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DAVENPORT DIAMOND GRADE SEPARATION

TRANSIT PROJECT ASSESSMENT PROCESS
ENVIRONMENTAL PROJECT REPORT

MAY 2016

VOLUME 1 – REPORT

AECOM Canada Ltd.

Metrolinx

Davenport Diamond Grade Separation Environmental Project Report

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List of Acronyms

AODA	*Accessibility for Ontarians with Disabilities Act*
APTA	American Public Transportation Association
CHER	Cultural Heritage Evaluation Report
CHSR	Cultural Heritage Screening Report
CN	Canadian National Rail
CO	Carbon Monoxide
CMP	Compliance Monitoring Plan
CP	Canadian Pacific Rail
CPTED	Crime Prevention Through Environmental Design
dBA	Decibels
DBH	Diameter Breast Height
DRM	Design Reference Manual
EA	Environmental Assessment
EA Act	*Environmental Assessment Act*
EASR	Environmental Activity Sector Registry
EB	Eastbound
EBL	Eastbound Left Turn Lane
EBR	Eastbound Right Turn Lane
EBT	Eastbound Through Lane
ELC	Ecological Land Classification
EMMP	Environmental Mitigation and Monitoring Plan
EPR	Environmental Project Report
ERIS	EcoLog Environmental Risk Information System
ESA	Environmental Site Assessment
ESC	Erosion and Sediment Control
FTA	United States Department of Transportation's Federal Transit Authority
GGH	Greater Golden Horseshoe
GHG	Greenhouse Gas
GTHA	Greater Toronto and Hamilton Area
HPS	City of Toronto Heritage Preservation Services

INAC	Indian and Northern Affairs Canada
LOS	Level of Service
LRT	Light Rail Transit
MOECC	Ontario Ministry of the Environment and Climate Change
MMAH	Ontario Ministry of Municipal Affairs and Housing
MNRF	Ontario Ministry of Natural Resources and Forestry
MSE	Mechanically Stabilized Earth
NB	Northbound
NBL	Northbound Left
NBR	Northbound Right
NHIC	Natural Heritage Information Centre
NO2	Nitrogen Dioxide
O. Reg.	Ontario Regulation
OHA	*Ontario Heritage Act*
ORNAMENT	Ontario Road Noise Analysis Method for Environment and Transportation
PAH	Polycyclic Aromatic Hydrocarbons
PCA	Potentially Contaminating Activities
PCB	Polychlorinated Byphenyls
PHC	Petroleum Hydrocarbons
PM2.5	Particulate Matter less than 2.5 microns
PPS	Provincial Policy Statement
PRA	Public Realm Account
PTTW	Permit to Take Water
RER	Regional Express Rail
ROW	Right-of-way
RMS	Root Mean Square
RSC	Record of Site Condition
RTP	Regional Transportation Plan
S/D	Subdivision
S&GPHP	Standards and Guidelines for Conservation of Provincial Heritage Properties
SAR	Species at Risk

SB	Southbound
SBL	Southbound Left
SBT	Southbound Through
SO2	Sulphur Dioxide
TMC	Turning Movement Counts
TPAP	Transit Project Assessment Project
TPG	Through Plate Girder
TRCA	Toronto and Region Conservation Authority
TTC	Toronto Transit Commission
UITP	International Association for Public Transport
V/C	Volume to Capacity Ratio
VOC	Volatile Organic Compound
WB	Westbound
WBL	Westbound Left
WBR	Westbound Right

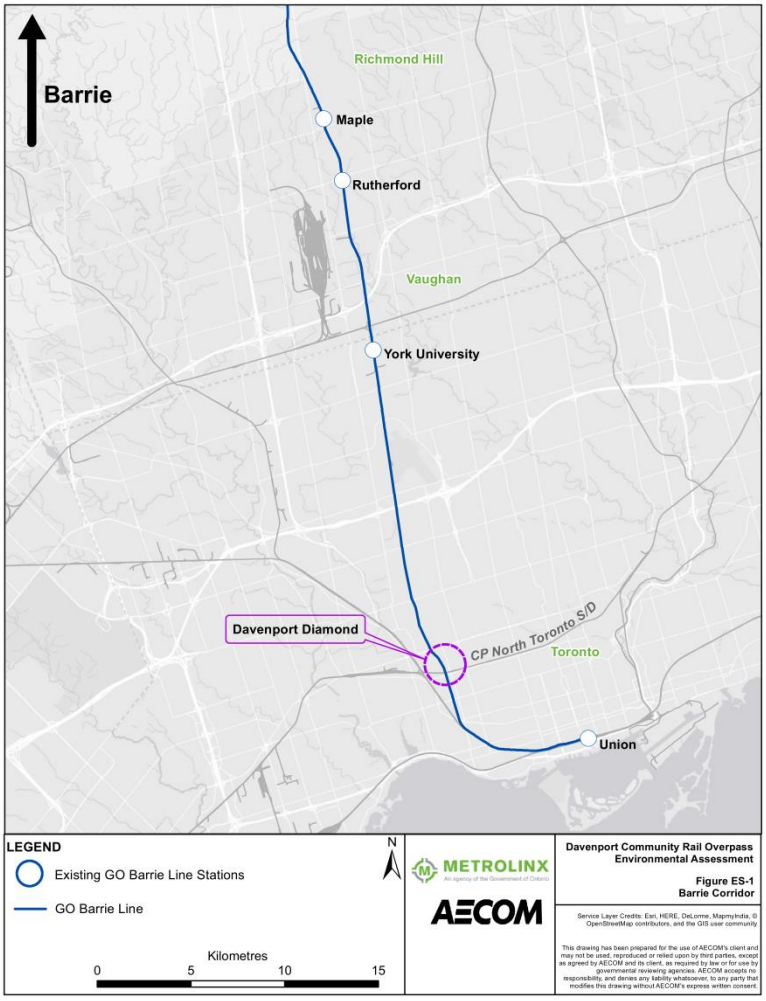
Executive Summary

A. Introduction

Overview

Metrolinx is completing this Davenport Community Rail Overpass study in accordance with the Transit Project Assessment Process (TPAP) under Ontario Regulation (O. Reg.) 231/08 – *Transit Projects and Metrolinx Undertakings*. The Project consists of grade separating an existing at-grade rail crossing (known as the Davenport Diamond) within the GO Barrie Corridor in the vicinity of Davenport Road in the City of Toronto (see **Figure ES-1**). The new grade separation will eliminate the Davenport Diamond, one of the busiest railway intersections in North America, where Canadian Pacific (CP) freight trains (east-west) and GO trains (north-south) intersect.

Figure ES-1 GO Barrie Corridor



The Study Area for this Environmental Project Report (EPR) encompasses the GO Barrie Corridor from south of Bloor Street (Mile 3.91) to north of Davenport Road (Mile 4.87), and from Lansdowne Avenue in the east to Symington Avenue in the west. The Davenport Diamond is located towards the northern end of the Study Area to the south of Davenport Road (see **Figure ES-2**).

Figure ES-2 Davenport Community Rail Overpass EPR Study Area

Regional Express Rail

As part of the Regional Express Rail (RER) program, it is anticipated that by 2025, a 15 minute bi-directional service will be introduced along the GO Barrie Corridor, with improvements in rail service being phased in over several years. The current level of service for the GO Barrie line is 14 trains per weekday (7 in each peak direction – southbound in the morning to Union Station and northbound from Union Station in the evening); there is no GO train service on the Barrie line on weekends (with the exception of some limited summer service). In order to achieve a 15 minute, bi-directional service, the current peak service level of 14 trains per day will be increased over time as infrastructure on the GO Barrie Corridor is upgraded and new rolling stock is added to the train fleet. The exact timing of service increases has yet to be determined, but may be described as follows:

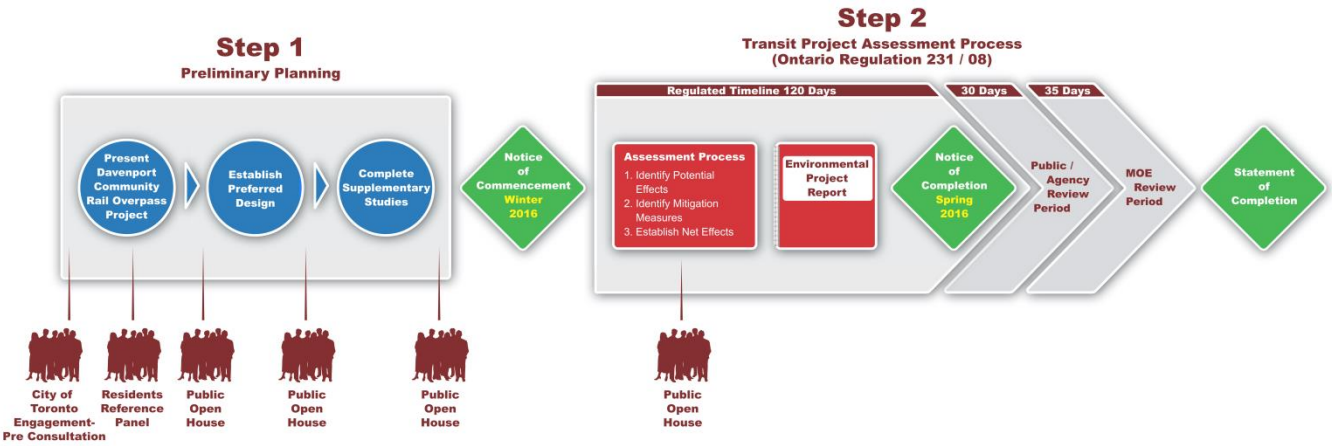
- 36 train trips per day service level, comprising increased peak service as well as hourly midday service prior to electrification; and
- 180 train trips per day service level, comprising increased peak service as well as 15-minute service after electrification.

This EPR addresses the impacts of these service scenarios in the vicinity of the Davenport Diamond. The full RER service scenario is modelled in separate studies completed for the GO Barrie Corridor and for the system-wide electrification project.

Planning Process

This EPR documents the TPAP undertaken for the Davenport Community Rail Overpass in accordance with O. Reg. 231/08. The EPR documents the existing environmental conditions, anticipated effects of the Project on the environment, associated mitigation measures, consultation activities and future commitments. The Davenport Community Rail Overpass planning process timeline is illustrated in **Figure ES-3**. For additional information on the planning process, refer to Section 1.5 of the EPR.

Figure ES-3 Davenport Diamond Grade Separation Planning Process



B. Project Description

The Davenport Diamond Grade Separation Feasibility Study Update (HMM, 2015) provided an evaluation of alternatives and determined the preferred design concept be a new Rail Overpass. The Project is a critical component of the GO Barrie Corridor service expansion to achieve RER and includes a new grade separated GO-over-CP rail overpass structure and multi-use pathway. The 2015 Feasibility Study Update was released publicly on the project website (http://www.metrolinx.com/en/regionalplanning/rer/Davenport_Feasibility_Study-Main_Report_EN.pdf) on September 30, 2015.

Elements of the Preferred Design

The proposed rail overpass and track work includes the following key elements:

- Two tracks;
- 570 m bridge structure with approximately 34 pairs of piers and deck-mounted 2 metre high noise wall;
- 400 m long southern berm and 450 m northern berm;
- Bermed green walls or vertical retaining walls will be constructed at the south and north end approaches of the grade separation;
- 3-span continuous post tensioned voided cast-in place slab structures over Wallace Avenue (with Wallace Avenue slightly lowered) and Dupont Street;
- Pre-stressed, precast concrete box structures extending between the Wallace Avenue and Dupont Street bridges;

- Through plate girder (TPG) span at CP North Toronto subdivision;
- Provisions for Overhead Catenary System and
- “Skylight” gap in the bridge structure between the tracks running the length of the overpass.

At track level, the rail overpass will contain standard rail signaling, switching, communications, and safety items. Provisions will be made for future electrification infrastructure, including the proposed Overhead Catenary System (OCS) pole layout locations and associated clearance envelopes.

Greenway Multi-Use Path

The Greenway multi-use path will form a key component of the preferred design and will include:

- New multi-use path in the rail Right-of-Way (ROW), extending 1.4 km from Bloor Street to Davenport Road;
- Landscaping and planting elements;
- LED lighting;
- New east-west connections at Paton Avenue, Wallace Square and Antler Street within the rail ROW;
- Pedestrian and cycling bridge over the CP tracks and crossing Dupont Street;
- Enhanced connections for transit (including protection for a potential future station at Bloor Street West not precluding a further extension of the multi-use connection, south of Bloor Street West); and
- Opportunities for public art spaces.

The Greenway multi-use path will be adjacent to the berms at the north and south ends and run under or adjacent to the bridge structure. The Greenway Multi-use path will adhere to current City of Toronto design standards, where feasible.

For additional information on the preferred design, refer to Section 2 of the EPR. Figures and visualizations illustrating the preferred design can also be found in Section 2 (**Figures 4-22**) of the EPR.

C. Impact Assessment of the Preferred Design

It is recognized that the construction and operation of the Davenport Community Rail Overpass may result in both positive and negative effects on the existing environment which are categorized under Natural Environment; Socio-Economic Environment; Cultural Heritage and Archaeology; and Urban Infrastructure and Operations.

Table ES-1 provides details of the potential environmental effects and their associated mitigation measures and monitoring requirements to ensure minimal environmental impact. Consultation with stakeholders occurred prior to, and during key decision points in the TPAP, and the outcome of consultation was considered throughout the impact assessment of the preferred design. For additional information regarding the impact assessment, refer to Section 4 of the EPR. For additional details regarding consultation, refer to Section 5 of the EPR.

