis* (**Appendix B6**).

Metrolinx will work closely with the City of Toronto and Waterfront Toronto in the Detailed Design stage to develop appropriate mitigation plans (e.g., signage, detours, advance notice of closures, safety fence, etc.) associated with the Lower Jarvis Street and Lower Sherbourne Street underpass extension construction. Continued co-ordination will also occur with the City of Toronto and Waterfront Toronto with regard to public realm enhancements near Lower Sherbourne Street Metrolinx access point and how this location will be impacted and restored. This will be further examined in Detailed Design. See **Appendix B5** for more information.

Directional signage will be strategically placed along the bridge underpasses to indicate alternative access routes around construction activities when temporary underpass closures (partial or full) are required for the south bridge extensions. Safety fencing will be used where necessary to separate the work area from pedestrians and/or cyclists. Signage indicating the presence of construction crews and/or activities will also be utilized.

Light control measures will be controlled by angling the lights in a way to safely light the work area but, as much as practicable, shine away from residences.

Tracks E7 and E8 – Operation

The following mitigation measures are being proposed to address visual and public realm impacts at the southern bridge extensions (refer to the renderings in **Appendix B5** and **Figures 3-11** and **3-12**, concept design, subject to change depending on consultation with the community and results of the Pedestrian and Cycling Connectivity Study):

- Splaying of wing-walls of the road railway underpasses will be determined in Detailed Design to the extent feasible and according to the Urban Design. Splaying allows more light to penetrate under a structure by creating a larger opening.
- The wing-wall at the east side of the Lower Jarvis Street Bridge extension will tie into the new retaining wall being constructed for the Don Yard Expansion.
- Enhancements to the underside of the bridges, such as improved lighting and public realm, are being incorporated and will be considered further during Detailed Design to improve the pedestrian experience and to provide a better connection between the waterfront and the downtown.

- Future improvements to the aesthetics on the underside of the bridges will be co-ordinated with the City of Toronto and Waterfront Toronto as part of their work as part of their work for the Gardiner East Reconfiguration Public Realm Phasing and Implementation *Plan*.

Consultation with the City of Toronto, Waterfront Toronto, TRCA and the community will inform a vision, design and integration approach for all public realm and public facing elements associated with the Project.

With regard to effects on vegetation, post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty.

Metrolinx will also explore opportunities to restrict turning movements into and out of Metrolinx's Lower Jarvis Street access location (e.g., restrict left turns in and out) to enhance pedestrian/cyclist safety.

Wilson Yard Layover Facility – Construction

For mitigation measures related to construction noise and vibration effects, refer to **Sections 5.5.4 and 5.6.1.3**.

Metrolinx will continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA related to the design and construction of the Wilson Yard Layover Facility (as well as the other projects in the vicinity) to ensure that necessary realignments and/or temporary detours of the Lower Don River Trail are in place for the construction of the Wilson Yard Layover Facility and realigned Harbour Lead.

In the Detailed Design stage appropriate mitigation plans with respect to trail impacts will be developed in consultation with the City of Toronto and Waterfront Toronto. General mitigation measures that will be considered include:

- Establishment of proper signage to guide the public to the re-aligned sections of the Lower Don River Trail near the Wilson Yard Layover Facility;
- Advanced notice of any temporary trail closures, if required;
- Placement of directional signage along the trail to indicate alternative access routes around construction activities, if required;
- General signage indicating the presence of construction crews and/or activities will also be utilized, as required; and,
- Installation of safety fencing to separate the work area from pedestrians and/or cyclists.

Wilson Yard Layover Facility – Operation

Appendix B5 depicts the anticipated permanent realignment of the Lower Don River Trail to accommodate the realigned Harbour Lead, Cherry Street Stormwater Facility, access road, as well as the Gardiner East Reconfiguration and TRCA's sediment and debris management area. The trail realignment is being led by Waterfront Toronto and the City of Toronto, and the specific timing and phasing of the trail realignment has not yet been finalized.

With regard to the removal of 3 ha of land designated as Parks and Open Space, Metrolinx will continue consultation with the City of Toronto as part of the ongoing property negotiations for the Wilson Yard Layover Facility.

The following mitigation measures are being proposed to address visual and public realm effects at the Wilson Yard Layover Facility:

- Renderings will be developed in consultation with the City of Toronto and Waterfront Toronto based on their progress with the *Gardiner East Reconfiguration Public Realm Phasing and Implementation Plan*.
- Retaining wall and embankment requirements as well as access requirements will be confirmed in consultation with the City of Toronto, Waterfront Toronto, TRCA, Hydro One, Toronto Hydro and Enbridge.
- Landscaping and greenspace will be integrated to consider the realigned Lower Don River Trail and the overall pedestrian/cycling network.
- Retaining walls, fencing and other design elements will reflect a consistent aesthetic with other areas in the USRC, as well as the design for other projects in the vicinity.
- Consultation will continue to occur during Detailed Design with the City of Toronto, Waterfront Toronto, and TRCA to determine appropriate design features or elements that may be incorporated into appropriate project infrastructure.

Consultation with the City of Toronto, Waterfront Toronto, TRCA and the community will inform a vision, design and integration approach for all public realm and public facing elements associated with the Project.

With regard to effects on vegetation, post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty. In addition, public facing retaining walls and landscaped areas on Metrolinx property will undergo maintenance by Metrolinx.

5.6.3 Utilities

5.6.3.1 Potential Construction and Operation Effects

Track E0

To accommodate the bridge extensions over Lower Sherbourne Street, Parliament Street and Cherry Street, existing City of Toronto owned utilities (i.e., water, sanitary, and storm) and third party utilities (i.e., CN, Bell, Rogers, Hydro One, gas, etc.) may require modification and/or relocation. Light poles present on either side of the roadway at Parliament Street and Cherry Street will require relocation as part of the bridge extension work.

At the northeast corner of the Parliament Street structure a gas main is located beneath the sidewalk and connects to a gas meter. This gas meter services the USRC and will need to be relocated and/or protected during the structure extension work. There may also be impacts to existing cable troughs which currently run parallel to the tracks along the existing retaining wall and in proximity to several bridge structures as noted previously.

Bridgework works will likely require realignment of watermains.

During operation, temporary access may be required to conduct maintenance on utilities within the Study Area. No other effects on utilities are anticipated during the operation of the Project.

Tracks E7 and E8

Existing utilities within the USRC East Enhancements Project Study Area will require relocation to facilitate construction.

To accommodate the south bridge extensions over Lower Jarvis Street and Lower Sherbourne Street, existing City of Toronto owned utilities (i.e., Water, Sanitary, and Storm) and third party utilities (i.e., CN, Bell, Rogers, Hydro One, gas, etc.) may require modification and/or relocation. Light poles are present on either side of the roadway at Lower Jarvis Street and Lower Sherbourne Street and will require relocation as part of the bridge extension work.

Bridgework works will likely require realignment of watermains.

Fibre optic CN signal and communications conduits mounted on the south side of the Lower Jarvis and Lower Sherbourne Street Bridges will require temporary relocation during the bridge extension construction. The conduits will be reinstated onto the extended portion of the bridge once construction is complete.

Underground Allstream and Telus fibre optic cables in the vicinity of the Lower Jarvis Street structure may require temporary and/or permanent relocation prior to the bridge extension construction.

Stormwater catchbasins and associated collector storm sewers occur along both sides of Lower Jarvis Street and will require relocation to accommodate the proposed piers. No realignment of sewers are anticipated.

Two transmission towers near the southwest side of the Lower Sherbourne Street underpass may be impacted. Excavation and foundation construction work may encroach on Hydro One's clearance requirements for the towers. Temporary shoring may be required to ensure no disturbance to the towers.

Access to utilities may require temporary access permission (easements) for maintenance activities within the USRC East Enhancements Project Study Area. No effects on utilities are anticipated during the operation of the Project.

Wilson Yard Layover Facility

The following Hydro One facilities will also require relocation to the south side of the proposed Wilson Yard Layover Facility tracks:

- Overhead power lines and hydro tower; and,
- A strip of land owned by Hydro One for the buried 115 kV cables.

Toronto Hydro's 13.8 kV power cables at the existing Don Yard access roads will also require relocation, as this is the main power that feeds the existing Don Yard substation.

An existing fibre optic cable in the corridor will need to be relocated to suit the track configuration. This may include both Metrolinx-owned fibre optic cables for signals and the MTS Allstream fibre optic cable trunk line.

Enbridge proposes to replace Nominal Pipe Size (NPS) 20 and NPS 30 gas lines in close proximity to the rail corridor, including a line that crosses under the rail corridor, and the potential location of a station in close proximity to the Wilson Yard Layover Facility.

No direct impacts are anticipated to the existing 3000 mm diameter stormwater tunnel that runs from Cherry Street (north of the USRC) to the Keating Channel (west of the Wilson Yard Layover Facility) and a 460 mm watermain as it has been considered in the Preferred Design. However, work will be in close proximity to these features.

During operation, temporary access may be required to conduct maintenance on utilities within the Study Area. No other effects on utilities are anticipated during the operation of the Project.

5.6.3.2 Mitigation Measures

Track E0 – Construction and Operation

In-depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Co-ordination will occur with each individual utility company and proper agreements will be negotiated with each utility in order to remove or temporarily relocate utilities that may be impacted by the Preferred Design. Other considerations, such as distance setbacks or depth of construction activities in the vicinity of utilities, will also be determined during Detailed Design.

Potential service interruptions to residents and businesses will be identified during the Detailed Design phase of the Project and mitigation measures determined in consultation with the utility provider with the intent to minimize service interruptions to the greatest extent possible.

Metrolinx will obtain MECP Environmental Compliance Approval (ECA) for connecting to existing sewers, where applicable.

Drinking Water Working Permit (DWWP) will be acquired in Detailed Design.

Potential effects to watermains will be minimized to the extent possible during Detailed Design.

Potential access requirements for maintenance within the USRC East Enhancements Project will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.

Tracks E7 and E8 – Construction and Operation

The Construction Mitigation Measures outlined for Track E0 also apply to the preferred track alignment for Tracks E7 and E8.

Wilson Yard Layover Facility – Construction and Operation

In-depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Co-ordination will occur with each individual utility company and proper agreements will be negotiated with each utility in order to remove, or temporarily relocate utilities that may be impacted by the Preferred Design. Other considerations, such as distance setbacks or depth of construction activities in the vicinity of utilities will also be determined during Detailed Design.

Discussions with Hydro One will continue during Detailed Design to obtain an agreement with respect to the relocation of the overhead power lines and buried cables.

Discussions with Enbridge will continue during Detailed Design regarding their plans in the vicinity of the Wilson Yard Layover Facility.

As part of the Detailed Design submission, protection measures for the 3000 mm Storm Tunnel from Cherry Street to Keating Channel and the existing watermain (460 mm) on the east side of Don Yard and the Wilson Yard Layover Facility, for any foreseen impacts, if any, will be noted.

Potential service interruptions to residents and businesses will be identified during the Detailed Design phase and mitigation measures determined in consultation with the utility providers with the intent to minimize service interruptions to the greatest extent possible.

Potential access requirements for maintenance within the Wilson Yard Layover Facility will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.

5.6.4 Property

5.6.4.1 Potential Construction and Operation Effects

Track E0

The majority of the proposed USRC East Enhancements Project utilizes existing Metrolinx property within the corridor. In certain sections of the Study Area, portions of private properties and public lands will need to be acquired to accommodate the project components. It is anticipated that work related to Track E0 west of Cherry Street (including the northern bridge extensions) can be accommodated within the existing Metrolinx ROW and easements/road allowances with the City of Toronto. Construction and operation of Track E0 east of Cherry Street will require property acquisition, a permanent maintenance easement and a temporary construction license from IO. Approximately 4,500 m^2 of IO property requires a temporary construction license to allow for construction. In addition, approximately 1,270 m^2 of permanent property acquisition is anticipated to support the new track and retaining wall infrastructure east of Cherry Street. Approximately 940 m^2 will be used for maintenance purposes to access the track during operation. No private property acquisition is anticipated west of Cherry Street.

Table 5-14: Property Requirements for Track E0

Property Owner	Temporary Construction License (m^2)	Permanent Property Requirements (m^2)	Permanent Maintenance Easement (m^2)
IO (PIN 210770324, PIN 210770316, PIN 210770305 & PIN 210770328)	4,500	1,270	940

Damage to existing properties from vibration is not anticipated as a result of construction activities. Nonetheless, a construction monitoring program will be implemented prior to construction and will include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, additional monitoring programs may be developed during claim resolution.

Tracks E7 and E8

It is anticipated that work related to Tracks E7 and E8 (including the southern bridge extensions) can be accommodated within the existing Metrolinx ROW and easements/road allowances with the City of Toronto.

Wilson Yard Layover Facility

The Wilson Yard Layover Facility design requires approximately 15,000 m^2 of property currently owned by the City of Toronto (and Toronto Port Lands Company), Hydro One Networks Inc., and Conoco Inc. (**Table 5-15**).

Table 5-15: Wilson Yard Layover Facility Potential Property Requirements

Property Owner	Permanent Property Requirements (m^2)
City of Toronto (PIN 21077-0095)	3,000
City of Toronto (TPLC) (PIN 21077–0099)	9,000
Hydro One Networks Inc. (PIN 21077-0097 & PIN 21077-0098)	3,000
Conoco Inc. (PIN 21077-0167)	70

5.6.4.2 Mitigation Measures

Track E0, Track E7 and Track E8– Construction and Operation

The above identified property requirements will be further confirmed during Detailed Design. Metrolinx will engage affected landowners with regard to the identified property acquisitions (temporary and permanent) and will reach agreements prior to the commencement of construction activities and identify appropriate site-specific mitigation measures.

To minimize property requirements, retaining walls will be built for Block 20 (pending developer design concept) and Block 9 (TDSB/TLC lands, future school). An architectural retaining wall will be built for Block 32 (facing Tannery Road) and follow Metrolinx's Design Excellence process.

Effects on adjacent property owners related to construction activities (e.g., noise and vibration, air quality, and traffic) will be addressed through the mitigation measures outlined in other sections of this report and the technical reports such as the Transportation and Traffic Impact Analysis (**Appendix B6**), Noise and Vibration Impact Assessment (**Appendix B4**) and Air Quality Assessment Report (**Appendix B3**) accompanying the EPR.

Wilson Yard Layover Facility – Construction and Operation

The identified property requirements will be further confirmed during Detailed Design.

Metrolinx is exploring options to obtain the property required for the Wilson Yard Layover Facility. Metrolinx will engage with affected landowners and will reach an agreement prior to the commencement of construction activities and identify appropriate site-specific mitigation measures.

Effects on adjacent property owners related to construction activities (e.g., noise and vibration, air quality, and traffic) will be addressed through the mitigation measures outlined in other sections of this report and the technical reports such as the Transportation and Traffic Impact Analysis (**Appendix B6**), Noise and Vibration Impact Assessment (**Appendix B4**) and Air Quality Assessment Report (**Appendix B3**) accompanying the EPR.

5.6.5 Effects on Other Projects

Refer to section 4.6.4 above for a brief explanation of the projects mentioned below. A detailed explanation of the below presented projects can be found in **Appendix B5**.

5.6.5.1 Potential Effects

Track E0

The USRC East Enhancements Project has considered existing and future planned projects during planning and development of the Preferred Design. Co-ordination will continue during Detailed Design and construction. Key projects in the vicinity that will require continued co-ordination with regard to Track E0 and its components are outlined below.

Future Developments North of the Rail Corridor, Between Parliament Street and Cherry Street

Planning and design for the 31R Parliament Street, 370R & 370 Cherry Street Future Development (also known as the Ribbon Building Project) is underway. While the USRC East Enhancements Project does not preclude this development, there are potential impacts due to the close proximity of the developments to the rail corridor and scheduling of works, as the project is expected to occur within the next few years. This will require co-ordination between Metrolinx, the City of Toronto and the developer.

For the Trinity Street Pedestrian Underpass (also called Red Brick Promenade Trinity Street Connection) there has not yet been a commitment to build this underpass. While the Project does not preclude this development, there are potential impacts since the Preferred Design does not yet account for the design elements of the Trinity Street Pedestrian Underpass. Due to the close proximity of the development to the rail corridor, there may also be impacts to the timing of construction.

The future development at 31R Parliament Street will also require co-ordination between Metrolinx, the City of Toronto and the developer due to the proximity to the rail corridor and Parliament Street underpass structure. Maintaining corridor access is a key factor for Metrolinx at this location.

Future Developments North of the Rail Corridor, between Cherry Street and Corktown Common Park

The proposed future school and mixed/residential development identified in the West Don Lands Precinct Plan are adjacent to the rail corridor. The additional Track E0 infrastructure does not encroach on land required for this proposed future school and mixed/residential development. Construction of the Project is expected to be completed prior to construction of the future school and mixed/residential development. Therefore, no impacts are anticipated.

Cherry Street Streetcar Expansion

The future planned Cherry Street LRT is designed to be on a separate alignment to the east of the Cherry Street underpass. Co-ordination with Metrolinx will be required related to the design of the LRT alignment under the rail corridor. The Cherry Street bridge extension does not preclude the City’s plans for the future LRT.

Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA, 2017

The USRC East Enhancements Project bridge extensions are adjacent to the City of Toronto and Waterfront Toronto’s plans for intersection improvements, new east-west

multi-use trail and public realm enhancements. This Project does not preclude these plans, but does directly impact the overall pedestrian experience, public realm vision, and connections to the waterfront. Furthermore, implementation of the Gardiner EA elements started in Fall 2017, therefore co-ordination with the City and Waterfront to mitigate these impacts and discussion around construction timing are required.

Future improvements to the aesthetics on the underside of the bridges will be co-ordinated with the City of Toronto and Waterfront Toronto as part of their work for the *Gardiner East Reconfiguration Public Realm Phasing and Implementation Plan*.

East Bayfront Public Art Master Plan

Due to the bridge extensions there will be visual and public realm impacts. This Project will not preclude the Public Art Vision identified in the East Bayfront Public Art Master Plan.

Waterfront Transit “Reset”

The Cherry Street underpass extension does not preclude the City’s plans for the future dedicated transit right of way (LRT) on Cherry Street and Queens Quay Boulevard. When the City of Toronto and the TTC’s plans progress, co-ordination with Metrolinx will be required related to the design of the LRT alignment under the rail corridor at Cherry Street and to the connection enhancements under the rail corridor at Parliament Street and Cherry Street.

West Don Lands Public Art Strategy

Due to the bridge extensions there will be visual and public realm impacts. This Project will not preclude the Public Art Vision identified in the West Don Lands Public Art Strategy. Co-ordination with Waterfront Toronto and the City of Toronto on their public art plans is ongoing.

Overall Projects within the Study Area and Construction Schedule

Projects that may overlap with the Project construction schedule include:

- Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA;
- Waterfront Sanitary Servicing Master Plan;
- Power Downtown Toronto;
- Lower Don Lands Infrastructure Master Plan EA;
- 31R Parliament Street, 370R & 370 Cherry Street Future Development; and
- Lower Yonge Transportation Master Plan EA.

Construction of other projects within the Study Area may overlap with the USRC East Enhancements Project construction schedule and co-ordination will be required.

Tracks E7 and E8

The USRC East Enhancements Project has considered existing and future planned projects in the discussion, planning, and Preferred Design. Co-ordination will continue during Detailed Design and construction. Key projects in the vicinity that will require continued co-ordination with regard to Tracks E7/E8 and its components are outlined below.

Lower Yonge Transportation Master Plan EA and Lower Yonge Precinct Plan

Track E7/E8 and the Lower Jarvis Street Bridge extension will not preclude or impact the City's future planned Church/Cooper Street tunnel, "New Street", or plans to shorten the Lower Jarvis Street off-ramp on the Gardiner Expressway to connect to Yonge Street.

Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA, 2017

The USRC East Enhancements Project bridge extensions are adjacent to the City of Toronto and Waterfront Toronto's plans for intersection improvements, new east-west multi-use trail and public realm enhancements. This Project does not preclude these plans, but does indirectly impact the overall pedestrian experience and connections to the waterfront. The southern bridge extensions in particular, interface more closely with the plans for Lake Shore Boulevard. Furthermore, implementation of the Gardiner EA elements will begin as early as Fall 2017, therefore co-ordination of construction timing and impacts will be essential.

East Bayfront Public Art Master Plan

This Project will not preclude the public art vision identified in the East Bayfront Public Art Master Plan. Co-ordination with Waterfront Toronto on their public art plans will be required to ensure that heritage attributes of the underpass structures are maintained.

Wilson Yard Layover Facility

The USRC East Enhancements Project has considered existing and future planned projects in the discussion, planning, and Preferred Design. The Wilson Yard Layover Facility directly interfaces with multiple projects at various stages of design. Co-ordination during Detailed Design and construction is particularly critical in this area, as changes to one project could impact multiple projects in the vicinity. Key projects in the area that will require continued co-ordination with regard to Wilson Yard Layover Facility and its components are outlined below.

Sediment and Debris Management Area for the Don Mouth Naturalization Project

The Sediment and Debris Management Area, which was designed and approved through TRCA's Don Mouth Naturalization and Port Lands Flood Protection Project EA, has already been accommodated for in the Wilson Yard Layover Facility design. Additional considerations may be required as the design for the Sediment and Debris Management Area progresses and elements such as the sediment technology and access needs are determined.

Cherry Street Stormwater Facility

The Cherry Street Stormwater Facility (a Waterfront Toronto project) has been accommodated for in the Wilson Yard Layover Facility design. Continued co-ordination will be required as design details are finalized, including construction staging and access needs.

Realignment of the Lower Don River Trail

The realignment of the Lower Don River Trail is being led by Waterfront Toronto, but the design accommodates multiple projects including Metrolinx's Wilson Yard Layover Facility and the realigned Harbour Lead. As each project progresses in design, co-ordination and refinement of the trail realignment will be required. Understanding the implementation timing for the realigned trail will be required in order for Metrolinx to finalize mitigation measures during construction.

Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA

The new Gardiner Expressway and Lake Shore Boulevard alignments will bring these roadways closer to the rail corridor. The Wilson Yard Layover Facility design considered the Gardiner EA's preferred design and collaboration will be required to ensure that all rail constraints and clearances are met in the new Gardiner alignment and design. As previously described, understanding the Gardiner EA's approach to the public realm will be critical to the development of the Wilson Yard Layover Facility aesthetics and public realm enhancements.

Overall Projects within the Study Area and Construction Schedule

Projects that may overlap with the Project construction schedule include:

- Don Mouth Naturalization and Port Lands Flood Protection Project;
- Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA;
- Unilever Precinct;
- Power Downtown Toronto;
- Waterfront Sanitary Servicing Master Plan;

- Don River & Central Waterfront Class EA; and
- City of Toronto Ten-Year Cycling Network Plan.

Construction of other projects within the Study Area may overlap with the USRC East Enhancements Project construction schedule and co-ordination will be required.

5.6.5.2 Mitigation Measures

Track E0

Metrolinx is co-ordinating with the developers for the Ribbon Building Project (31R Parliament Street, 370R & 370 Cherry Street, Development 06 in **Appendix B5**, **Figure 3-10**) regarding design of elements such as crash walls and retaining walls, and scheduling of construction to minimize impacts where feasible. Metrolinx will also be co-ordinating with the City of Toronto and the developers for the 31R Parliament Street, 370R & 370 Cherry Street development to provide input to the design and identify rail access requirements. The permanent maintenance easement will have to be maintained for this development during and after construction.

Improvements to public realm are being examined in consultation with the City of Toronto and Waterfront Toronto and may consider components identified in the East Bayfront Public Art Master Plan and West Don Lands Public Art Strategy. Collaboration with the City of Toronto and Waterfront Toronto will be required for this component and consultation is ongoing.

For the Trinity Street Pedestrian Underpass development, Metrolinx will continue working with the City of Toronto, Waterfront Toronto and other relevant parties to ensure that the Project's design preserves the opportunity to realize the Trinity Street Pedestrian Underpass and to allow for the design elements of the Trinity Street Pedestrian Underpass to be incorporated into the Preferred Design during Detailed Design.

Co-ordination with City of Toronto and TTC will be required related to the design of the LRT alignment under the rail corridor.

Metrolinx will continue to co-ordinate with the City of Toronto and Waterfront Toronto regarding the public realm elements of the Gardiner EA and East Bayfront Public Art Master Plan that interact with the USRC East Enhancements Project. This also includes co-ordination of the construction and implementation phases for both projects, so that, where feasible, impacts to traffic, pedestrians, transit users, and the general public can be consolidated and minimized.

Metrolinx will continue to co-ordinate with the City of Toronto, Waterfront Toronto, developers and the TTC regarding timelines and construction schedules for projects that are advancing in the waterfront area.

Tracks E7 and E8

Although no direct impacts are anticipated related to the City's plans from the Lower Yonge Precinct Plan and Lower Yonge Transportation Master Plan EA, Metrolinx will continue to consult and co-ordinate with the City on their plans as required.

Metrolinx will continue to co-ordinate with the City of Toronto and Waterfront Toronto regarding the public realm elements of the Gardiner EA and East Bayfront Public Art Master Plan that interact with the USRC East Enhancements Project. This also includes co-ordination of the construction and implementation phases for both projects, so that, where feasible, impacts to traffic, pedestrians, transit users, and the general public can be consolidated and minimized.

Wilson Yard Layover Facility

Metrolinx will continue to co-ordinate with the City of Toronto, Waterfront Toronto, TPLC and TRCA regarding the Sediment and Debris Management Area, Cherry Street Stormwater Facility, Lower Don River Trail, Gardiner EA, and other projects in the area. This also includes co-ordination of the construction and implementation phases for all projects, so that, where feasible, impacts to traffic, pedestrians, transit users, and the general public can be minimized.

Metrolinx will continue to co-co-ordinate the Wilson Yard Layover Facility expansion plans with Waterfront Toronto and their design consultants for the Gardiner Public Realm corridor and the Port Lands Flood Protection, to ensure a seamless interface between Gardiner EA landscape improvements, the Sediment and Debris Management Area, and enable Lower Don River Trail continuity.

Metrolinx will continue to co-ordinate with the City of Toronto, Waterfront Toronto, and TRCA regarding timelines and construction schedules for projects that are advancing in the waterfront area.

5.6.6 Connectivity

5.6.6.1 Potential Effects

Track E0

Construction

Construction of Track E0 will require temporary partial or full closures of sidewalks under the underpasses for Lower Sherbourne Street, Parliament Street and Cherry Street to the north. It also requires temporary partial or full closures of the bike lanes/

cycle tracks under the Lower Sherbourne Street and Cherry Street underpasses. Temporary closure of sidewalks and bike lanes/cycle tracks will reduce connectivity between the waterfront and the downtown for the duration of the closure.

Operation

While the bridge extensions to the north will not change the amount of existing space or infrastructure for pedestrians/cyclists, the lengthened underpasses may exacerbate the barrier effect experienced by pedestrians, cyclists, and other users of the area.

Tracks E7 and E8

Construction

Construction of Tracks E7 and E8 will require temporary partial or full closures of the sidewalks under the Lower Sherbourne and Lower Jarvis Street underpasses, as well as the Cycle Tracks under the Lower Sherbourne Street underpass. Temporary closure of sidewalks and bike lanes/cycle tracks will reduce connectivity between the waterfront and the downtown.

Operation

While the bridge extensions to the south will not change the amount of existing space or infrastructure for pedestrian/cyclists, the lengthened underpasses may exacerbate the barrier effect experienced by pedestrians, cyclists, and other users of the area.

5.6.6.2 Mitigation Measures

Track E0

Construction and Operation

Metrolinx acknowledges that the City's development on both sides of the rail corridor is accelerating and that the rail corridor is a substantive barrier to the waterfront. Therefore there is a need to look at options for improved connections.

The connectivity challenge requires Metrolinx, the City, Waterfront Toronto and possibly private developers to work in partnership to arrive at a longer term solution. Metrolinx is committed to funding a separate Pedestrian and Cycling Connectivity Study to look at options to address the connectivity challenge.

Tracks E7 and E8

Construction and Operation

Metrolinx acknowledges that the City's development on both sides of the rail corridor is accelerating and that the rail corridor is a substantive barrier to the waterfront. Therefore there is a need to look at options for improved connections.

The connectivity challenge requires Metrolinx, the City of Toronto, Waterfront Toronto and possibly private developers to work in partnership to arrive at a longer term solution. Metrolinx is committed to funding a separate Pedestrian and Cycling Connectivity Study to look at options to address the connectivity challenge.

5.7 Traffic and Transportation

Construction of the USRC East Enhancements Project will disrupt local traffic, as lane closures are necessary to construct the bridge extensions required for this project. The local road network was found to be able to handle diverted traffic for the most part (with exception of noted critical movements) based on the traffic assessments that were conducted using Synchro. However, lane closures should be carefully planned and co-ordinated to mitigate impact on all road users. Consultation with the City of Toronto, Waterfront Toronto, Emergency Services and transit providers (i.e., TTC) regarding traffic, cyclist and pedestrian impacts will be required to plan mitigation of impacts during Detailed Design.

The following six scenarios were deemed as the most plausible "worst case" scenarios and were used as a basis for this assessment. The staging scenarios that were selected and assessed are as follows:

Scenario 1: Partial closure of Lower Jarvis Street and partial closure of Parliament Street;

Scenario 2: Full closure of Lower Jarvis Street and partial closure of Parliament Street;

Scenario 3: Partial closure of Lower Jarvis Street and full closure of Parliament Street;

Scenario 4: Partial closure of Lower Sherbourne Street and partial closure of Cherry Street;

Scenario 5: Full closure of Lower Sherbourne Street and partial closure of Cherry Street; and

Scenario 6: Partial closure of Lower Sherbourne Street and full closure of Cherry Street.

5.7.1 Motor Vehicle Traffic

5.7.1.1 Potential impacts

In assessing future construction staging possibilities, it was concluded that certain combinations of construction staging scenarios will result in less impact than others.

Staging Scenarios 2, 3, 5, and 6 each involve full road closures, which would require all vehicular, pedestrian, and cyclist traffic to divert to parallel routes. It is noted that these scenarios conservatively assumed that full road closures would occur during the weekday AM and PM peak periods, based on initial construction staging scenarios; however, the latest draft construction staging schedule (November 6, 2017 issue) indicates that full road closures would likely take place on weekends (with the exception of Statutory or Civic Holidays). As identified in Section 3.1, it is proposed that staging impacts on motor vehicle traffic would be less severe for a weekend closure in comparison to a weekday peak period closure. Further consultation with City of Toronto is recommended to confirm whether staging Scenarios 2, 3, 5, and 6 are representative of the “worst case” scenarios in the assessment.

Staging Scenarios 1 and 4 involved partial road closures only, and are anticipated to have less impact to traffic. Staging Scenarios 1 and 4 represent a realistic idea of what traffic operations will likely look like during the long-term partial lane closures.

In assessing the current roadway capacities, it was found that the intersection of Lower Jarvis Street and Lake Shore Boulevard has the least residual capacity to handle additional traffic diverting from parallel corridors. As this intersection carries the most traffic, it will have the most impacts on parallel corridors when traffic is diverted.

In addition, the presence of construction work zones may present safety hazards to vehicle traffic that should be mitigated. Mitigation measures are discussed below.

5.7.1.2 Mitigation/Compensation Measures

Mitigation measures will be assessed and implemented during the Detailed Design and construction phases of the project. Certain mitigation measures will apply to different phases of the project and several will require co-ordination between Metrolinx and the City of Toronto.

The following mitigation measures will be undertaken during Detailed Design:

- Detailed staging plans, including potential detour routes, construction ingress and egress and laydown areas, will be developed with consideration to the above-noted traffic impacts, and other construction projects that will be taking place in the area.

- Planning of lane closures on Parliament Street, Lower Sherbourne Street, and Cherry Street should be avoided while the Lower Jarvis structure is fully closed (i.e., Staging Scenario 2) due to a lack of residual capacity on the adjacent streets to accommodate all of the traffic from Lower Jarvis Street.
- Traffic signal timings optimization should be assessed / implemented to increase capacity of affected intersections.
- Further consideration of traffic and staging impacts at the Lower Jarvis Street and Lake Shore Boulevard intersection will be given once the City of Toronto completes their safety audit.
- Consultation with property owners directly impacted by construction staging, and potential road/lane closures and detours.

The following mitigation measures will require co-ordination between Metrolinx and the City of Toronto during the Detailed Design phase:

- Co-ordination will be required to conduct lane closures that will allow construction to be completed in a timely manner while protecting public traffic. Construction staging for the bridge extensions should be discussed with the City of Toronto and co-ordinated with various projects in the area, in particular with the Gardiner East Reconfiguration Public Realm Work and the watermain replacement under Lower Jarvis Street.
- Traffic signal timing adjustments will require co-ordination between Metrolinx and the City of Toronto Transportation Services department to determine appropriate changes to traffic signal timings.
- Informational signs should be provided or variable messaging signs (VMS) should be updated on the Gardiner Expressway to warn drivers of construction on Lower Jarvis Street and Lower Sherbourne Street in advance of the exits in both the eastbound and westbound directions to give motorists an opportunity to use alternate exits.

Furthermore, prior to the commencement of construction, a Traffic Staging and Management Plan will be developed and implemented during construction. The Traffic Staging and Management Plan will, at a minimum, include measures to:

- Ensure impacts related to access to and from properties are minimized during construction activity;
- Warn oncoming motorists of construction activity and identify detours when/where required;
- Allow for the movement of construction personnel and materials to and from construction sites and provide restrictions on movements, where necessary;

- Control traffic at active construction sites;
- Reduce temporary lane disturbances and closures, where possible;
- Store equipment as far away from the roadway as possible; and
- Utilize and install construction barricades where necessary as specified in the Ontario Traffic Manual (OTM) Book 7.

Lane closures required during construction of the bridge extensions that are part of the Project will be co-ordinated with the City of Toronto and Waterfront Toronto, as well as with any utilities that are undertaking projects within or directly adjacent to the bridges.

As construction proceeds, the proposed Traffic Staging and Management Plan may be adjusted by the Contractor based on changes to activity in the surrounding area (i.e., if traffic operations at major intersections are shown to perform at a poor level of service).

5.7.2 Transit Service

5.7.2.1 Potential Impacts

Transit users will be directly affected on the 75 Sherbourne TTC route due potential lane and road closures and additional vehicular traffic from adjacent corridors due to closures at the other underpasses. The 65 Parliament, 97 Yonge, and 121 Fort York-Esplanade routes may experience increased travel times as a result of additional traffic on their routes, and changes to signal timings that may be implemented.

5.7.2.2 Mitigation/Compensation Measures

Transit service mitigation measures can include updating schedules and routes to inform transit riders of changes/detours to scheduled service, and posting signage at key transit stops in the study area. In case of closures affecting transit routes, City of Toronto and TTC must be notified well in advance.

5.7.3 Emergency Vehicles

5.7.3.1 Potential Impacts

It is recognized that Toronto Police Service (51 Division) and Toronto Fire Services (Fire Station 333) have stations within the study area. Mitigation may be required to ensure that Emergency Medical Services (EMS), Toronto Fire Services (TFS) and Toronto Police Service (TPS) do not see negatively impacted response times as a result of the road closures.

5.7.3.2 Mitigation/Compensation Measures

- Co-ordinate signal pre-emption for emergency vehicles where traffic signals have pre-emption capability.
- Restrictions on on-street-parking may be considered to ensure that two lanes are available through sections for emergency vehicles to use as emergency by-pass lanes if congestion is observed during construction.
- In the case of a full road closure, the City of Toronto, and emergency services will be notified well in advance.

5.7.4 Pedestrians and Cyclists

5.7.4.1 Potential Impacts

Pedestrian and cyclist movements will be impacted during partial and full closures of underpass structures. Staging scenarios 1 and 4 involve partial road closures which would maintain one sidewalk and one bike lane, where applicable, open in either the northbound or southbound direction. As such, little to no detour is expected by pedestrians in these scenarios, with the exception of crossing to the other side of the street in the event of a closure. Staging scenarios 2, 3, 5, and 6 each involve full road closures, which would require all vehicular, pedestrian, and cyclist traffic to divert to parallel routes. Detour routes have been identified, but there may be a minor increase in travel times to destinations.

Active construction work areas can present safety hazards to pedestrians and cyclists if not properly managed. Mitigation measures will be discussed below.

5.7.4.2 Mitigation/Compensation Measures

- Keep one sidewalk and bike lane, where applicable, open and clear in either direction at all possible times. Note that during the planned closure of Lower Sherbourne Street bike lane in one direction, the bike lane on Cherry Street in the same direction is to remain open. Similarly during the planned directional closure of Cherry Street bike lane in one direction, the bike lane on Lower Sherbourne Street in the same direction is to remain open. Where all sidewalk and/or bike lane access is closed (weekend full closure scenarios), identify detours that would result in minimal increases to travel times. Provide signage (construction warning signs and wayfinding signs) for pedestrians and cyclists to reduce confusion caused by road closures. Signage should also be provided at key upstream decision points at controlled crossings.

- The timing of the planned simultaneous closure of Lower Sherbourne Street bike lane in one direction and Cherry Street Bike lane in the opposite direction should account for timing needs of the Wilson Yard Layover Facility and Harbour Lead work on the Lower Don River Trail.
- The appropriate Ontario Traffic Manual (OTM) books and the applicable City of Toronto Principles / Guidelines for cyclists' safety through construction zones should be used when managing road users, including pedestrians and cyclists through construction zones to minimize the potential for safety hazards. Safety fencing will be used where necessary to separate the work area from pedestrians and/or cyclists. Traffic control devices and work zone signage indicating the presence of construction activity to be provided as part of Construction Staging and Management Plan.
- Socio-economic, trail and recreational impacts and mitigation measures are further outlined in detail in the USRC East Enhancement TPAP Socio-Economic and Land Use Characteristics Study (**Appendix B.5**).

5.8 Cultural Heritage

A Cultural Heritage Screening Report (CHSR) was completed to identify known and potential built heritage resources and cultural heritage landscapes within the USRC East Enhancements Project Study Area, as detailed in **Section 4.9.1**. The CHSR is provided in **Appendix B7.1**.

In total, nine properties including the John Street, Scott Street and Cherry Street Interlocking Towers, the Lower Jarvis, Lower Sherbourne, Parliament Street and Cherry Street Subways (Bridges), the Lower Don River Trail and the Signal Bridges were screened for cultural heritage value or interest. The John Street, Scott Street and Cherry Street Interlocking Towers as well as the Lower Jarvis, Lower Sherbourne, Parliament Street and Cherry Street Subways were previously identified to hold cultural heritage value or interest (refer to **Appendix B7.3**) The Signal Bridges were previously evaluated through screening to not require a CHER. The CHSR recommended a CHER for the Lower Don River Trail.

The CHSR and CHERs identified that four of the nine properties screened were not subject to further investigations. These properties are outlined in **Table 5-16**.

Table 5-16: Identified Properties not Subject to Further Investigations

Property/ Resource	Recommended Outcome
John Street Interlocking Tower	Based on the Metrolinx Heritage Committee decision on July 23, 2013 this property is a Provincial Heritage Property of Provincial Significance. Given that the tower is not immediately located within the USRC East Enhancements Project Study Area, and the property will not be impacted by any of the proposed upgrades to the corridor, no further recommendation is made. However, AECOM recommends that the tower be considered for its contextual relationship when evaluating possible alternatives for conserving the cultural heritage value of other towers in the corridor, such as the Cherry Street Interlocking Tower.
Scott Street Interlocking Tower	Based on the Metrolinx Heritage Committee decision on July 23, 2013, this property is a Provincial Heritage Property of Provincial Significance. Given that the tower is not immediately located within the USRC East Enhancements Project Study Area, and the property will not be impacted by any of the proposed upgrades to the corridor, no further recommendation is made. However, AECOM recommends that the tower be considered for its contextual relationship when evaluating possible alternatives for conserving the cultural heritage value of other towers in the corridor, such as the Cherry Street Interlocking Tower.
Signal Bridges	The signal bridges were found to not have heritage potential based on the Screening Questions in the Metrolinx *Draft Terms of Reference for Consultants: Cultural Heritage Screening Report for Built Heritage Resources and Cultural Heritage Landscapes*. While the signal bridges are over 40 years old, they were found to not have significant design/physical value, associative value or contextual value. Additionally, they are not recognized at a municipal, provincial, or federal level. As a result, the signal bridges do not require a CHER.
Lower Don River Trail	The applications of *O. Reg. 9/06* and *O. Reg. 10/06* concluded that the Lower Don River Trail does not meet *O. Reg. 9/06* or *O. Reg. 10/06* as it did not meet any of the nine criteria. The Lower Don River Trail is owned by the City of Toronto. The CHER recommended that the outcome of the evaluations for the trail determine that the Lower Don River Trail not be considered a Conditional Provincial Heritage Property (PHP). Based on the Metrolinx Heritage Committee decision on June 9, 2017, this property is not a Provincial Heritage Property (**Appendix B7.1**).

The remaining five properties (Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, Cherry Street Subway, and Cherry Street Interlocking Tower) exhibited cultural heritage value or interest, and are subject to additional mitigation measures discussed below. CHERs were completed for all five of these properties and the outcomes of these are described in Table 5-15 below. The complete CHERs are included in **Appendix B.7.3**.

5.8.1 Potential Effects and Mitigation

Five properties were determined to have cultural heritage value or interest and will be directly impacted by the USRC East Enhancements Project. In order to accommodate the widening of the USRC corridor, the Lower Jarvis Street, Lower Sherbourne Street, Parliament Street and Cherry Street Subways will be extended and the Cherry Street Tower is proposed to be relocated. As a result, additional mitigation measures are required for these properties. Four of the five properties (Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, and Cherry Street Subway) were identified as PHPs, and as such a Heritage Impact Assessment (HIA) will be prepared during the Detailed Design phase of the Project to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the properties.

The fifth property, Cherry Street Interlocking Tower, is identified as a PHPPS, and a HIA is being undertaken as part of this TPAP and is further discussed in **Section 5.8.2** below.

The outcomes of the CHERs, the potential effects, and the mitigation for these properties are outlined in **Table 5-17** and **Table 5-18** below.

Table 5-17: Summary of Potential Effects and Mitigation

CHR#	Mile	Name	Municipal Address	Existing Heritage Recognition	Heritage Value/Description of Resource	Potential Impact	Mitigation
BHR-3	333.32	Lower Jarvis Street Subway / Metrolinx	N/A	*Four USRC Subways (Bridges) CHER, 2016* Based on the Metrolinx Heritage Committee decision on June 8, 2016, this property is a Provincial Heritage Property.	The railway Subway was constructed in 1927 and the railway embankment was constructed in the 1920s. It displays a high degree of craftsmanship in the construction of its steel and concrete work and has direct associations with the Waterfront Viaduct. The Subway is important in defining and supporting the transit corridor, and industrial character of the area as a part of the Waterfront Viaduct. It is physically, functionally, and historically linked to its surroundings, as an urban infrastructure project that facilitated grade separation between rail lines and city roads. The Subway is also adjacent to a Protected Heritage Property (1 Market Street).	Potential alterations due to bridge extension.	HIA will be prepared during Detailed Design to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the properties. Impacts to this bridge will also be identified in this HIA.
BHR-5	333.12	Lower Sherbourne Street Subway / Metrolinx	N/A	*Four USRC Subways (Bridges) CHER, 2016* Based on the Metrolinx Heritage Committee decision on June 8, 2016, this property is a Provincial Heritage Property.	The railway Subway was constructed in 1927 and the railway embankment was constructed in the 1920s. It displays a high degree of craftsmanship in the construction of its steel and concrete work and has direct associations with the Waterfront Viaduct. The Subway is important in defining and supporting the transit corridor, and industrial character of the area as a part of the Waterfront Viaduct. It is also physically, functionally, and historically linked to its surroundings, as an urban infrastructure project that facilitated grade separation between rail lines and city roads.	Potential alterations due to bridge extension.	HIA will be prepared during Detailed Design to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the properties. Impacts to this bridge will also be identified in this HIA.
BHR-6	332.85	Parliament Street Subway / Metrolinx	N/A	*Four USRC Subways (Bridges) CHER, 2016* Based on the Metrolinx Heritage Committee decision on June 8, 2016, this property is a Provincial Heritage Property.	The railway Subway was constructed in 1927 and the railway embankment was constructed in the 1920s. It displays a high degree of craftsmanship in the construction of its steel and concrete work. The Subway has direct associations with the Waterfront Viaduct and is important in defining and supporting the transit corridor, and industrial character of the area as a part of the Waterfront Viaduct. The Subway is also physically, functionally, and historically linked to its surroundings, as an urban infrastructure project that facilitated grade separation between rail lines and city roads.	Potential alterations due to bridge extension.	HIA will be prepared during Detailed Design to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the properties. Impacts to this bridge will also be identified in this HIA.
BHR-7	332.4	Cherry Street Subway / Metrolinx	N/A	*Four USRC Subways (Bridges) CHER, 2016* Based on the Metrolinx Heritage Committee decision on June 8, 2016, this property is a Provincial Heritage Property.	The railway Subway was constructed between 1928 and 1929 and the railway embankment was constructed in the 1920s. It displays a high degree of craftsmanship in the construction of its steel and concrete work and has direct associations with the Waterfront Viaduct and is important in defining and supporting the transit corridor, and industrial character of the area as a part of the Waterfront Viaduct. The Subway is physically, functionally, and historically linked to its surroundings, as an urban infrastructure project that facilitated grade separation between rail lines and city roads. These linkages are bolstered by its relationship to the adjacent Cherry Street Interlocking Tower. The Cherry Street Interlocking Tower, identified in a 2013 CHER as a Provincial Heritage Property of Provincial Significance is located immediately adjacent to the Subway. In addition, the Distillery District, a National Historic Site is located adjacent to the Subway. In addition, the Subway is adjacent to the Distillery District. Currently, the City of Toronto is undertaking a Heritage Conservation District Study for the Distillery District. At the time of preparing this CHSR, the proposed HCD is in the study phase.	Potential alterations due to bridge extension.	HIA will be prepared during Detailed Design to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the properties. Impacts to this bridge will also be identified in this HIA.

Table 5-18: Summary of Potential Effects and Mitigation of the Cherry Street Interlocking Tower

Property Name / Ownership	Municipal Address	Description of Resource	Summary of Heritage Value or Potential	CHER Outcome / Details	Potential Effects	Mitigation
Cherry Street Interlocking Tower / Metrolinx	385 Cherry Street	Interlocking Signal Tower	The tower was constructed between 1930 and 1931 and is tied to the USRC railway embankment that was constructed in the 1920s and 1930s. The tower is unique in Ontario as one of a set of three signal towers designed and constructed expressly for the housing and operation of an interlocking machine. The electro-mechanical interlocking machine is an early example of control systems that are critical to modern industrial processes. It was the largest system built in Canada. The tower was built to exact specification with high-quality materials and remains in very good condition; both elements are evidence of a high degree of craftsmanship. The building is an aesthetically pleasing and interesting example of railway architecture, as seen in its overall form and mix of classically inspired Arts-and-Crafts motifs. The interlocking machine has remained in use since 1931 and has controlled train movements in the USRC since then. The Toronto Terminals Railway (TTR) built the tower. The TTR was responsible for the USRC and the building of its viaduct. It modernized the rail corridor and created Toronto's 20th -century railway lands. The TTR's owning partner – CP – designed the tower. CP was an important employer in Toronto at that time. The need to keep trains safely operating was important enough to the city that it contributed to the funding of the system and to the building of the viaduct through the TTR. The design and methods of interlocking operation are well documented in published literature but the dynamic nature of the operation can be best understood by observing the operating environment. The building was designed under the direction of or directly by J.W. Orrock, the CPR's Chief Engineer of Buildings. The CPR's design group consistently produced buildings that were commended for their aesthetic and functional designs, and for the quality of their construction. He is significant to numerous communities, including anyone interested in Canada's railway heritage. The USRC is the 'area'. The tower helps define the USRC as a working transportation landscape within a formally industrial area of Toronto. Contemporary planning by the City has been focused, in part, in making the industrial history visible in redevelopment, as seen in the nearby Distillery District. The USRC is an organizing element of great importance in the context of Toronto's south downtown and the central waterfront. The tower is co-located with the Cherry Street USRC Subway and its railing. Passengers on trains can see the tower from trains a couple of minutes (or less) when leaving or entering Union Station. The property is located adjacent (across Cherry Street) to the Distillery District, a National Historic Site in Toronto. Currently, the City of Toronto is undertaking a Heritage Conservation District Study for the Distillery District. At the time of preparing this CHSR, the proposed HCD is in the study phase.	*USRC Cherry, Scott & John Street Interlocking Tower, Cultural Heritage Reports Volume 1, 2013* Based on the Metrolinx Heritage Committee decision on July 23, 2013, this property is a Provincial Heritage Property of Provincial Significance.	Relocation of the Cherry Street Tower due to track expansion for new Track E0.	Mitigation identified as part of the HIA completed as part of this TPAP (refer to **Section 5.8.2**)

5.8.2 Cherry Street Interlocking Tower - Heritage Impact Assessment

A Draft Heritage Impact Assessment was completed for the Cherry Street Interlocking Tower as part of this Project in October 2017 (**Appendix B8**).

The Cherry Street Interlocking Tower has been identified as a Metrolinx Heritage Property of Provincial Significance. The significance of the Tower pertains to the structure itself, the equipment within it as well as its relationship to the USRC. The values and/or heritage attributes and adjacent attributes that are potentially impacted by the proposed intervention are identified; as well the potential impact is described and evaluated. The impacts of the proposed activities on heritage attributes are rated based on the following range:

- **None:** The activities have no negative impact on the value or attribute, or there is no change.
- **Direct Adverse:** A direct adverse impact would have a permanent and irreversible negative affect on the cultural heritage value or interest of a property or result in the loss of a heritage attribute on all or part of the provincial heritage property.
- **Indirect Adverse:** An indirect adverse impact would be the result of activities on or near the property that may adversely affect its cultural heritage value or interest and/or heritage attributes.
- **Positive Impact:** Positive impacts are those that may positively affect a property by conserving or enhancing its cultural heritage value or interest and/or heritage attributes.

Table 5-19 below summaries the potential impacts the Project has on the Cherry Street Interlocking Tower.

5.8.2.1 Mitigation

As a prescribed public body, Metrolinx has obligations under the Standards & Guidelines for Conservation of Provincial Heritage Properties (S&G) to identify, protect, maintain and use provincial heritage properties in a manner that respects the cultural heritage value of the property. The proposed undertaking at the Cherry Street Tower, a Provincial Heritage Property of Provincial Significance, requires the consent of the Minister of Tourism, Culture and Sport “before removing or demolishing buildings or structures on the property, or before transferring the property from provincial control.”

Table 5-19: Potential Impacts to Cherry Street Interlocking Tower

Item #	Affected Cultural Heritage Values and/or Heritage Attributes	Potential Impacts	Category of Impact
1	**Key contextual attributes** Its location adjacent to the tracks	Removal from an original site may disconnect the Tower from its context and original functional setting.	DIRECT ADVERSE
2	Its full integration into the retaining wall of the corridor's viaduct	The demolition of the basement foundations and caissons is permanent and cannot be feasibly restored at a new location. In its new location the Tower will not be directly engaged with the new retaining wall.	DIRECT ADVERSE
3	The iron guard rail fencing along the top of the Cherry Street Subway bridge to the west of the Tower	Relocation will sever the Tower's relationship with the fencing of the Cherry Street Subway.	DIRECT ADVERSE
4	The Tower's orientation towards the tracks and along the tracks	Removal from an original site may alter the Tower's orientation as it relates to the tracks.	DIRECT ADVERSE
5	Clear views along the tracks in both directions	Removal from its original position will alter views and may obstruct views from the Tower along the tracks in both directions	DIRECT ADVERSE
6	**Key attributes of its historical associations** Elements associated with railway architecture of its period, especially its shape, scale and solid masonry construction	Relocation of the Tower will not alter its shape or scale. The masonry construction of the first and second floor levels will not be altered provided appropriate bracing measures are put in place; however, the foundation (basement) will be abandoned/demolished and a new basement constructed.	DIRECT ADVERSE
7	Its eclectic styling with a picturesque silhouette and restrained detailing and proportions	Relocation of the Tower will not alter the silhouette, detailing or proportions; however, the choice of site may affect how the silhouette appears relative to its surroundings	DIRECT ADVERSE
8	Its form and construction as seen in its rectangular shape, hip roof with flared eaves, restrained and noble detailing, and solid masonry construction	Relocation of the Tower will not alter its rectangular shape, hip roof, or detailing. The masonry construction of the first and second floor levels will not be altered provided appropriate bracing measures are put in place; however, the foundation (basement) will require reconstruction.	DIRECT ADVERSE

Item #	Affected Cultural Heritage Values and/or Heritage Attributes	Potential Impacts	Category of Impact
9	The organization of the building around the operation of the interlocking machine and its power sources	The first and second floor levels will continue to be organized around the interlocking machine; however, the relocation and loss of original basement will result in the removal of equipment currently housed in the basement for salvage, conservation and relocation.	DIRECT ADVERSE
10	The apparent complexity of the equipment and the separation of functionality by floor for the equipment and personnel	See Item 9 above, 'organization of the building'. The first and second floor levels will appear exactly as they currently appear at the original location. Only the basement level will be functionally adapted.	DIRECT ADVERSE
11	**Key exterior design attributes** The high proportion of elements surviving from its original period of design and construction, including its original form, massing, scale, window and door arrangements	See Item 8 above, "Form and construction".	INDIRECT ADVERSE
12	The hierarchy of the building as seen in its materials and detailing, with: ▪ a poured-in-place concrete foundation ▪ all brick ground and first storeys ▪ a stone belt course band capping the foundation and brick soldier courses marking the ground and first storeys	The hierarchy will be retained; however, the concrete foundation will require reconstruction. Proper design of the reconstructed foundation and pre- and post-move conservation will maintain all other attributes and will retain the attributes of hierarchy.	DIRECT ADVERSE
13	Its silhouette, composed of a rectangular block surmounted by a steep hip roof with wide flared eaves	This attribute will be retained, however there is a potential for indirect impact resulting from the moving of the structure. See Item 8 above, 'Form and construction'.	INDIRECT ADVERSE
14	Its symmetry in plan and appearance	This attribute will be retained; however, there is a potential for indirect impact resulting from the moving of the structure. See Item 8 above, 'Form and construction'.	INDIRECT ADVERSE
15	Its solid, well-detailed mid-brown brick construction laid in common bond with horizontal mortar joints raked back from brick face and with vertical joints struck flush with brick	The removal process may be expected to cause some cracking of brick and stone mortar joints that can be repaired when the Tower is in its final position. See Item 8 above, 'Form and construction'.	DIRECT ADVERSE

Item #	Affected Cultural Heritage Values and/or Heritage Attributes	Potential Impacts	Category of Impact
16	Its orientation toward the track as seen in its long rectangular plan parallel to the tracks, the main entrance facing the tracks and the arrangement of most windows toward views of the tracks	Removal from an original site may alter the Tower's orientation as it relates to the tracks.	DIRECT ADVERSE
17	The principal entry door at ground level with its oak door frame and mouldings, and its glazing with divided lights and a transom	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
18	The restrained application of masonry detailing, such as the soldier course at the first floor, the blind arches above the windows, and contrasting limestone elements, including keystones, stone sills, and the carved bracket below the Train Directors' bay	These attributes will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
19	The shape and scale of the projecting Director's Bay with its view to the tracks	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
20	The projecting bay of the Train Directors' control desk facing the tracks, including: ▪ the opening for a large undivided window ▪ the narrow window returns ▪ the formed concrete spandrel wall below the windows ▪ the moulded copper profile at the window heads, and ▪ the exposed concrete floor of the bay supported by robust carved limestone brackets	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
21	The generous scale of the windows on the second storey, organized symmetrically in groups of three on each side of the bay and on the two ends of the building	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE

Item #	Affected Cultural Heritage Values and/or Heritage Attributes	Potential Impacts	Category of Impact
22	Exposed and decoratively carved wood rafters and exposed roof boards at flared eaves projection	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
23	The copper roof cap	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
24	All exterior elements that are consistent between the three interlocking towers	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
25	**Key interior design attributes** The prefabricated steel staircase newels and welded-wire mesh screen	Removal affects a key interior attribute unless the stair is salvaged and reinstated in its entirety.	DIRECT ADVERSE
26	Original oak doors and frames	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
27	Original oak window frames, casings, mullions and sills	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
28	Original finishes in the train operation room.	This attribute will be retained and conserved however, there is a potential for indirect impact resulting from the moving of the structure.	INDIRECT ADVERSE
29	**Key attributes related to technical achievements** Its construction using pier caissons	Removal of the Tower affects this attribute. Buried Caissons will be left in place or demolished. Buried Caissons cannot be moved with this structure.	DIRECT ADVERSE
30	The functional hierarchy of the building, with a workshop and power controls in the basement, the relay racks on the second floor, and the interlocking machine and office on the top floor	Removal disrupts the functional hierarchy of the building: although the first and second storey will be moved intact there is necessary demolition of the basement level and the foundation wall in which these attributes are located.	DIRECT ADVERSE

Item #	Affected Cultural Heritage Values and/or Heritage Attributes	Potential Impacts	Category of Impact
31	Access stairs linking all floors	Removal affects a key interior attribute unless the stair is moved with the building or removed, salvaged and reinstalled. The stair from basement to first storey may be able to be incorporated into the new design.	DIRECT ADVERSE
32	The holding basin for the battery array	Holding basin will be demolished. Mitigation through restoration may not be practical in the relocated Tower due to functional requirements for the new basement level.	DIRECT ADVERSE
33	The interlocking machine, consisting of metal cabinets containing the electromechanical interlocking bed and its associated relay and inspection compartment in the middle of machine	The decommissioning and disconnection of the interlocking technology represents a fundamental change to the original use and purpose of the Tower. However, the interlocking machine will be retained, providing an opportunity for conservation, public access and interpretation. Interlocking machine will be conserved in place. If necessary, some elements may be removed by a qualified professional for replacement following the move to accommodate structural bracing. Conservation in situ will provide an opportunity for public access and interpretation.	DIRECT ADVERSE Opportunity for POSITIVE IMPACT
34	The track diagram board	The track diagram on the second floor will be conserved in place in its entirety. Conservation in situ will provide an opportunity for public access and interpretation.	INDIRECT ADVERSE Opportunity for POSITIVE IMPACT
35	The relay racks, electrical relays from the 1930s onwards, and the related electrical cables	The racks, relays and cables on the first and second floors of the building will be conserved in place or will be salvaged, temporarily removed and reinstated after relocation. Conservation in situ will provide an opportunity for public access and interpretation.	INDIRECT ADVERSE Opportunity for POSITIVE IMPACT
36	The interlocking machine, consisting of metal cabinets containing the electromechanical interlocking bed and its associated relay and inspection compartment in the middle of machine	The majority of interlocking equipment will remain in situ and be conserved. This will provide an opportunity for public access and interpretation.	POSITIVE IMPACT

Item #	Affected Cultural Heritage Values and/or Heritage Attributes	Potential Impacts	Category of Impact
37	The electrical concrete conduit built into the structure	The conduit will be demolished. Mitigation through restoration is feasible but construction method and material may not restore the original.	DIRECT ADVERSE
38	The electrical control board in basement battery room	The electrical board can be removed and salvaged but may not be reinstated in its original location due functional requirements for the new basement level.	DIRECT ADVERSE

In order to achieve the Minister's Consent for the undertaking, the HIA prepared by THA (2018) recommends that the following be adopted to mitigate impact on the Tower's cultural heritage values and attributes:

- Prepare a Conservation Plan during the detailed design process to guide the technical aspects of the Tower relocation.
- Document, through detailed measured drawings, professional photography within and outside the building, the Tower as it currently exists. Create an inventory of fixed and movable fittings, furnishings and artefacts and salvage for removal, or removal for reuse.
  - Create a written, photographic and video record of staff operations as they currently exist to demonstrate the interlocking signal process, for the purpose of archival and interpretive purposes.
- Employ qualified professional heritage consultants in the areas of architecture, structural engineering, and rail machinery conservation for all subsequent phases of work.
- Include a conservator of heritage industrial equipment (or equivalent qualified professional) in the consultant team to document and catalogue the interlocking machinery and all its components as well as all technical attributes located on all floor levels of the Tower. The conservator (or equivalent qualified professional) should be engaged to advise on:
  - Any selective temporary removal and reinstatement of components resulting from the structural bracing required to move the Tower;
  - The handling of the attributes and their protection;
  - The removal of attributes from the basement level (including their temporary storage);
  - Recommendations for their reinstallation in the Tower if possible, de-accessioning through a recognised process to a suitable heritage railway agency for interpretive purposes.
  - Interpretation and follow-up activities.
- The Tower's physical connection and contextual relationship to the USRC is also integral to its cultural heritage value. It is highly recommended that its new location recreate this connection and relationship as much as possible. The Tower's siting adjacent to the USRC and continued ownership by Metrolinx.
- Design of the bridge connection to the expanded rail corridor to the south to incorporate elements and materials that are consistent with the historical precedents found along the USRC.

- It is recommended that the iron guard rail fencing be reinstated on the existing bridge after it is extended, and this mitigation measure described through interpretation.
- The basement of the building should be a new concrete structure reproducing the existing arrangement.
  - Modifications to the Tower, such as in a reconstructed foundation (basement level), can be considered only in the context of how they support the Tower's new use and location.
- Stabilization of the complete exterior and interior, first and second floor levels, in preparation for the move.
  - A complete pre-conditions assessment must be prepared and repairs made that will stabilize the structure prior to moving, even if these repairs are temporary.
  - Preservation in situ of the interlocking equipment on the first and second floors, in combination with protective, selective removal and salvaging for reinstallation following relocation (including racks, cabinets, levers, lights and control board) for preservation within the Tower.
  - Installation of temporary protective measures for the structure.
  - Removal and salvaging of selected assemblies (such as windows, doors and stairs) for reinstallation after the move.
  - Structural bracing and cradling of brick masonry structure and roof of the Tower for preservation and sequential demolition of the existing foundation so that the Tower can be lifted and removed.
  - Structural bracing and cradling of brick masonry structure and roof of the Tower for preservation and sequential demolition of the existing foundation so that the Tower can be lifted and removed.
  - Identification of a temporary holding location for the braced structure 'in-transit' while a new northern retaining wall is constructed.
- The Tower's interlocking technology is integral to its cultural heritage value and it is inseparable from the building which was designed to house it. It is essential that the interlocking equipment identified as heritage attributes at the first and second levels remain in the relocated Tower to maintain this value.
  - To mitigate the impact of the decommissioning of the Tower's interlocking functions, a specialized public program should be developed and implemented to interpret its original function through occasions such as Doors Open and other appropriate events.

- The lowest storey of the building should be a new concrete structure reproducing the existing arrangement.
  - Modifications to the Tower, such as in a reconstructed foundation (basement level), can be considered only in the context of how they support the Tower's new use and location.
- Restore the relocated building, including all measures identified in the Conservation Plan for heritage attributes such as the masonry, existing windows and doors, existing roof structure, interior components, finishes and the interlocking machinery.

By following the mitigation strategies, the severity of the adverse effects of Tower removal to an alternate location may be reduced / mitigated.

Prior to any work being carried out, the Tower must be fully recorded and documented with archival quality measured drawings and photographs in accordance with the Standards and Guidelines for the Conservation of Historic Places in Canada (S&G). The measured drawings should be a full record of the current conditions (basement, first floor, second floor, interior and exterior). The photographs should be made by a professional photographer and include general views and details of all elements described in the Statement of Cultural Heritage Value. In addition, it is recommended that video recording of the operation of the interlocking signal system be made to be used for interpretation and archival processes before the decommissioning of the equipment. The documentation should be completed by heritage conservation professionals, including a conservator or heritage specialist, an architect or a structural engineer, and a professional photographer. All records should be deposited in the City of Toronto Archives, Archives of Ontario, and at Library and Archives Canada.

Table 5-20 outlines additional mitigation measures required to lessen or avoid potential impacts on specific heritage attributes.

Table 5-20: Values/Attributed Affected and Mitigation Strategies

Cultural Heritage Values and/or Heritage Attributes Affected	Mitigation Strategies
Key **contextual attributes**, including: ▪ Its location adjacent to the tracks ▪ The tower's orientation towards the tracks and along the tracks ▪ Clear views along the tracks in both directions	The proposed site for the relocation of the Tower will place it in a similar location and configuration along the USRC, including the siting of the first storey at track level with views and direct access to the tracks, reproducing the original relationship. The CP must describe measures that provide a high level of authentic appreciation of views to and from the Tower, in relation to its tracks, and the direct relation of views from the bays up and down the track to ensure that loss of sightlines present at the original location, will be mitigated.
▪ Its full integration into the retaining wall of the corridor's viaduct	In its new location the Tower will not be directly engaged with the new retaining wall. It will be approximately 1.5 m to the north. Access to the rail corridor from the original main floor will be re-established by a new bridge structure. Design of the bridge connection to the expanded rail corridor to the south should incorporate elements and materials that are consistent with the historical precedents found along the USRC and should conform to the Standards & Guidelines for the Conservation of Historic Places in Canada.
▪ The iron guard rail fencing along the top of the Cherry Street Subway bridge to the west of the Tower	This contextual attribute is unlikely to be recreated once the Tower is relocated. It is recommended that the fencing be reinstated on the existing bridge after it is extended, and this mitigation measure described through interpretation.
Key attributes of its **historical associations**, including: ▪ Elements associated with railway architecture of its period, especially its shape, scale and solid masonry construction ▪ Its eclectic styling with a picturesque silhouette and restrained detailing and proportions ▪ Its form and construction as seen in its rectangular shape, hip roof with flared eaves, restrained and noble detailing, and solid masonry construction	The existing foundation (basement level) should be documented prior to deconstruction. Proper design of the reconstructed foundation and pre- and post-move conservation will maintain elements associated with railway architecture of this period including its shape, scale, form and construction. The proposed site for the relocation of the Tower will place it in a similar location and configuration along the USRC, including the siting of the first storey at track level with views and direct access to the tracks, reproducing the original silhouette.

Cultural Heritage Values and/or Heritage Attributes Affected	Mitigation Strategies
▪ The organization of the building around the operation of the interlocking machine and its power sources ▪ The apparent complexity of the equipment and the separation of functionality by floor for the equipment and personnel	The first and second storey will continue to be organized around the interlocking machine. Prior to removal and relocation, the basement equipment should be fully documented. This documentation should be used in the interpretation of the Tower. The CP should determine the most appropriate measures for conservation, placement and interpretation of the equipment currently located in the basement.
Key **exterior design attributes**, including: ▪ The hierarchy of the building as seen in its materials and detailing, with: – a poured-in-place concrete foundation – all brick ground and first storeys – a stone belt course band capping the foundation and brick soldier courses marking the ground and first storeys	Proper design of the reconstructed foundation and pre- and post-move conservation will maintain will retain the attributes of hierarchy.
▪ Its solid, well-detailed mid-brown brick construction laid in common bond with horizontal mortar joints raked back from brick face and with vertical joints struck flush with brick	A complete pre-conditions assessment must be prepared and repairs made that will stabilize the structure prior to moving, even if these repairs are temporary. Once placed on its new foundation, cracked mortar joints should be re-pointed to replicate original joints, and any other masonry deterioration (due to relocation) repairs should be implemented under direction of heritage professionals.
▪ Its orientation toward the track as seen in its long rectangular plan parallel to the tracks, the main entrance facing the tracks and the arrangement of most windows toward views of the tracks	A complete pre-conditions assessment must be prepared and repairs made that will stabilize the structure prior to moving, even if these repairs are temporary. Once placed on its new foundation, cracked mortar joints should be re-pointed to replicate original joints, and any other masonry deterioration (due to relocation) repairs should be implemented under direction of heritage professionals.
▪ Its orientation toward the track as seen in its long rectangular plan parallel to the tracks, the main entrance facing the tracks and the arrangement of most windows toward views of the tracks	The proposed site for the relocation of the Tower will place it in a similar location and configuration along the USRC, including the siting of the first storey at track level with views and direct access to the tracks, reproducing the original orientation toward the track, access patterns, and arrangement of most windows toward views of the tracks.

Cultural Heritage Values and/or Heritage Attributes Affected	Mitigation Strategies
▪ All other key **exterior design attributes** (potential indirect adverse impacts)	The move and the relocation can be successfully achieved through the construction of bracing systems under, through and around the masonry building until it rests onto a new foundation. Openings through the concrete basement walls will be made to support the two storey brick masonry structure from below. The relocation route should be carefully determined to avoid any clearance restrictions of building components. The relocation and post-move Conservation Plan should be developed through collaboration between the structural engineers, conservation engineer, architect, and conservator of rail equipment (or equivalent qualified professional).
Key **interior design attributes**, including: ▪ The prefabricated steel staircase, newels and welded-wire mesh screen	After documentation, the stair should be disconnected between the ground and basement levels, and re-connected within a re-constructed foundation (basement level). Floor-to-ceiling height must be maintained in order to accommodate the staircase.
▪ Original oak doors and frames ▪ Original oak window frames, casings, mullions and sills ▪ Original finishes in the train operation room.	Conservation of interior design attributes during the relocation can be successfully achieved through the installation of temporary protective measures; including bracing or removal and salvaging of selected assemblies (such as windows, doors and stairs) for reinstallation after the move. Following the relocation of the Tower, these features will require a condition assessment and any identified repairs.
Key attributes related to **technical achievements**, including: ▪ Its construction using pier caissons	The existing caissons, together with the whole of the foundation (basement level), should be documented prior to removal. At the proposed location for the Tower, the foundation will no longer engage the embankment nor act as a retaining structure for the rail bed. The Tower will be approximately 1.5 m north of a new, independent retaining wall that will be built prior to the relocation of the Tower. Caisson foundations may not be required for the new foundations depending on soil bearing conditions. If the foundations are built without caissons, interpretation will be necessary to discuss why these were once required when the building foundation acted as a retaining structure.

Cultural Heritage Values and/or Heritage Attributes Affected	Mitigation Strategies
▪ The functional hierarchy of the building, with a workshop and power controls in the basement, the relay racks on the second floor, and the interlocking machine and office on the top floor	The first and second storey will be moved intact (including interior elements that reflect the functional hierarchy of the Tower); however, there is necessary demolition of the basement level and the foundation wall in which these attributes are located. The basement, including interior components should be documented prior to removal of any features. Interpretation of functional equipment (power controls, battery array) formerly housed in the basement along with the retention of first and second floor equipment can mitigate the alteration of this attribute.
▪ Access stairs linking all floors	After documentation, the stairs should be disconnected between the ground and basement levels, and re-connected within a re-constructed foundation (basement level). Floor-to-ceiling height must be maintained in order to accommodate the staircase.
▪ The holding basin for the battery array	The holding basin should be documented. Reinstatement of the holding basin and concrete electrical conduit is contingent on the space planning requirements for Metrolinx operational staff and needs for the basement. Modifications can be considered only when the functional plan for use of the basement by Metrolinx staff has been completed. Further functional planning is required to anticipate additional mitigation measures.
▪ The interlocking machine, consisting of metal cabinets containing the electro-mechanical interlocking bed and its associated relay and inspection compartment in the middle of machine ▪ The track diagram board ▪ The relay racks, electrical relays from the 1930s onwards, and the related electrical cables ▪ The interlocking machine, consisting of metal cabinets containing the electro-mechanical interlocking bed and its associated relay and inspection compartment in the middle of machine	These attributes on the first and second floors should remain inside the Tower during the relocation process, contingent on the requirements of the temporary structural bracing for the building. Interference between the contents and the temporary structure will require increased protection for preservation, documentation and the assistance of a conservator (or equivalent qualified professional) for selective removal and salvaging for reinstatement (that should be kept to a minimum). Although AECOM suggested that removal and storage would lighten loads for transportation, it is the opinion of this report that the weight is relatively minor and removal may cause damage. Therefore, they should be conserved and stabilized in place. The localized bracing, or selective removal, salvaging and reinstatement, of these contents will be developed after documentation in consultation with a conservator (or equivalent qualified professional) specializing in the specific handling of similar artefacts.

Cultural Heritage Values and/or Heritage Attributes Affected	Mitigation Strategies
	A CP should be prepared to determine the detailed protection and conservation required for the decommissioning and stabilization in place, in preparation for the move and subsequent conservation of the new site. Equipment in the basement should be documented. Components that cannot be retained in the reconstructed basement should be offered to interested railway heritage agencies for their collections through a recognized process of de-accession, or relocated elsewhere in the building. A public interpretation plan will be developed and implemented and will create positive impact. All work relating to reporting pre-design, design and implementation measures should be conducted by a conservator(s) qualified to undertake this work (or equivalent qualified professional).
▪ The electrical concrete conduit built into the structure	The electrical concrete conduit should be documented. Reinstatement of the concrete electrical conduit is contingent on the space planning requirements for Metrolinx operational staff and needs for the basement. Modifications can be considered only when the functional plan for use of the basement by Metrolinx staff has been completed. Further functional planning is required to anticipate additional mitigation measures.
▪ The electrical control board in basement battery room	The electrical control board in the basement battery room should be documented, removed and stored in consultation with a conservator (or equivalent qualified professional) specializing in the handling of similar artefacts. Reinstatement of the electrical control board within the new basement may be possible, however, the primary purpose of the basement is for Metrolinx operational staff, and space may be limited. If it cannot be returned to a reconstructed basement level at the Tower's new location, it should be offered to interested railway heritage agencies for their collections through a recognized process of de-accession, or relocated elsewhere in the building.

5.8.3 Four USRC Subways (Bridges) – Heritage Impact Assessment

A HIA is being prepared for the Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway and Cherry Street Subway according to the guidelines identified in MTCS' *Information Bulletin 3: Heritage Impact Assessments for Provincial Heritage Properties*. The HIA will be completed as early as possible during the detailed design phase and prior to completion of detailed design.

The purpose of the HIA is to evaluate the impact of proposed activities that may affect the cultural heritage value or interest and the Heritage Attributes of a provincial heritage property and inform decisions that may affect them. The removal or demolition of any building or structure on a provincial heritage property should be considered a last resort after all other alternatives have been considered, subject to heritage impact assessment and public engagement. Ministries and prescribed public bodies are required to use best efforts to mitigate loss of cultural heritage value or interest. The HIA will make recommendations to minimize or mitigate adverse effects on the Subways.

The Statement of Cultural Heritage Value and the identified Heritage Attributes have guided the bridge design in order to ensure the proposed design is sympathetic to that of the original structure. The design should mitigate the impacts to the Cultural Heritage Value and Heritage Attributes described in **Table 5-21**.

Table 5-21: Cultural Heritage Value and Heritage Attributes

Bridge	Statement of Cultural Heritage Value	Heritage Attributes
Lower Jarvis Street Subway	The Lower Jarvis Street subway passes under the eastern portion of the USRC at Lower Jarvis Street, in downtown Toronto. The subway is a riveted steel plate girder bridge, providing a 66'-5" road allowance under the elevated rail corridor. Two concrete abutments and three frame lines support the steel deck beams above. Each frame is roughly 91' in length and is composed of seven panels, three of which are cross braced. The subways provide two sidewalks on the east and west side, and two lanes of traffic between them. The subway was built in 1927 as part of the Waterfront Viaduct grade separation project.	▪ Attributes related to its historical associations at a local level including: – its construction in 1927 as one of four similar subways in the Waterfront Viaduct, a major City of Toronto initiative to establish a continuous, grade-separated rail line across the southern part of the city. ▪ Attributes related to its design associations at a local level including: – the precise construction, and excellent overall condition of the built up steel frame sections; and – the concrete abutments and deck fascia: board-formed with elegant falsework panelling and angled returns to the south, all in excellent overall condition. ▪ Attributes related to its contextual associations at a local level including: – its location within the elevated USRC corridor; – its visual connection with the St. Lawrence Market and St Lawrence Hall to the north; and – its visual connection with the Redpath Sugar Refinery to the south.
Lower Sherbourne Street Subway	The Lower Sherbourne Street subway passes under the eastern USRC at Lower Sherbourne Street, in downtown Toronto. The subway is a riveted steel plate girder bridge, providing a 66'-5" road allowance under the elevated rail corridor. Two concrete abutments and three frame lines support the steel deck beams above. Each frame is roughly 78' in length and is composed of six panels, four of which are cross braced. The subways support two sidewalks on each side, with two elevated bike lanes and two lanes of traffic between them. The subway was built in 1927 as part of the Waterfront Viaduct grade separation project.	▪ Attributes related to its historical associations at a local level including: – its construction in 1927 as one of four similar subways in the Waterfront Viaduct, a major City of Toronto initiative to establish a continuous, grade-separated rail line across the southern part of the city. ▪ Attributes related to its design associations at a local level including: – The precise construction, and excellent overall condition of the built up steel frame sections; and – The concrete abutments and deck fascia: board-formed with elegant falsework panelling and angled returns to the south, all in excellent overall condition. ▪ Attributes related to its contextual associations at a local level including: – its location within the elevated USRC.

Bridge	Statement of Cultural Heritage Value	Heritage Attributes
Parliament Street Subway	The Parliament Street subway passes under the eastern portion of the USRC at Parliament Street, in downtown Toronto. The subway is a riveted steel plate girder bridge, providing a 66'-5" road allowance under the elevated rail corridor. Two concrete abutments and three frame lines support the steel deck beams above. Each frame is roughly 114' in length and is composed of two four-panel sections, separated in the middle by an expansion joint. Two of the four panels are cross-braced in each section. The subways provide two sidewalks on the east and west side, and two lanes of traffic between them. The subway was built in 1927 as part of the Waterfront Viaduct grade separation project.	▪ Attributes related to its historical associations at a local level including: – its construction in 1927 as one of four similar subways in the Waterfront Viaduct, a major City of Toronto initiative to establish a continuous, grade-separated rail line across the southern part of the city. ▪ Attributes related to its design associations at a local level including: – The precise construction, and excellent overall condition of the built up steel frame sections; and – The concrete abutments and deck fascia: board-formed with elegant falsework panelling and angled returns to the south, all in excellent overall condition. ▪ Attributes related to its contextual associations at a local level including: – its location within the elevated USRC; and – its visual connection with the Victory Soya Mills Silos to the south.
Cherry Street Subway	The Cherry Street subway passes under the eastern portion of the USRC in downtown Toronto. The subway is a riveted steel plate girder bridge, providing a 66'-5" road allowance under the elevated rail corridor. Two concrete abutments and three frame lines support the steel deck beams above. Each frame is roughly 170' in length, composed of four three-panel sections separated by expansion joints. In each section the middle panel has cross bracing. The subways provide two sidewalks on the east and west sides, with two lanes of traffic between them. The subway was built	▪ Attributes related to its historical associations at a local level including: – its construction between 1928 and 1929 as one of four similar subways in the Waterfront Viaduct, a major part of the City of Toronto's initiative to establish a continuous, grade-separated rail line across the southern part of the city. ▪ Attributes related to its design associations at a local level including: – The precise construction, and excellent overall condition of the built up steel frame sections; and – The concrete abutments and deck fascia: board-formed with elegant falsework panelling and curved returns to the south, all in excellent overall condition. ▪ Attributes related to its contextual associations at a local level including: – its location within the elevated USRC;

Bridge	Statement of Cultural Heritage Value	Heritage Attributes
	between 1928 and 1929 as part of the Waterfront Viaduct grade separation project, a joint undertaking of the City of Toronto, CNR and CPR.	– the view of the subway and adjacent Cherry Street Interlocking Tower, looking south on Cherry Street from Mill Street; – its historic and functional connections with the Cherry Street Interlocking Tower; – its visual connection with the former Gooderham & Worts distillery site to the north; and – its visual connection with the Victory Soya Mills Silos to the south.