Table ES-1 Potential Environmental Effects, Mitigation Measures and Monitoring

Potential Effect	Mitigation Measures	Monitoring
Natural Environment		
Flora		
Removal of vegetation	• Clearing and grubbing will be governed by Ontario Provincial Standard Specifications 201 (Construction Specification for Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders); • Vegetation removal will be limited to the extent necessary for construction and will be contained within the rail ROW; and • ROW will be revegetated per the approved landscaping plan develop during detail design.	• Monitor construction activities to ensure disturbance to vegetation is minimized. • Monitor construction activities to ensure equipment and machinery is contained in the designated staging areas and work zones. • Monitor construction to ensure that topsoil is being separated from other soil materials.
Removal of trees	• Protection of trees in accordance to City of Toronto Tree Protection Policy and Specifications for Construction Near Trees (June, 2013), where applicable. Metrolinx will work with authorities, as necessary, to obtain all applicable permits and approvals. • The potential for transplanting a Sweet Chestnut should be determined during detail design, located along the west side of the GO Barrie Corridor, in between Wallace Avenue and Paton Road. • Tree removal, restoration, and compensation plans will be prepared during detail design, in consultation with affected property owners. For trees in Campbell Avenue Park, recommended mitigation measures include: • Minimize or avoid heat effects - use matte or brushed finishes for stainless steel along the entire park length; or use different low-reflective material here for commissioned art panels; • Consider permeable pavers and non-limestone bedding courses within critical root zones; and • Consider low-albedo paving and concrete treatments to mitigate building up of heat adjacent to trees. For trees in Erwin Krickhahn Park, recommended mitigation measures include: • Minimize or avoid heat effects - use matte or brushed finishes for stainless steel along areas with mature or semi-mature trees; or use different low-reflective material here for commissioned art panels; and • Consider aggregate drainage trenches between existing mature/semi-mature trees and new guideway and cladding to mitigate optimal drainage and water management.	• Monitor installation of silt fencing and/or tree protection fencing to ensure it is constructed properly and thereafter monitor fencing to ensure it is properly maintained. • Monitor installation of tree protection barriers to ensure they are constructed properly and thereafter monitor fencing to ensure it is properly maintained. • Monitor installation of compensation plantings to ensure they are installed properly. • Monitor that trees protection measures are installed correctly and in good repair.
Fauna		
Disturbance to migratory birds	• No vegetation clearing occur between April 1 and August 30 unless the area is cleared by an avian specialist or following guidance from MNRF regarding a more specific window.	• Monitor to ensure construction activities do not interfere with any active nests of protected migratory birds, if construction activities are to occur during the core breeding bird period. • Monitor to ensure any construction activities that may result in the destruction of active nests of protected migratory birds are mitigated through discussion between Metrolinx, MNRF and Environment Canada.
Disturbance to Milk snakes	• Consider using silt fencing without mesh reinforcement.	• Monitor that any milk snakes encountered are reported that

Potential Effect	Mitigation Measures	Monitoring
		no harm comes to them during construction.
Displacement of structures for Chimney Swifts (SAR)	• Caution should be used when working near the chimney structure at Bloor Street West (directly adjacent to the GO Barrie Corridor) and the north side of Wallace Avenue, during the nesting period of the Chimney Swift from June 1 to August 15 to avoid harming individuals of this species. • If a SAR species is observed during construction, the MNRF should be contacted to discuss appropriate action.	• If the chimney structure at Bloor Street West is determined not to be sealed or capped, monitor the structure during the appropriate timing windows (as per Bird Studies Canada survey protocols and consultation with MNRF) to determine if Chimney Swift are present.
Soils and Groundwater		
Disturbance of contaminated soil during construction	• Prepare a soil and groundwater management plan by a Qualified Person as per O. Reg. 153/04, as amended, prior to construction for managing soil materials onsite (including excavation, location of stockpiles, reuse, and offsite disposal). The soil and groundwater management plan shall be prepared in accordance with Management of Excess Soil - A Guide for Best Management Practices (MOECC 2014), and industry best practices. A copy of the soil and groundwater management plan will be provided to MOECC, Toronto District office for comment. • A Record of Site Condition (RSC) for the Greenway will be completed and filed with the MOECC demonstrating that the soil and groundwater meet the applicable Standards. The work necessary to obtain the RSC may involve conducting a risk assessment, completing remediation, or a combination thereof. If a risk assessment is conducted it will involve rigorous review and approval by the MOECC and there will be requirements for clean fill caps and/or hardscape barriers to ensure that human and ecological health is protected in a manner equal to what would be achieved through a generic remediation approach. • Develop and implement an Environmental Spills Prevention and Response Plan to ensure proper mitigation and notification procedures are in place during construction. • For effects on surface water quality, groundwater quality samples would be collected prior to construction and this information used to develop an appropriate water discharge plan. Further, if required, the water discharge plan would provide a discharge methodology that protects surface water quality. • Conduct a construction dewatering assessment prior to construction to determine if a Permit to Take Water or Environmental Activity Sector Registry is required. Should either be required, include recommendations for monitoring (e.g., pumping rate/volume monitoring, groundwater level monitoring and groundwater discharge monitoring) during construction dewatering for any potential adverse effects identified during the dewatering assessment. • Based on the findings of the Phase One ESA, a Phase Two ESA is recommended. The Phase Two ESA is currently being undertaken and will be completed during detailed design.	• Perform regular inspections to ensure that equipment and stockpiles do not extend beyond construction areas. • ESC measures shall be inspected to ensure they are functioning and are maintained as required. If ESC measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities. • Monitor the movement of soils to ensure the SMP is followed.
Land Use and Community Impacts		
Visual impact of elevated structure on adjacent communities	• This Project will continue be subject to a joint Design Review Panel process with the City of Toronto during detail design that addresses architecture, aesthetics and corporate identity considerations. • Building on the recommendation of the Residents Reference Panel (**Appendix K**), Metrolinx will continue the process of engagement with the City and the community through the Community Advisory Committee to assist in the development of design elements during the detail design process.	• N/A

Potential Effect	Mitigation Measures	Monitoring
	• Berms will be part of the design, to eliminate short and inaccessible spaces at either ends of the bridge structure. CPTED principles will be followed in detail design. • Develop a lighting plan during detail design to light the multi-use trail at nighttime.. • Metrolinx is committed to coordinate with the City of Toronto over integration with future planned works.	
Undesirable environments below the rail structure	• This Project will continue be subject to a joint Design Review Panel process with the City of Toronto during detail design that addresses architecture, aesthetics and corporate identity considerations. • Building on the recommendation of the Residents Panel (**Appendix K**), Metrolinx will continue the process of engagement with the City and the community to develop specific visual design details during the detail design process. • Berms will be part of the design, to eliminate short and inaccessible spaces at either ends of the bridge structure. • Crime Prevention Through Environmental Design (CPTED) principles will be followed in detail design. • Develop a lighting plan during detail design to light the multi-use trail at nighttime.	• N/A
Business and Economic Impacts		
Potential negative impacts to businesses sensitive to noise and Vibration (e.g., Ubisoft)	• During detail design, Metrolinx to work with Ubisoft to understand how they currently operate and determine potential noise and vibration mitigation.	• Monitor construction noise regularly to ensure that noise control measures are being adequately applied. If noise control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Localized traffic impacts related to construction vehicles or traffic diversions	• Develop a traffic management plan(s) prior to construction. • Maintain existing crossing roads in operation (minimum one lane per direction) throughout the construction period (excluding brief overnight closures).	• Monitor that the traffic management plan is effective in mitigating localized construction impacts.
Noise & Vibration		
Noise – Construction		
Increase in noise levels due to construction activity	• All equipment used must adhere to guidelines as placed in MOE's NPC-115 guidelines for construction equipment. • Whenever possible, work zone and time will adhere to local municipal by laws as a best practice. Metrolinx, however, is not required to adhere to municipal by-laws. • Every effort should be made to minimize impacts on the neighbourhood by limiting nighttime noisy activities. • Trains passing construction zones may be required to use bells and/or whistles to warn construction personnel for safety reasons. This should be minimized as much as practical while ensuring the safety of everyone involved. • Construction equipment has safety features such as backup alarms while backing up (beeping sound). This is for the protection and safety of the workers, and is legally required. Consideration will be given to the use of broadband rather than tonal backup beepers. • It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This	• Monitor construction noise regularly to ensure that noise control measures are being adequately applied. If noise control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.

Potential Effect	Mitigation Measures	Monitoring
	may entail occasional monitoring of vibration levels during construction. • A proactive communications protocol is recommended that would advise residents in advance of nighttime construction or particularly noisy construction at any time. • A more detailed noise assessment of construction should be completed when the specifics of construction equipment are finalized. This assessment should consider minimizing construction related noise and levels, while balancing construction schedules and expediting construction activity. • Complete a noise monitoring plan during detail design.	
Noise – Operation		
Potential increase in noise levels	• A 2.0 m high noise barrier has been recommended along the overpass and ramps for the entire Study Area. This short noise barrier's purpose is to provide clearly noticeable and significant (5 dB or more) reductions in electric train noise while minimizing the visual impact associated with a barrier located on an elevated overpass and berm. Taller noise barriers can be considered as the tracks begin returning to grade, provided the visual impact does not offset the acoustic benefit offered by taller noise barriers. Taller noise barriers as the tracks return to grade will be reviewed during Detailed Design. • At Ubisoft (Receptor 68) has been identified as a commercial receptor particularly sensitive to noise and vibration from the railway, the recommended noise barrier provides a significant reduction in the sound levels. This reduction is achieved at the closest façade of the building to the railway, where the railway noise is highest. At increased setbacks, the sound level from the railway will be lower but the barrier benefit will also decrease. The construction of the noise barrier and the electrification of the corridor will produce significant reductions in the air-borne noise generated by the railway within Ubisoft's facility. A more detailed analysis of the noise impact at Ubisoft is recommended during detailed design.	• N/A
Vibration – Construction		
Potential increase in vibration during construction	• A proactive communications protocol is recommended that would advise residents in advance of nighttime construction. • A more detailed vibration assessment of construction should be completed when the specifics of construction equipment are finalized prior to construction start. This assessment should consider minimizing construction related noise and vibration levels, while balancing construction schedules and expediting construction activity. • Consideration should be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage. • It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail monitoring of vibration levels during construction. Vibration levels will be confirmed during detail design. • Complete a vibration monitoring plan during detail design.	• Consideration should be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage. • Monitor construction vibration regularly to ensure that vibration control measures are being adequately applied. If vibration control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Vibration – Operation		
Potential increase in vibration during operation	• During detail design, once location of piers supporting the aerial guideway have been determined, a more detailed prediction of the vibration levels within the vicinity of the piers should be conducted, to verify that the vibration levels will not increase at receptors near the piers. A more detailed noise and vibration assessment should also be conducted once details of the preferred electric locomotive have been determined.	• N/A

Potential Effect	Mitigation Measures	Monitoring
	• A more detailed review should be conducted to specifically identify the design parameters (in terms of sound and vibration levels) at the Ubisoft business location.	
Air Quality		
Construction		
Potential for nuisance dust and emissions during construction	Prepare and implement a dust management plan for construction activities based on industry best practice to mitigate impacts through the use of proper controls such as: • Periodic watering of unpaved (non-vegetated) areas; • Seeding/re-vegetating exposed soil; • Periodic watering of stockpiles; • Limiting the speed of construction vehicular travel; • Covering trucks hauling excess material; • Sweeping and/or water flushing of the entrances to the construction zones; and • Installing silt fences around site perimeter to prevent dust migration. It is also recommended that mitigation measures detailed in "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)[1]" be implemented, where practical.	• Regular inspection of construction work zones to ensure that dust suppression measures are being adequately applied. If dust suppression measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Operational		
Potential for nuisance dust and emissions during operations	• Mitigation measures related to air quality during the operational phase of the Project are not required.	• N/A
Cultural Heritage		
Effects on cultural heritage resources	• A Cultural Heritage Evaluation Report (CHER) will be completed for properties owned by Metrolinx that may be impacted by the Project (Bloor Street West Subway, Dupont Street Railway and Davenport Road Subway). • For provincial properties owned by Hydro One that will be impacted by the Project, a CHER will be completed by Hydro One or by Metrolinx on behalf of and with the agreement of Hydro One. • For properties owned by the City of Toronto that will be impacted by the Project, a CHER will be completed by the City of Toronto or by Metrolinx on behalf of and with agreement of the City of Toronto. • A review will be completed during detailed design to confirm that the design has not changed in the area of any properties with identified or potential heritage value. If design affects heritage value, a Heritage Impact Assessment (HIA) will be completed. • Cultural heritage related approvals will also be confirmed during detailed design.	• Monitor to confirm that staging/construction activities avoid cultural heritage resources.
Archaeology		
Effects on archaeological resources	• Should the project extend beyond the existing Rail ROW identified in the Stage 1 archaeological assessment (refer to **Appendix H**), then additional archaeological work may be required.	• N/A

[1] *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Cheminfo Services, March 2005.*

Potential Effect	Mitigation Measures	Monitoring
	• The detailed design will be reviewed to ensure that the scope of the project was captured within the area cleared of archaeological potential. • Should previously unknown or unassessed deeply buried archaeological resources be uncovered during development, alteration of the site must immediately cease; Metrolinx shall engage a licensed archaeologist to carry out archaeological fieldwork in compliance with the Ontario Heritage Act. • Any person discovering human remains must immediately notify the police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services.	
Rail		
Effects on CP Rail operations	• Mitigation measures will be reviewed during detail design, in consultation with CP Rail. • MSE walls and piers should be treated with graffiti resistant paints and be able to be subjected to pressure washing in accordance with Design Reference Manual (DRM) Architectural Finishes requirements (CI-0701).	• N/A
Traffic		
Potential localized traffic impacts related to construction vehicles or traffic diversions	• A traffic management plan(s) will be developed and reviewed by the City of Toronto prior to construction activities. • The construction contractor will determine their own haul routes in consultation with the City of Toronto through developing a Construction Management Plan. • It is suggested that intersections along detour routes and adjacent to the construction area be monitored for congestions and adjust signal timing plans and phasing as required, and in consultation with the City of Toronto. As noted in the Traffic Impact Assessment Report in **Appendix I:**: • Prohibit on street parking and/or stopping during construction through the AM and PM peak hours on Wallace Avenue (between Symington Avenue and Lansdowne Avenue); Bloor Street West (between Helens Avenue and Lansdowne Avenue); Symington Avenue (between Dupont Street and Bloor Street West); and Lansdowne Avenue (between Dupont Street and Bloor Street West); • Consider protected phase for eastbound left turn at intersection of Symington Avenue and Bloor Street West; • Hold a pre-tender meeting with City of Toronto; • Hold a pre-construction meeting between the design team, City of Toronto, police, fire, and EMS. • Discuss work zone co-ordination/conflicts with City of Toronto; • Discuss closure of Wallace Avenue with TTC; • Advise local residents and motorists of Wallace Avenue closure; • Encourage public to consider use of alternate modes of travel; • Maintain pedestrian and cyclist access through work zone, if possible; • Use variable message signs to provide anticipated travel time alerts; and • Consider extension of daily construction working hours. Metrolinx will complete an evaluation of construction traffic on area roads. Metrolinx will also	• Regular monitoring of construction access operations.

Potential Effect	Mitigation Measures	Monitoring
	provide a Construction Management Plan to the City of Toronto.	
Drainage and Stormwater Management		
Potential impacts to be confirmed during detail design	• Develop a stormwater management strategy including mitigation measures during detail design.	• N/A
Utilities		
Significant impacts to utilities are not anticipated	• Utility companies will be contacted during detail design to establish any specific mitigation required in order to reduce potential temporary disruption to usage. • During detailed design, Metrolinx will coordinate with the City of Toronto regarding utilities. • Metrolinx will coordinate with the City of Toronto Capital Works Program on works proposed within this vicinity.	• N/A
Property		
Potential property acquisition requirements	• A legal survey will be completed during detailed design to confirm property impacts. • Undertake a review during the early stages of detail design to identify temporary easements for construction or other purposes, to accommodate the project work. • Engage and negotiate with affected owners regarding easements that may be required for the works.	• N/A

D. Consultation Process

Consultation was undertaken in accordance with Section 8 of Ontario Regulation 231/08. As part of the consultation process, a Project Mailing List was developed and continually updated in response to Project feedback and was utilized to inform stakeholders of key consultation milestones. Consultation was carried out prior to the commencement of the TPAP and throughout the process. Consultation activities included:

- Project Website;
- Community Meetings;
- Residents Reference Panel;
- Stakeholder Working Group Meetings;
- Public Information Centres;
- Community Workshops;
- Notifications/Newspaper Advertisements;
- Door to Door Notifications;
- Email Updates (E-Blasts); and
- Facebook chat.

As part of the Project preliminary consultation phase, a Residents Reference Panel was formed which included 35 randomly selected residents representing the Davenport Community. The Reference Panel was tasked with studying the Project and providing detailed recommendations to inform the design of the overpass and the unlocked public space underneath. Information about the Davenport Reference Panel can be found on the Panel website (http://www.metrolinx.com/en/aboutus/inthecommunity/davenportpanel/). For additional information regarding the Panel's recommendations, a summary report is included in **Appendix K**.

Four (4) Public Information Centres were held between May 2015 and April 2016 to update the public on the project's progress. Several Community Drop-In sessions were also held throughout the project to assist in keeping the community informed. Generally, the public expressed concerns regarding potential environmental impacts from construction and operation of the rail overpass; tree removal; noise and vibration; air pollution; traffic during construction; changes in property value; and views from the adjacent condominiums.

Several meetings and correspondence was undertaken between Metrolinx and the City of Toronto. For details regarding City of Toronto engagement, refer to Section 5.2.3.1 of the EPR and **Appendix K**.

E. Future Commitments

The following list provides a preliminary set of commitments to be undertaken during the detail design phase or other future phase of the Project. As part of the evolution of the Project, the detail design phase may lead to refinement or modification of the proposed preferred design as described in this EPR. For additional details regarding future commitments, refer to Section 7 of the EPR.

Environmental Mitigation and Monitoring Plan

Metrolinx will develop an Environmental Mitigation and Monitoring Plan (EMMP) which will include the commitments of the Compliance Monitoring Plan (CMP) and any other potential environmental impacts or approval requirements that arise during detail design and during additional environmental studies, as required. The EMMP includes relevant mitigation measures and requirements for potential environmental impacts and include a list of the required permits and approvals for the Project. Once permits and approvals are received for the Project, or findings from additional environmental studies are received, the Consultant will be responsible for updating the EMMP to include any additional mitigation measures or requirements. Any new monitoring or reporting requirements shall also be reflected in the EMMP.

The Consultant will be responsible to implement the requirements of the EMMP during detail design and construction. This includes providing environmental monitoring services and adhering to reporting requirements as detailed in the EMMP, providing instruction to the design team and Contractor as required, and issuing preventive and/or corrective action requests as required. The EMMP includes a procedure for preventive and corrective action

in the event of findings of non-compliance during environmental monitoring, as well as follow up and reporting procedures.

Natural Environment

- The rail corridor ROW will be revegetated per the approved landscaping plan developed during detail design.
- Protection of trees in accordance to the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees, where applicable.
- Removal, restoration and compensation plans to be developed during detail design.
- For trees in Campbell Avenue Park minimize or avoid heat effects; consider permeable pavers and non-limestone bedding courses within critical root zones; and consider low-albedo paving and concrete treatments. For trees in Erwin Krickhahn Park, minimize or avoid heat effects; and consider aggregate drainage trenches between existing mature/semi-mature trees and new guideway cladding.
- Metrolinx will work with authorities as necessary to obtain all applicable permits and approvals.
- It is recommended that no vegetation clearing takes place in between April 1st and August 30th of any year unless the area is cleared by an avian specialist or as per guidance from the MNRF regarding a more specific window.
- Confirm during detail design the potential for transplanting the Sweet Chestnut Tree.
- Use caution when working near chimney structures during the nesting period of the Chimney Swift from June 1 to August 15.
- Silt fencing without mesh reinforcement is recommended to be used on-site by MNRF to allow for passage of snakes.

Soils, Stormwater and Groundwater

- Prepare a stormwater management plan.
- Prepare a soil and groundwater management plan by a Qualified Person as per O. Reg. 153/04, as amended, prior to construction for managing soil materials onsite (including excavation, location of stockpiles, reuse, and offsite disposal). The soil and groundwater management plan will be prepared in accordance with Management of Excess Soil - A Guide for Best Management Practices (MOECC 2014), and industry best practices. A copy of the soil and groundwater management plan will be provided to MOECC, Toronto District office for comment.
- A Record of Site Condition (RSC) for the Greenway will be completed and filed with the MOECC demonstrating that the soil and groundwater meet the applicable Standards. The work necessary to obtain the RSC may involve conducting a risk assessment, completing remediation, or a combination thereof. If a risk assessment is conducted it will involve rigorous review and approval by the MOECC and there will be requirements for clean fill caps and/or hardscape barriers to ensure that human and ecological health is protected in a manner equal to what would be achieved through a generic remediation approach.
- Develop and implement an Environmental Spills Prevention and Response Plan to ensure proper mitigation and notification procedures are in place during construction.
- For effects on surface water quality, groundwater quality samples would be collected prior to construction and this information used to develop an appropriate water discharge plan. Further, if required, the water discharge plan would provide a discharge methodology that protects surface water quality.
- A construction dewatering assessment will be conducted prior to construction to determine if a Permit to Take Water or Environmental Activity Sector Registry is required. Should either be required, it will include

recommendations for monitoring (e.g., pumping rate/volume monitoring, groundwater level monitoring and groundwater discharge monitoring) during construction dewatering for any potential adverse effects identified during the dewatering assessment

- Based on the findings of the Phase One ESA, a Phase Two ESA is recommended. The Phase Two ESA is currently being undertaken and will be completed during detailed design.

Land Use and Community Impacts

- This Project will continue be subject to a joint Design Review Panel process with the City of Toronto during detail design that addresses architecture, aesthetics and corporate identity considerations.
- Building on the recommendation of the Residents Reference Panel (**Appendix K**), Metrolinx will continue the process of engagement with the City and the community through the Community Advisory Committee to assist in the development of design elements during the detail design process.Berms will be part of the design, to eliminate short and inaccessible spaces at either ends of the bridge structure. CPTED principles will be followed in detail design.
- Develop a lighting plan during detail design to light the multi-use trail at nighttime. Metrolinx is committed to coordinate with the City of Toronto over integration with future planned works.

Business and Economic Impacts

- Work with Ubisoft to understand how they currently operate and determine potential noise and vibration mitigation.
- Develop traffic management plan(s).
- Existing crossing roads will be maintained (minimum one lane per direction) throughout the construction period (excluding brief overnight closures).

Air Quality, Noise and Vibration

- All equipment used must adhere to guidelines as placed in MOE's NPC-115 guidelines for construction equipment.
- Whenever possible, work zone and time will adhere to local municipal by laws as a best practice. Metrolinx, however, is not required to adhere to municipal by-laws.
- Every effort should be made to minimize impacts on the neighbourhood by limiting nighttime noisy activities.
- Trains passing construction zones may be required to use bells and/or whistles to warn construction personnel for safety reasons. This should be minimized as much as practical while ensuring the safety of everyone involved.
- Construction equipment has safety features such as backup alarms while backing up (beeping sound). This is for the protection and safety of the workers, and is legally required. Consideration will be given to the use of broadband rather than tonal backup beepers.
- It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail occasional monitoring of vibration levels during construction.
- A proactive communications protocol is recommended that would advise residents in advance of nighttime construction or particularly noisy construction at any time.
- A more detailed noise assessment of construction should be completed when the specifics of construction equipment are finalized. This assessment should consider minimizing construction related noise and levels, while balancing construction schedules and expediting construction activity.
- Complete a noise monitoring plan during detail design.
- A 2.0 m high noise barrier has been recommended along the overpass and ramps for the entire Study Area. As the source height for electric trains is considerably lower, shorter barriers can be used to achieve as

much attenuation for electric train noise as taller barriers could achieve for diesel driven train noise. The 2.0m high noise barrier has been optimized for electric train noise. This short noise barrier's purpose is to provide clearly noticeable and significant (5 dB or more) reductions in electric train noise while minimizing the visual impact associated with a barrier located on an elevated overpass and berm. Taller noise barriers can be considered as the tracks begin returning to grade, provided the visual impact does not offset the acoustic benefit offered by taller noise barriers. Taller noise barriers as the tracks return to grade will be reviewed during Detailed Design.

- At Ubisoft (Receptor 68) has been identified as a commercial receptor particularly sensitive to noise and vibration from the railway, the recommended noise barrier provides a significant reduction in the sound levels. This reduction is achieved at the closest façade of the building to the railway, where the railway noise is highest. At increased setbacks, the sound level from the railway will be lower but the barrier benefit will also decrease. The construction of the noise barrier and the electrification of the corridor will produce significant reductions in the air-borne noise generated by the railway within Ubisoft's facility. A more detailed analysis of the noise impact at Ubisoft is recommended during detailed design.
- A proactive communications protocol is recommended that would advise residents in advance of nighttime construction.
- A more detailed vibration assessment of construction should be completed when the specifics of construction equipment are finalized prior to construction start. This assessment should consider minimizing construction related noise and vibration levels, while balancing construction schedules and expediting construction activity.
- Consideration should be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage.
- It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail monitoring of vibration levels during construction. Vibration levels will be confirmed during detail design.
- Complete a vibration monitoring plan during detail design.
- During detail design, once location of piers supporting the aerial guideway have been determined, a more detailed prediction of the vibration levels within the vicinity of the piers should be conducted, to verify that the vibration levels will not increase at receptors near the piers. A more detailed noise and vibration assessment should also be conducted once details of the preferred electric locomotive have been determined.
- A more detailed review should be conducted to specifically identify the design parameters (in terms of sound and vibration levels) at the Ubisoft business location.
- Prepare and implement a dust management plan.
- It is also recommended that mitigation measures detailed in *"Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)*[2]*"* be implemented, where practical.

Cultural Heritage

- A Cultural Heritage Evaluation Report (CHER) will be completed for properties owned by Metrolinx that may be impacted by the Project (Bloor Street West Subway, Dupont Street Railway and Davenport Road Subway).
- For provincial properties owned by Hydro One that will be impacted by the Project, a CHER will be completed by Hydro One or by Metrolinx on behalf of and with the agreement of Hydro One.

[2] *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Cheminfo Services, March 2005.*

- For properties owned by the City of Toronto that will be impacted by the Project, a CHER will be completed by the City of Toronto or by Metrolinx on behalf of and with agreement of the City of Toronto.
- A review will be completed during detailed design to confirm that the design has not changed in the area of any properties with identified or potential heritage value. If design affects heritage value, a Heritage Impact Assessment (HIA) will be completed.
- Cultural heritage related approvals will also be confirmed during detailed design.