5.9 Archaeology

The Stage 1 AA for the USRC East Enhancements Project was completed under the project direction and archaeological licence of Glenn Kearsley [licence #P123] (AECOM). Work was completed in accordance with the provisions of the *Ontario Heritage Act* (2005) and with the MTCS' *Standards and Guidelines for Consultant Archaeologists* (2011). The Stage 1 AA Report is included in **Appendix B9**.

5.9.1 Potential Construction Effects

Areas within the current LOD for the USRC East Enhancements Project have been identified as deeply disturbed and therefore require no further archaeological work. These areas are marked in orange in **Figure 4-10**. This includes the Cherry Street Interlocking Tower at 385 Cherry Street, City of Toronto. This property (marked in dark green in **Figure 4-10**) was previously assessed by ARA (2015) and cleared of further archaeological concern.

The Stage 1 AA indicated there are areas of archaeological potential within or crossing over the LOD (including the Toronto Rolling Mills Wharf (WD-12), the Gooderham & Worts Distillery Wharves (WD-20), and the Gooderham and Worts Distillery Complex National Historic Site (WD-19)) which are believed to be located at a depth of approximately 76 m above sea level (ASL) (ASI 2016). Based on background review and existing site information, 76 mASL could be approximately 1-7 m depth below the surface within the USRC East Enhancements Project Study Area. While exact construction impacts and depths have not yet been determined for the USRC East Enhancements Project, construction of foundations for the bridge extensions and retaining walls are expected to go below 76 mASL.

Due to the varied topography / grading in the USRC East Enhancements Project Study Area, it is not known exactly how deep the potential archaeological resources may be buried in relation to the modern day ground surface.

The Stage 1 AA also identified areas of archaeological potential well outside the LOD (i.e., 50 m from the LOD), but within the larger USRC East Enhancements Project Archaeological Study Area that may be present at unknown depths. These areas of archaeological potential include the Don Breakwater (LDP-1) and the Toronto Dry Dock (LDP-3) (**Figure 4-10**). At present, it is not anticipated that these areas will impacted by construction activities.

If the area of potential impact for the USRC East Enhancements Project is refined during the Detailed Design phase of the Project, it is recommended that the need for further archaeological work be re-assessed in comparison to the final LOD for the Project.

5.9.2 Potential Operations Effects

No potential operation related effects to archaeological resources are anticipated.

5.9.3 Mitigation

- Areas of archaeological potential within or crossing over the LOD (including the Toronto Rolling Mills Wharf (WD-12), the Gooderham & Worts Distillery Wharves (WD-20), and the Gooderham and Worts Distillery Complex National Historic Site (WD-19) which are believed to be located at a depth of approximately 76 m above sea level (ASL) (ASI 2016) will require Stage 2 monitoring if construction disturbance should reach this depth. Stage 2 monitoring of these areas would be conducted as per Section 2.1.7, Standard 4*; Survey in Deeply Buried Conditions* of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).
- There are areas of archaeological potential well outside the LOD, but within the larger USRC East Enhancements Project Archaeological Study Area that may be present at unknown depths. Should the Don Breakwater (LDP-1) and the Toronto Dry Dock (LDP-3) (**Figure 4-10**) be impacted by the construction of the USRC East Enhancements Project, they shall be subject to Stage 2 monitoring, following *Section 2.1.7, Standard 4; Survey in Deeply Buried Conditions* of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). Monitoring should only be completed in these areas if they cannot be avoided by future construction (see ASI 2007, 2008b).
- The areas of proposed impact for the USRC East Enhancements Project will be refined during the Detailed Design phase of the Project. It is recommended that the need for further archaeological work shall be re-assessed in comparison to the final LOD for the Project.

In the event that archaeological remains are found during construction activities, the consultant archaeologist, approval authority, and the MTCS should be immediately notified. Compliance with the following legislation is required:

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or

activity from the site, until such a time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

- Should previously undocumented archaeological resources be discovered, 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 consultant archaeologist to carry out archaeological field work, in compliance with Section 48 (1) of the *Ontario Heritage Act*.
- The *Cemeteries Act*, R.S.O. 1990, c.C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.
- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.
- If the area of potential impact for the USRC East Enhancements Project is refined during the Detailed Design phase of the Project, it is recommended that the need for further archaeological work be re-assessed in comparison to the final LOD for the Project.

5.10 Summary of Potential Effects, Mitigation Measures, Net Effects, and Monitoring Requirements of the Preferred Design

A summary of potential effects, mitigation measures, net effects and monitoring requirements during construction is provided in **Table 5-22**. A summary of potential effects, mitigation measures, net effects and monitoring requirements during operations is provided in **Table 5-23**. A summary of potential effects, mitigation measures, net effects and monitoring requirements for other projects and connectivity is provided in **Table 5-24**.

Table 5-22: Summary of Potential Effects, Mitigation Measures, Net Effects and Monitoring Requirements – Construction

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Vegetation Cover and Designated Natural Areas	*Track E0* – Permanent removal of approximately 1.2 ha of mineral cultural thicket (CUT1).	*Track E0* – Vegetation removal will be kept to a minimum and limited to within the construction footprint and should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31. – Areas for vegetation removal will be refined during Detailed Design and areas that should be protected during construction will be delineated prior to construction start wherein no activities will be permitted. – Exposed soils shall be stabilized and re-vegetated as soon as possible to reduce erosion using native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site. Slopes greater than 2:1 will have a slope retention material (e.g., Erosion Control Blanket) applied reduce soil erosion. – Mitigation measures specific to trees, including City of Toronto Tree By-law permitting requirements, that are summarized in the *Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Tree Inventory Report* (AECOM, 2016) and which will be further detailed in an Arborist Report completed during Detailed Design, will be adhered to. – Vegetation removal, tree protection measures and compensation will be completed in accordance with the *Vegetation Compensation Protocol for Metrolinx RER* projects, which will either meet or exceed relevant municipal by-laws and/or policies. – Incorporate native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site as part of planting plans during Detailed Design. – Construction fencing and/or silt fencing, where appropriate, will be installed and maintained. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Stockpiled materials or equipment will be stored within the construction footprint, but shall be kept away from adjacent natural areas or parks and be kept at least 30 m away from watercourses.	*Track E0* – Permanent removal of approximately 1.2 ha mineral cultural thicket (CUT1).	*Track E0* – Construction and/or silt fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction. – Environmental Monitors will be on-site during key construction activities as required. – Post-planting monitoring of restoration areas will be required for two years after installation. An annual site visit will be conducted during the appropriate growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken during the appropriate growing season. If additional seeding/or planting is undertaken after the second annual site visit, one additional monitoring visit will be required in the following growing season. – Additional restoration/compensation measures and/or monitoring may be required based on the results of additional surveys and consultations with the appropriate regulatory agencies during Detailed Design.
Natural Environment	Vegetation Cover and Designated Natural Areas	*Tracks E7 and E8* – No permanent / temporary removal of natural vegetation communities anticipated.	*Tracks E7 and E8* – N/A	*Tracks E7 and E8* – None.	*Tracks E7 and E8* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Vegetation Cover and Designated Natural Areas	*Wilson Yard Layover Facility* – Permanent removal of approximately 0.3 ha of mineral cultural thicket (CUT1) and 0.7 ha of mineral cultural woodland (CUW1).●	*Wilson Yard Layover Facility* – Vegetation removal will be kept to a minimum and limited to within the construction footprint and should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31. – Areas for vegetation removal will be refined during Detailed Design and areas that should be protected during construction will be delineated prior to construction start wherein no activities will be permitted. – Exposed soils shall be stabilized and re-vegetated as soon as possible to reduce erosion using native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site. Slopes greater than 2:1 will have a slope retention material (e.g., Erosion Control Blanket) applied reduce soil erosion. – Mitigation measures specific to trees, including City of Toronto Tree By-law permitting requirements, that are summarized in the *Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Tree Inventory Report* (AECOM, 2016) and which will be further detailed in an Arborist Report completed during Detailed Design, will be adhered to. – Vegetation removal, tree protection measures and compensation will be completed in accordance with the *Vegetation Compensation Protocol for Metrolinx RER* projects, which will either meet or exceed relevant municipal by-laws and/or policies. – Incorporate native, non-invasive and salt tolerant species in accordance with TRCA's Seed Mix Guidelines (2004a) and Post Construction Restoration (2004b) as appropriate and practical for the site as part of planting plans during Detailed Design. – Construction fencing and/or silt fencing, where appropriate, will be installed and maintained. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Stockpiled materials or equipment will be stored within the construction footprint, but shall be kept away from adjacent natural areas or parks and be kept at least 30 m away from watercourses.	*Wilson Yard Layover Facility* – Permanent removal of approximately 0.3 ha mineral cultural thicket (CUT1) and 0.7 ha mineral cultural woodland (CUW1).	*Wilson Yard Layover Facility* – Construction and/or silt fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction. – Environmental Monitors will be on-site during key construction activities as required. – Post-planting monitoring of restoration areas will be required for two years after installation. An annual site visit will be conducted during the appropriate growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken during the appropriate growing season. If additional seeding/or planting is undertaken after the second annual site visit, one additional monitoring visit will be required in the following growing season. – Additional restoration/compensation measures and/or monitoring may be required based on the results of additional surveys and consultations with the appropriate regulatory agencies during Detailed Design.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Tree Inventory	*All Project Components* – Potential permanent removal of approximately 424 shrubs within the Metrolinx ROW.	*All Project Components* – Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx RER projects. Vegetation that is removed will be compensated for in accordance with the provisions of this protocol. In addition, a Landscaping Strategy is being developed to identify vegetation/landscaping options and retaining wall design to along the Cathedral and Caroline Co-ops, as well as residences on Longboat Avenue. – The number and location of impacted trees will be further refined during the Detailed Design phase of the Project. This will inform the Arborist Report which will be completed during Detailed Design. – Vegetation protection measures will be developed in accordance with the City of Toronto's *Tree Protection Policy and Specifications for Construction Near Trees* (2016). – Undertake further consultation with potentially impacted property owners when detailed tree impacts are known. – Where replanting is required, planting on or as close to the impacted site will be considered, to the extent feasible. – Relevant replacement ratios will be followed. – Schedule potential removal of impacted trees to occur outside of the overall bird nesting season of April 1 to August 31, following the mitigation measures described for Breeding Birds. – Explore the use of Tree Protection Barriers and Tree Protection Signage where required. – Ensure that stockpiling of soil materials is outside of Tree Protection Zones. Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage to trees. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. – Obtain permits and approvals, as required.	*All Project Components* – Permanent removal of approximately 1,192 impacted trees within Ravine and Natural Feature Protection will be mitigated through planting as per the Metrolinx Vegetation Compensation Protocol. – Permanent removal of approximately 424 impacted shrubs within the Metrolinx ROW.	*All Project Components* – Construction and/or silt fencing will be monitored and repaired as necessary throughout the construction period and will be removed and disposed of accordingly, post-construction. – Undertake on-site inspection on a monthly basis during construction to ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities. – The Arborist Report completed during the Detailed Design phase of the Project shall outline monitoring requirements to ensure success of preservation and removal measures.
Natural Environment	Tree Inventory	*Track E0* – 616 trees (614 within LOD and 2 within Study Area Buffer) that may require removal and/or be injured.	– Same as above	– Same as above	– Same as above
Natural Environment	Tree Inventory	*Tracks E7 and E8* – 21 trees (8 within LOD and 13 within Study Area Buffer) that may require removal and/or be injured.	– Same as above	– Same as above	– Same as above

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Tree Inventory	*Wilson Yard Layover Facility* – 555 trees (460 within LOD and 95 within Study Area Buffer) that may require removal and/or be injured.	– Same as above	– Same as above	– Same as above
Natural Environment	Significant Wildlife Habitat (SWH)	*All Project Components* – No potential effects are anticipated as no SWH were identified.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Migratory Breeding Birds	*All Project Components* – Potential for displacement of breeding migratory birds and/or destruction of their active nests as a result of vegetation removal during construction.	*All Project Components* – Vegetation removal should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31 and strictly should not occur within complex habitat during the core bird nesting season of May 1 to July 31. – If vegetation removal must occur within the above-listed timing windows, nest and nesting activity searches will be conducted by a qualified Biologist no more than 24 hours prior to vegetation removal. – If an active nest or confirmed nesting activity of a migratory bird is observed, regardless of the timing window recommended, a species-specific buffer area following ECCC guidelines will be applied to the nest or confirmed nesting activity wherein no vegetation removal will be permitted until the young have fledged from the nest. The radius of the buffer will depend on species, level of disturbance and landscape context (ECCC, 2014), which will be confirmed by a qualified Biologist, but will protect a minimum of 10 m around the nest or nesting activity. – The results of all nest searches will be documented at the end of each survey day in a technical memorandum.	*All Project Components* – Displacement of breeding birds and destruction of their nests will be avoided provided that the mitigation measures are implemented.	*All Project Components* – Any bridge extension structures and other suitable man-made structures within the Study Area should be inspected for evidence of active bird nests during the breeding bird season prior to the onset of construction activities in order to determine appropriate nesting preventative measures. – Nest searches by a qualified Biologist will be required immediately prior to vegetation removal, if construction activities are scheduled during the overall bird nesting season of April 1 to August 31.
Natural Environment	Aquatic Features	*Track E0* – Potential risk of water contamination (Don River) as a result of spills from construction equipment use. – Potential for greater risk for soil erosion and sedimentation to the watercourse (Don River).	*Track E0* – Where feasible, follow best management practices for near water works. – Construction activities near water should be scheduled in order to avoid wet, windy and rainy periods that may increase erosion and sedimentation. – An Erosion and Sediment Control Plan for the work site should be prepared and implemented during construction. – Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized. The plan should, where applicable, include: – Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody; and, – Measures for managing water flowing onto the site.	*Track E0* – Water contamination and soil erosion and sedimentation to the watercourse (Don River) will be minimized provided that the mitigation measures are followed.	*Track E0* – Environmental Monitors will be on-site during key construction activities as required to ensure compliance with environmental requirements.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– Measures should be undertaken to contain and stabilize any waste material (e.g., construction waste and materials). – Inspection and maintenance of erosion and sediment control measures and structures should happen regularly and after storm events during the course of construction. – Repairs to erosion and sediment control measures and structures should take place if damage occurs. – Non-biodegradable erosion and sediment control materials should be removed once site is stabilized. – Machinery should arrive on site in a clean condition and be maintained free of fluid leaks, invasive species and noxious weeds. Machinery should be washed, refuelled, and serviced properly away from any waterbody (at a minimum of 30 m). Storage of fuel and other materials for the machinery at least 30 m away from the watercourse and in such a way as to prevent any deleterious substances from entering the water. – Activities near water should be planned to insure that such materials do not enter the watercourse. – A Spill Prevention and Response Plan should be developed before work commences. This plan should be implemented immediately in the event of a sediment release or spill of a deleterious substance and an emergency spill kit should be kept on site. – All construction materials should be removed from site upon project completion. – If any clearing/removal of riparian vegetation and/or manicured grass is required, it should be kept to a minimum. When practicable, prune or top the vegetation instead of grubbing/uprooting, if required. – The shoreline and/or banks disturbed by any activity associated with the USRC East Enhancements Project should be immediately stabilized to prevent erosion and/or sedimentation.		
Natural Environment	Aquatic Features	*Tracks E7 and E8* No potential effects to the Don River.	*Tracks E7 and E8* – No mitigation measures required	*Tracks E7 and E8* – No net effects to the Don River.	*Tracks E7 and E8* – Not required
Natural Environment	Aquatic Features	*Wilson Yard Layover Facility* – Potential risk of water contamination (Don River) as a result of spills from construction equipment use. – Potential for greater risk for soil erosion and sedimentation to the watercourse (Don River).	*Wilson Yard Layover Facility* – Where feasible, follow best management practices for near water works. – Construction activities near water should be scheduled in order to avoid wet, windy and rainy periods that may increase erosion and sedimentation. – An Erosion and Sediment Control Plan for the work site should be prepared and implemented during construction.	*Wilson Yard Layover Facility* – Water contamination and soil erosion and sedimentation to the watercourse (Don River) will be minimized provided that the mitigation measures are followed.	*Wilson Yard Layover Facility* – Environmental Monitors will be on-site during key construction activities as required to ensure compliance with environmental requirements.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized. The plan should, where applicable, include: – Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody; and, – Measures for managing water flowing onto the site. – Measures should be undertaken to contain and stabilize any waste material (e.g., construction waste and materials). – Inspection and maintenance of erosion and sediment control measures and structures should happen regularly and after storm events during the course of construction. – Repairs to erosion and sediment control measures and structures should take place if damage occurs. – Non-biodegradable erosion and sediment control materials should be removed once site is stabilized. – Machinery should arrive on site in a clean condition and be maintained free of fluid leaks, invasive species and noxious weeds. Machinery should be washed, refuelled, and serviced properly away from any waterbody (at a minimum of 30 m). Storage of fuel and other materials for the machinery at least 30 m away from the watercourse and in such a way as to prevent any deleterious substances from entering the water. – Activities near water should be planned to insure that such materials do not enter the watercourse. – A Spill Prevention and Response Plan should be developed before work commences. This plan should be implemented immediately in the event of a sediment release or spill of a deleterious substance and an emergency spill kit should be kept on site. – All construction materials should be removed from site upon project completion. – If any clearing/removal of riparian vegetation and/or manicured grass is required, it should be kept to a minimum. When practicable, prune or top the vegetation instead of grubbing/uprooting, if required. – The shoreline and/or banks disturbed by any activity associated with the USRC East Enhancements Project should be immediately stabilized to prevent erosion and/or sedimentation.		

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Species at Risk and Species of Conservation Concern	*All Project Components* – No potential effects are anticipated to SAR or SOCC plants. – No potential effects are anticipated to mammal SAR. – Potential displacement of bird SAR and SOCC as a result of vegetation removal. – Displacement and/or habitat loss for bird SOCC (Eastern Wood-Pewee and Common Nighthawk) as a result of vegetation removal. – No potential effects are anticipated to aquatic SAR.	*All Project Components* – Mitigation measures and vegetation removal timing restrictions for Migratory Breeding Birds will be implemented. – Nest searches of the bridge extension structures and other structures within the Natural Environment Study Area should be conducted if construction activities are scheduled during the overall breeding bird window (April 1 to August 31). The MNRF should be consulted to confirm initial assessment of bat SAR habitat. Mitigation measures for Vegetation Cover and Designated Natural Areas will be implemented to minimize habitat loss.	*All Project Components* – Displacement of bird SAR and SOCC and displacement and/or habitat loss for bird SOCC will be minimized provided that the mitigation measures are followed.	*All Project Components* – Environmental monitoring as described above for Vegetation Cover and Designated Natural Areas shall be implemented to minimize habitat loss. – Environmental monitoring as described for Migratory Breeding Birds shall be implemented to avoid displacement of or disturbance to any SAR or SOCC birds.
Natural Environment	Wetlands	*All Project Components* – Potential effects are not anticipated as no wetlands were identified	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Soils and Groundwater	Soils	– All Project Components – Potential changes to soil quality through minor contaminant releases (i.e., fuels, lubricating oils and other fluids). – Potential for accidental release of contaminants to the environment due to erosion and sedimentation of contaminated soil stockpiles and / or the improper handling and disposal of contaminated soils. – Construction activities will result in the creation of bare soil surfaces, soil stock piles, and sloped surfaces. These features will be susceptible to erosion by subsequent action by foot and vehicular traffic, wind and water flow, etc.	*All Project Components* – An Erosion and Sediment Control Plan will be developed during Detailed Design in consultation with TRCA and will include the requirement for a spill kit to be on site at all times during construction. Implementation of erosion and sedimentation control measures shall conform to recognized standard specifications such as Ontario Provincial Standards Specification and requirements of the TRCA. – Sediment and erosion control measures shall be installed prior to site clearing, grubbing, excavation or grading works. – Stockpiled material shall be stored at a safe distance from the waterway (Don River) to ensure no deleterious substances enter watercourses. – A Waste Management Plan shall be developed prior to construction to address proper handling of all excess materials that may be potentially contaminated. – Signs of soil impacts will be managed according to standard industry best practices during construction activities. – Management of excess soil will be undertaken in accordance with Excess Soil – A Guide to Best Management Practices (MECP, January 2014). – All contaminated materials will be handled according to applicable provincial and federal legislation, regulations and standard procedures. – A site specific Health and Safety Plan and a Spill Prevention and Response Plan, as applicable, will be developed and implemented during construction. – A Phase I ESA investigation for additional lands, if required, for the Project shall be conducted during Detailed Design. – Mitigation measures will be required to limit the movement of unstabilized soil and to protect potential receptors such as water courses/water bodies.	*All Project Components* – Soil contamination will be minimized provided that the mitigation measures are followed.	*All Project Components* – Regular visual inspection of bare soil surfaces, waterbodies downgradient of construction area, and installed mitigation measures to confirm proper function is recommended during the construction phase of the Project.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements

Soils and Groundwater	Groundwater Quality and Quantity	*All Project Components*
		– Potential for high dewatering rates as the Study Area is in close proximity to the Don River and the shoreline of Lake Ontario.
		– Potential to decrease groundwater contribution to nearby groundwater dependent natural features resulting in declines in surface water levels/flow, temperature changes, and potential loss of habitat.
		– Potential for contaminants, such as dense non-aqueous phase liquid (DNAPL) / organic solvent, to intercept groundwater during excavation and/or a spill.
		– Road salt on roads/parking lots may occur on occasion in confined areas for safety of construction operations.
		– Potential effects to areas designated as HVA and EBA.
			All Project Components
			– Prior to construction, a detailed Water Taking Assessment will be conducted.
			– Site-specific mitigation measures and a monitoring program for groundwater-dependent natural features, private water wells, and structures susceptible to ground settlement within the anticipated dewatering ZOI will be determined during the Detailed Design phase of the Project.
			– A Groundwater Management Plan will be developed by the consultant (AECOM) and implemented.
			– Where appropriate, based on local groundwater quality, other mitigation measures will be identified to reduce groundwater taking quantities and related impacts. Potential impacts will be further mitigated by limiting the duration of dewatering, when possible, through effective construction staging.
			– For DNAPL/organic solvent, ensure best management practices are established and followed. it is also recommended that Spill Prevention best management practices be followed, a Spill Response Protocol be generated/updated as necessary, and that a Communication Protocol be established/ updated for use in the event of a spill
			– Develop or update risk management plan/salt management plan that shall include a goal to minimize salt usage through alternative measures, while maintaining safety for users.
			– Regarding DNAPL and or organic solvents, ensure best management practices are established and followed.
			– A Spill Prevention and Response Plan, outlining steps to prevent and contain any contaminant releases and/or avoid impacts to groundwater will need to be developed prior to commencement of construction.
			– Existing Metrolinx programs for areas designated as HVA and EBA will continue to be implemented as well as planned initiatives as follows:
			  – Construction Safety Management Program which includes a spill prevention program;
			  – Spill kits located in various locations in the corridor; and
			  – As part of the ongoing works in Don Yard, oil grit separators and drip pans will be installed as a permanent prevention system.
				All Project Components
				– Groundwater taking quantities and will be minimized and contamination will be managed provided that mitigation measures are followed.
					All Project Components
					– Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Groundwater Management Plan are fulfilled.
					– Groundwater quality testing will be performed at all construction dewatering locations prior to discharge and appropriate water quality management will be implemented as required.

Stormwater Management and Drainage	Stormwater Management Report	*All Project Components* – Increase in impervious surface area will require water quality and quantity controls.	*All Project Components* – A Stormwater Management Report will be completed during Detailed Design and shared with MECP and TRCA.	*All Project Components* – Water quality and quantity will be managed provided that the Stormwater Management Report is implemented	*All Project Components* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Air Quality	Air Emission	*All Project Components* – Construction related air quality impacts are of a temporary nature and not likely to pose a major risk to human health.	*All Project Components* – Construction activities are scheduled to avoid overlapping where possible. – The number of machines operating in any one area is minimized at any given point in time.	*All Project Components* – The air quality impacts of construction related activities can be effectively mitigated provided that mitigation measures are followed.	*All Project Components* – Not required.
Noise and Vibration	Noise and Vibration	*All Project Components* – Noise and vibration during construction are expected to be perceptible to sensitive receptors. – Vibration levels are predicted to be below the City of Toronto's zone of influence threshold for construction vibration (5 mm/s).	*All Project Components* Noise – Operate in accordance with local by-laws whenever possible. – If construction needs to be undertaken outside of the normal daytime hours, local residents shall be informed beforehand of the type of construction planned and the expected duration. – Use construction equipment compliant with noise level specifications in MECP guidelines NPC-115 and NPC-118; – Keep equipment well-maintained and fitted with efficient muffling devices – Restrict idling of equipment to the minimum necessary to perform the specified work and switch off equipment when not required. – During construction, ensure vehicles that are on site continuously for extended periods of time (two days or more) are fitted with an effective sound reducing back-up (reversing) alarms, such as variable loudness / self-adjusting backup alarm; – Avoid unnecessary revving of engines; and – Comply with the City of Toronto by-laws for haulage/ dump trucks. Minimize drop heights of materials. Vibration – No specific construction vibration mitigation measures are required.	*All Project Components* – Noise will be controlled to ensure that the applicable guideline limits are not exceeded, where possible.	*All Project Components* – Monitoring Noise Levels: additional mitigation measures may be considered and implemented, where appropriate.
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Track E0* – Undesirable temporary aesthetic impacts resulting from construction activities. – Access to and from properties may be affected as a result of construction activities – Temporary nuisance effects from increased noise and vibration levels and/or air and dust due to construction equipment. – Temporary traffic delays associated with construction activities. – Minor increases in traffic volume with the addition of construction vehicles associated with the Project.	*Track E0* – Construction to be completed expediently to minimize temporary aesthetic effects. Access to all residential, commercial and institutional uses will be maintained, where possible. Where this is not possible, consultation will occur with the affected property owners in advance of any access disruptions. – Refer to Air Quality and Noise and Vibration mitigation measures above. – Staging plans will be developed during Detailed Design (refer TPAP Transportation and Traffic Impact Analysis in **Appendix B.6**). – Prior to the commencement of construction, a Traffic Staging and Management Plan will be developed. – Continued consultation with stakeholders (i.e., the City of Toronto, surrounding community, the TTC,	*Track E0* – While construction will be completed as expediently as possible, there will be undesirable temporary aesthetic impacts during construction for residents, businesses and institutions – Temporary access restrictions for mentioned properties (e.g., Tom Longboat Lane, HD Supply Brafasco, municipal Green P parking lots, loading dock entrance at Cherry Street, etc.). – Short term, infrequent and highly localized nuisance effects to	*Track E0* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
		– To accommodate bridge extensions billboards will require removal or relocation. – Construction workers will provide some additional revenue to local businesses from local purchasing of goods and services during the construction period. – For project works that will take place during the night, temporary flood lights will be used to illuminate work areas. These flood lights have the potential to alter the light levels normally present in adjacent areas.	Emergency Services, Waterfront Toronto, etc.) regarding construction traffic impacts. – Consultation with the owners of billboards to be relocated or removed. Agreement of removal/ relocation to be confirmed during Detailed Design. – A construction monitoring program will be prepared and include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, Metrolinx claim protocol will be followed. – Lighting will be controlled by angling the lights in a way to safely light the work area but, as much as practical, shine away from residences.	residents, businesses and institutions associated with noise and vibration levels and/or air quality and dust due to construction activities will be minimized provided that mitigation measures are followed. – Temporary traffic delays, increased transit travel times and inconveniences related to detours and partial/full lane closures for residents, businesses and institutions will be minimized where possible provided that mitigation measures are followed.	
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Tracks E7 and E8* – Temporary nuisance effects from increased noise and vibration levels and/or air and dust due to construction equipment. – Temporary traffic delays associated with construction activities. To accommodate bridge extensions billboards will require removal or relocation. – Construction workers will provide some additional revenue to local businesses from local purchasing of goods and services during the construction period. – For project works that will take place during the night, temporary flood lights will be used to illuminate work areas. These flood lights have the potential to alter the light levels normally present in adjacent areas.	*Tracks E7 and E8* – During temporary partial closures of the Lower Jarvis Street underpasses, one lane of traffic, in both directions will remain open and clear, and one sidewalk and bicycle lane will also remain open and clear in either direction. Full underpass closure will be minimized, as best possible, to weekends and/or overnight periods. In either case, detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. – Staging plans will be developed during Detailed Design (refer TPAP Transportation and Traffic Impact Analysis in **Appendix B.6**).Refer to Air Quality and Noise and Vibration mitigation measures above. – Prior to the commencement of construction, a Traffic Staging and Management Plan will be developed. – Continued consultation with stakeholders (i.e., the City of Toronto, surrounding community, the TTC, Emergency Services, Waterfront Toronto, etc.) regarding construction traffic impacts. – Consultation with the owners of billboards to be relocated or removed. Agreement of relocation/ removal to be confirmed during Detailed Design. – A construction monitoring program will be prepared and include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, Metrolinx claim protocol will be followed. – Lighting will be controlled by angling the lights in a way to safely light the work area but, as much as practical, shine away from residences.	*Tracks E7 and E8* – Short term, infrequent and highly localized nuisance effects to residents, businesses and institutions associated with noise and vibration levels and/or air quality and dust due to construction activities will be minimized provided that mitigation measures are followed. – Temporary traffic delays, increased transit travel times and inconveniences related to detours and partial/full lane closures for residents, businesses and institutions will be minimized where possible provided that mitigation measures are followed.	*Tracks E7 and E8* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Wilson Yard Layover Facility* – No potential effects to residential, commercial and institutional uses. – Construction workers will provide some additional revenue to local businesses from local purchasing of goods and services during the construction period. – For project works that will take place during the night, temporary flood lights will be used to illuminate work areas. These flood lights have the potential to alter the light levels normally present in adjacent areas.	*Wilson Yard Layover Facility* – No mitigation measures are required, as there are no potential adverse effects. – A construction monitoring program will be prepared and include existing condition assessments of adjacent buildings and residences and monitoring during construction of sensitive features (to be determined during Detailed Design). If property damage claims are received, Metrolinx claim protocol will be followed. – Lighting will be controlled by angling the lights in a way to safely light the work area but, as much as practical, shine away from residences.	*Wilson Yard Layover Facility* – None.	*Wilson Yard Layover Facility* – Not required.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Track E0* – Relocation of the Bike Share rack along the north of the rail corridor near the Cherry Street underpass. – Partial or full closure of the bridge underpasses during construction results in impacts to pedestrian and cyclist access. – Undesirable temporary aesthetic effects and effects on user enjoyment during construction. – Temporary nuisance effects during construction due to increased noise and vibration levels and aesthetic effects from construction equipment and activities.	*Track E0* – During the construction phase, co-ordination with the city of Toronto required for the optimal location of the Bike Share rack along the north of the rail corridor near the Cherry Street underpass. – During temporary partial closures of underpasses, one sidewalk and/or bike lane access will be maintained to the extent feasible. If sidewalk and/or bike lane access cannot be maintained or when full closure is required, (minimized to weekends and/or evenings/overnight), detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. – A construction staging plan will be developed during Detailed Design and will consider measures to minimize impacts to pedestrians and cyclists. Preliminary construction staging concepts were assessed as part of the USRC East Enhancements TPAP Transportation and Traffic Impact Analysis (**Appendix B.6**). – Safety fencing and signage indicating the presence of construction crews and/or activities will be used. – Metrolinx will work closely with City of Toronto and Waterfront Toronto in the Detailed Design stage, through TAC meetings, to further develop appropriate mitigation plans associated with the design for the bridge extensions	*Track E0* – Temporary partial/full closures of underpasses, sidewalk and/or bike lanes to pedestrians and cyclists will be minimized where possible by maintaining sidewalk and/or bike lane access where feasible. – Nuisance effects may be felt by pedestrians and cyclists if access cannot be maintained, however these effects will be minimized by providing detour routes well in advance of closures. – Temporary nuisance effects to recreational users during construction due to increased noise and vibration levels and aesthetic effects due to construction equipment and activities will be minimized provided that mitigation measures are followed.	*Track E0* – Not required.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Tracks E7 and E8* – Partial or full closure of the bridge underpasses during construction results in impacts to pedestrian and cyclist access. – Undesirable temporary aesthetic effects and effects on user enjoyment during construction. – Temporary nuisance effects during construction due to increased noise and vibration levels and aesthetic effects from construction equipment and activities.	*Tracks E7 and E8* – During temporary partial closures of underpasses, one sidewalk and/or bike lane access will be maintained to the extent feasible. If sidewalk and/or bike lane access cannot be maintained or when full closure is required, (minimized to weekends and/or evenings/overnight), detour routes and signage will be provided during the partial and full closures for pedestrians/cyclists. – A construction staging plan will be developed during Detailed Design and will consider measures to minimize impacts to pedestrians and cyclists. Preliminary construction staging concepts were assessed as part of the USRC East Enhancements TPAP Transportation and Traffic Impact Analysis (**Appendix B.6**).	*Tracks E7 and E8* – Nuisance effects to recreational users of bridge underpasses will be minimized where possible by providing signage with alternative access routes when temporary underpass closures are required. – Temporary partial/full closures of underpasses, sidewalk and/or bike lanes to pedestrians and cyclists will be minimized where possible by maintaining sidewalk and/or bike lane access where feasible.	*Tracks E7 and E8* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– Safety fencing and signage indicating the presence of construction crews and/or activities will be used. – Metrolinx will work closely with City of Toronto and Waterfront Toronto in the Detailed Design stage, through TAC meetings, to further develop appropriate mitigation plans associated with the design for the bridge extensions	– Nuisance effects may be felt by pedestrians and cyclists if access cannot be maintained, however these effects will be minimized by providing detour routes well in advance of closures.	
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Wilson Yard Layover Facility* – During construction of the realigned Harbour Lead, there may be temporary impacts to trail users. No additional trail impacts are anticipated due to the construction of Wilson Yard Layover Facility; however the existing detour route to facilitate construction of the Cherry Street Stormwater Management Facility may remain in place. – Temporary nuisance effects during construction due to increased noise and vibration levels and aesthetic effects from construction equipment and activities.	*Wilson Yard Layover Facility* – Metrolinx will continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA related to the design and construction of the Wilson Yard Layover Facility (as well as the other projects in the vicinity) regarding realignments and/or temporary detours of the Lower Don River Trail as required. – In the Detailed Design stage appropriate mitigation plans with respect to trail impacts at the Wilson Yard Layover Facility will be developed in consultation with the City of Toronto and Waterfront Toronto.	*Wilson Yard Layover Facility* – Short-term closure of Lower Don River Trail users will be minimized by having realignments and/or temporary detours in place prior to construction. – Temporary nuisance effects to recreational users during construction due to increased noise and vibration levels and aesthetic effects due to construction equipment and activities will be minimized provided that mitigation measures are followed.	*Wilson Yard Layover Facility* – Not required.
Socio-Economic and Land Use	Utilities	*Track E0* – Gas main relocation and/or protection at the northeast corner of the Parliament Street structure. – Impacts to existing cable troughs which currently run parallel to the tracks along the existing retaining wall and in proximity to several bridge structures. Utilities modification and relocation. – Relocation of the light poles. – Relocation of stormwater catch basins and associated collector storm sewers (catch basin leads), fibre optics cable, and buried hydro along both sides of Cherry Street. – Relocation/diversion of 300 mm diameter watermain along east side (northbound lane) of Cherry Street. – Relocation/diversion of 300 mm diameter watermain along west side (southbound lane) of Parliament Street. – Potential impact to existing 300 mm diameter watermain along the east side (northbound) of Lower Sherbourne Street, relocation/diversion may be required. – Potential connection to existing storm sewers for drainage of proposed access ramps at Parliament Street and Lower Sherbourne Street.	*Track E0* – In depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Other considerations will also be determined during Detailed Design. – Potential service interruptions to residents and businesses will be identified during the Detailed Design phase and mitigation measures determined in consultation with the utility provider.	*Track E0* – Temporary effects to utility providers, residents and businesses will be refined and confirmed during the Detailed Design phase of the Project. – Temporary service interruptions will be minimized to the greatest extent possible.	*Track E0* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Utilities	*Tracks E7 and E8* – Temporary relocation of Fibre optic CN signal and communications conduits mounted on the south side of the Jarvis and Sherbourne Street Bridges during construction. – Underground Allstream and Telus fibre optic cables in the vicinity of the Lower Jarvis Street structure may require temporary and/or permanent relocation prior to the bridge extension construction. – Relocation of stormwater catch basin and associated collector storm sewers (catchbasin leads) will occur along both sides along the east side (northbound lane) of Lower Jarvis Street. Potential impact to existing 300 mm diameter watermain along the east side (northbound) of Lower Sherbourne Street, relocation/diversion may be required. – Relocation of the light poles. Utilities modification and relocation.	*Tracks E7 and E8* – In depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Other considerations will also be determined during Detailed Design. – Potential service interruptions to residents and businesses will be identified during the Detailed Design phase and mitigation measures determined in consultation with the utility provider.	*Tracks E7 and E8* – Temporary effects to utility providers, residents and businesses will be refined and confirmed during the Detailed Design phase of the Project. – Temporary service interruptions will be minimized to the greatest extent possible.	*Tracks E7 and E8* – Not required.