Archaeology

- Should the proposed Project extend beyond the existing rail ROW, additional archaeological work may be required.
- Review of the detailed design to ensure that the scope of the project was captured within the area cleared of archaeological potential.
- Should previously unknown or unassessed deeply buried archaeological resources be uncovered during development, alteration of the site must immediately cease; Metrolinx shall engage a licensed archaeologist to carry out archaeological fieldwork in compliance with the *Ontario Heritage Act*.
- Any person discovering human remains must immediately notify the police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services.

Rail

- Mitigation measures will be reviewed during detail design, in consultation with CP Rail.
- MSE walls and piers should be treated with graffiti resistant paints and be able to be subjected to pressure washing in accordance with Design Reference Manual (DRM) Architectural Finishes requirements (CI-0701).

Traffic

- Develop traffic management plan with the City's review.
- The construction contractor will determine their own haul routes in consultation with the City of Toronto through developing a Construction Management Plan.
- Metrolinx will complete an evaluation of construction traffic on area roads. Metrolinx will also provide a Construction Management Plan to the City of Toronto.
- Monitor intersections along detour routes and adjacent to the construction area for congestions and potential adjustment to signal timing plans and phasing in consultation with the City of Toronto.

Drainage and Stormwater Management

- Develop a stormwater management strategy including mitigation measures during detail design.

Utilities

- Contact utility companies during detail design and establish any specific mitigation.
- During detailed design, Metrolinx will coordinate with the City of Toronto regarding utilities.
- Metrolinx will coordinate with the City of Toronto Capital Works Program on works proposed within this vicinity.

Property Acquisition

- A legal survey will be completed during detailed design to confirm property impacts.

- Undertake a review during the early stages of detail design to identify temporary easements for construction or other purposes, to accommodate the project work.
- Engage and negotiate with affected owners regarding easements that may be required for the works.

Future Consultation

Consultation during detail design will be undertaken with adjacent property owners and key agencies, including the City of Toronto, CP Rail and stakeholder groups through the establishment of the Community Advisory Committee. The Committee is made up of representatives from:

- Community Groups/Associations;
- Local Business;
- Local Condominium Boards and Multi-Unit Housing;
- Cycle TO Ward 18;
- Members of the public;
- Members of the Residents' Reference Panel;
- Three positions for residents (not affiliated with a community group); and
- Two positions for local businesses.

The Committee's work will be focused on informing the design brief by evolving the preliminary design during detailed design. The Committee will also have a critical role to play in providing advice on implementation, stewardship and construction planning.

Further discussions will also continue during detailed design with City of Toronto staff to address project key issues including;

- Comprehensive Vision of the physical overall and the public realm integration into the surrounding neighbourhood including planting zones, lighting, public art and paths.
- Multi-modal Station consideration at Bloor Street and cycling connections from the Greenway integration into the City's cycling network growth plans.
- Dupont Street underpass at the point of intersection with the rail corridor.
- Operation and maintenance requirements of the Greenway.

1. Introduction

1.1 Project Overview

Metrolinx is completing this study in accordance with the Transit Project Assessment Process (TPAP) under Ontario Regulation (O. Reg.) 231/08 – *Transit Projects and Metrolinx Undertakings*. The Project assessed under this TPAP consists of grade separating an existing at-grade rail crossing (Davenport Diamond) within the GO Barrie Corridor (see **Figure 1**) in the vicinity of Davenport Road in the City of Toronto (see **Figure 2**). The proposed Project, a grade-separated rail-over-rail overpass (the Davenport Community Rail Overpass), will eliminate the Davenport Diamond, one of the busiest railway intersections in North America, where Canadian Pacific (CP) freight trains (east-west) and GO trains (north-south) intersect.

1.2 Purpose of the Transit Project

Regional Express Rail

The Province of Ontario announced a commitment of $31.5 billion over 10 years across Ontario to improve transportation infrastructure, including $16 billion dedicated to transit funding in the Greater Toronto and Hamilton Area (GTHA). This investment includes Metrolinx's Regional Express Rail (RER) program which will deliver an electrified, up to 15-minute GO service in core areas of the GO network over the next 10 years. This project, together with other key transit expansions planned across the region, is design to build a seamless transportation network that meets the demands of increased ridership, and provides numerous benefits to residents and businesses across the GTHA. RER builds on the first wave of *The Big Move* projects, such as the Eglinton Crosstown Light Rail Transit (LRT) and continues the priority expansion towards two-way, all-day GO rail service.

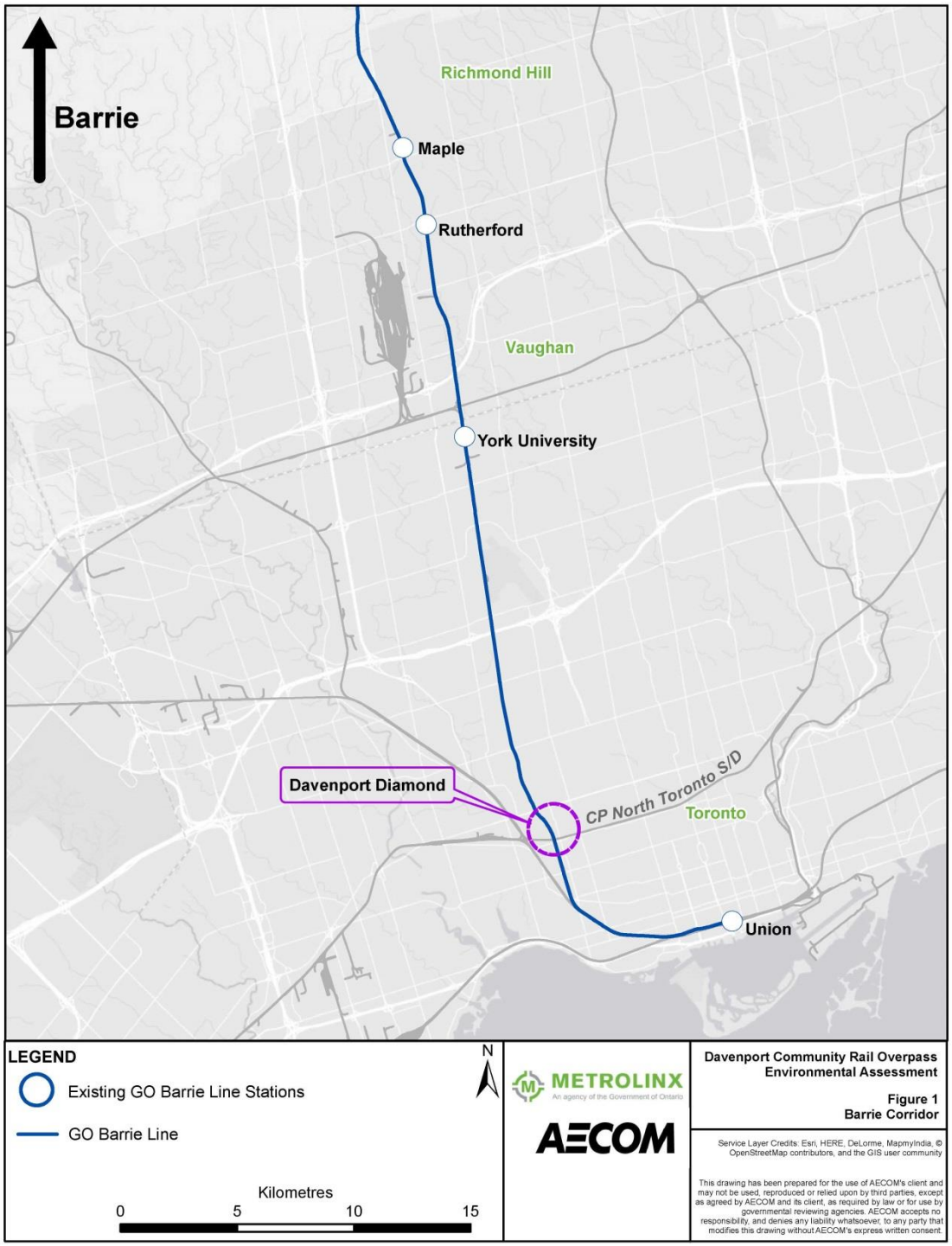
It is anticipated that by 2025, a 15-minute, bi-directional service will be introduced along the GO Barrie Corridor, with improvements in rail service being phased in over several years. The exact phasing and timing of RER implementation on the GO Barrie Corridor is dependent on several factors, such as the construction of necessary infrastructure upgrades including electrification and the procurement and commissioning of new rolling stock.

The current service level on the GO Barrie Corridor includes trains travelling south to Union Station during the morning peak period and north from Union Station in the evening peak period. In order to achieve a 15-minute, bi-directional service, the current peak service level of 14 trains per day will be increased over time as infrastructure on the GO Barrie Corridor is upgraded and new rolling stock is added to the train fleet. The exact timing of service increases has yet to be determined, but may be described as follows:

- 36 train trips per day service level, comprising increased peak service as well as hourly midday service prior to electrification; and
- 180 train trips per day service level, comprising increased peak service as well as 15-minute service after electrification.

This Environmental Project Report (EPR) addresses the impacts of these service scenarios in the vicinity of the Davenport Diamond. The full RER service scenario is modelled in separate studies completed for the GO Barrie Corridor and for the system-wide electrification project.

Figure 1 GO Barrie Corridor



Removing GO and CP Rail Conflict

The elimination of the Davenport Diamond is a key step in achieving RER service on the GO Barrie Corridor. Currently, GO trains on the single-track Metrolinx-owned GO Barrie Corridor have to cross the two-track CP North Toronto Subdivision at the Davenport Diamond. Frequent freight traffic on the CP corridor - the main trans-Canada freight rail corridor - causes delays to the current GO train service. In order to expand service on the GO Barrie Corridor and achieve the RER level of service, it is necessary to physically separate these two rail lines and remove this existing conflict between GO and CP rail services.

In addition to improving rail service, the elimination of the Davenport Diamond by elevating the rail corridor also creates potential opportunities to enhance the public realm within the Study Area to provide better pedestrian and cycling connectivity, extend existing open spaces underneath the proposed overpass, and create new public spaces.

Improving the GO Barrie Corridor

The Davenport Community Rail Overpass will allow the existing rail service along the GO Barrie Corridor to operate more reliably and will enable GO Transit to increase service to get more people moving in the City of Toronto and the wider region. The future expansion of service along the GO Barrie Corridor is also dependent on a number of other improvements, including upgraded signals and additional tracks. These upgrades are subject to separate planning and design studies; however the design of the Davenport Community Rail Overpass recognizes that the future expansion of the GO Barrie Corridor is included within Metrolinx's wider plan for GO Transit, which dictates that the Project should accommodate for two tracks in the GO Barrie Corridor through the Study Area

As with other GO rail corridors, electrifying the GO Barrie Corridor is an important part of the RER vision. Electrification of the corridor will require:

- Electrical power supply;
- Distribution along the GO Barrie Corridor;
- Electrified maintenance facilities;
- Transition of vehicle fleet; and
- A system wide EA for electrification.

1.3 Background Studies

There are several studies and projects underway in support of improved and expanded GO rail service for the GO Barrie Corridor that have a direct influence on this Project.

1.3.1 Grade Separation Feasibility Study Update (2015)

In 2010, Metrolinx completed a separate feasibility study to evaluate the feasibility of constructing a rail-over-rail grade separation at the Davenport Diamond. The study concluded that the two alternatives (Alternative 2 – 1.5% track grade and Alternative 3 – 2% track grade) involving raising the GO tracks over the CP rail tracks be carried forward and evaluated as part of the Barrie Corridor Expansion TPAP.

In response to the Province's RER initiative and the need to revisit the preliminary recommendations for the Davenport Community Rail Grade Separation, Metrolinx updated the initial 2010 feasibility study to include:

- New construction methodology for passing over the CP Rail tracks (rail overpass);
- RER service level scenarios;

- Protection for electrification; and
- Transportation and land use considerations.

The Davenport Diamond Grade Separation Feasibility Study Update (HMM, 2015) was released publicly on the project website on September 30, 2015.

Barrie Double Track Extension Project Transit Project Assessment Process

GO Transit is studying ways to improve reliability and operational flexibility for current service and to introduce off-peak GO rail service south of Aurora on the GO Barrie Corridor. Double-tracking the GO Barrie Corridor between the start of the Newmarket subdivision (at Dundas Street in Toronto) and the East Gwillimbury GO Station is also being studied in order to implement two-way all-day rail service by 2023. The Davenport Diamond falls within this double-tracked segment. As outlined above, the design premise for this Project is for two tracks, plus selected cost-effective provisions for a potential future third track. This project is currently in the pre-planning stage.

Proposed New Stations in the Barrie Corridor

As part of the RER initiative, Metrolinx is reviewing a number of locations for potential new stations across the GO network. Specific to this study, the following seven stations are being evaluated on the Barrie Corridor:

- Bloor-Davenport;
- St. Clair;
- Highway 7-Concord;
- Kirby;
- Sideroad 15-Bathurst;
- Mulock; and
- Innisfil.

A new Caledonia GO station is planned and committed where the GO Barrie Corridor crosses Eglinton Avenue (connecting with the Eglinton Crosstown LRT, currently under construction) in Toronto, while Downsview Park GO station is being built at Sheppard Avenue to connect with the extended Spadina Subway. While not part of this Project, the design of the proposed Davenport Community Rail Overpass does not preclude the potential construction of a new GO station at Bloor Street West, which is recognized in the City of Toronto's Official Plan.

1.4 Study Area

As illustrated in **Figure 2**, the Davenport Community Rail Overpass Study Area encompasses the GO Barrie Corridor from south of Bloor Street (Mile 3.91) to north of Davenport Road (Mile 4.87), and from Lansdowne Avenue in the east to Symington Avenue in the west. The Davenport Diamond is located towards the northern end of the Study Area to the south of Davenport Road.

To complete the necessary environmental and technical studies required for this EPR, the Study Area was extended beyond the existing rail right-of-way (ROW) to account for environmental features that may be potentially impacted by the proposed Project. The specific Study Areas delineated for these supporting studies, where applicable, are indicated in the respective existing conditions sections presented in Section 3 of this report.

Figure 2 Davenport Community Rail Overpass EPR Study Area

1.5 Planning Process

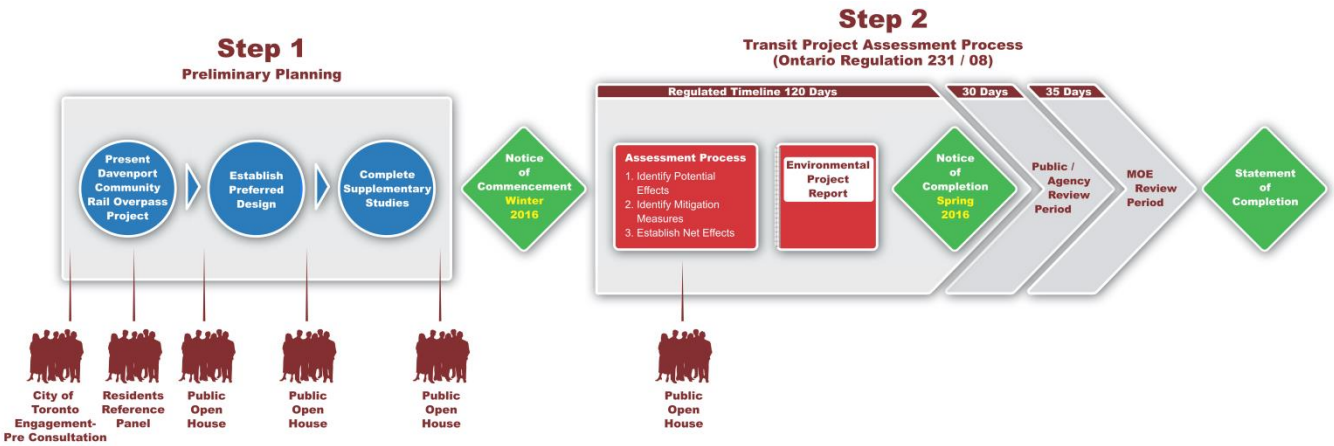
This EPR was prepared in accordance with Ontario Regulation (O. Reg.) 231/08 – Transit Projects and Metrolinx Undertakings (Transit Projects Regulation). By following the TPAP, the Transit Projects Regulation exempts the proponent (i.e., Metrolinx) of the transit project from the requirements under Part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

A summary of the process followed for the Davenport Diamond Grade Separation, including the Preliminary Planning activities and the TPAP, is provided in **Figure 3**. Detail regarding each of these steps is provided in following sections.

Introductory activities and consultation through a Preliminary Planning step (shown as Step 1 in **Figure 3**) prior to the commencement of the TPAP were undertaken by Metrolinx. Following completion of the Preliminary Planning Step, Metrolinx initiated the TPAP (Step 2 in **Figure 3**) by issuing the Notice of Commencement. It is at this point that the regulated 120 day timeline commenced.

As summarized in Section 1.5.1 below, it is important to note that prior to conducting the Preliminary Planning activities for this TPAP, a Feasibility Study was undertaken to establish the preferred Project (i.e. elevating the GO Barrie Corridor).

Figure 3 Transit Project Assessment Process



1.5.1 Preferred Design Selection Process

The 2015 Study Update identified four alternative designs for the Davenport Diamond Grade Separation:

1. Lower GO tracks under CP Rail tracks, 2% Grade (Trench Structure);
2. Lower GO tracks under CP Rail tracks, 2% Grade (Tunnel Option);
3. Raise GO tracks over CP Rail tracks, 2% Grade (Mechanically Stabilized Earth, MSE); and
4. Raise GO tracks over CP Rail tracks, 2% Grade (Rail Overpass).

The 2015 Study Update provided an evaluation of alternatives and determined the preferred concept to be a new Rail Overpass. The rationale for the new rail overpass is as follows:

- Expected to result in limited disruption to the existing roadway network, transit and emergency services during construction;
- Allows for reinstating the at-grade connection of Paton Road for pedestrians and cyclists;

- Removes the existing at-grade level crossing at Wallace Avenue and replaces with rail-over-road grade separation;
- Provides for pedestrian/cyclist connections within the rail corridor at Antler Street and Lappin Avenue;
-
- Allows for community use of the space beneath the elevated structure from south of Wallace Avenue north to the CP North Toronto S/D tracks;
- Relocation of utilities limited to overhead hydro lines at Wallace Avenue;
- Least amount of excess materials (e.g., soil), which limits the number of dump trucks during construction;
- Shortest estimated construction duration at18 to 24 months; and
- Most economical option, which helps invest more in expanding transit in the City of Toronto and across the region.

For additional information from the 2015 Feasibility Study refer to the following website: http://www.metrolinx.com/en/regionalplanning/rer/Davenport_Feasibility_Study-Main_Report_EN.pdf.

This EPR is therefore intended to complete the TPAP based upon a rail overpass as the preferred basis for design and construction. Beyond the provision of necessary rail infrastructure, the EPR also considers the potential impacts and mitigation requirements related to several alternative rail service scenarios, ranging from current service levels (six or seven peak-direction peak-period GO trains per weekday) to RER which commits to 36 trains trips per day before electrification and increases up to 180 trains trips per day after electrification.

1.5.2 Metrolinx Design Charrette

Under the leadership of Metrolinx's Design Excellence team and Capital Projects Group, a Design Charette was established to build upon the preferred design from the 2015 Feasibility Study Update and further refine the structure and multi-use space underneath. A number of Canada's top architects, landscape architects, urban designers and engineers convened in a collaborative design workshop to address this unique design challenge. The Design Charrette included gh3 architects, Douglas Birkenshaw Architect, Perkins+Will, Urban Strategies Inc., and Hatch Mott McDonald.

The primary goal of refining the design of the structure was to lighten its mass and visual impact. The length of the approach berms at either end were maximized, with the result that the length of the elevated bridge was reduced to 570 m from the previous 847 m – a reduction of almost a third. The depth of the overpass was minimized by using twinned round columns every 16 m. The preferred design now uses an innovative box structure, slightly tapered at the edge to lighten the silhouette. The round and narrow profile of the double columns enhances safety by increasing visibility. The double columns also enable the skylight to run through the centre of the structure, allowing light and water through to support plantings and activities below.

The outcome of the Design Charrette is a hybrid design that provides a combination of berm approaches and an elevated bridge structure. A project description of the Transit Project (Preferred Design) is provided in Section 2 of this EPR.

1.5.3 Pre-TPAP Preliminary Planning

The preliminary planning step for this TPAP involved the main activities designed to lead to the issuance of the Notice of Commencement.

Before issuing a Notice of Commencement (which formally initiates the 120-day regulated timeline), proponents are recommended to perform background studies and preliminary consultation activities. As a result, Metrolinx began

the following technical work and public and stakeholder consultation prior to issuing the Notice of Commencement (shown as Step 1 in **Figure 3**):

- Completion of background environmental and technical studies;
- Consultation and briefings with several agencies and local community groups;
- Engagement with stakeholders;
- Initial contact with Aboriginal communities;
- Four Public Meetings (including one hosted by local MPP); and
- Four Saturday meetings with a 35-member Residents Reference Panel (further described in Section 5).

1.5.4 TPAP

After completion of the Pre-TPAP Preliminary Planning step, a Notice of Commencement is issued to initiate the TPAP (Step 2 in **Figure 3**). The TPAP will include the following key activities:

- Impact assessment and mitigation development;
- Further consultation with the public, review agencies, and Aboriginal communities;
- Additional meetings with stakeholders;
- Documentation of findings in this EPR; and,
- Issuance of a Notice of Completion (within 120 days of the Notice of Commencement).

After the Notice of Completion is issued, the EPR will be available for 30 days to allow for public and agency review. If a person (members of the public, stakeholders, regulatory agencies, Aboriginal communities) has concerns about the Project, objections can be submitted to the Minister of the Environment and Climate Change (Minister) during the 30-day review period. Following the 30-day review period for the EPR, the Minister will have 35 days to consider whether the transit project may have a negative impact on:

- A matter of provincial importance that relates to the natural environment or has cultural or heritage value or interest; or,
- A constitutionally protected Aboriginal or treaty right.

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

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

1.5.5 Environmental Project Report

Documentation of the TPAP is to be submitted to the Ministry of Environment and Climate Change (MOECC) within 120 days of issuing the Notice of Commencement. The document, known as the EPR, records the TPAP, the conclusions reached, the potential environmental effects, the associated mitigation measures, and the future commitments for the transit project. This EPR provides a comprehensive summary of each step in the assessment study, including an assessment of any effects stemming from the recommended plan and ways that such effects can be mitigated.

1.6 Overview of Environmental Project Report

The EPR is organized into eight sections:

Section 1: Introduction – provides the background and context for study and introduces the TPAP.

Section 2: Project Description – describes the Project including a summary of the key design elements, and anticipated Project works and activities.

Section 3: Existing Environmental Conditions – describes the planning context and baseline environmental conditions in the area.

Section 4: Impact Assessment of the Preferred Design – presents the assessment of environmental effects, including an outline of mitigation measures.

Section 5: Consultation Process – identifies the public, agency and Aboriginal communities consultation program that occurred during the preliminary planning stage and TPAP, including input from various interested parties and the proponent's responses.

Section 6: Permits and Approvals– outlines agency approvals and compliance monitoring requirements.

Section 7: Future Commitments – outlines Project future commitments before, during and after construction.

Section 8: References.

Table 1 below summarizes the information that is required to be included in the EPR (as applicable to this specific transit Project and as specified in pages 33-34 of the *Guide to Ontario's TPAP*, MOECC, 2014) and the associated section of the EPR where it has been addressed.

Table 1 Summary of EPR Requirements

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 2
A map showing the site of the transit project.	Section 1
A description of the local environmental conditions at the site of the transit project.	Section 3
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 3 and 4
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 4
A description of any proposed measures for mitigating any negative impacts the transit project might have on the environment.	Section 4
If mitigation measures are proposed, a description of the proposal for monitoring or verifying the effectiveness of the mitigation measures.	Section 6
A description of any municipal, provincial, federal, or other approvals or permits that may be required.	Sections 4 and 6
A consultation record.	Section 5

1.7 Study Organization

This study was undertaken by the Metrolinx Environmental Programs and Assessment Group, with the support of several consultants who collaborated on the technical studies:

- Hatch Mott MacDonald - Construction Traffic Impact Assessment of Elevated Guideway Option (2016) (**Appendix A**);

- McIntosh Perry Consulting Engineers Ltd.- Natural Heritage Study, including IBI Group – Arborist Report (**Appendix B**).
- Arcadis Canada Inc. - Phase 1 Environmental Site Assessment (**Appendix C**);
- Urban Strategies Inc. – Land Use Planning and Socioeconomic Analysis (**Appendix D**);
- J.E. Coulter Associates Limited – Noise and Vibration Assessment (**Appendix E**);
- Arcadis Canada Inc. – Air Quality Impact Assessment (**Appendix F**);
- Taylor Hazell Architects Ltd. – Cultural Heritage Screening Report (**Appendix G**);
- Archaeological Services Inc. – Stage 1 Archaeological Assessment (December 2008) (**Appendix H**);
- Hatch Mott MacDonald - Construction Traffic Impact Assessment of Elevated Guideway Option (2016) (**Appendix I**);
- MMM Group – Traffic Impact Assessment (**Appendix I**);
- MMM Group – Active Transportation Technical Memorandum (**Appendix J**); and
- MASS LBP – Residents Reference Panel Summary (**Appendix K**).

Other Metrolinx representatives who provided guidance and input include Metrolinx Capital Projects Group, Design Excellence, Strategic Communications, Rail Corridor Infrastructure, and Planning and Policy.

2. Project Description (Preferred Method of Carrying out the Transit Project)

2.1 Preferred Design

The Project is a critical component of the GO Barrie Corridor service expansion to achieve RER and includes a new grade separated GO-over-CP rail overpass structure and multi-use pathway.

Given the topography of the Study Area, rail operating requirements (e.g. a 2% maximum grade) and structural clearance requirements, the bridge will include a 400m southern berm, a 570 m bridge structure and a 450 m northern berm (within a total length of regrading of 1420 m).

Section 2.1.1 provides a detailed description of the key elements that comprise the Preferred Design. The Preferred Design is illustrated on the plan, profile, and cross section drawings shown on **Figures 4** to **8**. Visualizations of select guideway components are shown on **Figures 9** to **22**.

Section 2.1.2 provides further detail on the anticipated Project works and activities associated with the construction and operational phasing of the elements that comprise the Preferred Design.

2.1.1 Elements of the Preferred Design

2.1.1.1 Rail Overpass and Track

The proposed rail overpass and track work includes the following key elements:

- Two tracks;
- 570 m bridge structure with approximately 34 pairs of piers and deck-mounted 2 metre high noise wall;
- 400 m long southern berm and 450 m northern berm;
- Bermed green walls or vertical retaining walls will be constructed at the south and north end approaches of the grade separation);
- 3-span continuous post tensioned voided cast-in place slab structures over Wallace Avenue (with Wallace Avenue slightly lowered) and Dupont Street;
- Pre-stressed, precast concrete box structures extending between the Wallace Avenue and Dupont Street bridges;
- Through plate girder (TPG) span at CP North Toronto subdivision
- Provisions for Overhead Catenary System; and
- “Skylight” gap in the bridge structure between the tracks running the length of the overpass.