Socio-Economic and Land Use	Utilities	*Wilson Yard Layover Facility*
		– Relocation of the following Hydro One facilities to the south side of the proposed Wilson Yard Layover Facility tracks:
		  – Overhead power lines and hydro tower; and
		  – A strip of land owned by Hydro One for the buried 115kV cables.
		– Relocation of Toronto Hydro's 13.8 kV power cables at the existing Don Yard access roads.
		– Relocation of an existing fibre optic cable in the corridor.
		– No direct impacts are anticipated to the existing 3000 mm diameter stormwater tunnel that runs from Cherry Street (north of the USRC) to the Keating Channel (west of the Wilson Yard Layover Facility).
		– No direct impacts are anticipated to an existing watermain (460 mm) on the east side of Don Yard and the Wilson Yard Layover Facility.
			Wilson Yard Layover Facility
			– Discussions with Hydro One will continue during Detailed Design to obtain an agreement with respect to the relocation of the overhead power lines and buried cables for the Wilson Yard Layover Facility.
			– Potential access requirements for maintenance within the USRC East Enhancements Project will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.
			– In depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with the utility providers. Other considerations will also be determined during Detailed Design.
			– Potential service interruptions to residents and businesses will be identified during the Detailed Design phase and mitigation measures determined in consultation with the utility provider.
			– As part of the Detailed Design submission, protection measures for the 3000 mm Storm Tunnel from Cherry Street to Keating Channel and the existing watermain (460 mm) on the east side of Don Yard and the Wilson Yard Layover Facility, for any foreseen impacts, if any, will be noted.
				Wilson Yard Layover Facility
				– Relocation of Hydro One overhead power lines and buried cables will be minimized to the extent possible by continuing discussions during the Detailed Design phase of the Project to obtain an agreement with respect to utility relocations.
				– Temporary effects to utility providers, residents and businesses will be refined and confirmed during the Detailed Design phase of the Project.
				– Temporary service interruptions will be minimized to the greatest extent possible.
					Wilson Yard Layover Facility
					– Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Property	*Track E0* – No private properties are anticipated to be acquired for work related to Track E0 west of Cherry Street (including the northern bridge extensions). – Construction and operation of Track E0 east of Cherry Street will require both temporary and permanent land acquisition. – Approximately 4,500 m^2 of temporary construction license from IO will be required to allow for construction. – Approximately 1,270 m^2 of permanent property acquisition (IO lands) is anticipated to support the work taking place east of Cherry Street and for the relocation of the Cherry Street Interlocking Tower. No private property acquisition is anticipated west of Cherry Street. – 940 m^2 of property owned by IO will be required for a Permanent Maintenance Easement and will be used for operation and maintenance purposes.	*Track E0* – Metrolinx will engage with affected landowners and will reach an agreement prior to the commencement of construction activities and identify appropriate site-specific mitigation measures. – Communications with stakeholders will occur to identify local and site-specific issues. – To minimize property requirements, retaining walls will be built for Blocks 20 (pending developer design concept) and Block 9 (TDSB lands, future school). An architectural retaining wall will be built for Block 32 (facing Tannery Road) and follow Metrolinx's Design Excellence process. – Property requirements will be confirmed during Detailed Design. – A construction monitoring program will be implemented prior to construction. If property damage claims are received, Metrolinx claim protocol will be followed.	*Track E0* – Approximately 4,500 m^2 of temporary construction license will be required to allow for construction. – Approximately 1,270 m^2 of permanent property acquisition from IO is anticipated to support the new track, retaining wall and Cherry Street Interlocking Tower infrastructure east of Cherry Street.	*Track E0* – Monitoring during construction of sensitive features based on existing conditions assessments.
Socio-Economic and Land Use	Property	*Tracks E7 and E8* – No private properties are anticipated to be acquired for work related to Tracks E7 and E8 (including the southern bridge extensions).	*Tracks E7 and E8* – Communications with stakeholders will occur to identify local and site-specific issues. – Property requirements will be confirmed during Detailed Design. – A construction monitoring program will be implemented prior to construction. If property damage claims are received, Metrolinx claim protocol will be followed.	*Tracks E7 and E8* – None	*Tracks E7 and E8* – Monitoring during construction of sensitive features based on existing conditions assessments.
Socio-Economic and Land Use	Property	*Wilson Yard Layover Facility* – The Wilson Yard Layover Facility design requires approximately 15,000 m^2 of property currently owned by the City of Toronto (and Toronto Port Lands Company), Hydro One Networks Inc., and Conoco Inc.	*Wilson Yard Layover Facility* – Metrolinx is exploring options to obtain the property required for the Wilson Yard Layover Facility. – Metrolinx will engage with affected landowners and will reach an agreement prior to the commencement of construction activities and identify appropriate site-specific mitigation measures. – Property requirements will be confirmed during Detailed Design. – A construction monitoring program will be implemented prior to construction. If property damage claims are received, Metrolinx claim protocol will be followed.	*Wilson Yard Layover Facility* – Approximately 15,000 m^2 of property currently owned by the City of Toronto (and Toronto Port Lands Company), Hydro One Networks Inc., and Conoco Inc. is required for construction.	*Wilson Yard Layover Facility* – Monitoring during construction of sensitive features based on existing conditions assessments.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Traffic	Disruption to Local Traffic due to Lane Closures	*All Project Components* *Traffic* – Travel time delay – Hazards presented by active construction work zone *Transit Service* – Detour required on 75 Sherbourne TTC route – Delay to 75 Sherbourne, 65 Parliament, 97 Yonge, 121 Fort York-Esplanade TTC routes *Emergency Vehicles* – Travel time delay *Pedestrians and Cyclists* – Movement may be restricted due to sidewalk and bike lane closures – Hazards presented by active construction work zones	*All Project Components* *Traffic* – Reduce duration of closures where possible. – Co-ordination regarding any road closures during construction will occur between Metrolinx and the City of Toronto. – Develop detour routes and detailed staging plans. – Limit full closures to weekends/ evenings. – Notify vehicle traffic of road work. – City of Toronto and TTC must be notified well in advance. – Minimize impact to properties directly impacted by closures. – Adjust signal timing plans. – Provide appropriate signage and pavement markings – Control movement of traffic and personnel at sites. – Store equipment away from roadway, utilize construction barricades. Lane closures required for the bridge extensions will be co-ordinated with the City of Toronto and Waterfront Toronto, as well as with any utilities that are undertaking projects within or directly adjacent to the bridges. *Transit Service* – Update schedules and routes. – Inform riders in advance of changes/detours to scheduled service. *Emergency Vehicles* – Provide signal pre-emption (EMS gets priority at lights) where possible. – Restrict on-street parking through congested sections. – Notify City of Toronto and Emergency Services in advance of closures. – Scheduling and route planning would be completed by the TTC with input from Metrolinx *Pedestrians and Cyclists* – Maintain one sidewalk and bike lane, where applicable, in either direction. – Identify and sign detours. – Co-ordination required with City of Toronto for Gardiner East Reconfiguration Public Realm project, traffic signal timings, and VMS, and TDM measures – Consultation with property owners directly impacted by closures – Further consideration of staging impacts at Lower Jarvis St and Lake Shore Blvd upon completion of safety audit	*All Project Components* – Disruption to local traffic during construction can be effectively managed provided that mitigation measures are followed.	*All Project Components* – Contractor to monitor traffic conditions during construction. For example, changes to signal timings may be required based on actual observation as opposed to the pre-construction assessment in order to minimize the traffic impacts. – Appropriate detour and/or temporary signage and pavement markings to be installed as required. – Safety fencing and/or physical barricades to be installed as required by the Contractor.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Cultural Heritage	Built Heritage Resources and Cultural Heritage Landscapes	*All Project Components* – Potential alterations to Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, and Cherry Street Subway due to bridge expansions. – Relocation of the Cherry Street Tower due to track expansion for new Track E0.	*All Project Components* – HIA will be prepared for Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, and Cherry Street Subway during Detailed Design. – With respect to the Cherry Street Tower, mitigation measures as identified as part of the HIA (refer to **Section 5.8.2**) above will be implemented.	*All Project Components* – Effects will be determined by conducting an HIA during the Detailed Design phase of the Project for the Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway and Cherry Street Subway. – Effects to the Cherry Street Interlocking Tower are expected to be minimized by following the mitigation measures identified in the HIA completed as part of this Project.	*All Project Components* – To be confirmed once the HIA has been completed.

Cultural Heritage	Cherry Street Interlocking Tower - Heritage Impact Assessment	– Relocation of the Cherry Street Interlocking Tower due to track expansion for new Track E0.
		– The decommissioning and disconnection of the interlocking technology represents a fundamental change from the Tower's current and original use. Removal process is expected to cause some cracking of brick and stone mortar joints and poses some risk to the contents of the structure.
		– Relocation will sever the Tower's relationship with the fencing of the Cherry Street Subway.
			– Prepare a Conservation Plan during the detailed design process to guide the technical aspects of the Tower relocation.
			– Document, through detailed measured drawings, professional photography within and outside the building, the Tower as it currently exists. Create an inventory of fixed and movable fittings, furnishings and artefacts and salvage for removal, or removal for reuse.
			  – Create a written, photographic and video record of staff operations as they currently exist to demonstrate the interlocking signal process, for the purpose of archival and interpretive purposes.
			– Employ qualified professional heritage consultants in the areas of architecture, structural engineering, and rail machinery conservation for all subsequent phases of work.
			– Include a conservator of heritage industrial equipment (or equivalent qualified professional) in the consultant team to document and catalogue the interlocking machinery and all its components as well as all technical attributes located on all floor levels of the Tower. The conservator (or equivalent qualified professional) should be engaged to advise on:
			  – Any selective temporary removal and reinstatement of components resulting from the structural bracing required to move the Tower;
			  – The handling of the attributes and their protection;
			  – The removal of attributes from the basement level (including their temporary storage);
			  – Recommendations for their reinstallation in the Tower if possible, de-accessioning through a recognised process to a suitable heritage railway agency for interpretive purposes.
			  – Interpretation and follow-up activities.
				– By following the mitigation strategies for the preferred option, the severity of the impacts of the proposed interventions on the values and attributes of the Cherry Street Interlocking Tower are reduced wherever possible.
				– Incorporate best practice conservation techniques into the design specifications.
					– No specific monitoring requirements identified in the HIA. The Conservation Plan may identify specific monitoring requirements. These monitoring requirements will be implemented.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements

			– The Tower's physical connection and contextual relationship to the USRC is also integral to its cultural heritage value. It is highly recommended that its new location recreate this connection and relationship as much as possible. The Tower's siting adjacent to the USRC and continued ownership by Metrolinx.
			– Design of the bridge connection to the expanded rail corridor to the south to incorporate elements and materials that are consistent with the historical precedents found along the USRC.
			– It is recommended that the iron guard rail fencing be reinstated on the existing bridge after it is extended, and this mitigation measure described through interpretation.
			– The basement of the building should be a new concrete structure reproducing the existing arrangement.
			  – Modifications to the Tower, such as in a reconstructed foundation (basement level), can be considered only in the context of how they support the Tower's new use and location.
			– Stabilization of the complete exterior and interior, first and second floor levels, in preparation for the move.
			  – A complete pre-conditions assessment must be prepared and repairs made that will stabilize the structure prior to moving, even if these repairs are temporary.
			  – Preservation in situ of the interlocking equipment on the first and second floors, in combination with protective, selective removal and salvaging for reinstallation following relocation (including racks, cabinets, levers, lights and control board) for preservation within the Tower.
			  – Installation of temporary protective measures for the structure.
			  – Removal and salvaging of selected assemblies (such as windows, doors and stairs) for reinstallation after the move.
			  – Structural bracing and cradling of brick masonry structure and roof of the Tower for preservation and sequential demolition of the existing foundation so that the Tower can be lifted and removed.
			  – Structural bracing and cradling of brick masonry structure and roof of the Tower for preservation and sequential demolition of the existing foundation so that the Tower can be lifted and removed.
			  – Identification of a temporary holding location for the braced structure 'in-transit' while a new northern retaining wall is constructed.
			– The Tower's interlocking technology is integral to its cultural heritage value and it is inseparable from the		

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			building which was designed to house it. It is essential that the interlocking equipment identified as heritage attributes at the first and second levels remain in the relocated Tower to maintain this value. – To mitigate the impact of the decommissioning of the Tower's interlocking functions, a specialized public program should be developed and implemented to interpret its original function through occasions such as Doors Open and other appropriate events. – The lowest storey of the building should be a new concrete structure reproducing the existing arrangement. – Modifications to the Tower, such as in a reconstructed foundation (basement level), can be considered only in the context of how they support the Tower's new use and location. – Restore the relocated building, including all measures identified in the Conservation Plan for heritage attributes such as the masonry, existing windows and doors, existing roof structure, interior components, finishes and the interlocking machinery.		
Archaeology	Archaeological Resources	*All Project Components* – The majority of the areas within the current LOD for the USRC East Enhancements Project have been identified as deeply disturbed and therefore require no further archaeological work. – If construction disturbance should reach a depth of 76 mASL (1-7 m), potential effects to archaeological resources believed to be at a depth of 76 mASL in areas of archaeological potential within or crossing over the LOD identified during the Stage 1 AA as having archeological potential. These include: – Toronto Rolling Mills Wharf (WD-12) including the Gooderham & Worts Distillery Wharves (WD-20); and, – Gooderham and Worts Distillery Complex National Historic Site (WD-19). – Potential effects to archeological resources at unknown depths in areas of archaeological potential well outside the LOD but within the larger Archaeological Study Area. These include: – Don Breakwater (LDP-1); and, – Toronto Dry Dock (LDP-3).	*All Project Components* – The area of potential impact for the USRC East Enhancements Project will be refined during the Detailed Design phase of the Project. It is recommended that the need for further archaeological work shall be re-assessed in comparison to the final LOD for the Project. – The areas of archaeological potential identified within or crossing over the LOD will require Stage 2 monitoring if construction disturbance should reach a depth of 76 mASL (1-7 m). – In the event that archaeological remains are found during construction activities, the consultant archaeologist, approval authority, and the MTCS should be immediately notified. Compliance with the applicable legislation is required.	*All Project Components* – No effects anticipated to areas of archaeological potential within or crossing over the LOD. – No effects anticipated to areas of archeological potential well outside the LOD.	*All Project Components* – The areas of archaeological potential identified within or crossing over the LOD will require Stage 2 monitoring if construction disturbance should reach a depth of 76 mASL (1-7 m). Stage 2 monitoring of these areas would be conducted as per Section 2.1.7, Standard 4; Survey in Deeply Buried Conditions of the Standards and Guidelines for Consultant Archaeologists (MTCS 2011). – Should the Don Breakwater (LDP-1) and the Toronto Dry Dock (LDP-3) be impacted by the construction of the USRC East Enhancements Project, they shall be subject to Stage 2 monitoring, following Section 2.1.7, Standard 4; Survey in Deeply Buried Conditions of the Standards and Guidelines for Consultant Archaeologists (MTCS 2011). – Monitoring should only be completed in these areas if they cannot be avoided by future construction.

Table 5-23: Summary of Potential Effects, Mitigation Measures, Net Effects and Monitoring Requirements – Operation

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Natural Environment	Vegetation Cover and Designated Natural Areas	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Tree Inventory	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Significant Wildlife Habitat	*All Project Components* – No operation effects are anticipated as no SWH were identified.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Migratory Breeding Birds	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Aquatic Features	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Species at Risk and Special Concern Species	*All Project Components* – No operation effects are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Natural Environment	Wetlands	*All Project Components* – No operation effects are anticipated as no wetlands were identified.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Soils and Groundwater	Soils	*All Project Components* – Potential reduction in soil quality due to the disturbance of existing contaminated soils and the minor release of contaminants from maintenance trucks or vehicles.	*All Project Components* – If potential areas of contamination are identified during operations, further investigations will be completed to determine if impacts are present and the necessary remedial action is to be taken. – All contaminated materials found during operation and maintenance activities will be handled in accordance with applicable provincial and federal legislation, regulations and standard procedures.	*All Project Components* – Soil contamination will be minimized provided that the mitigation measures are followed.	*All Project Components* – Not required.
Soils and Groundwater	Groundwater Quantity and Quality	*All Project Components* – Potential changes to the groundwater flow patterns (i.e., rate, direction, gradient, etc.) may occur. – Potential reduction in groundwater recharge. – Potential risk of groundwater contamination as a result of spills (e.g., grease, soils, and/or fuel) from train operation and maintenance vehicles. – Changes in groundwater flow patterns as a result of the Project is expected to be negligible at the present time as the proposed rail line will be constructed at the same grade as the existing rail. – Reduction in groundwater recharge as a result in increases in impervious surfaces or the placement of fill is considered to be negligible. – Potential effects to areas designated as HVA and EBA.	*All Project Components* – A Spill Prevention and Response Plan will be developed. – Inventory of private water wells will be completed during the detailed design phase. If applicable, water quality and quantity will be monitored in nearby private water wells. – Existing Metrolinx programs for areas designated as HVA and EBA will continue to be implemented as well as planned initiatives as follows: – Construction Safety Management Program which includes a spill prevention program; – Spill kits located in various locations in the corridor; and – As part of the ongoing works in Don Yard, oil grit separators and drip pans will be installed as a permanent prevention system.	*All Project Components* – Soil contamination will be minimized provided that the mitigation measures are followed. Risks of groundwater contamination as a result of spills will be managed, provided that mitigation measures are followed.	*All Project Components* – Not required.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Stormwater Management and Drainage	Stormwater Management Report	*All Project Components* – Increase in impervious surface area will require water quality and quantity controls.	*All Project Components* – A Stormwater Management Report will be completed during Detailed Design to assess drainage impacts of Tracks E0, E7 and E8, and all associated works in the area. – A separate Stormwater Management Report to assess drainage impacts at the Wilson Yard Layover Facility will occur during Detailed Design of the Wilson Yard Layover Facility.	*All Project Components* – Water quality and quantity will be managed provided that the Stormwater Management Report is implemented	*All Project Components* – Not required.
Air Quality	Emissions from Locomotives	*All Project Components* – No operational impacts are anticipated.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.

Noise and Vibration	Noise and Vibration	*All Project Components*
		Noise
		– Noise impacts are all below 5 dB – there are no significant impacts.
		Vibration
		– Operational vibration impacts are predicted to be significant in three locations:
		  – Southeast of Henry Lane Terrace
		  – Portion of Tom Longboat Lane (between Portneuf Court and Parliament Street)
		  – Near corner of Mill St. and Bayview Ave.
			All Project Components
			Noise
			– As per the 1995 Ontario Ministry of Environment and Energy/GO Transit Draft Protocol for Noise and Vibration Assessment, no specific operational noise mitigation measures are required.
			Vibration
			– Install a vibration isolation system on the railway tracks at the three locations, including:
			  – Resilient Rail Fasteners;
			  – Resilient Supported Ties; or
			  – Ballast Mats
				All Project Components
				Noise
				– None
				Vibration
				– Reduction of vibration levels by at least 4 dB.
					All Project Components
					– Not required.

Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Track E0* – Potential noise and vibration effects for residential and institutional properties (e.g., future school) are detailed under Noise and Vibration during operation. – Operational air quality impacts are not anticipated during operations and are discussed under Air Quality. – Vegetation removal on the north side of the corridor will eliminate some of the visual screening. – Potential safety concerns for students and staff of the future school due to rail derailment. – Potential impacts to the driveway at the northeast quadrant of the Parliament Street underpass and the loading dock in the northwest quadrant of the Cherry Street underpass.	*Track E0* – Refer to Noise and Vibration mitigation above for details. – To mitigate safety concerns, TDSB/Toronto Lands Corporation and its developers will lead the installation of a crash wall, if required, on Block 9 (TDSB lands, future school) in consultation with Metrolinx at the school location. – During Detailed Design potential impacts to the driveway at the northeast quadrant of the Parliament Street underpass and the loading dock in the northwest quadrant of the Cherry Street underpass will be confirmed and consultation will take place to identify mitigation measures, as required.	*Track E0* – Refer to Noise and Vibration during construction for net effects to residential and institutional properties. – Undesirable aesthetic effects for residents, businesses and institutions will be minimized provided that mitigation measures are followed. – Track design and guidelines ensure that tracks are built to the safest standards to ensure safe operation of trains for customers, staff, and neighbours.	*Track E0* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty. – Public facing retaining walls and landscaped areas will undergo routine maintenance.
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Tracks E7 and E8* – No adverse effects to residential, commercial and institutional uses are anticipated due to the operational phases of the Project.	*Tracks E7 and E8* – None.	*Tracks E7 and E8* – None.	*Tracks E7 and E8* – Not required

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Residential, Commercial and Institutional Uses	*Wilson Yard Layover Facility* – No potential adverse effects to residential, commercial and institutional uses.	*Wilson Yard Layover Facility* – No mitigation measures required, as there are no potential adverse effects.	*Wilson Yard Layover Facility* – None	*Wilson Yard Layover Facility* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty. – Public facing retaining walls and landscaped areas will undergo routine maintenance.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Track E0* – Safe pedestrian movements may be impacted by the access gate to the Metrolinx right-of-way at the southwest quadrant of Lower Jarvis Street. – The railway bridge underpasses represent key north-south connection points to the waterfront. The bridge extensions to the north and to the south will not change the amount of existing pedestrian/cyclists space or infrastructure, but there will be impacts to the overall pedestrian experience due to the lengthened underpasses.	*Track E0* – The following mitigation measures are being proposed to address visual and public realm impacts at the roadway bridge extensions: – Splaying of wing-walls of the road railway underpasses has been incorporated into the design to the extent feasible and will be further refined during Detailed Design. – Landscaping and/or repairs to the pedestrian infrastructure will be determined in consultation with the City of Toronto and Waterfront Toronto. – Enhancements to the underside of the bridges are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto. This also includes co-ordination with the City of Toronto and Waterfront Toronto's work for the Gardiner East Reconfiguration Public Realm Phasing and Implementation Plan. These enhancements will be further refined during Detailed Design. – Metrolinx will also explore opportunities to restrict turning movements into and out of access gates near the bridge Underpasses. Bridge extension aesthetics are being examined in consultation with the City of Toronto and may consider Public Art Visions identified in the East Bayfront Public Art Master Plan. Continued collaboration with Metrolinx, the City of Toronto and Waterfront Toronto will be required for this component.	*Track E0* – Minimal effects are anticipated for recreational users (pedestrians and cyclists) with public realm mitigation measures in place. – Enhanced pedestrian/cyclist safety if opportunities to restrict turning movements into and out of access corridors near the bridge underpasses (e.g., restrict left turns in and out) on the north-south corridors can be realized.	*Track E0* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Tracks E7 and E8* – The railway bridge underpasses represent key north-south connection points to the waterfront. The bridge extensions to the north and to the south will not change the amount of existing pedestrian/cyclists space or infrastructure, but there will be impacts to the overall pedestrian experience due to the lengthened underpasses.	*Tracks E7 and E8* – Metrolinx will explore opportunities to restrict turning movements into and out of Metrolinx's Lower Jarvis Street access location (e.g., restrict left turns in and out) to enhance pedestrian/cyclist safety. – The following mitigation measures are being proposed to address visual and public realm impacts at the roadway bridge extensions: – Splaying of wing-walls of the road railway underpasses has been incorporated into the design to the extent feasible and will be further refined during Detailed Design. – Enhancements to the underside of the bridges are currently being developed in consultation with the neighbouring communities, the City of Toronto and Waterfront Toronto. This also includes co-ordination with the City of Toronto and Waterfront Toronto's work for the Gardiner East Reconfiguration Public Realm Phasing and Implementation Plan. These enhancements will be further refined during Detailed Design.	*Tracks E7 and E8* – Minimal effects are anticipated for recreational users (pedestrians and cyclists) with public realm mitigation measures in place. – Enhanced pedestrian/cyclist safety if opportunities to restrict turning movements into and out of access corridors near the bridge underpasses (e.g., restrict left turns in and out) on the north-south corridors can be realized.	*Tracks E7 and E8* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty.
Socio-Economic and Land Use	Recreational Uses, Active Transportation, Trails and Parks and Open Spaces	*Wilson Yard Layover Facility* – A permanent shift of the Lower Don River Trail to the south is required for the portion of the trail west of the existing Harbour Lead. The trail alignment will be shifted east of the Harbour Lead and then connect into the existing trail alignment at the southeast corner of the Wilson Yard Layover Facility. – Tree/vegetation removal and new retaining walls/embankments for the Wilson Yard Layover Facility may affect the overall recreational experience of trail users. – The Wilson Yard Facility Layover will remove approximately 3 ha of land from an area designated for the Parks and Open Spaces.	*Wilson Yard Layover Facility* – The anticipated permanent realignment of the Lower Don River Trail will accommodate the realigned Harbour Lead, Cherry Street Stormwater Facility, access road, as well as the Gardiner East Reconfiguration and TRCA's sediment and debris management area. – Metrolinx will continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA related to the design and construction of the Wilson Yard Layover Facility (as well as the other projects in the vicinity). – Consultation with the City of Toronto, Waterfront Toronto, TRCA and the community will inform a vision, design and integration approach for Public Realm and public facing elements associated with the Project. – The following mitigation measures are being proposed to address visual and public realm effects at the Wilson Yard Layover Facility: – Renderings will be developed in consultation with the City of Toronto and Waterfront Toronto. – Retaining wall and embankment requirements as well as access requirements will be confirmed in consultation with the City of Toronto, Waterfront Toronto, TRCA, Hydro One, Toronto Hydro and Enbridge. – Opportunities to integrate landscaping and greenspace will be explored, where feasible. – Retaining walls, fencing and other design elements will reflect a consistent aesthetic with other areas in the USRC, as well as the design for other projects in the vicinity.	*Wilson Yard Layover Facility* – No effects anticipated to the Cherry Street Stormwater facility, access road, as well as Gardiner East Reconfiguration and TRCA's sediment and debris management area as the anticipated permanent realignment of the Lower Don River Trail will accommodate these facilities. – Minimal aesthetic effects are anticipated for Lower Don River Trail users with public realm mitigation measures in place. – Removal of approximately 3 ha of Parks and Open Space will potentially be mitigated based on the outcome of continued consultation with the City of Toronto	*Wilson Yard Layover Facility* – Post-planting monitoring of landscaped areas will be completed after construction. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken with additional monitoring during the growing season, as per the landscaping warranty.

Main Feature	Feature	Potential Effect	Mitigation Measures	Net Effect	Monitoring Requirements
			– Consultation will continue to occur during Detailed Design with the City of Toronto, Waterfront Toronto, and TRCA. – Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx RER projects. Vegetation that is removed will be compensated for in accordance with the provisions of this protocol. – With regard to the removal of 3 ha of land designated as Parks and Open Space, Metrolinx will continue consultation with the City of Toronto as part of the ongoing property negotiations for the Wilson Yard Layover Facility.		
Socio-Economic and Land Use	Utilities	*All Project Components* – Access to utilities may require temporary access permission (easements) for maintenance activities within the USRC East Enhancements Project. No other effects on utilities are anticipated during the operation of the Project.	*All Project Components* – Potential access requirements for maintenance within the USRC East Enhancements Project will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.	*All Project Components* – Temporary access requirements from utility providers/owners will be minimized through consultation.	*All Project Components* – Not required.
Socio-Economic and Land Use	Utilities	*Tracks E0, E7 and E8* – During operation, temporary access may be required to conduct maintenance on utilities within the Project.	*Tracks E0, E7 and E8* – Potential access requirements for maintenance within the USRC East Enhancements Project will be determined in consultation with relevant utility owners and if required, easements or access agreements put in place.	*Tracks E0, E7 and E8* – Temporary access requirements from utility providers/owners will be minimized through consultation.	*Tracks E0, E7 and E8* – Not required.
Socio-Economic and Land Use	Property	*Track E0* – Operation of Track E0 east of Cherry Street will require both temporary construction license and permanent land acquisition. See property section in **Table 3-1** for details.	*Track E0* – Property requirements will be further confirmed during Detailed Design. – Metrolinx will engage with affected landowners with regard to the identified property acquisitions (temporary and permanent) and will reach an agreement prior to the commencement of construction activities and identify appropriate site-specific mitigation measures.	*Track E0* – Property requirements will be further refined and confirmed during the Detailed Design phase of the Project; however, effects are anticipated to be negligible during the operation phase of the Project with mitigation in place.	*Track E0* – Not required.
Traffic	Disruption to Local Traffic	*All Project Components* – None.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Cultural Heritage	Built Heritage Resources and Cultural Heritage Landscapes	*All Project Components* – None.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.
Archaeology	Archaeological Resources	*All Project Components* – None.	*All Project Components* – Not required.	*All Project Components* – None.	*All Project Components* – Not required.

Table 5-24: Summary of Potential Effects, Mitigation Measures, Net Effects and Monitoring Requirements – Effects on Other Projects and Connectivity

Feature	Project Phase	Potential Effects	Mitigation Measures	Net Effects	Monitoring Requirements
Effects on Other Projects	Detailed Design Construction Operation	– There are potential timing of construction impacts on 31R Parliament Street, 370R & 370 Cherry Street future developments as well as the Trinity Street Pedestrian Underpass due to the close proximity of these developments to the rail corridor.	– Continued co-ordination with developers is required in Detailed Design regarding timelines and construction schedules for 31R Parliament Street, 370R & 370 Cherry Street future development and the Trinity Street Pedestrian Underpass. – For the Trinity Street Pedestrian Underpass development, Metrolinx will continue working with the City, Waterfront Toronto and other relevant parties to ensure that the Project's design preserves the opportunity to realize the Trinity Street Pedestrian Underpass and to allow for the design elements to be incorporated into the Detailed Design of the USRC East Enhancements Project.	– Minimal effects anticipated pending the outcome of the co-ordination and consultation with these projects.	– n/a
Effects on Other Projects	Detailed Design Construction Operation	– The USRC East Enhancements bridge extensions are adjacent to the City of Toronto and Waterfront Toronto's plans for intersection improvements, new east-west multi-use trail and public realm enhancements as outlined in the Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA, 2017. This Project does not preclude these plans, but directly impacts the overall pedestrian experience, public realm vision and connections to the waterfront. The southern bridge extensions in particular, may limit the plans for Lake Shore Boulevard.	– Metrolinx will continue to co-ordinate with the City of Toronto and Waterfront Toronto regarding the public realm elements of the Gardiner EA and East Bayfront Public Art Master Plan that interact with the USRC East Enhancements Project.	– n/a	– n/a
Effects on Other Projects	Detailed Design Construction Operation	– Due to the bridge extensions there will be visual and public realm impacts.	– Improvements to public realm are being examined in consultation with the City of Toronto and Waterfront Toronto and may consider components identified in the East Bayfront Public Art Master Plan and West Don Lands Public Art Strategy. Collaboration with Metrolinx, the City of Toronto and Waterfront Toronto will be required for this component and consultation is ongoing. This Project will not preclude the Public Art Vision identified in the East Bayfront Public Art Master Plan and West Don Lands Public Art Strategy.	- n/a	- n/a
Effects on Other Projects	Detailed Design Construction Operation	– The Cherry Street bridge extension does not preclude the City's plans for the future LRT under the rail corridor and planned connection enhancements under the rail corridor at Parliament Street and Cherry Street; however this project has design components that directly intersects and is in close proximity to the USRC East Enhancements Cherry Street bridge extension.	– When the City of Toronto and TTC's plans for the LRT alignment under the rail corridor at Cherry Street progress, co-ordination with Metrolinx will be required related to the connection enhancements under the rail corridor at Parliament Street and Cherry Street. – Co-ordinate with the City of Toronto and the TTC on their plans for the design of the Light Rail Transit alignment under the rail corridor at Cherry Street and the connection enhancements under the rail corridor at Parliament Street and Cherry Street.	- n/a	- n/a
Effects on Other Projects	Detailed Design Construction Operation	– Construction of other projects within the Study Area may overlap with the USRC East Enhancements Project construction schedule.	– Metrolinx will continue to co-ordinate with the City of Toronto, Waterfront Toronto, developers, TRCA and TTC regarding timelines and construction schedules for all projects that are advancing in the waterfront area. – Although no direct impacts are anticipated related to the City's plans from the Lower Yonge Precinct Plan and Lower Yonge Transportation Master Plan EA, Metrolinx will continue to consult and co-ordinate with the City on their plans as required.	- n/a	- n/a

Feature	Project Phase	Potential Effects	Mitigation Measures	Net Effects	Monitoring Requirements
			– For the Wilson Yard Layover Facility, Metrolinx will continue to co-ordinate with the City of Toronto, Waterfront Toronto and TRCA regarding the Sediment and Debris Management Area, Cherry Street Stormwater Facility, stormwater shaft, sewage pumping station, Lower Don River Trail and Gardiner EA landscape improvements. – Metrolinx will co-ordinate traffic lane closures for the bridge extensions with the City of Toronto, Waterfront Toronto, utilities and TRCA for projects being undertaken within the vicinity, or directly adjacent, to the bridges which will require lane closures. – The Wilson Yard Layover Facility directly interfaces with multiple projects at various stages of design. Co-ordination during Detailed Design and construction is particularly critical in this area, as changes to one project could impact multiple projects in the vicinity.		
Effects on Other Projects	Detailed Design Construction Operation	– Enbridge has proposed replacement of NPS 20 and NPS 30 gas lines in close proximity to the rail corridor, including the potential to cross under the rail corridor, and the potential location of a station in close proximity to the Wilson Yard Layover Facility.	– Discussions with Enbridge will continue during Detailed Design regarding their plans in the vicinity of the Wilson Yard Layover Facility and the USRC, following Metrolinx's Third Party process.	- n/a	- n/a
Connectivity	Detailed Design, Construction and Operation	– While the bridge extensions to the south and north will not change the amount of space or infrastructure for pedestrians/cyclists, the lengthened underpasses may exacerbate the barrier effect experienced by pedestrians, cyclists, and other users of the area.	– The connectivity challenge requires Metrolinx, the City of Toronto, Waterfront Toronto and possibly private developers to work in partnership to arrive at a longer term solution. Metrolinx is committed to funding a separate Pedestrian and Cycling Connectivity Study to look at options to address the connectivity challenge.	– Enhancements to connectivity are anticipated, pending the findings and recommendations from the Pedestrian and Cycling Connectivity Study.	– n/a

5.11 Climate Change

Climate change in Ontario is resulting in increased temperatures across all seasons, changing precipitation patterns and rainfall amounts and extreme weather events such as severe storms, flooding and heat waves are increasing in frequency and intensity. Human activities are responsible for almost all of the increase in greenhouse gas (GHG) emissions, largely through the burning of fossil fuels, which when trapped in the atmosphere further exacerbate warming.

The Government of Ontario has committed to reducing GHG emissions to 80% below 1990 levels by 2050 and has established two mid-term targets of 15% below 1990 levels by 2020 and 37% below 1990 levels by 2030.

The MECP has developed a Climate Change Strategy (MECP, 2016), which outlines the five areas that Ontario will focus on in order to achieve the GHG reduction targets including:

1. A prosperous low-carbon economy with world-leading innovation, science and technology;
2. Government collaboration and leadership;
3. A resource-efficient, high-productivity society;
4. Reducing GHG emissions across key sectors; and
5. Adaptation and risk awareness.

As an agency of the Government of Ontario, Metrolinx has prioritized achieving progress towards sustainability (Metrolinx, 2014) which is in alignment with the MECP Climate Change Strategy. Metrolinx has developed a Five Year Strategy 2015-2020 that outlines priorities and objectives that provide a framework to guide work in all parts of the organization, as the implementation of the regional transportation plan is lead through an extensive program of tangible deliverables. Metrolinx's Strategy includes International Association of Public Transport (UITP) and American Public Transportation Association (APTA) sustainability commitments. These associations aim to enhance quality of life and promote sustainable transportation in urban areas. Both of these programs support becoming more sustainable by following five priority sustainability goals that represent areas of the greatest need and opportunity for improvement. The five Sustainability Goals that Metrolinx will aim to achieve in the next five years (2015-2020) are:

- Become Climate Resilient by 2018;
- Reduce Energy Use & Emission by 2020;
- Integrate Sustainability in Our Supply Chain by 2018;

- Minimize Impact on Ecosystems by 2018; and
- Enhance Community Responsibility.

5.11.1 Potential Effects of the Project on Climate Change

While the future electrification of the USRC is anticipated to yield a significant reduction in GHG emissions rather than continuing to operate using diesel-powered rolling stock, the USRC will continue to produce GHG emissions over its life cycle. Given the contribution over time, opportunities to further reduce GHG emissions may be considered.

In general, emissions produced during project construction vary significantly depending on numerous factors including:

- Construction material production;
- Energy use at construction sites;
- Movement of people and goods to and from construction locations;
- Distance material and labour travelled to construction sites; and,
- Overall design of the infrastructure.

As part of electrifying the GO service, trees will be removed. This is to maintain the safety of the service by removing any conflict between tree branches and the energized wires delivering electricity to the GO service. Also, to extend the northern most track, the embankment needs to be build up, which will impact trees and vegetation on the existing slope.

Mitigation

Key recommendations based on the APTA Transit Sustainability Guidelines related to infrastructure and facilities may be further reviewed and considered if appropriate/feasible to include:

- Select materials with low embodied energy (i.e., local, recycled, and recyclable) as long as transit-specific requirements are also met (i.e., longevity, durability, low maintenance, etc.);
- Incorporate innovative sustainable construction practices;
- Set targets for construction and demolition debris diversion from landfill through on-site and off-site reuse and recycling;
- Incorporate environmentally preferable materials and prioritize their acquisition/use based on key attributes (i.e., recyclability, weight, carbon footprint, etc.); and,

- Implement a sustainable procurement policy and/or supply chain policy based on comprehensive sustainability principles.

Upon future electrification of the USRC, Metrolinx will also follow the mitigation measures identified as part of the *GO Rail Network Electrification TPAP*.

With respect to tree removal effects, Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx RER projects. Vegetation that is removed will be compensated for in accordance with the provisions of this protocol. Refer to **Section 5.1.2.3**.

5.11.2 Potential Effects of Climate Change on the Project

It is recognized that climate change is already underway and that extreme weather is affecting the GTHA and the operation and maintenance of the Project. Past risk and vulnerability studies and work done in the GTHA and in other areas indicate that the following are some of the key climate change and severe weather effects that may need to be considered for the Project:

- Higher average temperatures and higher average minimum and maximum temperatures;
- Extreme/intense rain and flooding;
- Ice storms/freezing rain;
- Lightning strikes and severe winds; and
- Faster tree growth with potentially higher rates of disease and pest conditions.

Potential climate/weather effects that may warrant steps to reduce vulnerability and enhance resiliency and ongoing adaptive capacity include, but are not limited to:

- Exceedance of storm sewer/culvert and overland flow system capacities resulting in flooding;
- Scour and damage to or failure of culverts, bridges or embankment side slopes;
- Ice accumulation affecting infrastructure and equipment;
- High winds could result in damage to OCS structures;
- Potentially higher rates of downed trees along the perimeter of rail corridors or affecting any project components causing power outages or damage; and,
- Potentially higher rates of tree maintenance along the perimeter of corridors or affecting any project components.

Adaptation

Changes in climate and extreme weather conditions and the subsequent potential impacts on the project should be considered early on in the planning phase. Infrastructure planning and design should take into consideration projected climate changes and potential impacts as a way of building more resilient and robust infrastructure. Continuous changes and uncertainty in weather may require ongoing monitoring and adaptation measures.

Modification to Project design/design solutions may be appropriate to reduce vulnerability to the above-noted climate and weather parameters. Examples of adaptation best practices to deal with changing climate conditions may include the following:

- Extreme/intense rain and flooding:
  - Review/modify floodplain/storm frequency design criteria and implement Stormwater Management Report during construction/operation;
  - Build flood protection structures and elevate assets to keep from flooding;
  - Redirect storm runoff from track bed;
  - Slope stabilization to prevent washouts; and,
  - Erosion and sediment control (ESC) measures will be implemented during the construction phase of the Project to ensure stormwater runoff is not laden with sediment.
- Increased ice accumulation:
  - Provide structural reinforcement for overhead structures to protect against ice accumulation;
  - Bury sections of wire to protect from ice accumulation, where possible;
  - Use remotely operated vehicle for ice removal from critical sections of overhead wires;
  - Apply current which heats wire to melt ice from wires; and,
  - Apply protective coating to prevent ice from accumulating on the surface.
- Faster tree growth with potentially higher rates of disease and pest conditions:
  - Increased tree maintenance along the perimeter of corridors or affecting any project components.

Adaptive management should be planned for as part of the Project in order to monitor changing climate conditions over time to introduce new measures in the future as needed. Further climate change vulnerability and risk assessment of the Project should

be undertaken to assess the need and to provide enhanced resiliency and adaptive capacity as part of the design process, where feasible.