At track level, the rail overpass will contain standard rail signaling, switching, communications, and safety items. Provisions will be made for future electrification infrastructure. The infrastructure includes the proposed Overhead Catenary System (OCS) pole layout locations and the associated clearance envelopes.

2.1.1.2 Site Works

Temporary site works include:

- Erection of temporary and permanent fences;
- Installation of environmental management features;
- Temporary diversion track;

- Clearing and grubbing of vegetation within the GO Barrie Corridor;
- Construction of internal access roads;
- Select utility relocations, protections and possible upgrades; and
- Laydown/construction areas (see Section 2.1.1.3 below).

2.1.1.3 Temporary Construction Staging/Laydown Areas

Metrolinx may need to lease or acquire property outside the rail corridor for temporary construction staging / laydown areas. Identified suitable temporary construction staging/laydown areas include:

- Site 1) a property adjacent to the corridor off of Wade Avenue;
- Site 2) the former TTC Lansdowne Yard at Paton Avenue and Lansdowne Road; and
- Site 3) a property off Wiltshire Avenue, north of Davenport Road.

Refer to **Figure 23** for the staging areas.

The main staging area for the overpass may be Site 2, the former TTC Yard. Site 1 allows access to the southern berms and Site 3 allows access to the northern berms and the north CP rail abutment

Any property required for temporary construction/laydown areas will be confirmed during detail design.

2.1.1.4 Haul Routes

The construction contractor will determine their own haul routes in consultation with the City of Toronto through the development of a construction management plan. The following are potential routes only to access the above identified temporary construction staging/laydown areas.

1. Access Point # 1 – Staging Area 1: Allowing for 20 trucks/day for the construction of the southern berm.
2. Access Point # 2 – Staging Area 2/Paton Avenue: truck traffic is expected to be 30 trucks/day and will allow access to corridor for construction of southern berm and overpass.
3. Access Point # 3 – Directly from Wallace Avenue: 20 trucks/day are anticipated for construction of piers, bridge at Wallace Avenue and rail overpass. It is noted that Wallace Avenue will be closed during the construction of the bridge.
4. Access Point # 4 – Directly from Campbell Avenue, North of Dupont Street: allow for 20 trucks/day for construction of the through plate girder (TPG) bridge and centre vertical retaining MSE wall.
5. Access Point # 5 – Staging Area 3: anticipate 30 trucks/day for construction of north berm and CP TPG bridge.

Refer to the Construction Staging Report in **Appendix A** for figures of the above noted haul routes.

Figure 4 Plan and Profile – Part 1

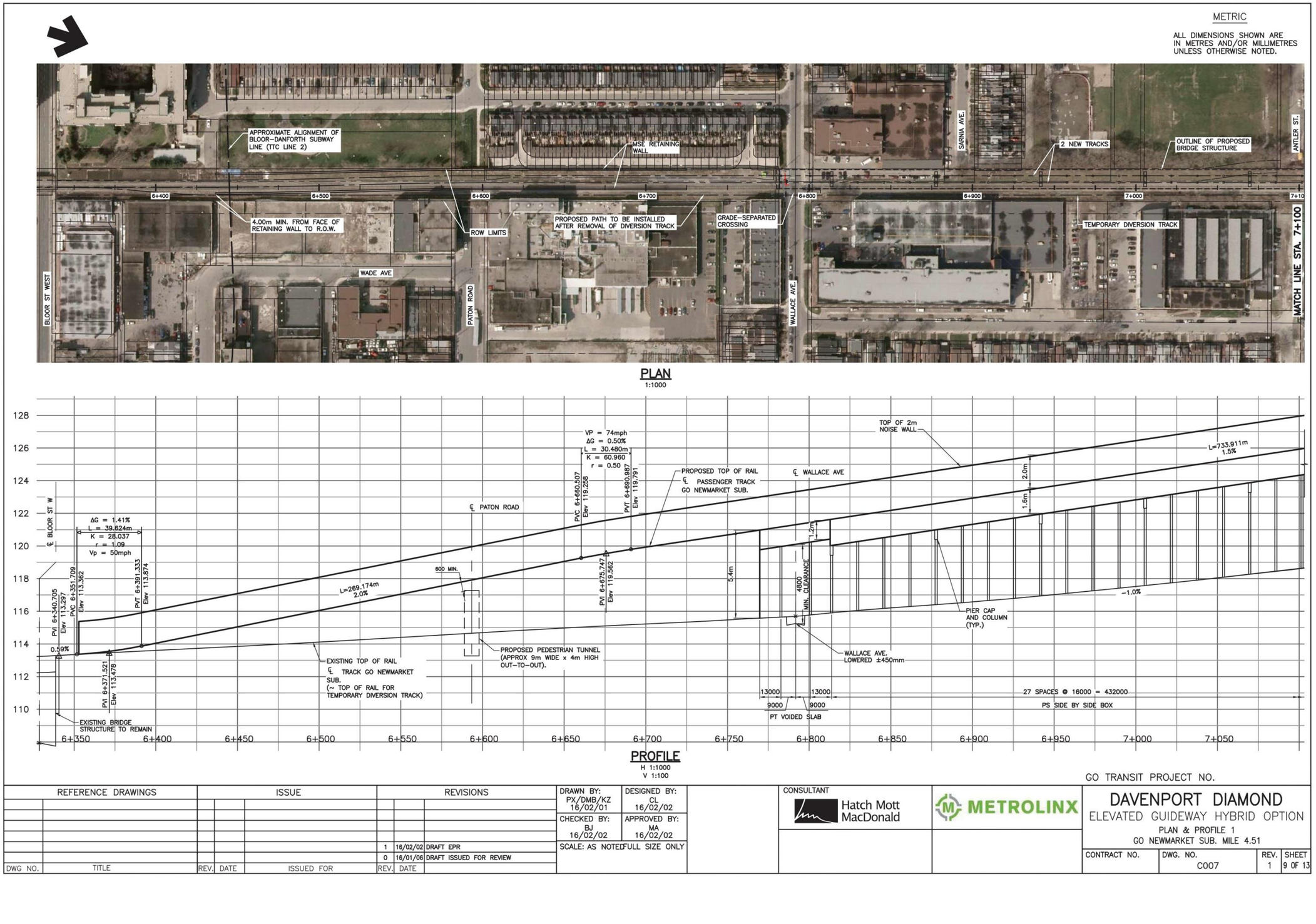


Figure 5 Plan and Profile – Part 2

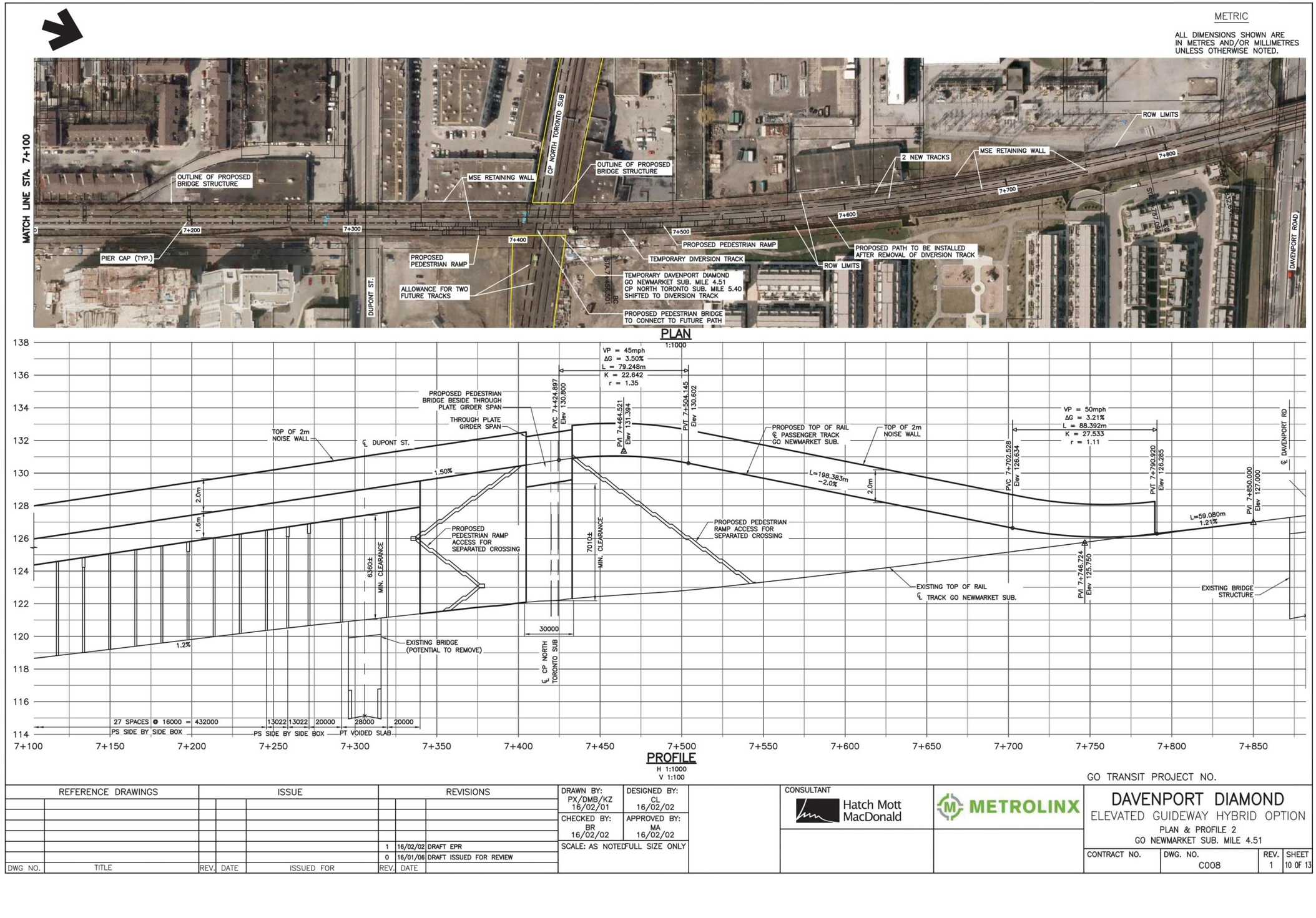


Figure 6 Typical Cross Section – Pier and Pier at Expansion Joint

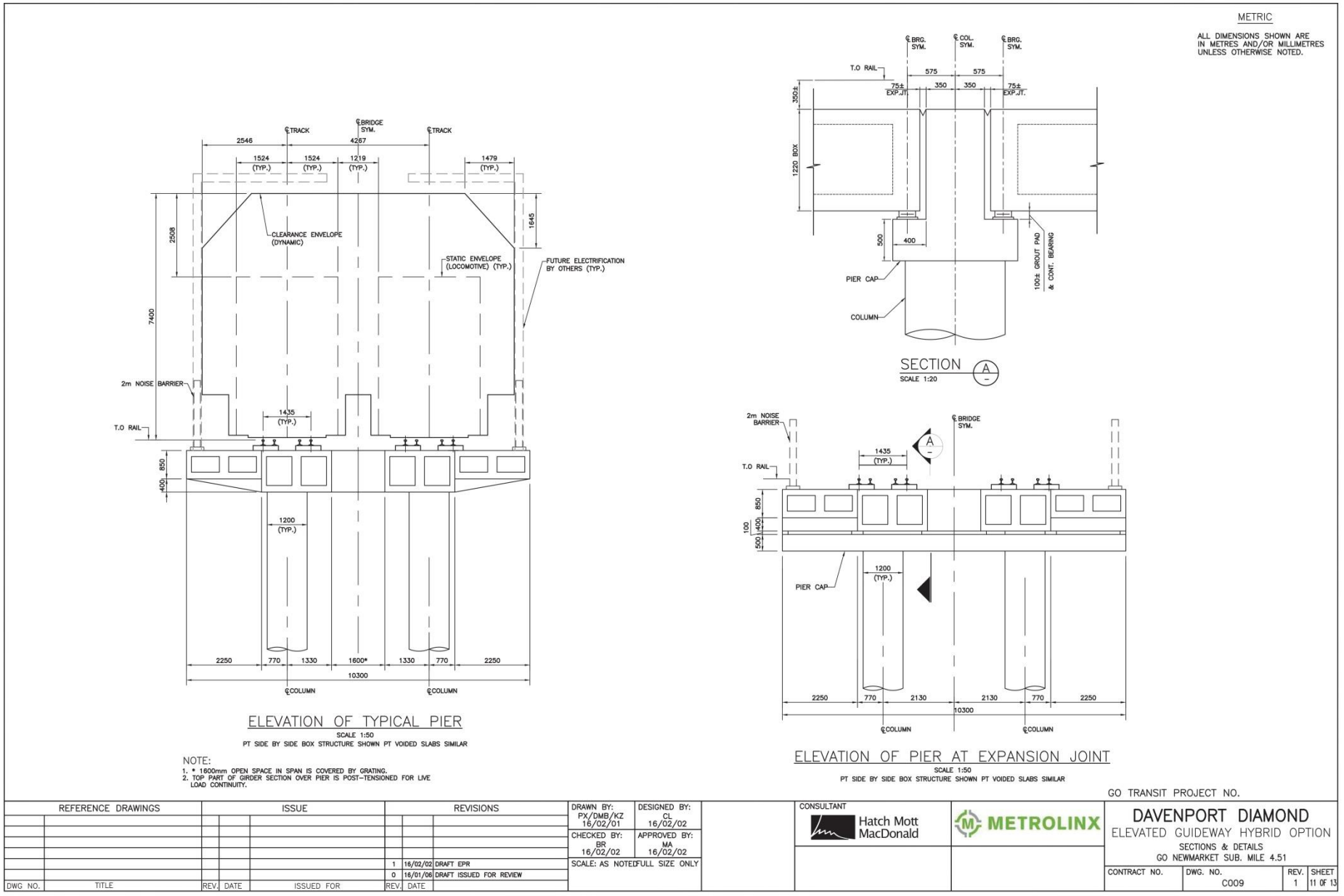


Figure 7 Typical Cross Section – Pier Showing Staged Track Implementation and CP North Toronto Subdivision