Upon future electrification of the USRC, Metrolinx will also apply the adaptations identified as part of the *GO Rail Network Electrification TPAP*, including the effects of high heat on the OCS and its structures (i.e., traction power substations).

6. Consultation Process

In accordance with Section 8 of *O. Reg. 231/08*, this section summarizes the consultation activities carried out with the public, property owners, review agencies, Indigenous communities and other stakeholders during the course of the Project, including a summary of feedback and comments received and how they were considered. See **Appendix C** for all consultation materials.

6.1 Consultation Strategy

A Communication and Stakeholder Consultation Plan was prepared to describe the approach to all consultation and communications aspects of the Project, individual roles and responsibilities, and consultation tools to be used throughout each phase of the Project. A summary of tools is provided below.

6.1.1 Master Stakeholder Contact List

A Project Master Stakeholder Contact List was created at the beginning of the USRC East Enhancements Project and was developed from online government websites, the government review team and previous Metrolinx contact lists near the Study Area. The Master Stakeholder Contact List is comprised of government agencies, key interest groups, Indigenous communities and directly impacted property owners. The Project Master Stakeholder Contact List was continually updated in response to Project feedback and was utilized to inform stakeholders of key consultation milestones.

The Project Master Stakeholder Contact List can be found in **Appendix C.1a**.

6.1.2 Online Engagement

6.1.2.1 Project Website

The Project Website (www.metrolinx.com/unionstationeast) was implemented and dedicated to keep the public up-to-date on the latest developments of the Project and serve as a virtual library for materials presented at Public Meetings and other Project documentation, and provide a means for the public to comment on the Project. Materials posted to the website include:

- Notices of Public Meetings (pre-TPAP and during TPAP);

- Notice of Commencement;
- Notice of Completion;
- Public meeting materials such as display boards and presentations;
- Draft EPR and Technical/Environmental Studies; and
- Final EPR and Technical/Environmental Studies.

6.1.2.2 Metrolinx Engage Website

Following Public Meetings, Metrolinx posted online surveys for the public to answer questions and provide feedback on the Project. The Project Team then reviewed all feedback as the Project progressed. A link to the online surveys on the Metrolinx Engage website was posted on the Project Website.

6.1.2.3 Social Media

An online Project presence has allowed the Project Team to build awareness, strengthen relationships and develop an understanding of community issues and discussions occurring outside of the formal consultation process. The use of social media specifically allows the Project Team to reach a large audience that may otherwise be less engaged in traditional consultation methods to provide them with information about Project activities and to directly and promptly address inquiries and concerns from social media users. Social media posts were completed through Facebook and Twitter on the following accounts:

- @Metrolinx
- @MetrolinxFR
- @GOTransit
- @GOTransitFR
- @MXNotices

6.1.2.4 Project Email Address

The Project Email is unionstationeast@metrolinx.com. Stakeholders and the public have been encouraged throughout the Project to email Metrolinx with any comments or concerns they had about the USRC East Enhancements Project. Throughout the Project, comments have been received and responded to accordingly.

6.1.2.5 Email Distribution List

A subscription email distribution list, called E-Blast, was put together to keep interested stakeholders informed of the Project. As of June 15, 2018, 266 subscribers were subscribed to the E-Blast including:

- Interested persons who signed up at public and community group meetings held to date;
- Property managers for condo buildings in the USRC area; and
- Members of the existing USRC general email update list.

E-blast Notices are found in **Appendix C.1c**.

6.1.3 Public and Agency Meetings and Correspondence

6.1.3.1 Individual Stakeholder Meetings

Individual meetings were held with key stakeholders, including the MTCS, TRCA, Waterfront Toronto, community groups, City of Toronto staff including Heritage Preservation Services, utility companies and more. A detailed list of meetings held throughout the Project can be found in **Section 6.2**. The purpose of these meetings was to discuss ongoing project developments and associated issues of concern to specific stakeholders. Generally, these meetings either included a presentation describing project information relevant to each phase or a formal meeting with the stakeholders and community groups.

6.1.3.2 Technical Advisory Committee Meetings

Technical Advisory Committee (TAC) meetings were held with the City of Toronto, Waterfront Toronto and TRCA throughout the Project to provide updates on the Project and to discuss opportunities, concerns, issues and risks related to the design of the Project. The TAC meetings provided an opportunity for these stakeholders to have their issues and concerns addressed by the Project Team. More information on TAC meetings can be found in **Section 6.2.3.3.1**.

6.1.3.3 Public Realm Working Groups

The public realm design and working groups for the bridge extensions are being co-ordinated with the City of Toronto and Waterfront Toronto and their work on the Gardiner East Public Realm Project. For more information on these meetings refer to Section **6.2.3.3.3**.

6.1.3.4 Councillor Briefings and Municipal Council Meetings

Briefing meetings were held with councillors to review information on the Project and to discuss any concerns or suggestions to the Project. Refer to **Section 6.2.3.5** for more information on these briefing meetings.

6.1.3.5 Public Meetings

To build strong relationships and get a complete understanding of local issues in the surrounding communities, and to ensure communities stay engaged and informed, Metrolinx consulted with the public prior to officially commencing the TPAP and during the formal TPAP. Public meetings were promoted through the Project website, www.metrolinx.com/unionstationeast, local newspaper advertisements and mailings and/or emails to local residents, technical review agencies, identified stakeholder groups, and Indigenous communities. The public meetings provided an opportunity to speak directly with the Project Team.

6.1.3.6 Community Advisory Committee (CAC)

Metrolinx has been directed by the Province of Ontario to expand and electrify the GO Network, and to increase service through the Regional Express Rail program. Metrolinx recognizes that these network-wide improvements will have a positive impact on the travel options and experiences for millions of Ontarians, and at the same time can have negative impacts on communities closest to the 250+ km of Metrolinx rail corridors. Metrolinx has assembled a USRC East Community Advisory Committee (CAC) to address the significant concerns raised by the local community related to works on USRC East Enhancements Project.

The CAC is comprised of key representatives of community groups/associations, emergency services, business improvements areas, elected officials, and other relevant stakeholders. It was established in January 2018 to identify the issues, opportunities, and constraints related to the USRC East, focusing particularly on the impacts which Metrolinx's commitments to expansion and service increases have on the local community.

6.1.3.7 Walking Tour

A Walking Tour was held on August 24, 2017 with local residents and other interested stakeholders to provide an overview of the Project and to identify concerns with the Project and proposed mitigation.

The Walking Tour started at the Cherry Street Interlocking Tower and headed west towards Lower Sherbourne Street before ending at Caroline Co-op. Key interests included; bridge extensions, public realm considerations, north-south connection, Cherry Street Interlocking Tower to remain in vicinity, construction dust, noise and vibration, tree removals, landscaping and maintenance, retaining wall design, and request for a noise wall.

6.1.3.8 Ask Metrolinx Town Hall

President and CEO, Phil Verster, and members of the Metrolinx Senior Management Team hosted the first-ever Ask Metrolinx Town Hall. Members of the public were able to attend in-person or online via Metrolinx Engage website. The session was held on December 12, 2017.

In the week before the meeting, residents of the GTHA had the opportunity to ask questions about Metrolinx services, the Regional Transportation Plan and any other topics or issues of interest. The ten most popular questions submitted online in advance of the event were prioritized to be answered during the session. Individuals were also able to ask their questions in person at the session or submit new questions online. Specific questions regarding the USRC East Enhancements Project were submitted and responded to at the event (the top question submitted online was related to construction noise in USRC East).

The entire event was recorded and is available online: https://www.metrolinxengage.com/en/content/ask-metrolinx-december-12-2017?order=date#comments

6.1.4 Public Notices

Table 6-1 provides a summary of all notices published throughout the Project. As a government agency operating under the principles of the *French Language Services Act* (FLSA), Metrolinx is committed to providing services in French in designated areas of the province. The agency works to ensure the availability and accessibility of quality services in French system-wide. Following these principles, Metrolinx provided a French translation of all notices and newspaper ads for the Project.

6.1.4.1 Notice via Mail-out

The Notices (French and English) were mailed via Canada Post (regular mail) to property owners within 30 m of the USRC. They were also distributed via Canada Post Unaddressed Admail to approximately 9,000 homes within 100 m on each side of the rail corridor.

Table 6-1: Summary of Notices Published

Notice	Paper	Date
Notice of Public Meeting #1	The Bulletin	June 6, 2017
Notice of Commencement and Public Meeting #2	Metro	April 19, 2018
		April 26, 2018
	The Bulletin	April 20, 2018
	L'Express	April 20, 2018
		April 27, 2018
	Le Metropolitan	April 25, 2018
		May 2, 2018
Notice of Completion of Environmental Project Report	Metro	August 16, 2018
		August 23, 2018
	The Bulletin	August 16, 2018
	L'Express	August 17, 2018
		August 24, 2018
	Le Metropolitan	August 22, 2018
		August 29, 2018

6.2 Pre-Planning Phase Consultation

Consultation for this Project occurred in two stages – prior to the Notice of Commencement for the TPAP (including the release of the draft EPR for technical agency review); and following the Notice of Commencement of the TPAP. To build strong relationships and get a complete understanding of local issues in the surrounding communities, and to ensure communities stay engaged and informed, Metrolinx consulted with the public and a range of stakeholders prior to officially commencing the TPAP.

Pre-Planning consultation activities were conducted to inform stakeholders of the Project. This included, but was not limited to, meetings with representatives from the City of Toronto, Waterfront Toronto, TRCA, utility companies, local community groups, local businesses, Indigenous communities and elected officials.

6.2.1 Public Consultation

6.2.1.1 Public Meeting #1

Public Meeting #1 was held during the pre-TPAP phase in order to introduce the public to the Project and receive input, feedback, and concerns about the Project before issuing the Notice of TPAP Commencement. Public Meeting #1 was held at 80 Cooperage Street, Toronto, ON from 6:30 – 8:30 pm at the George Brown College Campus (Lucie and Thornton Blackburn Conference Centre – Grand Room). The format of Public Meeting #1 included an open house (with Project display boards), a presentation (at 7:00 pm) and a question and answer period. Representatives from the Metrolinx Project Team and Consultant Team were available to answer questions and discuss Project details.

In total, 41 individuals attended Public Meeting #1. The sign-in sheet was signed by 30 individuals. Of the 41 attendees 8 were staff members from the City of Toronto and/or Waterfront Toronto.

A Public Meeting #1 Summary Report is provided in **Appendix C.2a** and all comments received during the consultation period of June 28, 2017 to July 26, 2017 were included. The Feedback Forms, Project display boards, the presentation and rolls plans that were made available are also found in **Appendix C.2a**.

Notice via Online Newspaper

Due to the lack of local newspapers within the Study Area and the transition to having content and information accessible online, this notice was advertised in an online newspaper. The Notice of Public Meeting #1 (English) was published online in *The Bulletin* on June 6, 2017 (TheBulletin.ca). *The Bulletin* covers the St. Lawrence Neighbourhood, Corktown, Cabbagetown, the Distillery District, Riverside, Waterfront, Leslieville and more. The advertisement provided residents and stakeholders with information on how to actively participate in the Project and displayed the location and details of the Public Meeting.

Notice via Mail-out

The Notice of Public Meeting #1 (French and English) was mailed on June 5, 2017 via Canada Post (regular mail or registered mail) to property owners within 30 m of the USRC. The Notice of Public Meeting #1 (French and English) was also distributed via Canada Post Unaddressed Admail to approximately 6,000 homes within 200 m on each side of the rail corridor starting on June 5, 2017.

Refer to **Appendix C.2a** for the French and English notice that was sent out.

Notice via E-Blast Subscribers

The Notice of Public Meeting #1 was sent on June 5, 2017 to 125 E-Blast subscribers including:

- Community members who signed up at community group meetings held to date;
- Property managers for condo buildings in the USRC area; and
- Existing USRC general email update list.

Notice via Website and Social Media

The Notice of Public Meeting #1 (French and English) was posted to the project website (www.Metrolinx.com/unionstationeast) on June 5, 2017. Social Media posts about the Public Meeting began on Twitter and Facebook on June 21, 2017. The associated accounts include:

- @Metrolinx
- @MetrolinxFR
- @GOTransit

Notice to Stakeholders

Federal, Provincial and Local Agencies, as well as other stakeholders were provided with the Notice of Public Meeting #1 via e-mail on June 8, 2017. The Notice of Public Meeting #1 as well as a covering letter was sent via e-mail on June 7, 2017 to Indigenous communities and via courier or mail.

Notice to Elected Officials

The following elected officials were directly notified of the Project and were invited to attend Public Meeting #1 via an e-mail that included the Notice of Public Meeting #1 on June 5, 2017.

Toronto City Council

- Councillor Pam McConnell (Ward 28)
- Sean Mclntyre (Executive Assistant – Ward 28)
- Tom Davidson (Senior Advisor, Planning and Projects – Ward 28)

Members of Provincial Parliament (MPPs)

- Hon. Glen R. Murray (MPP Toronto-Centre and MECP)

Members of Parliament (MPs)

- Adam Vaughan (MP Spadina – Fort York)
- The Honourable Bill Morneau (MP – Toronto Centre)

Additional Posting Locations

The Notice of Public Meeting #1 (English) was sent to the following three additional posting locations on June 7, 2017:

- St. Lawrence Community Recreation Centre – 230 The Esplanade, Toronto ON, M5A 4J6
- Toronto Public Library – St Lawrence Library – 171 Front Street East, Toronto ON, M5A 4H3
- Cooper Koo Family YMCA – 461 Cherry Street, Toronto ON, M5A 0H7

Summary Stakeholder and Public Comments

Below is a list of comments received during the consultation period of June 28, 2017 – July 26, 2017:

- The Project Team received nine Feedback Forms at Public Meeting #1 and two Feedback Forms online. Feedback Forms are provided in **Appendix C.2a**.
- The Project Team received 11 public comments and 2 community group comments via email between June 28, 2017 and July 26, 2017. Comments are found **Appendix C.2a**.
- The Project Team received no comments from Indigenous communities by mail or email during the Public Meeting #1 consultation period. In addition, none of the consulted Indigenous communities attended Public Meeting #1.
- The Project Team received two comments from external agencies by mail or email during the consultation period. The external agency comments are provided in **Appendix C.2a** and **Appendix C.2c**.

6.2.1.2 Public and Community Group Meetings

Table 6-2 presents a list and summary of public, community group and CAC meetings held prior to the Notice of Commencement. Some of these groups involve local community groups, Community Housing and Co-operatives within or near the Study Area.

Table 6-2: Summary of Community Group Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Toronto Community Housing Corporation	▪ Toronto Community Housing Corporation	November 3, 2016	▪ Provided a high level overview of the Metrolinx USRC East Enhancements Project and other projects Metrolinx will be undertaking. ▪ Issues were raised from Toronto Community Housing Corporation regarding potential impacts concerning noise, traffic, health and safety, vegetation removal and dust impacts. ▪ All of these concerns will be addressed and mitigated for through the EA stages of the Project.
West Don Lands Committee	▪ St. Lawrence Neighbourhood Association ▪ West Don Lands Committee ▪ St. Lawrence Market BIA ▪ Office of Councillor ▪ Representatives from the Corktown Residents and Business Association, Gooderham & Worts Neighbourhood Association, and the Canary District	May 15, 2017	▪ Discussed the City Plans (e.g., Gardiner East, Public Realm, and East Bayfront LRT) and Metrolinx's plans for electrification of the USRC corridor. ▪ Provided an overview of the USRC East Enhancements Project. ▪ Concerns were raised regarding construction timing and traffic impacts. ▪ An advisory committee was requested.
St. Lawrence Market Business Improvement Area (BIA)	▪ St. Lawrence Market Neighbourhood BIA	May 17, 2017	▪ Provided an overview of Metrolinx plans and the USRC East Enhancements Project. ▪ Areas of interest discussed were public realm opportunities, tree removal, construction timing and traffic impacts.
Cathedral Court Co-op	▪ Cathedral Court Co-op Board Executive and Residents ▪ Journalist from *The Bulletin*	May 24, 2017	▪ Provided an overview of Metrolinx plans and the USRC East Enhancements Project. ▪ Areas of interest discussed included: Noise, vibration and train idling, retaining wall and embankment locations, renderings, the Cherry Street Interlocking Tower Relocation, consultation approach and the electrification of trains. ▪ Further co-ordination with Metrolinx was also requested.

Meeting Subject	Stakeholder	Date	Meeting Summary
Toronto Community Housing Corporation	▪ 15 Scadding Avenue Representatives	May 29, 2017	▪ Provided an overview of Metrolinx projects and proposed works for the USRC Project. ▪ Concerns about environmental issues were raised and addressed.
St. Lawrence Neighbourhood Association	▪ 115 The Esplanade Representatives	May 31, 2017	▪ Provided an overview of Metrolinx projects and proposed works for the USRC Project. ▪ Concerns about environmental issues and schedule were raised and addressed.
Caroline Co-op	▪ Caroline Co-op Board	August 16, 2017	▪ A Project overview of the USRC East Enhancements Project was given. ▪ The community group does not support Track E0. ▪ Concerns included impacts to trees, air quality (less trees filtering the air), privacy, health, safety and quality of life (noise and vibration). ▪ The Group inquired about the possibility of a crash wall that will act as a noise wall and visual barrier if the Project goes ahead. ▪ Questions on why a new track cannot be added to the south instead of extending E0 to avoid all of the impacts to the community. ▪ The residents are not concerned about the installation of Tracks E7 and E8. ▪ Proposed landscaping strategy for comment.
Walking Tour	▪ Public	August 24, 2017	▪ Tour started at the Cherry Street Interlocking Tower and headed west towards Lower Sherbourne Street before ending at Caroline Co-op. ▪ Key interests were: Bridge extensions public realm considerations north-south connection, Cherry Street Interlocking Tower to remain in vicinity, Construction dust, noise and vibration, Tree removals, landscaping and maintenance, Retaining wall design, and request for noise wall.

Meeting Subject	Stakeholder	Date	Meeting Summary
Toronto Railway Historical Association	▪ Toronto Railway Historical Association (TRHA)	September 26, 2017	▪ Discussed the USRC East Enhancements Project and the Cherry Street Interlocking Tower Relocation. ▪ TRHA showed interest on the preservation of the Cherry Street Interlocking Tower. ▪ Also discussed the proposed location, decommissioning and access of the Cherry Street Interlocking Tower. ▪ Supportive of the new location and were interested in the future use of the building for public interpretive or museum purposes
Gooderham & Worts Neighbourhood Association	▪ Gooderham & Worts Neighbourhood Association (GWNA)	October 2, 2017	▪ Discussed current plan for the Project and the Cherry Street Interlocking Tower Relocation. ▪ Supportive of the new location and were interested in the future use of the building for public interpretive or museum purposes
Corktown Residents and Business Association	▪ Corktown Residents and Business Association (CRBA)	October 3, 2017	▪ Discussed current plan for the Project and the Cherry Street Interlocking Tower Relocation. ▪ Concerns raised about potential trail disruptions.
Ask Metrolinx Town Hall	▪ Public	December 12, 2017	▪ Discussed and answered questions the public had on Metrolinx services. ▪ Concerns raised related to this Project were construction noise in USRC East.
Community Advisory Committee (CAC) #1	▪ 28 CAC members attended ▪ Elected officials ▪ City of Toronto ▪ Waterfront Toronto	January 9, 2018	▪ Topics discussed involved identifying and confirming problems to be resolved between Metrolinx and community members living adjacent to the USRC; reviewed a draft timeline for the USRC East Enhancements Project EA; reviewed and discussed the draft Terms of Reference (TOR); and discussed next steps.

Meeting Subject	Stakeholder	Date	Meeting Summary
			▪ Comments were received by LARA on Jan. 9, 2018. Final responses can be found in **Appendix C.2e**. ▪ Final TOR and Meeting Summary can be found in **Appendix C.2e**.
Community Groups Meeting	▪ St. Lawrence Neighbourhood Association – Suzanne Kavanagh - President ▪ West Don Lands Committee – Cynthia Wilkey – Co-Chair	January 26, 2018	▪ Provided an overview of Metrolinx Design Excellence processes and reviewed design briefs for Metrolinx projects in the Toronto downtown area.
Community Advisory Committee (CAC) #2	▪ 14 CAC members attended ▪ City of Toronto ▪ Elected officials	February 13, 2018	▪ Topics discussed involved issues related to noise and vibration, Metrolinx commitments, and responding to questions from the CAC and broader community. ▪ Metrolinx committed to completing a Receptor Based Noise and Vibration Assessment which included setting up noise and vibration monitors in areas of the community where homes are closest to the rail corridor. The assessment involved outdoor-to-indoor noise transmission testing and measurement of sample on corridor activities to benchmark existing conditions at locations of concern. ▪ Final Meeting Summary can be found in **Appendix C.2e.**
St. Lawrence Neighbourhood Association	▪ St. Lawrence Neighbourhood Association ▪ 40 public members	February 28, 2018	▪ Presentations on the USRC East Enhancements Project and the Gardiner Revitalization Project were conducted. ▪ Items that were discussed included: public realm/design excellence elements, landscape architecture/green walls, bridge extensions, Metrolinx's commitment to idling trains, the historical significance of the Cherry St. tower and its relocation.

Meeting Subject	Stakeholder	Date	Meeting Summary
Community Advisory Committee (CAC) #3	▪ 12 CAC members attended ▪ City of Toronto ▪ Elected officials	March 6, 2018	▪ Comments were received by residents and community groups across the USRC East on March 6, 2018. ▪ Items that were discussed included overview of Metrolinx's track expansion plans, including Track E(0) and related underpasses; bridge extensions; retaining walls, relocation of Cherry Street Tower; and safety requirements ▪ Final Meeting Summary, including CAC feedback, next steps, follow-up questions and presentation can be found in **Appendix C.2e**.
Community Advisory Committee (CAC) #4	▪ 13 CAC members attended	March 29, 2018	▪ Items that were discussed included an overview of concurrent activities happening in the USRC; an overview of retaining walls required; and an overview of the proposed Public Realm plans. ▪ Metrolinx committed to undertaking a Pedestrian and Cycle Connectivity Study and developing a scope of work for a Structural Integrity Study ▪ Final Meeting Summary, including CAC feedback, next steps, Q&A, follow-up questions and presentation can be found in **Appendix C.2e**.
Community Advisory Committee (CAC) #5	▪ 17 CAC members attended ▪ City of Toronto	April 11, 2018	▪ Items that were discussed included hearing from community members about their experiences living adjacent to the USRC East and their aspirations for the future; present the findings from USRC East Enhancements Project TPAP technical and background studies; and continue discussions on Track E0, safety, and construction scheduling. ▪ CAC members conducted presentations on: – How the USRC East Enhancements work may affect the community, and their vision of how Metrolinx can improve the community.

Meeting Subject	Stakeholder	Date	Meeting Summary
			– A series of videos which highlighted the daytime and nighttime noise impacts from idling trains and construction in the corridor. – The letter to Metrolinx which requested that the Notice of Commencement be delayed until there is more resolution of key issues. ▪ Final Meeting Summary, including CAC feedback, summary of discussions, next steps, Q&A, and presentation can be found in **Appendix C.2e.**

6.2.1.3 Public and Community Group Correspondence

Comments have been provided by the public and received during the consultation periods for the one Public Meeting held for the Pre-TPAP phase. These comments can be categorized by theme and include the following:

- Air Quality and Noise & Vibration Studies
- Access
- Bridge Extensions
- Consultation
- Construction
- Environmental
- Feedback Form
- Heritage
- Idling Trains and Air Quality
- Lower Don River Trail Pedestrian Bridge Extension
- Municipal Roads
- Noise and Vibration
- Noise Wall
- Project Timelines
- Property Needs
- Property Damage and Compensation
- Public Meeting Material
- Scope of Work
- Safety
- Tracks E7 and E8
- Train Frequency
- Track E0
- Traffic
- Vegetation and Trees
- Wilson Yard Layover Facility

A summary of comments and responses received from the Public Meeting #1 has been provided in **Appendix C.2a**.

All Public and Community Groups correspondence can be found in **Appendix C.2a**.

6.2.1.4 Community Advisory Committee Comments and Responses

Comments have been provided by the public and stakeholders who are a part of the CAC process during the Pre-TPAP phase. The comments received from CAC members that are documented in this EPR both pertain to the Project and also broader issues related to USRC East and Metrolinx operations. These comments can be categorized by theme and include the following:

- Access
- Air Quality
- Communication
- Design
- Electrification
- Heritage
- Idling Trains
- Maintenance
- Noise and Vibration Studies
- Property Impacts
- Property Damage and Compensation
- Safety
- Track E0
- TPAP
- Tracks E0, E7 and E8
- Vegetation, Plants and Trees

Comments and responses has been provided in **Appendix C.2b**.

All CAC meeting summaries and presentations, along with the Terms of Reference can also be found in **Appendix C.2b**.

At CAC meeting #5 held on April 11, 2018, CAC members were advised that draft versions of the technical/environmental reports were posted on the project website for their review. No comments were received on the reports during the pre-planning phase.

6.2.2 Indigenous Consultation

6.2.2.1 Potentially Interested Indigenous Communities

Metrolinx developed an Indigenous community engagement plan that was implemented during the pre-TPAP phase to encourage further discussion with affected or interested Indigenous communities and obtain their feedback and input on the Project.

The Indigenous contact list was developed by using the Indigenous and Northern Affairs Canada (INAC) Aboriginal and Treaty Rights Information System (ATRIS) and reviewed previous contact lists in the area of the Project to determine previously consulted Indigenous communities.

On November 28, 2016 a formal request was sent to the MECP's Environmental Approvals Branch for a list of Indigenous communities that may be interested in the Project. MECP responded by making reference to the Ministry's website on Indigenous consultation for developing the Indigenous contact list on December 21, 2016. On November 28, 2016 a formal request was sent to the Ministry of Indigenous Relations and Reconciliation (MIRR) seeking assistance in identifying specific Indigenous communities with which to consult. A response from MIRR has not been received by Metrolinx.

The following Indigenous communities that have been consulted during the Preliminary Planning stage, prior to Notice of Commencement are:

- Alderville First Nation;
- Beausoleil First Nation;
- Chippewas of Georgina Island;
- Chippewas of Mnjikaning (Rama);
- Curve Lake First Nation;
- Hiawatha First Nation;
- Huron-Wendat Nation;
- Kawartha Nishwabe First Nations;
- Métis Nation of Ontario;
- Mississaugas of the New Credit First Nation;
- Mississaugas of Scugog Island First Nation; and
- Williams Treaties First Nations.

In addition to the above Indigenous communities the following Indigenous organizations were also notified as part of the Preliminary Planning stage of the Project:

- Indigenous and Northern Affairs Canada; and
- Ministry of Indigenous Relations and Reconciliation.

6.2.2.2 Meetings with Indigenous Communities

In-person meetings have been requested by select Indigenous communities on the contact list for an overview of all Metrolinx projects in the area. These meetings include an offer to hold individual meetings to discuss any concerns. **Table 6-3** summarizes the Indigenous communities meetings held to date.

Indigenous communities meeting minutes and presentations can be found in **Appendix C.2c**.

Outside of this Project, Metrolinx met with Huron-Wendat Nation and developed an Engagement Protocol in 2017.

Table 6-3: Summary of Indigenous Communities Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Williams Treaties First Nations (Mississauga Communities) Metrolinx Projects	▪ Curve Lake First Nation ▪ Hiawatha First Nation ▪ Mississaugas of Scugog Island First Nation	May 26, 2016	▪ A presentation and review of Metrolinx projects and TPAP was discussed, including the USRC East Enhancements Project. ▪ Other topics included: works in the vicinity of the historic Allandale Station, educational opportunities, employment opportunities and fare discounts. ▪ No comments were received at this meeting on the USRC East Enhancements Project.
Williams Treaties First Nations Metrolinx Projects	▪ Curve Lake First Nation ▪ Hiawatha First Nation ▪ Mississaugas of Scugog Island First Nation ▪ Beausoleil First Nation ▪ Chippewas of Georgina Island ▪ Chippewas of Mnjikaning (Rama)	July 18, 2016	▪ A presentation and review of Metrolinx projects and TPAP was discussed, including the USRC East Enhancements Project. ▪ Another topic of discussion was the works in the vicinity of the historic Allandale Station. ▪ No comments were received at this meeting on the USRC East Enhancements Project.
Mississauga of the New Credit First Nation Metrolinx Projects	▪ Mississaugas of the New Credit First Nation	September 19, 2016	▪ A presentation and review of Metrolinx projects and TPAP was discussed, including the USRC East Enhancements Project. ▪ An inquiry was made regarding what is involved with the USRC East Enhancements Project. Metrolinx explained in more detail what the Project entails. ▪ Metrolinx also mentioned a heritage assessment of the Cherry Street Interlocking Tower is underway.
Huron-Wendat Nation Metrolinx Projects	▪ Huron-Wendat Nation	September 27, 2016	▪ A presentation and review of Metrolinx projects and TPAP was discussed, including the USRC East Enhancements Project. ▪ An approach on how to consult with Huron-Wendat Nation was determined. ▪ No comments were received at this meeting on the USRC East Enhancements Project.

Meeting Subject	Stakeholder	Date	Meeting Summary
Williams Treaties First Nation Metrolinx Projects	▪ Williams Treaties First Nation ▪ Hiawatha First Nations ▪ Chippewas of Mnjikaning (Rama) ▪ Beausoleil First Nation	September 29, 2016	▪ A presentation and review of Metrolinx projects and TPAP was discussed, including the USRC East Enhancements Project. ▪ An inquiry was made regarding the potential for archaeological resources in the Study Area. Metrolinx stated that the Study Area is within an urban area with longstanding rail use and that an archaeological assessment has been conducted to determine the potential. Areas within the current LOD for the Project have been identified as deeply disturbed and require no further archaeological work.
Huron-Wendat Nation Metrolinx Projects	▪ Huron-Wendat Nation	September 6, 2017	▪ A presentation and review of Metrolinx projects and TPAP was discussed. ▪ An inquiry was made regarding which companies carry out archaeological work for Metrolinx projects. Metrolinx stated that it is a shortlisted roster containing multiple pre-approved companies. ▪ An update on the archaeological aspects of current Metrolinx projects and the Engagement Protocol was conducted.
Huron-Wendat Nation comments on Draft Stage 1 AA Via Teleconference	▪ Huron-Wendat Nation	September 14, 2017	▪ Text in Section 1.2.1 of the Stage 1 Archaeological Assessment was discussed and updates were discussed and agreed upon. The draft Stage 1 Archaeological Assessment will be revised and redistributed to all Indigenous Communities on the contact list.
Williams Treaties First Nation Metrolinx Projects	▪ Rama First Nation ▪ Hiawatha First Nation	March 19, 2018	▪ A presentation and review of Metrolinx projects and TPAP was discussed. ▪ Relevant projects that were discussed in further detail included the Electrification and the USRC East Enhancements Project. ▪ Metrolinx advised that the Cherry Street Interlocking Tower is provincially owned. ▪ Metrolinx also mentioned that a Stage 1AA has already been completed for the proposed relocation site of the Cherry Street Interlocking Tower.

6.2.2.3 Correspondence with Indigenous Communities

Each of the above-noted Indigenous communities were contacted by email (where available) or addressed mail to notify them of the Project and Stage 1AA, and invite them to Public Meeting #1. Written and/or telephone follow-up invitations have also been included as part of the circulation of Notification #1, which also included an offer to hold individual meetings to discuss any concerns. The purpose of this follow-up was to demonstrate whether the Project may have potential adverse impacts on Indigenous communities and/or Treaty rights, as well as to discuss suggested measures for avoiding, minimizing or mitigating potential adverse impacts.

Table 6-4 and **Table 6-5** below summarize the correspondence and comments from Indigenous communities.

Stage 1 Archaeological Assessment (AA) and Project notification (Notification #1)

Indigenous communities were contacted on May 15, 2017 and provided an overview of the Project as well as the Stage 1 AA. The communities had an opportunity to participate and provide comments on the Project and Stage 1 AA.

Public Meeting #1 Notification (Notification #2)

The Notice of Public Meeting #1 as well as a covering letter was sent via email on June 7, 2017 to Indigenous communities.

Revised Draft Stage 1 AA (Notification #3)

The updated Stage 1AA has been re-distributed via email and included the addressed comments received from Curve Lake First Nation.

Indigenous communities correspondences can be found in **Appendix C.2c**.

Table 6-4: Summary of Correspondence with Indigenous Communities

Indigenous Community	Consultation
Alderville First Nation	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed and emailed Notification #1 package – *May 23, 2017: Follow-up phone call, left voicemail* Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Beausoleil First Nation	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (courier) and emailed Notification #1 package – *May 23, 2017*: Follow-up phone call, left voicemail Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Chippewas of Georgina Island	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (courier) and emailed Notification #1 package – *May 23, 2017*: Follow-up phone call, left voicemail Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Chippewas of Mnjikaning (Rama)	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (courier) and emailed Notification #1 package – *May 23, 2017*: Follow-up phone call, left voicemail – *June 2, 2017: Email from Chippewas of Mnjikaning (Rama) Chief noting message was forwarded to proper contact (Karry Sandy McKenzie).* Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA

Indigenous Community	Consultation
Curve Lake First Nation	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (reg) and emailed Notification #1 package – Email bounce back: Undeliverable to dutytoconsult@curvelakefn.ca – *May 23, 2017*: Follow-up phone call, left voicemail – *May 24, 2017:* Email to confirm if Curve Lake would like to be engaged in this project, would like to be kept informed of any and all progress, and requested an update to the Stage 1 AA report text. Refer to **Table 6-5** for correspondence. Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (reg) and emailed Notice of Public Meeting #1. Curve Lake First Nation replied noting they would address the correspondence. Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Hiawatha First Nation	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (reg) and emailed Notification #1 package – *May 23, 2017*: Follow-up phone call, left voicemail – *May 25, 2017: Tom Cowie emailed to confirm he will provide comments or concerns by the June 1st deadline.* Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (reg) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Huron-Wendat Nation	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (courier) and emailed Notification #1 package – *May 15, 2017:* Melanie Vincent emailed Jason Ryan (*Metrolinx Environmental Programs & Assessment Director*) inquiring how to proceed with the review since HWN is in discussions with Metrolinx about an agreement to review EAs – *May 17, 2017: Jason Ryan (Metrolinx Environmental Programs & Assessment Director) responded to Melanie via email.* Refer to **Table 6-5** for correspondence. Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA

Indigenous Community	Consultation
Kawartha Nishnawbe First Nations	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (reg) and emailed Notification #1 package – *May 23, 2017*: Follow-up phone call, left voicemail Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Métis Nation of Ontario Head Office	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (courier) and emailed Notification #1 package – *May 23, 2017*: Follow-up phone call – Letter redirected to Toronto Office (James Wager) with a mail delay of 7-10 days. – *June 6, 2017:* Follow-up voicemail to confirm receipt of letter and report sent on May 15, 2017. Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Métis Nation of Ontario Toronto Office	Notification #1 - Project Introduction and Stage 1AA: – N/A Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA
Mississaugas of the New Credit First Nation	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (courier) and emailed Notification #1 package – *May 23, 2017:* Voicemail - Dave Mowat corrected the email address of Chief Kelly LaRocca (correct = klarocca@scugogfirstnation.com) Refer to **Table 6-3** for correspondence. – *May 23, 2017:* Follow-up phone call, left voicemail Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA

Indigenous Community	Consultation
Mississaugas of Scugog Island First Nation	Notification #1 - Project Introduction and Stage 1AA: – *May 15, 2017:* Mailed (courier) and emailed Notification #1 package – *May 15, 2017:* Email - Dave Mowat corrected the email address of Chief Kelly LaRocca (correct = klarocca@scugogfirstnation.com) Refer to **Table 6-3** for correspondence. Notification #2 - Notice of Public Meeting #1: – *June 7, 2017:* Mailed (courier) and emailed Notice of Public Meeting #1 Notification #3 – Revised Draft Stage 1AA: – *August 18, 2017:* Emailed the revised draft Stage 1AA

Table 6-5: Summary of Indigenous Communities Comments

Indigenous Community	Date	Subject	Comments Received	Response to Comments
Mississaugas of Scugog Island First Nation	May 15, 2017	Notification #1	Chief Kelly LaRocca's email is klarocca@scugogfirstnation.com and not @mississaugafirstnation.com Also for the sake of co-ordination, this particular area is within the treaty area known as the Toronto Purchase and I have to assume that this same information is shared with the Mississaugas of the New Credit First Nation, who we do communicate with especially on a variety of archaeological assessments taking place within the Toronto Purchase area.	Apologies for the error and thank you for advising us. We will update our contact list accordingly for future notifications. Chief LaRocca – please find the attached correspondence for your information.
Huron-Wendat Nation	May 15, 2017	Notification #1	We received this notice this morning. What is the procedure you expect us to plan for the report reviewing?	With respect to procedure we would suggest following the spirit of the engagement protocol as drafted. Specific to the USRC East Enhancements Project Stage 1 Archaeological Assessment report, much of the study area was included in the Stage 1 Archeological Assessment Report previously provided to the HWN for the Network-wide Electrification project. The letter highlights the key differences in the report. For the purposes of being fully transparent we wanted to provide you with this report for informational purposes and allow the HWN to determine if they have a further interest in the project, given the study area.

Indigenous Community	Date	Subject	Comments Received	Response to Comments
Curve Lake First Nation	May 24, 2017	Notification #1	Curve Lake First Nation would like to be engaged in this project. We would like to be kept informed of any and all progress. If the archaeological component enters into a Stage 2 level, following Curve Lake First Nation's Archaeological Protocol, we are to be notified and an archaeological monitor may attend the site. Metrolinx would be responsible for all costs associated with the monitoring. I have reviewed the Stage 1 archaeological report by AECOM and request the following: Under section 1.2 Historical Context – could you please ask AECOM to include the following information somewhere in that section The study area is situated on lands that are part of the Williams Treaties First Nations territories. The Michi Saagiig (Mississauga) and the Chippewa nations have inhabited this area of Ontario for thousands of years – and they are still here today. The vibrant Williams Treaties First Nations communities include: Curve Lake First Nation, Hiawatha First Nation,	Thank you very much for your comments. We will incorporate them into the Stage 1 Archaeology report. As well, we will ensure to keep you informed of all progress on the project.

Indigenous Community	Date	Subject	Comments Received	Response to Comments
			Alderville First Nation, Scugog Island First Nation, Rama First Nation, Georgina Island First Nation, and Beausoleil First Nation. Thank you for reaching out to Curve Lake First Nation regarding engagement in this project	
Chippewas of Rama First Nation	June 2, 2017	Stage 1-AA USRC East Enhancements TPAP	Thank you for your letter re: Metrolinx – USRC East Enhancements Project TPAP – Project Information and Stage 1 Archeological Assessment. Please be advised that we reviewed your letter. I have shared it with Council and we've forwarded the information to Karry Sandy McKenzie, Williams Treaties First Nations Process Co-ordinator/Negotiator. Ms. McKenzie will review your letter and take the necessary action if required. In the interim, should you wish to contact Ms. McKenzie directly, please do so at k.a.sady-mckenzie@rogers.com	n/a
Curve Lake First Nation	June 07, 2017	Public Meeting #1 Notification	Thank you. The staff will address this correspondence.	n/a
Mississaugas of Scugog Island First Nation	July 12, 2017	Stage 1-AA USRC East Enhancements TPAP	For the record can we receive a copy of the Stage 1 for the USRC East Enhancements Project TPAP?	So you're aware, this version was updated to include comments received from Curve Lake First Nation (See final paragraph added to Section 1.2 Historical Context). As a note, this report is still draft and will be submitted to MTCS for review along with

Indigenous Community	Date	Subject	Comments Received	Response to Comments
				our other draft Environmental Project Report for the project (anticipated submission to MTCS is Fall 2017). We were able to reduce the size of the report file. Please find the revised copy of the draft Stage 1 Archaeological Assessment report attached. If you have any other questions, please let me know.
Huron-Wendat Nation	September 11, 2017	Stage 1-AA USRC East Enhancements Comments	Most of the project area is a landfill, although a small portion of the project area overlaps the original mouth of the Don River and its wetlands. Such landscape did undoubtedly attract our Wendat ancestors on a seasonal basis. However, this area has been heavily altered by over a century of engineering projects to straighten the river. Also, intensive industrial development, most notably a massive fuel refinery, is present, with the result that there is very low potential for the presence of any traces of Wendat occupation or use of this part of the waterfront within the project area. The Section 1.2.1 affirmation is historically and legitimately incorrect. A possible source for a true, proper history, based on Indigenous oral history and the European documentary record is E.S. Rogers's chapter in the Smithsonian Handbook.	Thank you for your time on the conference call. As promised, please see original and proposed new text below. Please review the proposed text and provide your thoughts at your earliest convenience. **Original** The Study Area is situated on lands that are pad of the Williams Treaties First Nations territories. The Michi Saagiig (Mississauga) and the Chippewa Nations have inhabited this area of Ontario for thousands of years and are still present today- The vibrant Williams Treaties First Nations communities include: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, Rama First Nation, Georgina island First Nation, and Beausoleil First Nation. **Proposed** Ontario has been occupied by indigenous populations for over 10,000 years and over

Indigenous Community	Date	Subject	Comments Received	Response to Comments
			In fact, it would not have been possible for any Nations to occupy this area between AD 1000 and 1650 other than the Huron-Wendat Nation. Our ancestors were undoubtedly living across this land and there are obvious and abundant records and evidence to prove it. Any other interpretation is a non-sense and archaeologists should not agree to put anything but the evidence-based historical facts in their reports. We therefore request that the report be edited to reflect our comments.	that time the lands and territories of its inhabitants have shifted and changed for a myriad of reasons. Between 900 and 1650 A.D. the principal occupants of the study area were the Huron-Wendat and their ancestors. At the same time, the study area is situated on lands that are part of the Williams Treaties First Nations territories. According to Curve Lake First Nation, the Michi Saagiig (Mississauga) and the Chippewa nations have inhabited and/or utilized this area of Ontario for thousands of years – and they are still here today. The Williams Treaties First Nations communities include: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, Rama First Nation, Georgina Island First Nation, and Beausoleil First Nation.”
Huron-Wendat Nation	September 15, 2017	Stage 1-AA USRC East Enhancements Comments	The proposed statement is approved, we agree with it. Thanks!	The draft Stage 1 Archaeological Assessment will be revised and redistributed to all Indigenous Communities on the contact list.

6.2.3 Agency and Other Stakeholder Consultation

Metrolinx consulted with stakeholders, including Federal, Provincial and Municipal review agencies, and other Stakeholders including Utility companies, Developers and Public Realm working groups. All below correspondence can be found in a comment and response table in **Appendix C.2d**. The meeting minutes from the below meetings can be found in **Appendix C.2d**, where applicable.

6.2.3.1 Federal Agencies

No meetings have been held with any Federal agencies to date.

Table 6-6 below summarizes the Federal Agency comments received on the Project. The correspondence can be found in **Appendix C.2d**.

Table 6-6: Summary of Federal Agency Comments Received

Agency/Date	Summary of Comments	Summary of Proponent Responses
Transport Canada *Email received June 8, 2017*	• Transport Canada inquired if the USRC East Enhancements Project will interact with any federal property and/or waterways governed by Transport Canada. • Transport Canada also inquired if the USRC East Enhancements Project will require approval and/or authorization under any acts administered by Transport Canada. • If any the aforementioned does not apply to this Project, Transport Canada explained that the Environmental Assessment program does not need to include Transport Canada in further correspondence and future notifications.	• This Project does not engage the *Navigation Protection Act*, the *Transportation of Dangerous Goods Act* or the *Aeronautics Act*, and there are no Federal properties within the Study Area. • The implementation of the Project will comply with the Notice of Railway Works Regulation made under the *Railway Safety Act*. • Metrolinx will notify Transport Canada's Ontario Regional Railway Safety Directorate office, the City of Toronto, and all abutting landowners 60 days before the date of commencement of the proposed railway works.

6.2.3.2 Provincial Agencies

Table 6-7 below summarizes the Provincial Agency meetings held to date. **Table 6-8** below summarizes their comments received on the Project. The correspondence can be found in **Appendix C.2d**.

Table 6-7: Summary of Provincial Agency Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Built Heritage Cherry Street Interlocking Tower	▪ MTCS	October 24, 2016	▪ Provided a high level overview of the Metrolinx USRC East Enhancements Project and identified impacts to the Cherry Street Interlocking Tower ▪ Discussed emerging heritage features and issues.
Property	▪ IO	June 30, 2017	▪ Discussed IO lands east of Cherry Street.
Cherry Street Interlocking Tower	▪ IO ▪ TDSB	August 9, 2017	▪ Discussed the Cherry Street Interlocking Tower relocation.
Cherry Street Interlocking Tower	▪ IO ▪ Enbridge Gas Distribution and Power Inc. ▪ TDSB/TPLC	August 16, 2017	▪ Reviewed projects being undertaken by Enbridge, Metrolinx and Toronto District School Board/Toronto Lands Corporation. ▪ Discussed relocation site options for Cherry Street Interlocking Tower to IO lands.
Cherry Street Interlocking Tower Via Teleconference	▪ MTCS	December 15, 2017	▪ Discussed MTCS comments on the draft HIA and draft Minister's consent package for Cherry Street Tower.
Cherry Street Interlocking Tower Via Teleconference	▪ MTCS	March 28, 2018	▪ Discussed MTCS comments on the revised draft HIA and draft Minister's consent package for Cherry Street Tower.

Table 6-8: Summary of Provincial Agency Comments Received

Agency/Date	Summary of Comments	Summary of Proponent Responses
Ministry of the Environment, Conservation and Parks (MECP) Confirmation of the Indigenous communities in the Study Area *Email received December 21, 2016*	• MECP sent a letter and making reference to the Ministry's website on Indigenous consultation for developing the Indigenous contact list and provided a list of Communities this Project is required to consult with.	• Noted.
Ministry of the Environment, Conservation and Parks (MECP) Comments on Air Quality Work Plan *Email received June 15, 2017*	• Metrolinx received comments on the Noise and Vibration Work Plan. • MECP requested clarification on why evaporative emissions, re-entrained dust and other potential emissions were negligible. • MECP suggested focusing the Air Quality assessment on the maximum potential concentrations of this Project. • MECP requested other clarifications on the Air Quality scenarios that were proposed by Metrolinx.	• The Project Team provided clarification on how the typical scenario differs from the worst-case assessment and how the worst-case assessment is applied as a screening approach. • The Project Team provided clarification on the potential emissions at the Wilson Yard Layover Facility: – At the proposed Wilson Yard Layover Facility, trains move at very low speeds. Therefore, the already very small re-entrained dust emissions from trains are even smaller at layover facilities. – Diesel engines have exceedingly small evaporative emissions, largely due to the very low volatility of diesel fuel. • Metrolinx intends to switch to Tier 4 engines in all corridors. However, the Richmond Hill corridor will not be electrified.

Agency/Date	Summary of Comments	Summary of Proponent Responses
Ministry of the Environment, Conservation and Parks (MECP) Comments on Noise and Vibration Work Plan *Email received June 22, 2017* *Follow-up email received September 11, 2017 – See below*	• Metrolinx received comments on the Noise and Vibration Work Plan. • A series of clarifications and suggestions were submitted by MECP on the proposed work plan. • MECP requested to assess the worst-case scenario and include all the significant noise sources. • MECP suggested that Metrolinx should also review the attached Noise and Vibration Review Comments GO Rail Network Electrification TPAP USRC, for any additional comments that could be applicable to the Project.	• Metrolinx provided clarifications to each of the comments submitted by MECP on the proposed work plan. • Metrolinx confirmed that the predictable worst-case conditions have been assessed. • Metrolinx reviewed the Noise and Vibration Review Comments GO Rail Network Electrification TPAP USRC provided by MECP and provided a response to comments relevant to this Project.
Ministry of the Environment, Conservation and Parks (MECP) Follow-up Comments on Noise and Vibration Work Plan Email received September 11, 2017	• Metrolinx received comments on the previous responses sent to MECP. • MECP requested to show the vibration levels at all potentially affected sensitive areas and to assess all sources within layover sites as per the MOEE / GO Transit Draft Protocol for Noise and Vibration Assessments (Section 4.2). • Further clarification on bells/whistles was also requested.	• The Noise and Vibration Assessment presented the worst-case vibration impacts predicted within each sensitive land use area. • Bells and whistles used as a warning devices at stations and layovers are exempt from the Protocol criteria or methodology.
Ministry of Tourism, Culture and Sport (MTCS) Comments on the draft Metrolinx Application letter and draft Heritage Impact Assessment for the Cherry Street Interlocking Tower. Email received November 28, 2017. Further comments received April 3, 2018.	• Metrolinx received comments on Minister's Consent Package and HIA for the Cherry Street Interlocking Tower. • MTCS comments consisted of suggestions on what to include in the Minister's Consent Package and the draft HIA. They also requested additional information to be incorporated into the HIA.	• The HIA and the Minister's Consent Package were revised to incorporate MTCS comments.

6.2.3.3 Municipal and Conservation Authority

Below summarizes the meetings and comments held with the City of Toronto, Waterfront Toronto, and the TRCA.

Technical Advisory Committee (TAC) Meetings

Table 6-9 is a summary of the TAC Meetings held for the Project.

Table 6-10 summarizes the TAC comments received on the Project.

TAC comments and responses can be found in **Appendix C.2d**.

Table 6-9: Summary of TAC Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Technical Advisory Committee Meeting #1	▪ City of Toronto	October 31, 2016	▪ Provided an introduction to the Project. ▪ Obtained initial City of Toronto input on existing conditions, future City of Toronto plans, potential construction impacts and any issues and concerns that the City may have with the Project. ▪ Sought guidance and feedback regarding infrastructure modifications, specifically with respect to proposed track E0, E7, E8 and increase Wilson Yard Layover Facility storage capacity. ▪ Metrolinx will continue to seek guidance and feedback as Project progresses. ▪ A list of issues, policies and other studies to be aware of has been provided by the City ▪ Comments and responses were provided to the City of Toronto on February 21, 2017. Refer to **Appendix C.2d**.
Technical Advisory Committee Meeting #2 Tracks and Retaining Walls (Round 1)	▪ City of Toronto	February 28, 2017	▪ Reviewed the preliminary design drawings of Track E0, E7, E8 and retaining walls. ▪ Sought guidance and input on the proposed preliminary design drawings and surrounding impacts. ▪ Discussed preliminary drawing edits required to be made. ▪ Metrolinx was given bridge clearance information for the proposed tracks. ▪ The City requested more information on the proposed retaining wall in respect to the residential areas. ▪ Comments and responses were provided to the City of Toronto on May 5, 2017. Refer to **Appendix C.2d**.
Technical Advisory Committee Meeting #3 Bridge Extensions (Round 1)	▪ City of Toronto ▪ Waterfront Toronto	March 27, 2017	▪ Reviewed the preliminary design drawings of the bridge extensions and Cherry Street Interlocking Tower Relocation. ▪ Discussed ways to implement the public realm into the Project. ▪ A further meeting was proposed to discuss public realm elements into the USRC East Enhancements Project. ▪ Further bridge information has been requested by the City. ▪ Issues at the bridges were discussed in detail. ▪ Comments and responses were provided to Waterfront Toronto on May 5, 2017. Refer to **Appendix C.2d**. ▪ Comments and responses were provided to the City of Toronto on May 11, 2017. Refer to **Appendix C.2d**.

Meeting Subject	Stakeholder	Date	Meeting Summary
Technical Advisory Committee Meeting #4 Wilson Yard Layover Facility (Round 1)	▪ City of Toronto ▪ Waterfront Toronto ▪ TRCA	March 27, 2017	▪ Discussed the new Wilson Yard Layover Facility preliminary drawings and public realm elements. ▪ Access to certain properties (CSSWF, access roads and access for EMS) has been shared. ▪ City and Waterfront Toronto expressed their interests on the proposed re-location of the Lower Don River Trail. ▪ Further discussions on the proposed retaining wall are required.
Technical Advisory Committee Meeting #4a Wilson Yard Layover Facility (Round 1)	▪ TRCA	March 31, 2017	▪ Discussed the new Wilson Yard Layover Facility preliminary drawings, access, land requirements and other considerations at the Wilson Yard Layover Facility. ▪ Further discussions on the proposed Wilson Yard Layover Facility design are required. ▪ Comments and responses were provided to TRCA on May 29, 2017. Refer to **Appendix C.2d**.
Technical Advisory Committee Meeting #5 Tracks, Retaining Walls & Bridge Extensions (Round 2)	▪ City of Toronto ▪ Waterfront Toronto ▪ TRCA	May 12, 2017	▪ Project Update, Review of revised Preliminary Design of proposed tracks, retaining walls, and bridge extensions, updates on architecture and urban design, access and Wilson Yard Layover Facility approach. ▪ Discussed safety, intent and future plans/other projects at the bridge extensions, as well as who governs them. ▪ Updates and design clarifications on the Lower Don River Trail Pedestrian Underpass extension have been shared. ▪ Determined the point of contact to discuss USRC East Enhancements Project impacts to the trail during construction. ▪ Determined key components relating to the public realm elements. ▪ Access opportunities to and from the USRC were examined. ▪ Comments and responses were provided to the City of Toronto on June 22, 2017. Refer to **Appendix C.2d**.

Meeting Subject	Stakeholder	Date	Meeting Summary
Technical Advisory Committee Meeting #6	▪ City of Toronto ▪ Waterfront Toronto ▪ TRCA	June 5, 2017	▪ Discussed the draft Public Meeting #1 materials (Displays, Presentation, Cross-Sections and Roll Plan). ▪ Topics that were discussed involved a Project update, Cherry Street Interlocking Tower relocation, architectural designs, overview of community meetings held, and next steps. ▪ Public Meeting #1 materials were edited based on some of the comments received. ▪ Comments and responses were provided to the City of Toronto on July 4, 2017. Refer to **Appendix C.2d**. ▪ Comments and responses were provided to TRCA on July 31, 2017. Refer to **Appendix C.2d**.
Technical Advisory Committee Meeting #7	▪ City of Toronto ▪ Waterfront Toronto ▪ TRCA	September 28, 2017	▪ Discussed the City of Toronto's letter with the TAC members. ▪ Topics involved a Project update, bridge extensions, access, retaining walls, Cherry Street Interlocking Tower and consultation updates. ▪ The Project's construction schedule was provided to the TAC members to comment on. ▪ Comments and responses were provided to Waterfront Toronto on November 1, 2017 and November 9, 2017. Refer to **Appendix C.2d**. ▪ Comments and responses were provided to the City of Toronto Cycling Infrastructure on November 2, 2017. Refer to **Appendix C.2d**. ▪ Comments and responses were provided to the TRCA on November 7, 2017. Refer to **Appendix C.2d**.
Technical Advisory Committee Meeting #8	▪ City of Toronto ▪ Waterfront Toronto ▪ TRCA	January 15, 2018	▪ Discussed Metrolinx's approach towards shortening Track E0 to end at Corktown Common Park due to TRCA's Flood Protection Landform (FPL) issues. ▪ Topics that were discussed involved how trains move in the USRC, explained why Track E0, E7 and E8 are essential, overview of the revised general arrangement drawings, Public Realm and renderings updates, safety and proposed noise and vibration mitigations. ▪ Metrolinx has also established Community Advisory Committee (CAC) meetings with stakeholders and public members interested in the USRC East Enhancements Project. ▪ No formal comments were received as part of this TAC meeting.

Meeting Subject	Stakeholder	Date	Meeting Summary
Technical Advisory Committee Meeting #9	▪ City of Toronto ▪ Waterfront Toronto ▪ TRCA	February 22, 2018	▪ Discussed the clearway width and AODA compliances for bridges within the Study Area. ▪ Topics that were discussed involved architectural renderings, detail design update, and a receptor based assessment of existing noise and vibration and mitigation options. ▪ Metrolinx has committed to investigate future consultation of the underpasses and potential improvement of connectivity for the pedestrian and cycling experience. ▪ No formal comments were received as part of this TAC meeting.
Technical Advisory Committee Meeting #10	▪ City of Toronto ▪ TRCA	April 6, 2018	▪ Topics that were discussed involved Bridge Extensions & Underpasses Connectivity Position; Architectural Renderings; Wilson Yard; EA Status; Public Meeting #2; USRC East Enhancements Project TPAP Air Quality Study; Receptor-Based Noise and Vibration Assessment; Transportation and Traffic Impact Analysis & Draft Construction Schedule; and Next Steps and Schedule. ▪ Metrolinx has committed to a feasibility study, the Pedestrian and Cycling Connectivity Study, to determine what can be done to improve connectivity in this part of the city. ▪ Metrolinx has committed to conduct a workshop for the Wilson Yard Layover Facility with all interested parties (i.e., Metrolinx, City of Toronto, Waterfront Toronto, TRCA, Hydro One, Toronto Hydro, Enbridge etc.) ▪ No formal comments were received as part of this TAC meeting.

Table 6-10: Summary of TAC Comments Received

Agency/Date	Summary of Comments
City of Toronto **Comments on the Technical Advisory Committee Meeting #1** *Email received December 2, 2016*	• The City Planning Division sent comments on TAC Meeting #1. • The comments focused on the following area of concerns: – Other Major Infrastructure Planning in the Study Area; – City Policies and initiatives; – Comments on specific project components; and – Timing of the Project. • The City also requested further TAC meetings and consultation requirements to discuss elements of this Project and other projects in the area.
City of Toronto **Comments on the Technical Advisory Committee Meeting #1** *Email received November 22, 2016*	• City Parks, Forestry & Recreation sent additional comments on TAC Meeting #1. • The comments focused on tree and natural feature protection by-laws and policies Metrolinx need to be aware of. • The City also requested that the Project should suggest any mitigation measures to negative impacts on the City's Natural Heritage System (NHS).
City of Toronto **Comments on the Technical Advisory Committee Meeting #2 (Round 1)** *Email received March 13, 2017*	• The City Parks, Forestry & Recreation sent comments on the TAC Meeting #2. • The City requested clarification on the vegetation impacts and compensation protocol.
City of Toronto **Comments on the Technical Advisory Committee Meeting #2 and #3 (Round 1)** *A series of emails received March 27 – April 10, 2017*	• The City of Toronto sent comments on the TAC Meetings #2 and #3. • The comments consisted mostly of clarifications and suggestions on the bridge extensions.
City of Toronto **Comments on the Technical Advisory Committee Meeting #5 (Round 1)** *Email received May 30, 2017*	• The City Cycling Infrastructure sent comments on the TAC Meeting #5. • The comments were focused on suggestions, changes and edits to the existing drawings of the Project. • Clarifications on pedestrian active transportation closures and re-rerouting were shared with Metrolinx.

Agency/Date	Summary of Comments
City of Toronto **Comments on the Technical Advisory Committee Meeting #6** *Email received June 14, 2017*	• The City Parks, Forestry & Recreation sent comments on the TAC Meeting #6. • The City recommended Metrolinx to commence consultation with property owners near the Study Area as soon as possible. • The City suggested to determine any impacted trees on the Natural Heritage System and any associated mitigation measures to be documented in the environmental impact assessment report.
City of Toronto **Comments on the Technical Advisory Committee Meeting #6** *Email received June 15, 2017*	• The City Major Capital Infrastructure sent a comment on TAC Meeting #6. • Clarification on specific texts regarding property requirements that should be used in the design of the Wilson Yard Layover Facility was shared with Metrolinx.
City of Toronto **Comments on the Technical Advisory Committee Meeting #7** *Email received October 25, 2017*	• City Cycling Infrastructure sent comments on TAC Meeting #7. • The comments were focused on construction schedule for the Project, specifically with regard to the closure of the Lower Don River Trail Pedestrian Underpass and staging at Cherry Street. • The City requested a staging schedule that does not close Cherry Street and Lower Sherbourne Street to cycling access simultaneously. • The City also requested further co-ordination on the construction schedule, especially as other projects unfold in the area.
Toronto and Region Conservation Authority (TRCA) **Comments on the Technical Advisory Committee Meeting #4a** *Email received May 10, 2017*	• TRCA sent comments on TAC Meeting #4a. • TRCA shared a list of policy programs and guidelines that should be reviewed in Detailed Design. • Comments also stated that the Project is near the West Don Lands Floodplain Landform (FPL) and the floodplain limits. • Further comments focused on the following areas of concern: – Relocation of Hydro Towers; – Dockwall requirements; – Sediment Management Basin; – Property requirements; and – Other projects in the area. • TRCA also suggested that they are capable of hydraulic modelling if required. • TRCA would like to be involved in further consultation throughout the Project.

Agency/Date	Summary of Comments
Toronto and Region Conservation Authority (TRCA) **Comments on the Technical Advisory Committee Meeting #6** *Email received June 23, 2017, July 13, 2017 and August 16, 2017.*	• TRCA sent comments on TAC Meeting #6. • Comments on the Public Meeting #1 materials were shared with Metrolinx. • TRCA requested that FPL and the Floodplain Limits should be taken into the consideration on the design of the retaining wall. • TRCA sent a follow-up email on August 16, 2017 raising further concerns on Track E0 and its retaining walls near Corktown Common Park. TRCA requested that the FPL not be negatively impacted by any of Metrolinx's proposed works in this area.
Toronto and Region Conservation Authority (TRCA) **Comments on the Technical Advisory Committee Meeting #7** *Email received October 18, 2017.*	• TRCA sent comments on the TAC meeting #7. • TRCA expressed interests in further construction and design co-ordination meetings. • TRCA requested that no impacts to flooding result from the extension of Parliament Street and Cherry Street bridges, and the Lower Don River Trail Pedestrian Underpass (Bala Underpass) extension. • Further concerns were also raised regarding the retaining walls near Corktown Common Park and the Sediment Management area.
Waterfront Toronto **Comments on the Technical Advisory Committee Meeting #3 and #4** *Email received April 12, 2017*	• Waterfront Toronto sent comments on TAC Meetings #3 and #4. • Waterfront Toronto requested more clarification on the bridge impacts and retaining wall information. • Waterfront Toronto also requested to accommodate elements into the design of the Wilson Yard Layover Facility and to consider other projects in the area. • Further consultation was also requested.
Waterfront Toronto **Comments on the Technical Advisory Committee Meeting #7** *Email received October 12, 2017*	• Waterfront Toronto sent comments on TAC Meeting #7. • Waterfront Toronto is concerned about the setback of the new abutments and the pedestrian space at the Lower Jarvis Street, Lower Sherbourne Street, Parliament Street and Cherry Street bridges. • Waterfront Toronto also requested further co-ordination is required, as other projects unfold in the Study Area. • Raised concerns about moving the high-use bike trail on the FPL were also raised.
Waterfront Toronto **Comments on the Technical Advisory Committee Meeting #7** *Email received October 19, 2017*	• Waterfront Toronto sent comments on the TAC meeting #7 minutes. • Comments were raised on how the design incorporated other projects in the vicinity of the Study Area.

Other Municipal and Conservation Authority Meetings

Table 6-11 below summarizes the Other Municipal and Conservation Authority meetings held to date.

Table 6-12 below summarizes the Other Municipal and Conservation Authority comments received to date.

The proponent's responses to these comments are provided in **Appendix C.2d**.

Table 6-11: Summary of Other Municipal and Conservation Authority Stakeholder Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Built Heritage Cherry Street Interlocking Tower	▪ City of Toronto – Heritage Preservation Services	October 25, 2016	▪ Provided a high level overview of the Metrolinx USRC East Enhancements Project. ▪ Reviewed the Cultural Heritage Evaluation Reports of the USRC Bridges completed to date. ▪ Reviewed Stage 1 AA within the Study Area. ▪ Discussed Emerging Heritage features and issues. ▪ Discussed the most ideal location for the re-location of the Cherry Street Interlocking Tower.
Wilson Yard Layover Facility	▪ Waterfront Toronto	February 2, 2017	▪ Reviewed Wilson Yard Layover Facility design to determine if it accounted for all planned projects in the vicinity, including the CSSWF. ▪ It was determined that the Wilson Yard Layover Facility design does not impact the Cherry Street Stormwater Facility.
Consultation	▪ City of Toronto	February 24, 2017	▪ Discussed Metrolinx's response to the City of Toronto's comments following TAC meeting #1. ▪ Agreement was reached on an approach for further collaboration through a series of additional Project TAC meetings.
Gardiner Team	▪ City of Toronto	March 2, 2017	▪ Discussed project scope of Gardiner East EA and associated public realm works. ▪ Agreed to set up site walks with both project teams in order to co-ordinate public realm plans.
Public Realm	▪ City of Toronto	March 3, 2017	▪ A follow-up meeting was set up with the City to discuss public realm aspects.
Cherry Street Interlocking Tower Relocation Discussion	▪ City of Toronto	May 12, 2017	▪ Discussed the potential relocation options for Cherry Street Interlocking Tower. ▪ Metrolinx's preferred relocation option conflicts with the planned Cherry Street LRT alignment. ▪ Further meetings were required with IO.
Bridge Extensions	▪ City of Toronto	May 29, 2017	▪ Discussed the safety, bridge heritage value and bridge extensions for the Project. ▪ Bridge evaluation and conditions assessment report requirements were also discussed.

Meeting Subject	Stakeholder	Date	Meeting Summary
Property	▪ TRCA	June 6, 2017	▪ Discussed property requirements for the Project.
Design Review Panel	▪ Waterfront Toronto	June 21, 2017	▪ Discussed and proposed improvements on the design of the Project with the Waterfront Toronto Design Review Panel.
Cherry Street Interlocking Tower	▪ City of Toronto ▪ Waterfront Toronto	July 26, 2017	▪ Discussed the Cherry Street Interlocking Tower relocation.
Interactions with USRC and FPL (Via teleconference)	▪ TRCA	August 23, 2017	▪ Discussed potential interactions of USRC infrastructure with FPL and next steps.
Interactions with USRC and FPL (Via teleconference)	▪ TRCA	September 6, 2017	▪ TRCA expressed a concern about impacts from the temporary construction license and asked for a description of anticipated construction activity within the license and to explore other trail and construction staging options. ▪ Long-term maintenance and inspection associated with the FPL was also discussed. ▪ Discussed next steps for TRCA concerns regarding potential effect to the FPL due to proposed track and retaining wall.
USRC and TTC Overview	▪ TTC	September 6, 2017	▪ Presented a project overview of the USRC East Enhancements Project. ▪ Discussed the existing TTC routes and future streetcar/LRT plans, and bus and streetcar routes within the Study Area. ▪ The proposed bridge extensions were also discussed.
Director Level Meeting	▪ City of Toronto	September 25, 2017	▪ Meeting held to discuss key issues associated with the USRC East Enhancements Project. ▪ Due to poor attendance at the meeting, a follow-up meeting was scheduled for October 4 to discuss 2 m setback and the approaches to the bridge extensions.
Director Level Meeting	▪ City of Toronto ▪ Waterfront Toronto	October 4, 2017	▪ Discussion on the approach to the design regarding the bridges at Lower Jarvis Street, Lower Sherbourne Street, Parliament Street and Cherry Street. ▪ Metrolinx advised that there is no budget for public art but committed to co-ordinating with Waterfront Toronto on public art initiatives at the bridges ▪ Decided that Director Level meetings will continue.

Meeting Subject	Stakeholder	Date	Meeting Summary
Construction Staging Schedule	▪ City of Toronto	November 1, 2017	▪ Discuss the draft Construction Staging Schedule for the USRC East Enhancements Project. Outcome of the meeting was to distribute the Draft Traffic and Transportation Impact Assessment Report for comments.
Director Level Meeting	▪ City of Toronto ▪ Waterfront Toronto	November 20, 2017	▪ Discussion on the approach to the design of the bridge extensions and future commitments to work together on improvements to pedestrian and cyclist connections. The importance of actively engaging the public beyond public meetings to mitigate the community concerns was raised.
Director Level Meeting	▪ City of Toronto ▪ Waterfront Toronto	December 4, 2017	▪ Further discussion on the approach to the design of the bridge extensions and future commitments to work together on improvements to pedestrian and cyclist connections.

Table 6-12: Summary of Other Municipal and Conservation Authority Comments

Agency/Date	Summary of Comments	Summary of Proponent Responses
City of Toronto Comments on the USRC East Enhancements Project *Email received July 12, 2017*	• The Chief Planner & Executive Director, Jennifer Keesmaat, sent comments on the Project. • A wide range of comments were shared with Metrolinx. These comments focused on the following area of concerns: – Bridge extensions; – Wilson Yard Layover Facility expansion; – Corridor access, aesthetics and visibility; – Co-ordination with other projects in the area; and – Cherry Street Interlocking Tower relocation. • Construction co-ordination.	• Metrolinx would like to formally recognize the comments raised in the City's letter and Metrolinx continues to be appreciative of the City's efforts to convey its position on this critical component of our shared vision for RER and SmartTrack. • Metrolinx continues to work with the City of Toronto and Waterfront Toronto on this and many other projects and are actively engaged in discussing many of the issues raised in your letter in our TAC meetings, the jointly chaired Lower Don Stakeholder Working Group, and recent scheduled coordination meetings. • Based on the letter received Metrolinx suggested having a specific meeting to go through the items raised in more detail to ensure we are exploring all considerations and discuss any other options that may need to be put on the table for collaboration or resolution.
Toronto Transit Commission (TTC) Comments on the bridge extensions *Email received July 12, 2017*	• TTC expressed that the bridge extensions need to allow for operation of north-south bus services, and for future construction of new streetcar routes on streets such as Parliament, Lower Sherbourne, and Cherry, in consultation with City of Toronto and TTC.	• Metrolinx acknowledged current and planned future TTC services under each bridge. • Existing structures will be extended with the same clearances and will allow for the operation of existing north-south bus services, even for the Cherry Street Streetcar extension. • Metrolinx also asked if any future plans are intended for Parliament Street and Lower Sherbourne Street. • Metrolinx requested a meeting to have further discussion on the proposed USRC East Enhancements Project and inquired on who the primary contact(s) at TTC would be.

Public Realm Working Groups Meetings

Table 6-13 below summarizes the Public Realm Working Group meetings held to date.

Table 6-13: Summary of Public Realm Working Group Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Gardiner Public Realm Site Walk Tour	▪ City of Toronto ▪ Waterfront Toronto	April 26, 2017	▪ A site visit was conducted to examine the Gardiner/Lake Shore Corridor. ▪ Public realm opportunities were examined.
Gardiner East Public Realm Design Workshop	▪ City of Toronto ▪ Waterfront Toronto	April 27, 2017	▪ Presented an overview of the USRC East Enhancements Project and approach to design elements.
Public Realm Working Group	▪ City of Toronto ▪ Waterfront Toronto	May 2, 2017	▪ Co-ordination of public realm elements for Gardiner East project and USRC East Enhancements Project proposed infrastructure.
Gardiner East Public Realm Workshop	▪ City of Toronto ▪ Waterfront Toronto	May 10, 2017	▪ Provided an overview of Metrolinx plans and the USRC East Enhancements Project.
Public Realm Working Group	▪ City of Toronto ▪ Waterfront Toronto	May 11, 2017	▪ Updates and safety concerns of the Project were discussed. ▪ City requested that the Gardiner Public Realm Work be co-ordinated with the design component of the bridge extensions.
Metrolinx Design Review Panel (MDRP)	▪ City of Toronto ▪ Waterfront Toronto	May 25, 2017	▪ Renderings were reviewed for Zone 1 (Residential areas north of the USRC). ▪ The approach for designs for Zones 2 - 4 was presented. ▪ Identified landscaping options adjacent to Cathedral Court, Caroline Co-op and residences on Longboat Avenue, including consideration for visual screening.
Public Realm Co-ordination Meeting	▪ City of Toronto ▪ Waterfront Toronto	September 12, 2017	▪ Discussed the importance of the north-south connections underpasses and bridges within the Study Area and the public realm design. ▪ Upcoming meetings and projects related to the Project were also discussed. ▪ Updates on the Wilson Yard Layover Facility were shared.
Design Charrette and Visioning Workshop	▪ City of Toronto ▪ Waterfront Toronto	October 4, 2017	▪ Discussed the progress of the design, vertical clearances and how to achieve design excellence regarding the bridge extensions for the USRC East Enhancements Project. ▪ Looked into how the public realm can be prioritized and if funding was available. ▪ Also discussed flooding issues.

Meeting Subject	Stakeholder	Date	Meeting Summary
Public Realm Working Group Meeting with West 8	▪ City of Toronto ▪ Waterfront Toronto ▪ West 8	February 8, 2018	▪ Discussed the Working Group progress within the waterfront area. ▪ Discussed the potential locations for new underpasses within the Study Area. It was noted that underpasses may not be well received by the neighbouring community. ▪ A presentation was conducted by Metrolinx which included the approach and methodology of how the design for the USRC East Enhancements Project will evolve. ▪ A presentation was conducted by West 8, which proposed a few options of the USRC East Enhancements Project design.

6.2.3.4 Other Stakeholders

The stakeholders below consist of Utility companies, Developers and Other groups. **Table 6-14** and **Table 6-15** below summarize meetings held to date with Other Stakeholders.

Utility Stakeholder Meetings

Table 6-14 below summarizes the Utility Stakeholder Meetings held to date.

Table 6-14: Summary of Utility Stakeholder Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Utilities	▪ Enbridge Gas Distribution and Power Inc.	March 22, 2017	▪ Reviewed projects being undertaken by Enbridge and Metrolinx. ▪ Discussed land acquisitions to the North (for the Bala Subdivision retaining wall) and Wilson Yard Layover Facility, and co-ordination will be ongoing.
Wilson Yard Layover Facility	▪ Hydro One	April 25, 2017	▪ Discussed the Wilson Yard Layover Facility component of the Project and modifications to existing transmission infrastructure within its limits.
Utilities	▪ Enbridge Gas Distribution and Power Inc.	June 13, 2017	▪ Discussed proposed Enbridge line/station in the vicinity of Cherry St and proposed crossing in the vicinity of Strachan Avenue.
Wilson Yard Layover Facility – Utilities/ Tower Relocation	▪ Hydro One	March 14, 2018	▪ Discussed Hydro One review of the proposed plan for transmission line and tower relocation at the Wilson Yard Layover Facility. ▪ Conflicts, required setbacks, and timelines were also discussed, ▪ Hydro One to prepare a revised feasibility study report detailing options for transmission line and tower relocation based on the constraints discussed.

Developer Meetings

Table 6-15 below summarizes the Developer Meetings held to date.

Table 6-15: Summary of Developer Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
31R Development	▪ Cityscape Development (Distillery District)	March 15, 2017	▪ Discussed the Union Station Rail Corridor (USRC) expansion and proposed Ribbon Building project, which have the potential to impact each other due to close physical proximity and scheduling of construction. ▪ Potential options for co-ordination of construction activities were discussed, including need for crash wall to isolate the building from the adjacent tracks. ▪ It will not be feasible for Metrolinx to construct a crash wall on behalf of the developer. If the rail corridor Project moves forward first, only a retaining wall would be constructed at the property line, with any gap between the retaining wall and the future crash wall backfilled once the latter is built. Tiebacks should not be utilized for the wall construction. ▪ Further co-ordination is required throughout the Detailed Design phase.
Cherry St. Interlocking Tower Relocation	▪ Cityscape Development (Distillery District)	October 3, 2017	▪ A Project overview was given and TPAP process was presented. ▪ Concerns were raised about the proposed relocation of the Cherry Street Interlocking Tower. These included: proximity to the Distillery District, excavation restrictions and other projects in the area. ▪ A possible video documentation was also discussed. ▪ Further updates are required as the Project moves forward.

6.2.3.5 Elected Officials

Elected officials were contacted at the onset of the Project to inform them of the proposed undertaking and offer a briefing meeting. **Table 6-16** below summarizes the meetings held with elected officials. One comment was received from Councillor Lucy Troisi. This comment and response can be found in **Appendix C.2e**.

Table 6-16: Summary of Elected Officials Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Briefing	▪ MP Adam Vaughan	July 10, 2017	▪ Provided an overview of Metrolinx plans and the USRC East Enhancements Project

6.2.4 Circulation of Draft Environmental Project Report

6.2.4.1 Review Agencies Follow-up

The Draft EPR was circulated to review agencies and stakeholders. **Table 6-17** below is a summary of the EPR's circulation.

A period of two months was provided for review agencies and stakeholders to provide comment and feedback on the Draft EPR. Due to the complexity of this Project, comments on the EPR were received past the requested due date and the last comment was received February 26, 2018.

All correspondence of the comments and responses part of the EPR review can be found in **Appendix C.2f**. The EPR was sent to the below review agencies and other stakeholders on December 18, 2017. Comments were requested to be received by January 30, 2018.

Table 6-17: Summary of Review Agencies and Stakeholders that provided comments on the Draft EPR

Agency	Stakeholder	Date Received	Comments
Federal Review Agency	**Transport Canada**	N/A	No formal comments were received.
	Canadian Transportation Agency	N/A	No formal comments were received.
	Canadian Environmental Assessment Agency (CEAA)	December 27, 2017	Comments were received by the Administrative Clerk.
	Indigenous and Northern Affairs Canada	N/A	No formal comments were received.
	Via Rail Canada	January 30, 2018	Comments were received by the Via Rail representative.
	Canadian Pacific Railway (CP)	January 22, 2018	Comments were received by the CP representative.
	Canadian National Railway (CN)	January 10, 2018	Comments were received by CN Construction.
		January 24, 2018	Comments were received by CN Design and Construction.
Provincial Review Agency	**Ministry of the Environment, Conservation and Parks (MECP)**	January 30, 2018	Comments were received by the Project Officer, Air Quality specialist and Noise Engineer.
	Ministry of Indigenous Relations and Reconciliation (MIRR)	N/A	No formal comments were received.
	Ministry of Municipal Affairs and Housing	N/A	No formal comments were received.
	Ministry of Transportation (MTO)	N/A	No formal comments were received.
	Ministry of Natural Resources and Forestry (MNRF)	N/A	No formal comments were received.
	Ministry of Tourism, Culture and Sport (MTCS)	February 1, 2018	Comments were received by the Heritage Programs and Services Branch.
	IO	February 1, 2018	Comments were received by IO's Environmental Specialists.
	Ontario Heritage Trust	N/A	No formal comments were received.