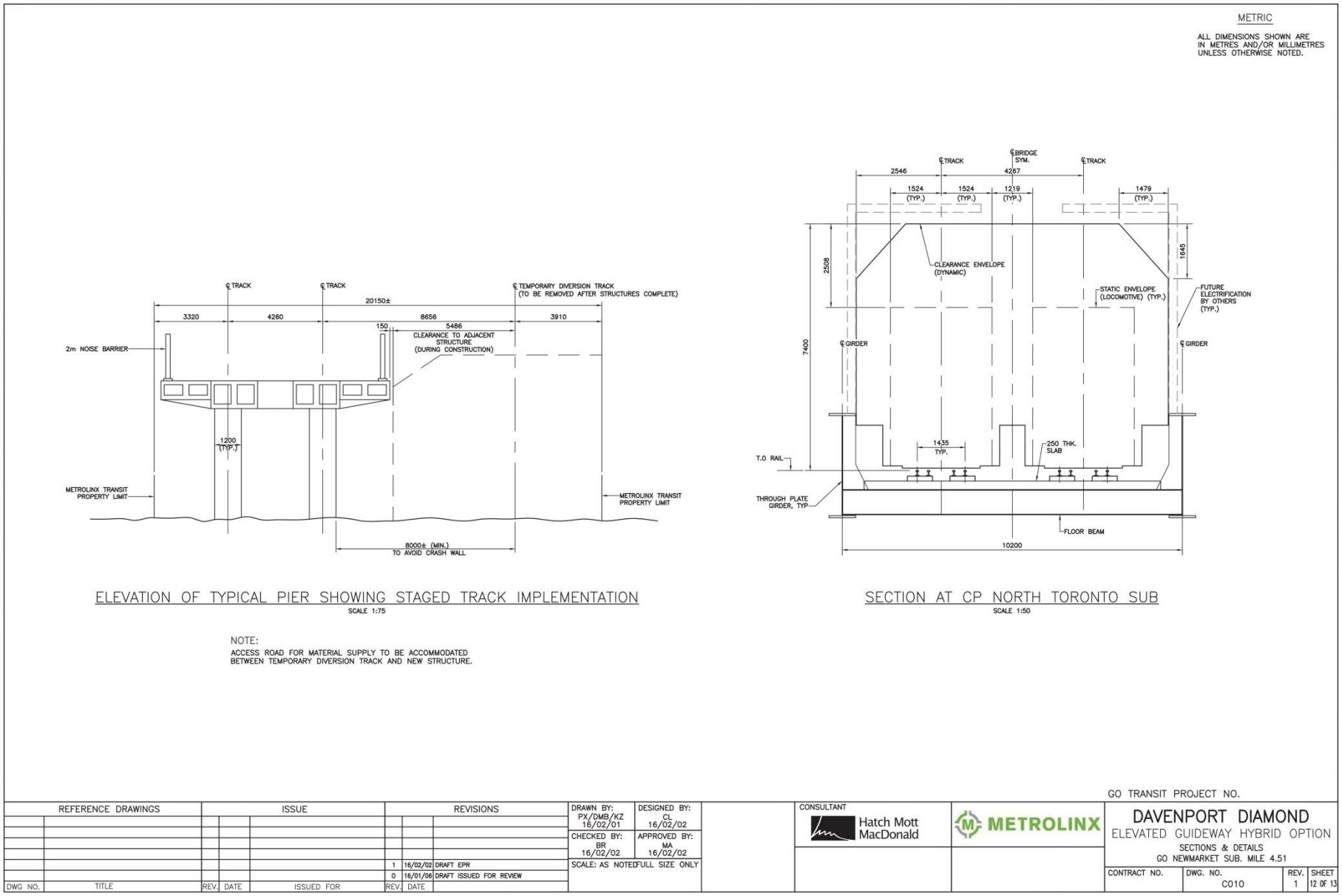


Figure 8 Typical Cross Section – South of Dupont Street

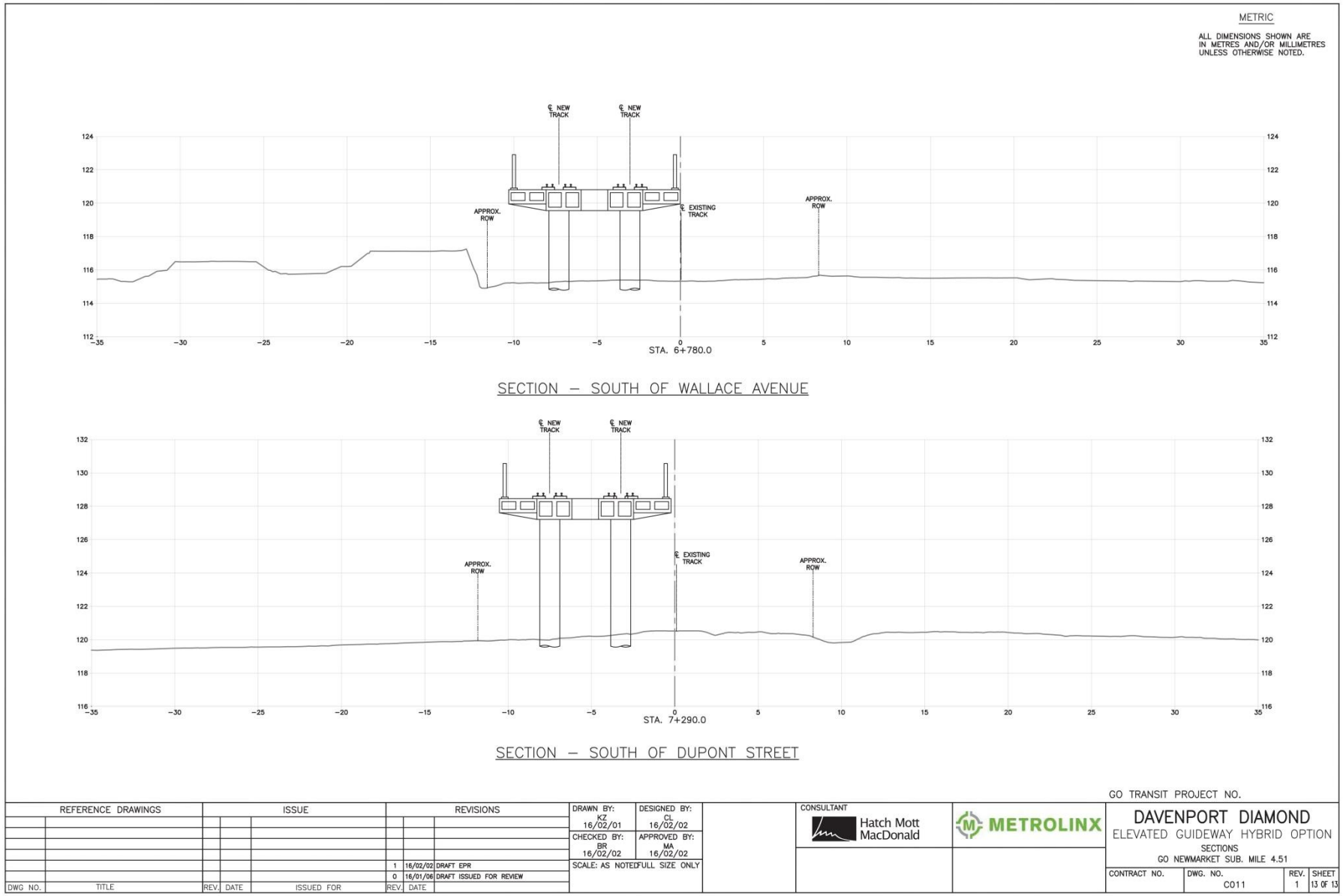


Figure 9 Campbell Avenue Underpass – Day Visualization

Looking under the Campbell Avenue underpass during the day (artistic rendering subject to refinement during detail design).

Source: Metrolinx, May 2016.

Figure 10 Campbell Avenue Underpass – Night Visualization

Looking under the Campbell Avenue underpass at night (artistic rendering subject to refinement during detail design).

Source: Metrolinx, May 2016.

Figure 11 Campbell Avenue Park Visualization

Campbell Avenue Park with the Rail Overpass in the background (artistic rendering subject to refinement during detail design).

Source: Metrolinx, May 2016.

Figure 12 Campbell Avenue Park Rail Overpass Visualization

Looking under the overpass from Campbell Avenue Park (artistic rendering subject to refinement during detail design).

Source: Metrolinx, May 2016.

Figure 13 GO Crossing CP Tracks Visualization

Looking west along CP Rail Tracks showing the grade separation (artistic rendering subject to refinement during detail design).

Source: Metrolinx, January 2016.

Figure 14 Dupont Street Visualization

Looking west from south side of Dupont Street (artistic rendering subject to refinement during detail design).

Source: Metrolinx, January 2016.

Figure 15 Wallace Avenue Visualization

Looking west along Wallace Avenue (artistic rendering subject to refinement during detail design).

Source: Metrolinx, January 2016.

Figure 16 Paton Road Visualization

Looking east from Rankin Crescent to the new Paton Road connection under the rail overpass (artistic rendering subject to refinement during detail design).

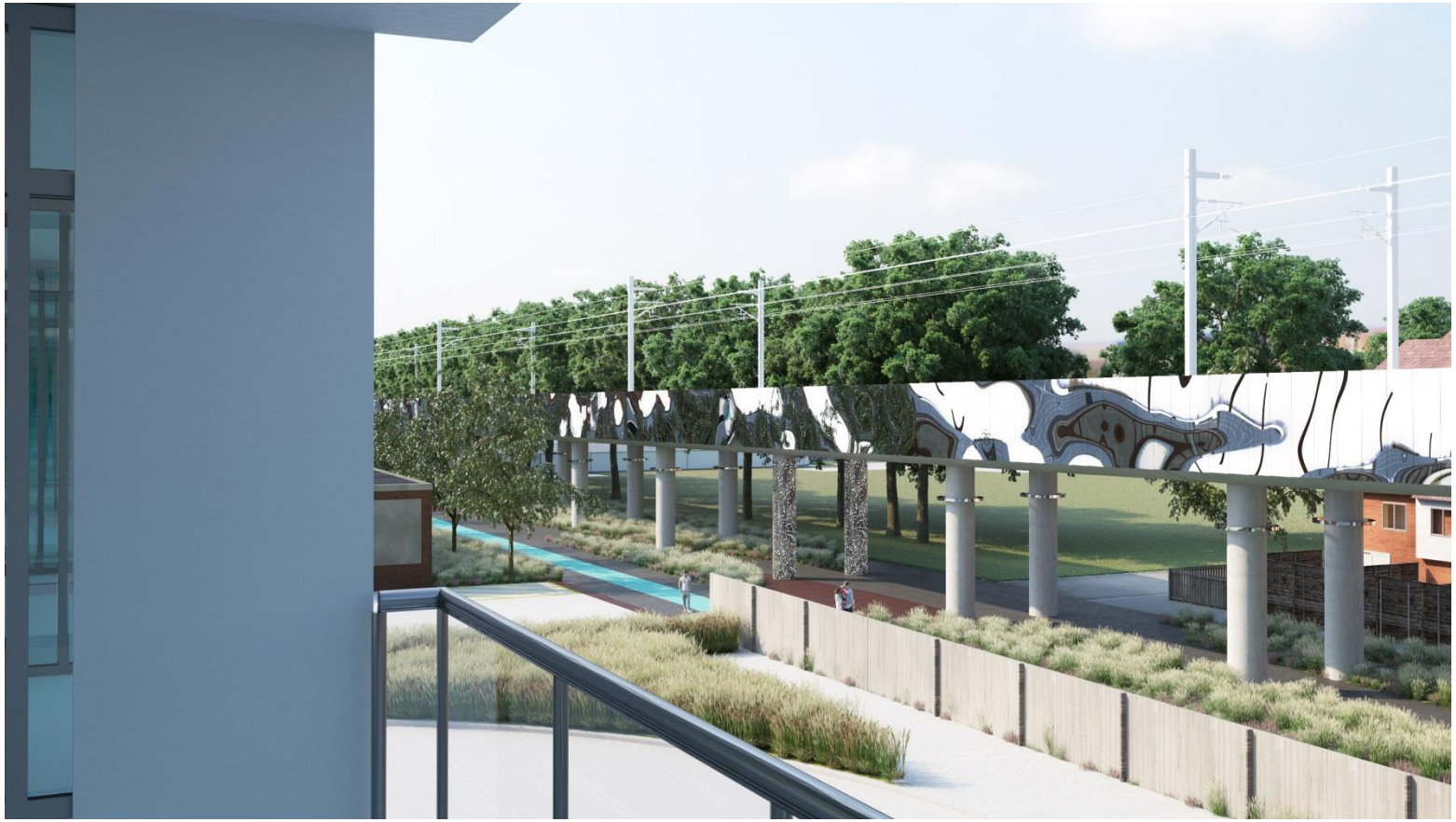
Source: Metrolinx, January 2016.