Agency	Stakeholder	Date Received	Comments
Municipal Review Agency	**City of Toronto**	January 30, 2018	Comments were received by the following departments; City Planning, Traffic Operations, Toronto Water, Engineering and Construction Services, Parks, Forestry and Recreation, Fire Services, and Major Capital Infrastructure Co-ordination.
	City of Toronto	February 12, 2018	Further comments were received by the Traffic Operations department.
	City of Toronto	February 26, 2018	Comments were received by the City's Heritage Preservation Services.
	Waterfront Toronto	January 31, 2018	Comments were received by Waterfront Toronto's Planning and Design Project Manager.
	Toronto Transit Commission (TTC)	January 18, 2018	Comments were received by TTC's Engineering Department.
Conservation Authority	**Toronto and Region Conservation Authority (TRCA)**	February 21, 2018	Comments were received by TRCA's staff.
Other Stakeholders	**Toronto Lands Corporation (TDSB)**	N/A	No formal comments were received.
	Cogeco Peer 1	December 18, 2017	Comments were received by the utility company representative.
	Telus	December 19, 2017	Comments were received by the utility company representative.
	Enbridge Gas Distribution and Power Inc.	December 20, 2017	Comments were received by the utility company representative.
	Telecon	December 29, 2017	Comments were received by the utility company representative.

Agency	Stakeholder	Date Received	Comments
Other Stakeholders (continued)	**Toronto Hydro**	January 4, 2018	Comments were received by the utility company representative.
	Beanfield	January 4, 2018	Comment was received by the utility company representative.
	Rogers	January 5, 2018	Comments were received by the utility company representative.
	Zayo	January 8, 2018	Comments were received by the utility company representative.
	Toronto Community Housing	N/A	No formal comments were received.
	Bell	N/A	No formal comments were received.
	Hydro One	N/A	No formal comments were received.
	Emergency Services	N/A	No formal comments were received.

6.3 TPAP Consultation

Following completion of the Pre-Planning Activities, Metrolinx initiated the TPAP by issuing the Notice of Commencement, which was published on April 19, 2018.

The prescribed steps of the TPAP, including the up to 120 day regulated timeline for preparing the EPR following distribution of the Notice of Commencement, are outlined in **Figure 2-1**.

The submission of this EPR and the issuance of the Notice of Completion triggers the 30-day public and agency review period. During this time, if members of the public, regulatory agencies, Indigenous communities, or other interested persons have concerns about this transit project, objections can be submitted to the Minister. After the 30-day review period has ended, any objections received will not be considered, and the Minister has 35 days within which certain authority may be exercised.

More information is provided in **Section 2.1**.

6.3.1 Public Consultation

All consultation material is current as of July 31, 2018.

6.3.1.1 Public Meeting #2

Public Meeting #2 was held during the TPAP phase at the George Brown College Campus (Residence and Conference Centre – Grand Room and Session Room) at 80 Cooperage Street, Toronto, ON from 6:30 – 9:00 pm on May 3, 2018. The purpose of the meeting was to provide an overall project update and present the findings of the draft technical/environmental studies undertaken for the proposed USRC East Enhancements Project and to meet consultation requirements under O. Reg. 231/08. The format of Public Meeting #2 included an open house (with project display boards and a roll plan), a presentation and question and answer period (at 7:00 pm), and two workshops (Receptor-Based Noise and Vibration Assessment, and Public Realm and Landscaping) that happened concurrently at 8:00 pm and again at 8:30 pm to give participants the opportunity to rotate once between workshops. Representatives from the Metrolinx Project Team, Consultant Team (AECOM) and third party facilitation staff (Swerhun Inc.) were available to answer questions and discuss Project details.

In total, 81 individuals attended Public Meeting #2, including MPP Han Dong and two City of Toronto staff.

A Public Meeting #2 Summary Report is provided in **Appendix C.3a** and includes all comments received during the consultation period of April 19, 2018 to May 17, 2018, along with the Feedback Forms, Project display boards, the presentation and roll plans that were made available at the meeting.

Notice via Online Newspaper

The Notice of Commencement and Public Meeting #2 (English and French) was also advertised in an online newspaper – *The Bulletin*, on April 20, 2018 (TheBulletin.ca). *The Bulletin* covers the St. Lawrence Neighbourhood, Corktown, Cabbagetown, the Distillery District, Riverside, Waterfront, and Leslieville, among other areas of the City. The advertisement provided residents and stakeholders with information on how to actively participate in the Project and the location and details of the Public Meeting.

Notice via Mail-out

The Notice of Commencement and Public Meeting #2 (French and English) was mailed on April 20, 2018 via Canada Post (regular mail) to 163 property owners within 30 m of the LOD. The Notice of Commencement and Public Meeting #2 (French and English) was also distributed via Canada Post Unaddressed Admail to approximately 9,930 homes within 100 m on each side of the rail corridor starting on April 20, 2018.

Notice via E-Blast Subscribers

The Notice of Commencement and Public Meeting #2 was sent on April 23, 2018 to 224 E-Blast subscribers including:

- Interested persons who signed up at public and community group meetings held to date;
- Property managers for condo buildings in the USRC area; and
- Members of the existing USRC general email update list.

Notice via Website and Social Media

The Notice of Commencement and Public Meeting #2 (French and English) was posted to the project website (www.Metrolinx.com/unionstationeast) on April 19, 2018. A Social Media post about the Notice of Commencement and Public Meeting #2 occurred on Twitter via the @MXNotices account on April 19, 2018.

Notice to Stakeholders

Federal, Provincial, Indigenous Communities, CAC, and Local Agencies, as well as other stakeholders were provided with the Notice of Commencement and Public Meeting #2 via e-mail on April 19, 2018. The Notice of Commencement and Public

Meeting #2 as well as a covering letter was sent via e-mail on April 19, 2018 to Indigenous communities.

Notice to Elected Officials

The following elected officials were directly notified of the Project and were invited to attend Public Meeting #2 via an email that included the Notice of Commencement and Public Meeting #2 on April 20, 2018:

Toronto City Council

- Councillor Lucy Troisi (Ward 28)

Members of Provincial Parliament (MPPs)

- Hon. Chris Ballard (MPP Newmarket-Aurora and Minister of the Environment and Climate Change)
- Arthur Potts (Parliamentary Assistant to the Minister of the Environment and Climate Change)
- Constituency Office for MPP Toronto-Centre

Members of Parliament (MPs)

- Adam Vaughan (MP Spadina – Fort York)
- Hon. Bill Morneau (MP – Toronto Centre)

Additional Posting Locations

The Notice of Commencement and Public Meeting #2 (English and French) was sent to the following three additional posting locations on April 19, 2018:

1. St. Lawrence Community Recreation Centre – 230 The Esplanade, Toronto ON, M5A 4J6
2. Toronto Public Library – St Lawrence Library – 171 Front St E, Toronto ON, M5A 4H3
3. Cooper Koo Family YMCA – 461 Cherry St, Toronto ON, M5A 0H7

Summary Stakeholder and Public Comments

- The Project Team received one Feedback Form at Public Meeting #2 between May 3, 2018 and May 17, 2018. See **Appendix C.3a**.
- The Project Team received four public comments via email between May 3, 2018 and May 17, 2018. See **Appendix C.3a**.

- The Project Team received one comment from the Chippewas of Rama First Nation by email during the Public Meeting #2 period to confirm that they received the Notice of Commencement and Public Meeting #2 and shared it with the Williams Treaties First Nation co-ordinator. See **Appendix C.3c**.
- The Project Team received seven comments from External Agencies by email during the consultation period. See **Appendix C.3a**.

6.3.1.2 Public and Community Group Meetings

Table 6-18 below presents a summary of public, community group and CAC meetings held following the Notice of Commencement and Public Meeting #2.

Table 6-18: Summary of Community Group Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Community Advisory Committee (CAC) #6	10 CAC members City of Toronto Waterfront Toronto	April 30, 2018	▪ Provided updates on the air quality and noise mitigation, bridge extension work, and introduced the Pedestrian and Cycling Connectivity Study. ▪ A presentation was given by a CAC member about the existing conditions of the four bridges, along with suggestions for improvements. ▪ Another presentation was given by CAC members, which showed images and video of a less impactful stabilizer which was used as part of the Receptor Based Noise and Vibration Assessment. ▪ Final Meeting Summary, including CAC feedback, next steps, Q&A, follow-up questions and presentation can be found in **Appendix C.3e**.
St. Lawrence Neighbourhood Association & West Don Lands Committee	▪ St. Lawrence Neighbourhood Association – Suzanne Kavanagh - President ▪ West Don Lands Committee – Cynthia Wilkey – Co-Chair	May 24, 2018	▪ Discussed bridge connections and options for the future Detailed Design.

6.3.1.3 Public and Community Group Correspondence

Comments received from the public during the consultation period for Public Meeting #2 were categorized according to the following themes:

- Air Quality
- Access
- Conflict of interest
- Construction
- Environmental
- Noise and Vibration
- Noise Wall
- Public Realm
- Regional Express Rail
- Soil Contamination
- Track E0
- Vegetation and Trees

A summary of comments and responses received from Public Meeting #2 is included in **Appendix C.3a**.

All Public and Community Group correspondence can be found in **Appendix C.3a**.

6.3.1.4 Community Advisory Committee Comments and Responses

Comments received from CAC members that are documented in this EPR pertain to the Project and to broader issues related to USRC East and Metrolinx operations. These comments were categorized according to the following themes:

- Access
- Air Quality
- Construction
- Noise and Vibration Studies
- Operational Noise and vibration
- Property Damage and Compensation
- Safety
- Socio-Economic and Land Use
- Soil Contamination
- Track E0
- TPAP

Comments and responses have been provided in **Appendix C.3b**.

On July 13, 2018 CAC members were also notified that a draft version of the EPR was posted on the project website for their review. CAC comments received on the draft EPR can be found in **Appendix C.3b**.

6.3.2 Indigenous Consultation

6.3.2.1 Meetings with Indigenous Communities

In-person meetings have been requested by select Indigenous communities on the contact list for an overview of all Metrolinx projects in the area. These meetings include an offer to hold individual meetings to discuss any concerns. **Table 6-19** summarizes the Indigenous communities meeting held to date.

Indigenous communities meeting minutes and presentations can be found in **Appendix C.3c**.

Table 6-19: Summary of Indigenous Communities Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Williams Treaties First Nation Metrolinx Projects	▪ Alderville First Nation ▪ Curve Lake First Nation ▪ Hiawatha First Nation ▪ Scugog Island First Nation	June 8, 2018	▪ A presentation and review of on-going and future Metrolinx projects were discussed. ▪ Suggestions were given by the Indigenous Communities on the communication process and engagement for TPAPs.
Mississaugas of the New Credit First Nation Meeting Overview of Metrolinx Projects	▪ Mississaugas of the New Credit First Nation	July 18, 2018	▪ Metrolinx met with the Mississaugas of the New Credit First Nation on July 18, 2018, to discuss a number of Metrolinx projects, including the USRC East Enhancements Project. A copy of the presentation materials was sent to the community in advance of the meeting, on July 13, 2018. Due to time constraints, a number of projects were not discussed (including USRC East Enhancements Project) and a commitment was made to set up a follow-up meeting to discuss the remaining projects. That follow-up meeting is currently scheduled for August 14, 2018.

6.3.2.2 Correspondence with Indigenous Communities

Notices (Notice of Public Meeting #1, Notice of Commencement and Public Meeting #2 and Notice of Completion) were sent to Indigenous communities to seek their input on the Project. **Table 6-20** and **Table 6-21** below summarize the correspondence and comments from Indigenous communities. Correspondence can be found in **Appendix C.3c**. Refer to **Table 6-4** for correspondence and comments from Indigenous communities during the Pre-TPAP phase of the Project.

Notice of Commencement and Public Meeting #2 (Notification #4)

The Notice of Commencement and Public Meeting #2, as well as a covering letter was sent via email on April 19, 2018 to Indigenous communities.

Draft EPR and Final Stage 1 AA Report Information (Notification #5)

The Draft EPR and Final Stage 1 AA, as well as a covering letter was sent via email on July 30, 2018 to Indigenous communities.

Table 6-20: Summary of Correspondence with Indigenous Communities

Indigenous Community	Consultation
Alderville First Nation	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Beausoleil First Nation	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Chippewas of Georgina Island	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Chippewas of Mnjikaning (Rama)	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.

Indigenous Community	Consultation
Curve Lake First Nation	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Hiawatha First Nation	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Huron-Wendat Nation	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Kawartha Nishnawbe First Nations	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Métis Nation of Ontario Head Office	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Métis Nation of Ontario Toronto Office	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Mississaugas of the New Credit First Nation	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.
Mississaugas of Scugog Island First Nation	Notification #4 – Notice of Commencement and Public Meeting #2: – *April 19, 2018:* Emailed Notice of Commencement and Public Meeting #2 Notification #5 – Draft EPR and Final Stage 1 AA Report Information: – *July 30, 2018:* Emailed letter stating where the Draft EPR and Final Stage 1 AA Report can be downloaded, along with an update on the Project.

Table 6-21: Summary of Indigenous Communities Comments

Indigenous Community	Date	Subject	Comments Received	Response to Comments
Métis Nation of Ontario	April 19, 2018	Notification #4	I am no longer working with the Lands, Resources and Consultations Branch of the Métis Nation of Ontario. Please forward your email to Aly Alibhai, Director, Lands Resources and Consultations Branch. alya@metisnation.org	The Project Team has received the email response below and has updated the project's stakeholder contact list so that you (Aly Alibhai) are the primary contact. For your reference, the correspondence sent to James Wagar is attached.
Chippewas of Rama First Nation	April 27, 2018	Notification #4	Please be advised that we reviewed your letter. I have shared it with Council and we've forwarded the information to Karry Sandy McKenzie, Williams Treaties First Nation Process Co-ordinator/Negotiator. Ms. McKenzie will review your letter and take the necessary action if required. In the interim, should you wish to contact Ms. McKenzie directly, please do so at k.a.sandy-mckenzie@rogers.com	Thank you for your email regarding the Notice of Commencement and Public Meeting #2 for the USRC East Enhancements Project. If you have additional questions or comments regarding this Project, please do not hesitate to contact the Project Team.
Metis Nation of Ontario	May 18, 2018	Notification #4	I am no longer in the employ of the Metis Nation of Ontario. If your message concerns the Metis Nation of Ontario, please contact the Chief Operating Officer of the Metis Nation of Ontario, Joanne Meyer, by telephone at 416-977-9881 ext. 101 or via email at joannem@metisnation.ca If your matter is personal in nature and you wish to contact me, you can either send me an email message at kalara@rogers.com or you can contact me by telephone at 416-731-4176.	The Project Team has received the email response below and has updated the project's stakeholder contact list so that you (Joanne Meyer) are the primary contact. For your reference, the correspondence sent to James Wagar is attached.
Mississaugas of Scugog Island First Nation	August 1, 2018	Notification #5	Thanks for the message. My only comment at this time is on the archaeological assessment and the notion that indigenous groups have been in the vicinity since 900 BP or for thousands of years. Archaeologists will tell us that determining one's ethnicity beyond say 1000 years is a challenging affair however, in a number of archaeological assessments we will read that specific indigenous groups have been here for thousands of years of since a certain time in history. I'm not so sure this adds any value to the discussion. I am of the Mississauga Nation but do not suggest that the Mississauga Nation has been here for thousands of years. How can I or most people determine that? But it gets published regardless. Also this project lies within the Toronto Purchase territory.	We note that Section 1.2.1 (Pre-Contact Period Overview of Southern Ontario) of the final Stage 1 Archaeological Assessment includes the following: Indigenous communities were the original occupants of the land now known as Ontario (MIRR 2018) and over time the lands and territories of its inhabitants have shifted and changed. From an existing treaty perspective, the Study Area, which is within the City of Toronto, falls within Treaty 13 (the Toronto Purchase) and the Williams Treaties. Please note that notion that Indigenous groups have been in the vicinity since 900 BP or for thousands of years has not been documented in the Historical Context section of the report and is instead included in Table 3 (Report Review Feedback – Indigenous Engagement) within Section 1.4 (Indigenous Engagement) which documents feedback received from specific communities through their review of the report. As the Stage 1 Archaeological Assessment has been finalized the comments you have provided will be documented as part of the consultation record for this project which will be reflected in the final Environmental Project Report. Your comments will be included in Section 6.3.2.2 and Appendix C.3c of the EPR.

Indigenous Community	Date	Subject	Comments Received	Response to Comments
Curve Lake First Nation	August 7, 2018	Notification #5	Can you please have the archaeologist who completed the Stage 1 to include the following attachment in the “Background Historical Context” section of the archaeological report? And for future reference and ease – can you please ask any and all archaeological companies doing work for Metrolinx in the Williams Treaties territories that they are to include this piece in their historical background sections of their reports. Attachment Provided: **Michi Saagiig Historical/Background context:** The traditional homelands of the Michi Saagiig (Mississauga Anishinaabeg) encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as “the people of the big river mouths” and were also known as the “Salmon People” who occupied and fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months. The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the “Peacekeepers” among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations. Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the “Old Ones” who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5th transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today. The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie. Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted	Thank you for your feedback. As the Stage 1 Archaeological Assessment has been finalized the additional historical information you have provided will be documented as part of the consultation record for this project which will be reflected in the final Environmental Project Report. If you have additional questions or comments regarding this Project, please do not hesitate to contact the Project Team.

Indigenous Community	Date	Subject	Comments Received	Response to Comments
			them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig. The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people. Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated. The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear. Michi Saagiig Elder Gitiga Migizi (2017) recounts: *“We weren’t affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.* *There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.* *We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.* *Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn’t mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis.”*	

Indigenous Community	Date	Subject	Comments Received	Response to Comments
			Often times, southern Ontario is described as being “vacant” after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation. The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation. The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day. **This historical context was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation.** Publication reference: Gitiga Migizi and Julie Kapyrka 2015 Before, During, and After: Mississauga Presence in the Kawarthas. In *Peterborough Archaeology,* Dirk Verhulst, editor, pp.127-136. Peterborough, Ontario: Peterborough Chapter of the Ontario Archaeological Society.	
Curve Lake First Nation	August 8, 2018	Notification #5	Thank you. In the future can you please allow for the opportunity for us to make comments PRIOR to the archaeological assessments being finalized. We would rather have our comments in the body of the archaeological reports rather than as an addendum or attachment. Also there are many errors that appear in these reports regarding the history of Indigenous peoples – if we can address these issues before the archaeological report is submitted then we can avoid the misrepresentation that often occurs.	Noted.

6.3.3 Agency and other Stakeholder Consultation

6.3.3.1 Federal Agencies

No meetings have been held with any Federal agencies to date.

Table 6-22 below summarizes the Federal agency comments received on the Project since the Notice of Commencement and Public Meeting #2 was issued. Correspondence can be found in **Appendix C.3d**.

Table 6-22: Summary of Federal Agency Comments Received

Agency/Date	Summary of Comments	Summary of Proponent Responses
Indigenous and Northern Affairs Canada (INAC) *Email received May 3, 2018*	▪ INAC inquired if the USRC East Enhancements Project has the potential to intersect with federal land set aside as reserve land for Indigenous communities. ▪ If the Project is not on any federal land, INAC explained that they no longer require notification or updates on projects.	▪ There are no federal land set aside as First Nation reserve within the USRC East Enhancements Project Study Area. ▪ The Consultation and Accommodation Unit of INAC will be removed from the Master Stakeholder Contact List.

6.3.3.2 Provincial Agencies

Table 6-23 below summarizes the Provincial agency meetings held since the Notice of Commencement and Public Meeting #2 was issued. **Table 6-24** below summarizes their comments received on the Project. Correspondence can be found in **Appendix C.3d**.

Table 6-23: Summary of Provincial Agency Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Bat Surveying and SAR Screening Via-Teleconference	▪ **MNRF**	**May 31, 2018**	▪ Confirmed that the USRC East Enhancements Project does not need to follow the new MNRF 2017 protocol surveying for bat habitat. ▪ MNRF requested confirmation as to whether bat habitat is present in the Cherry Street Interlocking Tower. ▪ MNRF requested that Metrolinx complete an Information Gathering Form (IGF) for terrestrial species identified in the USRC Natural Environment Report.

Meeting Subject	Stakeholder	Date	Meeting Summary
Project Update	▪ **MECP**	**June 27, 2018**	▪ Metrolinx presented an overview of the Project and associated consultation program, a summary of comments received from technical stakeholders and the public, key study findings, and proposed monitoring and mitigation measures.

Table 6-24: Summary of Provincial Agency Comments Received

Agency/Date	Summary of Comments	Summary of Proponent Responses
Ministry of Natural Resources and Forestry (MNRF) **Comments on the Notice of Commencement** *Email received April 19 and May 18, 2018*	▪ MNRF stated who the assigned District Planner is for this Project.	▪ The Project Team has updated the project's stakeholder contact list.
Ministry of Tourism, Culture and Sport (MTCS) **Comments on the Notice of Commencement** *Email received May 14, 2018*	▪ MTCS inquired when the updated Draft EPR will be circulated.	▪ Metrolinx provided agencies with a revised draft of the EPR in early July along with a comment response table outlining how their specific comments were addressed.
Ministry of Natural Resources and Forestry (MNRF) **Comments on the Revised Draft EPR for Comment** *Email received July 16, 2018*	▪ MNRF stated that all trees, including small seedlings, within 25 m from the LOD should be checked for the presence of endangered Butternut and reported with a list of all species inventoried as evidence.	▪ Butternut was not found during the ELC /vascular plant surveys or during the tree inventory. It should also be noted that, in addition to covering the LOD, ELC surveys and the tree inventory were completed approximately 250 m north of Wilson Yard along the Don River, wherein no evidence of Butternut was found, for a proposed track (Track E0) that was shortened by approximately 600 m at later stages of design during the Pre-TPAP Period. ▪ Records of Butternut within 120 m of the LOD were not identified through background review of the NHIC or through agency consultation with the MNRF or TRCA. Although the absence of information or lack of current information for a given area does not categorically mean the absence of the species in the Study Area, based on search efforts (i.e.,

Agency/Date	Summary of Comments	Summary of Proponent Responses
		area covered and time spent over several days) undertaken by the tree inventory and ELC/vascular plant surveys there is sufficient evidence to confirm that there are no Butternuts in the immediate vicinity of the Project limits. Given the highly urbanized nature of the study area, it's the opinion of our natural environment consultant that additional surveys to search for Butternut are not required.

6.3.3.3 Municipal and Conservation Authority

The following section summarizes the meetings held with and comments received from the City of Toronto, Waterfront Toronto and the TRCA.

Technical Advisory Committee (TAC) Meetings

TAC meetings are planned to continue as project planning and design progress. The next TAC meeting is scheduled for August 21, 2018.

Other Municipal and Conservation Authority Comments

Table 6-25 below summarizes the other Municipal and Conservation Authority comments received since the Notice of Commencement and Public Meeting #2 was issued. Correspondence can be found in **Appendix C.3a**.

Table 6-25: Summary of Other Municipal and Conservation Authority Stakeholder Comments

Agency/Date	Summary of Comments	Summary of Proponent Responses
Toronto and Region Conservation Authority (TRCA) Comments on the Notice of Commencement *Email received April 24, 2018*	▪ TRCA explained their Areas of Interest within the Study Area, which included TRCA Regulated Areas and TRCA Program and Policy Areas. ▪ TRCA also requested that the Project follow guidelines of the TRCA's Living City Policies and requested that the preferred alternative meet specific criteria.	▪ The Project Team will continue to consult with the TRCA and other agencies during the Detailed Design phase of this Project. The list of TRCA Areas of Interest have been reviewed and documented in the revised draft EPR where necessary. ▪ It is Metrolinx's intent to avoid any impacts to the Flood Protection Landform from any project infrastructure part of this Project. Track E0 terminates west of the Flood Protection Landform. Tracks E7 and E8, as well as the Wilson Yard Layover Facility are south of the Flood Protection Landform

Agency/Date	Summary of Comments	Summary of Proponent Responses
	▪ TRCA requested the Detailed Design commitments be included in a Pre-Design Brief. ▪ TRCA also stated that their representation at TAC meetings will continue.	and are not located on or adjacent to the Flood Protection Landform.
Toronto and Region Conservation Authority (TRCA) Comments on the Notice of Commencement *Email received May 10, 2018*	▪ TRCA sent a letter with comments and guidelines on the source water protection for the USRC East Enhancements Project.	▪ The Project Team has reviewed the activities listed in TRCA's letter and added a new section in the revised draft EPR (Section 5.2.3.4 Source Water Protection). The following was included: – The application/handling and storage of road salt; and – The handling and storage of a dense non-aqueous phase liquid (DNAPL) / organic solvent. ▪ The Project Team has noted the requirement to document and discuss how the Project adheres to or has regard to applicable policies in the CTC Source Protection Plan.
Toronto Transit Commission (TTC) Comments on the Notice of Commencement *Email received May 24, 2018*	▪ TTC provided comments regarding the draft EPR associated with impacts of construction on transit services ▪ Comments on detailed design for infrastructure which may impact TTC planned infrastructure	▪ Metrolinx will notify TTC and the City of Toronto in advance of any closures and detour routes. ▪ Metrolinx will continue to co-ordinate with the TTC as Detailed Design progresses

Public Realm Working Group Meetings

No Public Realm Woking Group meetings have been held since the Notice of Commencement and Public Meeting #2 was issued.

6.3.3.4 Other Stakeholders

Table 6-26 below summarizes meetings held since the Notice of Commencement and Public Meeting #2 was issued with other stakeholders including utility companies and private developers. **Table 6-27** summarizes their comments. Correspondence can be found in **Appendix C.3a**.

Table 6-26: Summary of Other Stakeholder Meetings

Meeting Subject	Stakeholder	Date	Meeting Summary
Wilson Yard Layover Facility	▪ **Waterfront Toronto**	**May 9, 2018**	▪ Discussed co-ordination of plans for Waterfront Toronto and Metrolinx projects in the area around the Wilson Yard Layover Facility. ▪ Determined that a co-ordination workshop with multiple stakeholder groups conducting work in the area should be arranged.
Wilson Yard Layover Facility – Utilities/Tower Relocation	▪ **Hydro One**	**May 30, 2018**	▪ Discussed relocation of the Hydro One infrastructure to accommodate the Wilson Yard Layover Facility. ▪ Potential options undergoing further analysis.
Blocks 8 and 20 (i.e. 31A Parliament)	▪ **1150782 Ontario Inc.**	**July 5, 2018**	▪ Metrolinx discussed with this proponent: new concept designs, interface with the future Metrolinx road and requirements needed for Metrolinx approval.
31R Parliament/390 Cherry Street	▪ **Cityscape Development**	**July 5, 2018**	▪ Metrolinx discussed with this proponent: new concept designs, interface with the future Metrolinx road and requirements needed for Metrolinx approval.
Metrolinx and Hydro One Coordination	▪ **Hydro One**	**July 11, 2018**	▪ Reviewed Metrolinx projects in the USRC East area and discussed next steps for coordination of Hydro One feasibility studies.
Metrolinx and Hydro One Coordination – Hydro One EA requirements	▪ **Hydro One**	**July 19, 2018**	▪ Reviewed Metrolinx projects in the USRC East area and discussed coordinating potential Hydro One EA requirements.
Metrolinx and Enbridge Design Considerations	▪ **Enbridge**	**July 24, 2018**	▪ Discussed the potential to permanently divert a gas main running under the east sidewalk of the Parliament Street Bridge. ▪ Enbridge requested design information to review the potential gas main relocation. ▪ Enbridge also discussed the most appropriate location for the new metering station, which will be reviewed by Metrolinx.
Follow up meeting regarding Blocks 8 and 20	▪ **Developer**	**July 25, 2018**	▪ Metrolinx discussed with this proponent: new concept designs, interface with the future Metrolinx road and requirements needed for Metrolinx approval. Discussed Metrolinx construction coordination efforts.

Table 6-27: Summary of Other Stakeholder Comments

Stakeholder/Date	Summary of Comments	Summary of Proponent Response
Utilities – Zayo Comments on the Notice of Commencement *Email received April 20, 2018 and April 24, 2018*	▪ Zayo stated they have existing infrastructure within the Study Area. Zayo requested to be invited to future meetings if any impacts are found. ▪ Zayo also requested to be informed with all future notices and updates.	▪ The Project Team has noted Zayo's existing cable inside CN-owned conduits within the Study Area and this will be taken into consideration as the Project progresses. ▪ In depth utility investigations will be undertaken during Detailed Design to confirm impacts. Any potential conflicts and associated relocation requirements or mitigation measures will be identified in consultation with utility providers.

6.3.3.5 Elected Officials

No meetings have been held during the TPAP phase with elected officials. One comment was received from MP Adam Vaughan. The comment was regarding the treed area which runs along Tom Longboat Lane between Lower Sherbourne Street and Parliament Street. More information on the work being done in this area was requested. Metrolinx responded with the following:

- As part of the Design Excellence program for the USRC East Enhancements Project, Metrolinx is developing a landscaping plan.
- A CAC has already been established in the area, with representation from the Tom Longboat residents and property owners that meet with Metrolinx staff on a regular basis. The CAC was established to help address the concerns raised by local communities including vegetation within the confines of the project area.

For more details on this correspondence, please see **Appendix C.3e**.

6.3.4 Circulation of Revised Draft Environmental Project Report

6.3.4.1 Regulatory Agency Follow-up

A Revised Draft EPR was circulated on July 16, 2018 to regulatory agencies and stakeholders based on the comments received from December 18, 2017 to February 26, 2018. See **Section 6.2.4** for further information.

A period of two weeks was given to advise of key outstanding issues.

On July 31, 2018, a reminder email was sent to all agencies and stakeholders who had not yet provided comments on the Project.

On August 7, 2018, a teleconference was held with MECP to discuss comments on the Noise and Vibration Impact Assessment Report. An updated report was submitted to MECP to address outstanding comments. MECP indicated the revised report satisfied their comments.

All regulatory agency comments received as part of the Revised Draft EPR review, and Metrolinx's responses, can be found in **Appendix C.3f**.

6.4 Ongoing Engagement

Metrolinx is committed to continuing to engage and communicate with stakeholders beyond the TPAP. Specifically, Metrolinx will:

- Design and implement a response strategy to address/resolve potential construction concerns;
- Maintain the Project website throughout the Detailed Design and construction phases where the public can access updated information on the Project; and
- Continue discussions/consultation with local stakeholders, members of the public (including the CAC), and Indigenous communities with respect to potential impacts during the Detailed Design and construction phase, as appropriate.

7. Future Commitments and Permits and Approvals

The sections below outline the various permits and approvals required and next steps in obtaining the permits and approvals, as well as commitments to future work. This includes consultation with regulatory agencies and additional field work.

7.1 Federal

7.1.1 Canadian Environmental Assessment Act 2012 (CEAA 2012) Review

The Regulations Designating Physical Activities under the *Canadian Environmental Assessment Act (CEAA) 2012* identify the physical activities (i.e., types of projects) that constitute "designated projects" that may require a Federal EA. A review of the Regulations was carried out by Metrolinx with respect to the Project. Based on this review, this Project does not constitute a designated project under *CEAA 2012*.

The Federal Government introduced proposed legislation in February 2018 to replace *CEAA 2012* with a new act (the *Impact Assessment Act*). The proposed *Impact Assessment Act* requires early planning and engagement, enhanced Indigenous engagement, increased public participation, and legislated timelines. As part of these changes, the Federal Government is also reviewing the types of projects that will be subject to the new act. Once the new act is in place, Metrolinx will review to confirm applicability.

7.1.2 Fisheries and Oceans Canada

In light of the November 2012 changes to the federal *Fisheries Act*, a modified review process for in-water works is now in practice. Per the revised regulation and the *Fisheries Protection Program* (FPP) it is recommended that a qualified environmental professional conduct a Self-Assessment, on behalf of Metrolinx, of the proposed project activities to determine whether Fisheries and Oceans Canada (DFO) needs to review the Project. It is recommended that this task be completed in the Detailed Design phase and be based on the completed Detailed Design so that the construction methods and footprints are final.

Based on the preferred design, no in-water works are currently proposed for any of the proposed activities for the Project. In addition, none of the project components are proposed to cross the Don River; however, it is anticipated that near water works (i.e., those within 30 m of the Don River) may be required to facilitate the construction activities proposed for the Wilson Yard Layover Facility.

Changes to the *Fisheries Act* are also part of the proposed legislation introduced by the Federal Government in February 2018. These changes include protection of all fish and fish habitat, and clarity on the types of projects requiring authorization. Once the new act is in place, Metrolinx will review the associated Regulations to confirm whether the changes affect permitting requirements.

Recommended Next Steps

Work in, above, or in proximity to watercourses will require a DFO Self-Assessment to determine whether DFO Review is warranted. A Pathways of Effects analysis of project activities may be recommended to confirm potential effects on fish and fish habitat, in order to recommend measures to avoid serious harm to fish and fish habitat, and to document the recommendations to demonstrate due diligence. It is anticipated based on design details currently available that DFO Self-Assessment and Pathways of Effects analysis will be sufficient to identify potential impacts and appropriate measures to adequately mitigate impacts such that DFO Request for Review would not be required. Even if further review is not recommended Metrolinx may opt to share the Self-Assessment documentation with DFO.

7.1.3 Transport Canada

The *Navigation Protection Act* (NPA) includes a schedule of navigable waters that require regulatory approval for works that risk a substantial interference with navigation. Based on the preferred design, no in-water works are currently proposed for any of the proposed activities for the Project. In addition, none of the project components are proposed to cross the Don River; and as such, consideration under the NPA is not applicable to this Project. Should the advancement of design warrant a crossing of the Don River, an assessment under NPA may be required.

7.2 Provincial

7.2.1 Ministry of the Environment and Climate Change (MECP)

7.2.1.1 Water Taking Permit

The project works may require groundwater dewatering activities to facilitate dry working conditions during construction of elements such as the retaining walls and bridge extensions. A *Hydrogeological Investigation and Dewatering Assessment* will be required to determine necessary water taking volumes, calculate the dewatering Zone of Influence, determine potential impacts related to soil settlement, groundwater supply wells, and/or ecological features, and provide guidance related to the available options for the discharge of dewatering effluent. Results of the *Hydrogeological Investigation and Dewatering Assessment* will determine if a Permit to Take Water (PTTW) is required under *O. Reg. 387/04* (if dewatering exceeds 400,000 L/day) or if water taking activities are subject to registration through the Environmental Activity and Sector Registry (EASR) as prescribed in *O. Reg. 63/16* and *O. Reg. 64/16* (for dewatering between 50,000 and 400,000 L/day). The *Hydrogeological Investigation and Dewatering Assessment* will accompany the application package for a PTTW, if required, or the registration process for the EASR.

Similarly, approvals for the discharge of pumped water may also be required, which could include one or a combination of a Municipal Discharge Permit, a Conservation Authority Approval (through the Voluntary Project Review process), and/or MECP Environmental Compliance Approval (ECA) (*OWRA*, Section 53). The need for these permits will be determined at the Detailed Design phase.

Recommended Next Steps

There are three types of PTTW: Categories 1, 2 and 3. Each type of permit requires an application to the MECP and is subject to their approval. A Category 1 permit is considered low risk. Category 2 permits are for water takings with a greater potential to cause adverse environmental impacts and require a brief assessment. Category 3 permits are considered high risk and require an in-depth hydrogeological study in support of the permit application. It is recommended for planning purposes that a Category 3 PTTW will be required and therefore the following studies and field investigations are necessary to satisfy the conditions of a Category 3 PTTW application:

- A desktop review of available project documentation and preliminary design information relating to the proposed construction activities and methods to determine extent and location of subsurface works that have the potential to require groundwater dewatering during construction.

- Review of existing published geological and hydrogeological information within a radial distance of approximately 500 m of the project limits.
- A 'windshield reconnaissance' from publicly accessible areas within approximately 500 m of the project limits to identify areas of potential remnant groundwater use. Subsequently, a door-to-door private well survey to be carried out within any identified areas to confirm groundwater use and to obtain basic well information. Where potential impacts to such private wells are identified, a baseline well survey / assessment will be carried out to document pre-construction conditions.
- A geotechnical program to include the installation of groundwater monitoring wells at all identified subsurface excavations that have potential to intercept the water table. Groundwater level data will be obtained within each monitoring well for comparison against engineering design details. If elevated groundwater levels are identified, single well hydraulic response will be conducted to estimate the in situ hydraulic conductivity of the geologic material surrounding the well screen at each location. In addition, baseline groundwater quality samples will be collected from representative groundwater monitoring wells for comparison against the City of Toronto By-Law 457-2000, including Table 1 (Limits for Sanitary and Combined Sewers Discharge), Table 2 (Limits for Storm Sewer Discharge), and Provincial Water Quality Objectives (PWQO) guidelines for discharge to natural features.
- Evaluation of the physical and environmental setting through a review and interpretation of available background information and field and laboratory data to determine construction dewatering requirements and the associated dewatering Zone of Influence.
- Determination of potential impacts and mitigation measures to local infrastructure from ground settlement due to dewatering activities conducted by a geotechnical engineer.
- Determine potentially impacted natural features / groundwater supply wells and recommend mitigation.

The above listed studies and field investigations should occur during the Detail Design phase of the Project and in conjunction with geotechnical investigations in order to allow for potential alterations to the design based on the results of these studies. If required, submission of a Category 3 PTTW application to the MECP is recommended at least 90 days prior to the commencement of construction activities, as this reflects the MECP Standard of Service commitment timeline for a Category 3 PTTW.

Approvals for the discharge of pumped water will also be required, which could include one or a combination of a Municipal Discharge Permit, a Conservation Authority Approval (through the Voluntary Project Review process), and/or MECP Environmental

Compliance Approval (ECA) (*OWRA*, Section 53). An effluent Discharge Plan will be prepared, as necessary, based on pre-consultation discussion with MECP and/or TRCA staff, as the discharge of dewatering effluent may potentially be directed to the Don River, depending on the baseline groundwater quality analysis results, and site-specific considerations. Depending on the identified discharge strategy, application for discharge permission can be made during Detailed Design (i.e., MECP or Conservation Authority) or at the outset of the construction phase (i.e., City of Toronto).

7.2.1.2 O. Reg. 153/04 as Amended

It is anticipated that excess soils may be generated during construction, grading and excavation. These soils may need to be shipped off the site, either for reuse elsewhere or disposal. Soil will be managed in accordance with the MECP's requirements such as Management of Excess Soil - A Guide for Best Management Practices; published April 5, 2016, updated: June 6, 2017. The MECP is also proposing additional guidance and legislation including the Ontario Regulation to be made under the *Environmental Protection Act On-Site and Excess Soil Management* (currently under 60 day comment period until June 15, 2018) and which will be incorporated in project planning as they are put into effect.

Recommended Next Steps

To meet the requirements of the policies and regulation, any soils that are removed from the site need to be tested for contaminants of concern related to the historical use of the site and surrounding area and compared against applicable Site Condition Standards (SCS) specified in *Soil, Groundwater and Sediment Standards for Use* under Part XV.1 of the *Environmental Protection Act* published by the Ministry and dated April 15, 2011;. Although the MECP SCS are currently only directly applicable to sites for which a Record of Site Condition (RSC) is being prepared in accordance with *O. Reg. 153/04*, these standards are commonly used in Ontario for assessing the environmental conditions of subsurface soils and groundwater. The appropriate destinations for the soil will be based on the analytical results and requirements of the receiving site.

All soils to be sent off-site will be tested according to MECP Table 1 Generic Site Condition Standards, to ensure applicable detection limits are met. Whether the soil can be reused on other properties, or need to be sent a MECP licensed landfill will depend on the analytical results. As a policy, any soils that are brought onto the site as fill, must be tested and compared to applicable SCS or be classified as clean granular material.

A permit / approval is not anticipated to be required under *O. Reg. 153/04* as amended.

7.2.2 Ministry of Natural Resources and Forestry (MNRF)

Subsection 9(1) and 10(1) of the provincial *Endangered Species Act, 2007*, (ESA) protects wildlife species classified as extirpated, endangered or threatened on the Species at Risk List Ontario, as well as their habitats. MNRF is the agency responsible for issuing permits or other authorization for activities that may affect Species at Risk.

7.2.2.1 Plant Species at Risk and Significant Wildlife Habitat

No rare vegetation communities or plant Species at Risk were identified within the Study Area. Through recent correspondence with the MNRF on May 29 and 30, 2018 via email and teleconference, Butternut was identified by MNRF as potentially occurring in the Study Area.

Recommended Next Steps

However, this plant SAR was not found in the Study Area through the field investigations conducted in support of the TPAP, including ELC and tree inventories. As such, permitting for plant SAR under the ESA is not anticipated. This will be documented in the IGF submission. Specialized or significant wildlife habitats including amphibian breeding ponds were not identified within the Study Area.

7.2.2.2 Bird Species at Risk

There is a very low potential for two bird SAR (Barn Swallow and Chimney Swift) and three SOCC (Eastern Wood-Pewee, Peregrine Falcon and Common Nighthawk) to occur in or in the vicinity of the Study Area given the lack of habitat availability, and the general level of habitat disturbance and low quality.

Recommended Next Steps

IGF should be prepared and submitted to MNRF to document the lack of suitable habitat availability, and the general level of disturbance and low habitat quality to confirm MNRF permitting expectations for the Project under the ESA. Additional field studies should be completed concurrent with the advancement of Detailed Design to confirm presence of Barn Swallow nests on structures anticipated to be impacted by the Project such as the underpass bridges at Lower Jarvis Street, Lower Sherbourne Street, Parliament Street and Cherry Street, as well as the Cherry Street Interlocking Tower. In addition, the Cherry Street Interlocking Tower should be inspected for presence of a suitable chimney that may be used by Chimney Swift, and if found to do so than additional species-specific surveys to determine presence/absence and use of the suitable chimney, if present, by Chimney Swift may be required. The findings from these

additional surveys should be documented in the IGF. Should Barn Swallow and/or Chimney Swift nesting activity be identified on any of these structures, and if project activities require removal of SAR habitat, a registration of construction activity with the MNRF via a Notice of Activity (NOA) in accordance with *O. Reg. 242/08* under the ESA will likely be required. MNRF's review of the IGF will confirm the permitting expectations for the Project.

7.2.2.3 Mammal Species at Risk

In conjunction with the Tree Inventory completed in September/October 2016 and April 2017, trees greater than 25 cm diameter at breast height (DBH) were identified in the field and assessed for potential bat habitat following the MNRF methods outlined within the *MNRF's Technical Note Species at Risk* (2015e) and *Bat and Bat Habitat Surveys of Treed Habitats* (MNRF, 2016a). No potential bat habitat (i.e., presence of suitable bat cavity trees) was observed at that time.

Further, in 2017 MNRF released an updated protocol for the assessment of candidate bat habitat entitled *Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis & Tri-coloured Bat* (MNRF, April 2017). As such, in order to confirm the need for any additional SAR-targeted surveys, mitigation and/or compensation measures and monitoring requirements in light of the updated 2017 Protocol further consultation with MNRF was warranted. An email provided to AECOM addressed to Metrolinx from MNRF on May 29, 2018 and a subsequent teleconference between AECOM, Metrolinx and MNRF on May 30, 2018 confirmed that it would not be necessary to update the 2016 field work to apply the 2017 protocols for treed areas as it was acknowledged by MNRF that there are no treed areas at least 0.5 ha in size within the LOD.

<u>Recommended Next Steps</u>

During the May 30, 2018 teleconference with MNRF and based on the current available Detailed Design for the Project, the Cherry Street Interlocking Tower was identified as the only building structure within the project limits anticipated to be affected by the construction of the Project. As such, a field reconnaissance survey of the Cherry Street Interlocking Tower is warranted to confirm whether it has potential to provide bat habitat, and if found to do so then bat exit surveys would be warranted in accordance with MNRFs recommended approach for determining presence/absence of SAR Bats within the building. Findings should be documented in the IGF to confirm MNRF permitting expectations for the Project.

7.2.2.4 Aquatic Species at Risk

Based on DFO's SAR Mapping, and MNRF correspondence, no aquatic SAR or SOCC were identified within the Study Area. Based on TRCA fish community records, American Eel (designated as endangered under the ESA) was identified in the Lower Don River in 2014, just beyond but in close proximity to the Study Area.

Recommended Next Steps

Given that no in-water work is proposed, no potential effects are anticipated to harm American Eel or its habitat as a result of the Project, provided that appropriate mitigation for any near water work is implemented. As such, there are no anticipated permitting requirements for aquatic SAR through MNRF for this Project.

7.2.2.5 Permitting Process

Consultation with the MNRF is required to confirm whether proposed Project activities are likely to contravene subsection 9(1) and 10(1) of the ESA for SAR with the potential to occur in the Study Area and thus require permitting or authorization under the Act. This process is initiated with an IGF that is submitted to the local MNRF district office. An IGF summarizes the proposed Project and its activities, the SAR recorded as occurring in the area through background information review and/or field investigations, any species-specific surveys conducted and the results, as well as an analysis determining potential negative and/or positive impacts to each SAR species. If the MNRF determines that the proposed activity contravenes subsection 9(1) or 10(1) of the ESA, depending on the affected SAR species, if any, the proponent may be required to prepare an overall benefit permit for bat SAR or register the construction activity that is affecting Barn Swallow and/or Chimney Swift with the MNRF via a NOA in accordance with *O. Reg. 242/08* under the ESA.

If an overall benefit permit is required for bat SAR, then the proponent must provide the MNRF district office with a completed Avoidance Alternative Form (AAF) whereby consideration is given to altering the activity in such a way that avoids adverse effects to species and/or habitat(s) protected by the ESA. If MNRF determines that these alternatives avoid contravention of the ESA, then an overall benefit permit will not be required.

Prior to completing the application for an overall benefit permit, the MNRF must be notified of the proponent's intent to apply and receive a complete IGF and AAF. Before an overall benefit permit is issued, the MNRF posts a notice on the Environmental Registry (ER) and Species at Risk website informing the public of the proposed activity with a comment period of at least 30 days. The MNRF typically requires three months to

determine whether the permit application meets the legislative requirements of 17(2)(c) of the ESA and therefore whether an overall benefit permit will be issued.

If Project activities (i.e., activities in built structures that are habitat) are deemed by the MNRF to affect Barn Swallows and/or Chimney Swifts, the proponent may be eligible for a streamlined approval under the NOA Registration in accordance with *Section 23.5* and/or Section 23.8 under *O. Reg. 242/08* of the ESA, depending on the species. The NOA registration is an online proponent driven undertaking whereby project activities, mitigation and monitoring measures are documented. A registrant must determine whether they are eligible to use the regulation to undertake the activity and can fulfil all of the conditions within the applicable section of the regulation. Failure to do so could result in a contravention of the ESA and could lead to prosecution under the Act. Confirmation of Registration is typically received within 15 business days and the project activity must not occur until confirmation has been received and a Barn Swallow and/or Chimney Swift mitigation and restoration record is prepared.

Recommended Next Steps

An IGF will be prepared and submitted for the SAR discussed in the previous subsections for MNRF review and discussion as soon as possible. The results from the additional SAR surveys for Barn Swallows, Chimney Swifts and SAR Bats described above will be incorporated into the IGF for submission to MNRF for their review and determination of required permits or approval under the ESA, if any. Should MNRF deem that an overall benefit and/or an NOA are required then preparation of the required permits will begin following the permitting process described above.

Additionally, a Sighting Response Protocol will be developed during Detailed Design and will include required procedures and reporting that must be undertaken in the event that wildlife and/or SAR are encountered by on-site staff within the construction area during project activities.

7.2.3 Ministry of Tourism, Culture and Sport

As part of this Project, a CHSR, various CHERs, an HIA, and a Stage 1 Archaeological Assessment were prepared and submitted to MTCS. These are provided in **Appendices B7, B8 and B9** of this EPR.

Through the various cultural heritage assessments, several cultural heritage resources were identified. HIAs are required to mitigate impacts to the Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, and Cherry Street Subway.

As mentioned in Section 5.9.1 of this report, the Stage 1 AA indicated there are areas of archaeological potential within or crossing over the LOD which are believed to be located at a depth of approximately 76 m above sea level (ASL) (ASI 2016).

Recommended Next Steps

A HIA will be prepared for Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway, and Cherry Street Subway during Detailed Design. Metrolinx shall only proceed with project related activities when all HIAs have been completed in compliance with regulatory requirements and to meet Metrolinx obligations as a prescribed public body.

In addition, Stage 2 monitoring will be required if construction disturbance should reach approximately 76 m above sea level.

7.3 Municipal

7.3.1 City of Toronto

7.3.1.1 Tree Removal/Compensation

Metrolinx is exempt from the City of Toronto permitting and approval requirements within Metrolinx-owned lands; regardless, Metrolinx works in co-operation with the respective municipality and participates in a voluntary project review process. Metrolinx will adhere to the intent of relevant municipal permits and approvals to the extent possible. The following sections describe the City of Toronto Tree Protection By-Law.

Trees situated on the subject property, within road allowances and on neighbouring property are regulated by the City of Toronto Tree Protection By-Law. Articles II and III of Chapter 813 of the Toronto Municipal Code regulate the injury and destruction of trees residing on private and City property. Trees protected by the by-law are classified as one of the following five City Tree Categories:

1. Trees with diameters of 30 cm or more, situated on private property on the subject site.
2. Trees with diameters of 30 cm or more, situated on private property, within 6 m of the subject site.
3. Trees of all diameters situated on City owned parkland within 6 m of the subject site.
4. On lands designated under City of Toronto Municipal Code, Chapter 658, Ravine and Natural Features Protection, trees of all diameters situated within 10 m of any construction activity.

5. Trees of all diameters situated within the City road allowance adjacent to the subject site. (City of Toronto, 2008).

Permits are required from the City of Toronto prior to the removal of any trees identified as Categories 1-5.

Removal and/or damage of woody vegetation located in adjacent lands, beyond the rail ROW, may require municipal tree removal permits.

In addition, Metrolinx is establishing a Vegetation Compensation Protocol for RER projects. The protocol will address tree and vegetation removal from within the rail ROW and adjacent to Metrolinx-owned properties. Metrolinx will continue to finalize the Protocol in consultation with Conservation Authorities and Municipalities.

Recommended Next Steps

To support the permit applications, an Arborist Report will be completed at the Detailed Design phase to supplement the *Union Station Rail Corridor (USRC) East Enhancements Transit Project Assessment Process (TPAP) Tree Inventory Report* (AECOM, 2016).

7.3.1.2 Municipal Discharge Permits

As mentioned in **Section 7.2.1.1**, Municipal Discharge Permits may be required for the discharge of pumped water associated with construction dewatering activities. A combination of Municipal/City Discharge Permits and/or MECP Environmental Compliance Approval (ECA) in accordance with Section 53 of the OWRA may be required.

7.4 Conservation Authority

7.4.1 Toronto and Region Conservation Authority

The activities of all federal and provincial Crown corporations are exempt from conservation authority permitting activities under Section 28 of the *Conservation Authorities Act* and under *O. Reg. 166/06 – TRCA Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses*. Projects on lands owned by a Crown corporation and on behalf of a Crown corporation are also exempt. As a provincial Crown corporation, Metrolinx will follow the Voluntary Project Review process as per the *Proponents and Projects Exempt from the TRCA Regulatory Approval Process* and request that TRCA reviews and comments on Detailed Design activities associated with project construction, maintenance or emergency activities.

Once TRCA concerns are satisfied, a Voluntary Project Review Letter will be provided by TRCA staff.

This process is applicable to areas of the Project that are located within TRCA regulatory limits.

7.5 Summary of Permits and Approvals

Table 7-1 presents a summary of permits and approvals anticipated to be required for this Project. Information such as whether a permit/approval is anticipated, the location the permit/approval applies to, required information to support the permit process, responsible parties and additional required clarification is provided.

Table 7-1: Summary of Anticipated Permit and Approval Requirements

Level of Government	Legislation	Permit/Approvals	Is Permit/Approval Anticipated to be Required?	Location	Required Information for Permit Application	Anticipated Agency Permit/Approvals Review Period
Federal	Fisheries and Oceans Canada – *Fisheries Act 1985*	Fisheries Act Authorization	It is anticipated based on design details currently available that DFO Self-Assessment and Pathways of Effects analysis will be sufficient to identify potential impacts and appropriate measures to adequately mitigate impacts such that DFO Request for Review would not be required. Even if further review is not recommended Metrolinx may opt to share the Self-Assessment documentation with DFO.	Wilson Yard Layover Facility LOD within 30 m of the Don River	- Detailed design drawings (90% to final) - Construction details/specifications, including materials, methods and equipment planned to be used - Existing Conditions - Proponent Name and Contact Information - Construction and maintenance schedule, including start and end times - No further clarification on required permit/approval is required from agency	- Request for Review: 30 days - If authorization is required: additional 90 days
Provincial	*Ontario Water Resources Act*	Permit to Take Water / Discharge Permits	Dependent on results of sub-surface studies.	Proposed dewatering locations	Additional sub-surface studies (refer to Section 7.2.1.1 for full descriptions): - Desktop review of Detailed Design drawings and engineering design details/specifications - Review of geological and hydrogeological existing conditions - Prior to construction, windshield reconnaissance field visit(s), door to door survey and baseline well survey/assessment where potential impacts to private wells are identified - Geotechnical program - Evaluation of existing conditions through background information review, field and laboratory results to determine dewatering requirements and associated radius of groundwater table drawdown - Determination of impacts to local infrastructure, natural features and recommended mitigation - A water discharge management plan	- 90 days
Provincial	*Environmental Protection Act*	MECP Environmental Compliance Approval (ECA)	An ECA will be required for new stormwater management infrastructure including oil grit separators, stormwater management facilities for quality and quantity control.	Proposed connections to existing City of Toronto storm sewers at Parliament Street, Lower Sherbourne Street, Cherry Street and Wilson Yard Layover Facility.	Stormwater management report, design drawings, City of Toronto approval (storm connection exemption).	- 6 months
Municipal	City of Toronto Sewer By-Law (Municipal Code, Chapter 681)	Storm Connection Exemption	Required at all proposed sewer connection locations.	Proposed connections to existing City of Toronto storm sewers at Parliament Street, Lower Sherbourne Street, and Cherry Street.	- Stormwater management report, design drawings.	- 90 days

Level of Government	Legislation	Permit/Approvals	Is Permit/Approval Anticipated to be Required?	Location	Required Information for Permit Application	Anticipated Agency Permit/Approvals Review Period
Municipal	City of Toronto Streets Use By-Law (Toronto Municipal Code Chapter 743, Use of Streets and Sidewalks)	Cut Permit	Required where it is proposed to cut an existing storm sewer to provide new connections.	Proposed connections to existing City of Toronto storm sewers at Parliament Street, Lower Sherbourne Street, and Cherry Street.	- Contractor is typically responsible for receiving this permit	- 30 days
Provincial	*Endangered Species Act*, 2007	Notice of Activity Registration – Barn Swallow	Dependent on the nest search for Barn Swallow nests in built structures that provide habitat and will be affected by construction or operation of the Project.	Bridges / Buildings Wilson Yard Layover Facility	- Detailed design drawings (90% to final) - Conduct a nest search for Barn Swallows of the bridge extension structures and other structures within the Study Area - Include review and results in an IGF for submission to MNRF for review - Submit NOA Registration including development of project activities, mitigation and monitoring measures if Barn Swallow nests are found on any of the bridge extension structures or other structure that will be affected by construction or operation of the Project. - No further clarification on required permit/approval is required from agency.	- Confirmation of NOA Registration is typically received within 15 business days and the project activity must not occur until confirmation has been received.
Provincial	*Endangered Species Act*, 2007	Notice of Activity Registration – Chimney Swifts	Through correspondence with the MNRF on May 31, 2018, MNRF suggested inspecting the Cherry Street Interlocking Tower for suitable Chimney Swift habitat. A Notice of Activity is dependent on field reconnaissance survey of the Cherry Street Interlocking Tower to confirm whether it has the potential to provide suitable habitat for Chimney Swift, and if found to do so then subject to a species-specific surveys to determine presence/absence and use of habitat by the species.	Cherry Street Interlocking Tower	- Detailed design drawings (90% to final) - Field survey to identify suitable habitat for Chimney Swift, and if required, species-specific surveys to determine presence/absence and use of habitat. - Include review and results in an IGF for submission to MNRF for review - Submit NOA Registration including development of project activities, mitigation and monitoring measures if Chimney Swifts are confirmed to be using suitable chimneys on Cherry Street Interlocking Tower, if any are found. - No further clarification on required permit/approval is required from agency.	- Confirmation of NOA Registration is typically received within 15 business days and the project activity must not occur until confirmation has been received.
Provincial	*Endangered Species Act*, 2007	Overall Benefit Permit – Bats	Through correspondence with the MNRF on May 31, 2018, MNRF suggested inspecting the Cherry Street Interlocking Tower for potential bat roosting habitat. A Notice of Activity is dependent on field reconnaissance survey of the Cherry Street Interlocking Tower to confirm whether it has potential to provide bat habitat, and if found to do so then subject to a structure survey assessment in accordance with MNRF's recommended approach for determining presence/ absence of SAR Bats within buildings and subsequent consultation with MNRF.	Cherry Street Interlocking Tower	- Detailed design drawings (90% to final) - Field survey to identify suitable bat habitat as per MNRF's approach for determining presence/ absence of SAR Bats within buildings (2017) - Include results in an IGF for submission to MNRF for review. - If through the assessment and surveys conducted for the Cherry Street Interlocking Tower the presence of SAR Bats is identified, the MNRF will need to be consulted to confirm whether an authorization or permit under the ESA would be required and to confirm any additional mitigation and/or compensation measures and monitoring requirements.	- If Overall Benefit Permit is confirmed necessary by MNRF, acknowledgement of receipt of Overall Benefit Application and confirmation application requirements are met: 60 days - - Once permit application is confirmed complete, decision on permit approval: three months under normal circumstances

Level of Government	Legislation	Permit/Approvals	Is Permit/Approval Anticipated to be Required?	Location	Required Information for Permit Application	Anticipated Agency Permit/Approvals Review Period
Provincial	MTCS	Stage 2 Monitoring	If construction disturbance should reach 76 m above sea level	Within and/or cross the LOD	- Detailed Design Drawings - No further clarification on required permit/approval is required from agency	- N/A
Provincial	MTCS	HIAs	Lower Jarvis Street Subway, Lower Sherbourne Street Subway, Parliament Street Subway and Cherry Street Subway were identified as Provincial Heritage Properties, and as such a Heritage Impact Assessment will be prepared during the Detailed Design phase of this Project to ensure that the necessary work will be completed in such a way as to conserve the CHVI of the properties.	Lower Jarvis Street, Lower Sherbourne Street, Parliament Street and Cherry Street Subways	- Detailed Design Drawings - No further clarification on required permit/approval is required from agency	- N/A
Municipal	City of Toronto	Tree Protection By-law	Voluntary within Metrolinx rail ROW. Required if removing trees outside of the Metrolinx rail ROW.	Where tree removal is proposed on Municipal Property	- Detailed Design Drawings (60% to final) - Arborist Report for which the following information should be included as per the City's *Guidelines for Completion of An Arborist Report* (City of Toronto, 2011): o Contact information o Location o Species o Size o Nature of Work o Tree condition o Tree Category o Reason For Removal o Tree Replacement Information o Arborist Recommendation o Tree Retention and Protection o Map showing trees and Detailed Design	- The normal City of Toronto permitting process starts with preparing of the application package which can include but not limited to: Completed Application form, Arborist Report, Site Plan, Photos, and Landscaping Plan/ Tree Protection plan. Once the completed package is submitted, the City will perform a review of the application with a site visit as part of the review process. Once the application package has been approved, notices will be provided to the required parties. Conditions for permit approval may also be issued and must be followed during all phases of construction. - With Metrolinx being exempt from the City of Toronto By-Laws within their ROW, they complete this process to maintain good relations with the City of Toronto. Due to this special situation, report approval timelines can be difficult to determine. Typical timeline for permit approval is approximately 8-10 weeks from complete application package submission.

Level of Government	Legislation	Permit/Approvals	Is Permit/Approval Anticipated to be Required?	Location	Required Information for Permit Application	Anticipated Agency Permit/Approvals Review Period
Conservation Authority	*Conservation Authorities Act*	*O. Reg. 166/06*	Voluntary within Metrolinx rail ROW.	TRCA Regulated Lands	Refer to Section 7.4.1 for detailed descriptions: Aquatic Features - Legal survey and location map - Site plan showing proposed works, property boundaries, existing site conditions (grades, structures, watercourses) - Erosion and Sediment control plan - Construction staging / phasing plan - Rehabilitation/restoration/landscape plans - No further clarification on required permit/approval Terrestrial Features - Detailed Design Drawings (90% to final) - Development schedule - Drainage details - Description of type of fill - Soil and erosion plan - Other technical study requested by TRCA, including: o Flood impact assessments - No further clarification on required permit/approval	- The activities of all federal and provincial Crown corporations are exempt from conservation authority permitting activities under Section 28 of the *Conservation Authorities Act* and under *O. Reg. 166/06* – TRCA Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses. Projects on lands owned by a Crown corporation and on behalf of a Crown corporation are also exempt. As a provincial Crown corporation, Metrolinx will follow the Voluntary Project Review process as per the *Proponents and Projects Exempt from the TRCA Regulatory Approval Process* and request that TRCA reviews and comments on Detailed Design activities associated with project construction, maintenance or emergency activities. Once TRCA concerns are satisfied, a Voluntary Project Review Letter will be provided by TRCA staff.

7.6 Addendum Process

The Project presented in this EPR is not a static plan, nor is the context in which it is being assessed, reviewed, approved, constructed, and used. Given the potential for changes to the Project resulting from the approvals, Detailed Design, and construction processes, it is prudent to include in the EPR a comment on the responsibilities of the proponent should changes be required in the Project.

This EPR identifies the impacts associated with the Project presented herein, and the property envelope within which the Project can feasibly be constructed. The actual layout of Project elements (e.g., tracks and the Wilson Yard Layover Facility) is subject to Detailed Design and any variation from that shown in this EPR, unless it results in an environmental impact which cannot be accommodated within the committed mitigation measures, does not require additional approval under *O. Reg. 231/08.*

The TPAP includes provisions (in Section 15 of the Regulation) for proponents to make changes to a transit project after the Statement of Completion is submitted to the Director of the Environmental Assessment and Approvals Branch of the MECP and the MECP Regional Director.

In compliance with Section 15(1) of the Regulation, Metrolinx will prepare an addendum to the EPR if there is a proposed change to the Project that is inconsistent with the EPR after the Statement of Completion is issued. A change that is inconsistent with the EPR is generally defined as one for which the effects have not been accounted for in the EPR, either directly or through a contingency planning approach in which a worst case scenario has been contemplated and a protocol for addressing change has been included in the EPR. If the proposed change would result in a lesser impact than planned for and meets the mitigation intents identified in the EPR, it may be deemed to be consistent with the EPR and therefore no addendum is required. Changes to the Project may also be required if there is a significant lapse of time (i.e., ten years) between the Statement of Completion and the start of construction, which will require a formal review of the Project by Metrolinx in consultation with relevant stakeholders (in accordance with Section 16 of the Regulation).

The EPR addendum must include the following information:

- A description of the proposed change;
- The reason for the proposed change;
- An assessment and evaluation of any impacts that the proposed change might have on the environment;

- A description of any proposed measure for mitigating any negative impacts that the proposed change might have on the environment; and
- A statement of whether the proponent is of the opinion that the proposed change is significant (or not), and the reasons for the opinion.

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

7.7 Future Commitments and Monitoring Requirements

The EPR commitments are developed to satisfy the requirements of *O. Reg. 231/08*. Specifically the purpose of the commitments is to facilitate the implementation of the Project in accordance with the mitigation measures and monitoring activities described in the EPR and in a manner that does not result in negative impact on matters of provincial interest related to the natural environment or to cultural heritage value or interest, or on constitutionally protected Aboriginal or treaty rights.

Establishing EPR commitments also satisfies the requirements of the TPAP Guide. Specifically, Section 4.3 of the Guide prescribes that the monitoring actions identified in the EPR respecting the mitigation measures must be carried out and reported.

A summary of EPR commitments is provided in **Table 7-2**. All applicable permits, licences, approvals and monitoring requirements under environmental laws will be reviewed, confirmed and obtained by Metrolinx prior to the construction of the Project.

In addition, an Environmental Mitigation and Monitoring Plan (EMMP) will be developed to outline the responsibility for carrying out monitoring and reporting activities, including timing and frequency of monitoring activities, as well as the compliance process. The EMMP will include all mitigation measures, categorized by project phase, and will identify the party responsible for implementation.

The following summarizes recommended monitoring to address the effectiveness of the proposed mitigation and/or restoration/compensation:

- **Environmental Monitors** will be on-site during key construction activities (e.g., vegetation removal), as required, to ensure compliance with environmental requirements.
  - On-site inspection and maintenance by an Environmental Monitor will be undertaken on a regular basis (e.g., monthly) or as required (e.g., following storm events) over the course of construction to ensure the effectiveness of erosion and sediment control measures and protective fencing.

  - On-site inspection will be undertaken on a monthly basis during construction to ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities. Construction and/or silt fencing will be repaired if it is damaged. Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.

- **Nest searches** by a qualified Biologist will be required immediately prior to vegetation removal, if construction activities are scheduled during the overall bird nesting season of April 1 to August 31. Nest searches should be completed under any bridge extension structures (e.g., those crossing Lower Jarvis Street, Lower Sherbourne Street, Parliament Street, and Cherry Street) and other suitable man-made structures along the USRC prior to the breeding bird season and the onset of construction activities in order to determine appropriate nesting preventative measures (e.g., netting).
- **Restoration/compensation and/or post-construction monitoring** may be required to ensure continued ecological function of natural features within or in the immediate vicinity of the rail ROW as identified through the Vegetation Compensation Protocol.
  - Post-planting monitoring of restoration areas would be required for two-years after installation. An annual site visit will be conducted during the appropriate growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken during the appropriate growing season. If additional seeding/or planting is undertaken after the second annual site visit, one additional monitoring visit will be required in the following growing season.
  - Additional restoration/compensation measures and/or monitoring may be required based on the results of additional surveys and consultations with the appropriate regulatory agency.

Table 7-2: Summary of Future Commitments

Project Components	Discipline	Project Phase	Commitments for Future Work
All Project Components	**All**	N/A	▪ Review the associated Regulations to confirm that that the *Impact Assessment Act* does not apply.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**All**	Detailed Design Construction Operation	▪ Implement mitigation measures and monitoring requirements documented in Tables 5-22, 5-23 and 5-24.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cherry Street Interlocking Tower**	Detailed Design	▪ Prepare a Conservation Plan for the Tower relocation and include its recommendations in Detailed Design. The Conservation Plan must address the mitigation measures and recommendations outlined in the Heritage Impact Assessment. ▪ Ensure that a conservator of heritage industrial equipment (or equivalent qualified professional) is included on the consultant team to document and catalogue the interlocking machinery and all its components and to advise on any selective removal, temporary storage, and reinstatement of components resulting from the structural bracing required to move the Tower.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cherry Street Interlocking Tower**	Prior to Relocation	▪ Ensure that a Condition Assessment is prepared for the Tower and this will document measured drawings, professionally taken photographs and video recordings of the Tower and equipment as it currently functions prior to decommissioning. ▪ Create an inventory of fixed and movable fittings, furnishings and artefacts and salvage them to the extent practical. ▪ Ensure that the interlocking equipment, identified as heritage attributes at the first and second levels of the Tower, remains in the relocated Tower to maintain its cultural heritage value. ▪ Ensure that the lowest storey of the building at the new location is a concrete structure reproducing the existing arrangement. ▪ Undertake any necessary temporary repairs identified in the Conservation Plan. ▪ Implement protective measures (e.g., selective removal, stabilization and bracing systems) identified in the Conservation Plan.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cherry Street Interlocking Tower**	Post Relocation	▪ Prepare a post relocation Condition Assessment Report to identify any necessary repairs resulting from the relocation. ▪ Ensure that the relocated building is restored, including all measures identified in the Condition Assessment Report and heritage attributes such as the masonry, existing windows and doors, existing roof structure, interior components, finishes and the interlocking machinery. Components that cannot be retained in the reconstructed basement should be offered to interested railway heritage agencies for their collections through a recognized process of de-accession, or relocated elsewhere in the Tower. ▪ Ensure that all necessary repairs identified in the Condition Assessment Report are undertaken. ▪ Reinstate the iron guard rail fencing on the extended Cherry Street Bridge. ▪ Prepare and implement an Interpretive Plan or specialized public program for the Tower and equipment to interpret its original function. ▪ Prepare a Strategic Conservation Plan for the Tower.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Consultation**	Detailed Design	▪ Continue to consult and co-ordinate with the City of Toronto on their plans for Lower Yonge Precinct Plan and Lower Yonge Transportation Master Plan EA as required. ▪ Continue to co-ordinate with the developers of the Trinity Street Pedestrian Underpass and the 31R Parliament Street, 370R & 370 Cherry Street Future Development. ▪ Co-ordinate with the City of Toronto and the TTC on their plans for the design of the Light Rail Transit alignment under the rail corridor at Cherry Street and the connection enhancements under the rail corridor at Parliament Street and Cherry Street. ▪ Continued communication with the neighbouring communities will occur throughout the Detailed Design and construction process. ▪ Consult the owners of billboards to be relocated or removed as a result of construction works. Co-ordination will occur with the property owners during the Detailed Design phase to reach an agreement of relocation/removal and future maintenance requirements. ▪ Continue to consult with utility providers with the intent to minimize service interruptions. ▪ Engage TRCA throughout Detailed Design through the Voluntary Project Review Process. ▪ Work with the CAC to develop a shared understanding of commitments/activities to be completed by Metrolinx to address community concerns associated with ongoing existing operational and construction related effects.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Consultation**	Prior to Construction	▪ Notify Transport Canada's Ontario Regional Railway Safety Directorate office, the City of Toronto, and all abutting landowners 60 days before the date of commencement of the proposed railway works.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Contamination**	Detailed Design	▪ Undertake a Phase I ESA investigation for any additional lands required for the Project (both permanent and temporary).

Project Components	Discipline	Project Phase	Commitments for Future Work
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cultural Environment**	Detailed Design	▪ Reassess the need for further archaeological work based on the final LOD. ▪ Ensure that Stage 2 monitoring occurs for areas of archaeological potential identified within or crossing over the LOD if construction disturbance should reach a depth of 76 m ASL (1 to 7 m). ▪ Complete Heritage Impact Assessments for the four underpasses; Lower Jarvis Street Bridge, Lower Sherbourne Street Bridge, Parliament Street Bridge and Cherry Street Bridge. ▪ Continue to engage with the City of Toronto Heritage Preservation Services and MTCS as the Project progresses regarding the findings of any Heritage Impact Assessments and further archaeological assessments.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Cultural Environment**	Construction	▪ Ensure that no grading or other activities that may result in the destruction or disturbance of an archaeological site are undertaken until notice of MTCS approval has been received.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Erosion and Sediment Control**	Detailed Design and Construction	▪ Develop an Erosion and Sediment Control Plan in consultation with TRCA (through the Voluntary Project Review process).
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Soil and Groundwater**	Detailed Design	▪ Ensure that registration on the Environmental Activity and Sector Registry (EASR) occurs for dewatering between 50,000 and 400,000 L/day or a Permit to take Water (PTTW) is obtained from the MECP if dewatering exceeds 400,000 L/day. ▪ Obtain approvals for the discharge of pumped water to the City's storm sewer, which could include one or a combination of Municipal Discharge Permits, Conservation Authority Approval (through the Voluntary Project Review process), and/or MECP Environmental Compliance Approval (ECA) (OWRA, Section 53). ▪ Circulate reports relating to potential impacts on soils and groundwater for lands owned by the City to the City of Toronto's Engineering & Construction Services, Soil & Groundwater Unit for review. ▪ Prepare a Spill Prevention and Response Plan, outlining steps to prevent and contain any contaminant releases and/or to avoid impacts to groundwater.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Natural Environment**	Detailed Design	▪ Complete an Arborist Report which will assess the potential removal, injury, and preservation of trees, as well as permitting details and compensation measures. ▪ Consult the MNRF to confirm the initial SAR screening assessment, to identify the need for any additional SAR-targeted surveys, and to confirm whether an authorization or permit under the ESA, 2007 is required.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Noise and Vibration**	Detailed Design and Pre-Construction	▪ Develop a construction monitoring program, which will include existing condition assessments of adjacent buildings and residences and evaluate the need for monitoring during construction of sensitive features (to be determined during Detailed Design).
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Public Realm**	Detailed Design	▪ Fund a Pedestrian and Cycling Connectivity Study to look at options to address connectivity in the Study Area. The underpass improvements will be studied as part of the Pedestrian and Cycling Connectivity Study. ▪ Continue to work with Waterfront Toronto and the City of Toronto to determine the way forward in terms of funding recommendations and implementation strategies based on the outcomes of the Pedestrian and Cycling Connectivity Study. ▪ Continue to co-ordinate with the City of Toronto and Waterfront Toronto regarding the public realm elements of the Gardiner EA and East Bayfront Public Art Master Plan that interact with the USRC East Enhancements Project. ▪ Continue to meet with the (CAC) to obtain input with respect to the retaining walls, bridge extensions and other issues that have been raised at CAC meetings, as per the CAC Terms of Reference. ▪ Ongoing consultation with the City of Toronto, Waterfront Toronto, TRCA and the neighbouring communities to inform a vision, design and integration approach for public realm and public facing elements.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Public Realm**	Post Construction	▪ Conduct post-planting monitoring of landscaped areas. Should the plantings and/or seed mix not survive, additional seeding and/or plantings shall be undertaken with additional monitoring during the growing season, as per the landscaping warranty. In addition, public facing retaining walls and landscaped areas on Metrolinx property will undergo routine maintenance.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Recreational Uses, Active Transportation, Trails & Parks and Open Spaces**	Construction	▪ Develop a Lighting Plan and implement Best Management Practices related to lighting.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Stormwater Management**	Detailed Design	▪ Develop a Stormwater Management Report to assess drainage impacts of Tracks E0, E7, and E8, and all associated works in the area. Stormwater Management Report will be co-ordinated in consultation with TRCA and through the Waterfront Toronto design process. ▪ Develop a Flood Contingency Plan for any proposed works or temporary laydown areas and staging areas that are located within the floodplain at the Detailed Design phase.

Project Components	Discipline	Project Phase	Commitments for Future Work
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Traffic and Active Transportation**	Detailed Design	▪ Develop staging plans, including potential detour routes, measures to minimize impacts to pedestrians and cyclists such as timing of bridge extension construction and limiting concurrent construction on underpasses that are adjacent to each other, construction ingress and egress and laydown areas, according to traffic impacts, and co-ordinating staging plans with other projects that will be taking place in the area. ▪ Continue to co-ordinate with the City of Toronto, Waterfront Toronto, Emergency Services and transit providers (i.e., the TTC) regarding mitigation of traffic, cyclist and pedestrian impacts during Detailed Design. ▪ Continue to co-ordinate with the City of Toronto and Waterfront Toronto with respect to service access points near intersections with the Gardiner Public Realm project to avoid safety issues and conflicts with the bicycle and pedestrian trails on the north side of the Gardiner. ▪ Notify the City of Toronto and TTC in advance of any closures or detour routes.
All Project Components (with the exception of the Wilson Yard Layover Facility)	**Utilities**	Detailed Design	▪ Metrolinx will obtain MECP Environmental Compliance Approval (ECA) for connecting to existing sewers, where applicable. No realignment of sewers are anticipated. ▪ Bridgework for Tracks E0, E7 and E8 works will likely require realignment of watermains, thus, a DWWP will be acquired in Detailed Design. ▪ Ensure that any impacts to existing City owner utilities are noted and adequately resolved during the Detailed Design Submission to the City of Toronto. ▪ Continue to co-ordinate with the City of Toronto and Waterfront Toronto with regard to utility relocation needs between different projects in the area.
Wilson Yard Layover Facility	N/A	N/A	▪ Prepare an Addendum to the USRC East Enhancements Project TPAP (once approved), if required based on the preparation of a more detailed level of design for the Wilson Yard Layover Facility. It is noted that if the TPAP Addendum is required, the City of Toronto, Waterfront Toronto, TRCA, TTC, Hydro One, Toronto Hydro, Enbridge and the neighbouring communities will be engaged as appropriate. ▪ Review the associated Regulations to confirm whether the changes affect permitting requirements once the new the *Fisheries Act* is in place.
Wilson Yard Layover Facility	**All**	Detailed Design Construction Operation	▪ Ensure that all mitigation measures and monitoring requirements documented in Tables 5-22, 5-23 and 5-24 are implemented.
Wilson Yard Layover Facility	**All**	Detailed Design	▪ Confirm retaining wall and embankment requirements as well as access requirements in consultation with the City of Toronto, Waterfront Toronto, TRCA, Hydro One, Toronto Hydro and Enbridge. ▪ Continue to co-ordinate with the City of Toronto, Waterfront Toronto and TRCA regarding the elements of the Sediment and Debris Management Area, Cherry Street Stormwater Facility, Lower Don River Trail and Gardiner EA. ▪ Continue to co-ordinate with Waterfront Toronto, the City of Toronto and TRCA to ensure that necessary realignments and/or temporary detours of the Lower Don River Trail are in place for the construction of the Wilson Yard Layover Facility and realigned Harbour Lead. ▪ Continue to co-ordinate with Enbridge regarding their plans in the vicinity of the Wilson Yard Layover Facility. ▪ Continue to co-ordinate with Hydro One to obtain an agreement with respect to the relocation of the overhead power lines and buried cables.
Wilson Yard Layover Facility	**Natural Environment**	Detailed Design	▪ Discuss the suitability of the cultural woodlands as potential SAR bat habitat within and adjacent to the Wilson Yard Layover Facility with the MNRF Aurora District office and confirm the need for any additional surveys.
Wilson Yard Layover Facility	**Stormwater Management**	Detailed Design	▪ Prepare a Stormwater Management Report to assess drainage impacts of the Wilson Yard Layover Facility in consultation with TRCA, Waterfront Toronto and the City of Toronto. ▪ Prepare a Drainage Plan as part of Detailed Design.
Wilson Yard Layover Facility	**Utilities**	Detailed Design	▪ Show protection measures for the 3000 mm Storm Tunnel from Cherry Street to Keating Channel for any foreseen impacts, if any, as part of the Detailed Design submission. ▪ Show protection measures for the existing watermain (460 mm) on the east side of Don Yard and the Wilson Yard Layover Facility. ▪ Continue to inform the City of Toronto and Waterfront Toronto of utility relocation plans. ▪ Any connections to and realignment of storm sewers will have the required ECAs where applicable. Confirmation of required approvals for sewer and watermain impacts will be provided during detailed design of Wilson Yard.
Wilson Yard Layover Facility	**Contamination**	Detailed Design	▪ Undertake a Phase I ESA investigation for any additional lands required for the Project (both permanent and temporary).
Wilson Yard Layover Facility	**Soil and Groundwater**	Detailed Design	▪ Circulate reports relating to potential impacts on soils and groundwater for lands owned by the City to the City of Toronto's Engineering & Construction Services, Soil & Groundwater Unit for review.

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