Figure 17 Antler Street Visualization

Looking east on Antler Street (artistic rendering subject to refinement during detail design).

Source: Metrolinx, April 2016.

Figure 18 812 Lansdowne Avenue Condo, 3rd Floor Visualization



Looking southwest from 812 Lansdowne Avenue Condo, 3rd Floor (artistic rendering subject to refinement during detail design).

Source: Metrolinx, April 2016.

Figure 19 812 Lansdowne Avenue Condo, 6th Floor Visualization

Looking southwest from 812 Lansdowne Avenue Condo, 6th Floor (artistic rendering subject to refinement during detail design).

Source: Metrolinx, April 2016.

Figure 20 Rankin Crescent, 2nd Floor Visualization

Looking southeast, Rankin Crescent, 2nd Floor (artistic rendering subject to refinement during detail design).

Source: Metrolinx, April 2016.

Figure 21 Sarnia Avenue Visualization

Looking east on Sarnia Avenue (artistic rendering subject to refinement during detail design).

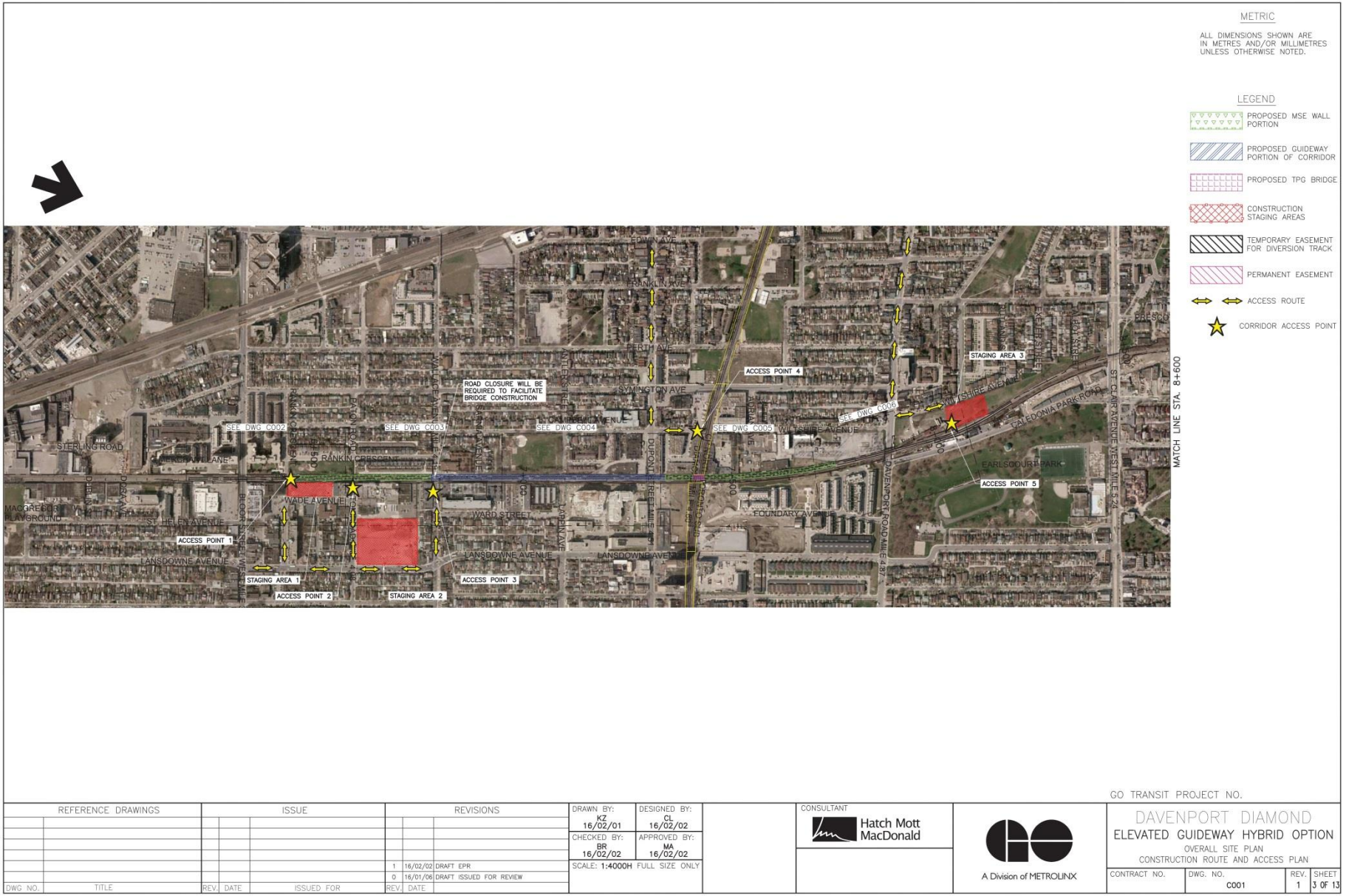
Source: Metrolinx, April 2016.

Figure 22 Antler Street House, 2nd Floor Visualization

Looking east, from a 2nd floor Antler Street house (artistic rendering subject to refinement during detail design).

Source: Metrolinx, April 2016.

Figure 23 Potential Construction Staging Areas



2.1.1.5 Greenway Multi-Use Path

The Greenway multi-use path will form a key component of the preferred design and will include:

- New multi-use path in the rail ROW, extending 1.4 km from Bloor Street to Davenport Road;
- Landscaping and planting elements;
- LED lighting;
- New east-west connections at Paton Avenue, Wallace Square and Antler Street within the rail ROW;
- Pedestrian and cycling bridge over the CP tracks and crossing Dupont Street;
- Enhanced connections for transit (including protection for a potential future station at Bloor Street West not precluding a further extension of the multi-use connection, south of Bloor Street West); and
- Opportunities for public art spaces.

The Greenway multi-use path will be adjacent to the berms at the north and south ends and run under or adjacent to the bridge structure. The Greenway Multi-use path will adhere to current City of Toronto design standards, where feasible.

2.1.2 Anticipated Sequence of Construction and Activities

A description of the initial sequence of construction and activities along with associated equipment requirement assumptions are provided in **Table 2**. These activities represent the relevant features of the Project in terms of potential environmental effects and serve as the basis for the assessment of such effects. The sequence of construction and activities may be expanded or further refined as the Project progresses through various construction and operational phases. For the purposes of this EPR, it is assumed that all applicable law and environmental regulations will be observed; and good environmental practices will be implemented throughout all construction and operating activities (e.g., dust control, sediment and erosion control) to prevent adverse environmental impacts.

Table 2 Anticipated Project Works and Activities

Work or Activity	Description
Site Preparation	• Site preparation activities may involve: - Mobilization of equipment and temporary facilities to the site - Clearing and grubbing of vegetation - Erection of temporary and permanent fences - Installation of environmental management features
Utility Relocations and Regrading at Wallace Avenue	• Relocate hydro line at Wallace Avenue underground • Lower watermain at Paton Road • Lower Wallace Avenue approximately 450mm
Construct Diversion Track	• Diversion track to be located east of existing track and will utilize the eastern rail bridges spans at Dupont Street and Davenport Road • Diversion track requires modification to the level crossing signals at Wallace Avenue and construction of two new diamonds at the CP North Toronto S/D
Install Pier Foundation	• It is anticipated for each pier and abutment location that 1500mm shafts will be drilled to below the level of underlying bedrock • Soil cuttings removed from each shaft will be disposed of offsite
Install Retaining Walls	• Stripping of overburden material • Subexcavation and preparation of founding material • Construction of cast-in-place leveling pads • Sequential placement of granular material, compacted lifts, between layers of mechanical soil reinforcement, typically spaced at 400-500mm
Construct Substructure	• Each substructure includes two cast-in-place columns (extending from the drilled shaft foundations). • Construction of columns • Installation of formwork around rebar cage • Pier caps, where required.
Erect Precast Box Girders and Through Plate Girder	• Erect girders and spans • Install through plate girder bridge over the CP tracks
Construct Post-Tensioned, Voided Slab	• Spans at Wallace Avenue and Dupont Street • Erection of falsework • Temporary road closures and potential vertical clearance restrictions at Wallace Avenue and Dupont Street • Installation of reinforcement and ducting • Fascias and voids are formed. • Undertake post tensioning activities
Finish Superstructure	• Transverse post tensioning and grouting of shear keys between the side boxes • Installation of longitudinal post tensioning over the integral piers • Construction of the cast-in-place rail plinths • Signals, communication, sound walls, aesthetic elements
Install Permanent Twin Track	• Construction of the twin track can commence at the approaches during construction of the rail overpass

Work or Activity	Description
	• Track on approaches would be typical of ballast track construction • Install rail fasteners and rail on finished plinths
Move Trains to Permanent Track	• Disconnect main line tracks at both ends from the diversion track and connect to one of the new tracks at the end of the grade separation
Remove Diversion Track	• Remove diversion track
Construct Pedestrian Crossing at CP and multi-use path	• Construct pedestrian bridge crossing CP tracks • Use temporary track block for erection of the bridge • Construct multi-use path under, and/or adjacent to the structure

3. Existing Environmental Conditions

The following sub-sections provide a description of the existing conditions, and where appropriate, the surrounding lands and future conditions within the Study Area. This section has been divided into the following:

- Planning Context;
- Natural Environment;
- Socio-Economic Environment;
- Cultural Heritage and Archaeology; and
- Urban Infrastructure.

The information documented in this section is also available in the technical reports listed in Section 1.7.

3.1 Planning Context

Provincial legislation and policies and municipal planning policies provide direction to manage growth and infrastructure. The following subsections summarize applicable legislation and policies and their relevance to this Project.

3.1.1 Provincial Policy

Provincial Policy Statement

The Provincial Policy Statement (PPS, 2014) is the statement of the Ontario government's policies 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.

This 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-efficient 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 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.

Places to Grow Act

The *Places to Grow Act* (2005) ensures that growth plans reflect the needs, strengths and opportunities involved, and promotes growth that balances the needs of the economy with the environment. The Growth Plan (2006, as amended in 2012) for the Greater Golden Horseshoe (Growth Plan) is a provincial plan that defines how and where long-term growth and development should occur in the Greater Golden Horseshoe (GGH). Addressing the municipalities around Lake Ontario as one region working together, the Growth Plan establishes a vision for regional growth in the GGH. It includes policies addressing transportation, infrastructure, land use planning, urban form, housing, and natural heritage protection on a regional scale.

The Growth Plan attempts to address the challenges of urban sprawl, automobile congestion, and lack of infrastructure investment by directing growth to built-up areas that can best accommodate the expected population and employment growth. Intensification Areas are to be planned and designed to attract a significant portion of population and employment growth, and they include Urban Centres, Intensification Corridors, Major Transit Station Areas, and other major infill and redevelopment opportunities. The Growth Plan aims to connect these key

Intensification Areas through the provision of an integrated and multi-modal transportation system anchored by efficient public transit.

Land use and transportation planning are to be integrated as part of the municipal planning and development process. In order to achieve transit-oriented development, residential and employment densities must be sufficiently high to support the existing and planned transportation infrastructure. The increased densities envisioned in the Growth Plan also help preserve land that is planned to accommodate future employment uses.

The Growth Plan was amended in June 2013 to update and extend the Growth Plan's population and employment forecasts based on the 2011 census. Amendment 2 growth and employment projections have been factored into the planning of Metrolinx rail transportation infrastructure.

This Project is consistent with the following objectives of the Growth Plan for the GGH:

- Public transit will be the first priority for transportation and major transportation investments;
- Major transit station areas and intensification corridors will be designated in official plans; and
- Major transit station areas and intensification corridors will be planned to ensure the viability of existing and planned transit service levels.

The Study Area contains a number of Intensification Areas as identified in the City's Official Plan, including Intensification Corridors along Dundas Street West, Bloor Street West, and St. Clair Avenue West, as well as the Major Transit Station Areas surrounding Dufferin, Lansdowne and Dundas West TTC Stations and the Bloor GO Station. Growth Plan policies emphasize the need to support transit, walking and cycling, and improve multi-modal access to transit facilities within the Study Area.

The Big Move 2020

The Regional Transportation Plan (RTP) (2008) for the Greater Toronto and Hamilton Area, commonly referred to as The Big Move, provides direction for investment in regional transportation infrastructure over the next 25 years. The RTP presents a vision, goals, objectives and implementation strategies to create an integrated, efficient and coordinated transportation system that will bolster the region's economic competitiveness, protect the environment, and improve regional mobility. The RTP reinforces the objectives outlined in the PPS and Growth Plan, as it prioritizes public transit and active travel, while reiterating the need to create compact, mixed use, transit-supportive and complete communities.

The RTP proposes a range of transportation infrastructure improvements that support this goal over the short-term (within 15 years) and the long-term (15 to 25 years). The RTP calls for investments in GO service, subways, light rail transit, bus rapid transit, and other components of the transportation network. At the core of the RTP is the creation of a fast, frequent and expanded regional rapid transit network. The Big Move contemplates full-day, bidirectional GO service on the Barrie Corridor between Union Station and Bradford to be implemented within the 15-year timeframe. This target has since been revised with the recent Provincial Regional Express Rail (RER) announcement.

Within 10 to 15 years, GO trains are planned to run inbound and outbound on the Barrie Corridor through the Study Area every 15 minutes. Large-scale transit infrastructure projects require sufficient infrastructure corridor capacity to proceed. In light of the proposed regional transit investments, use of the corridors within the Study Area and across the region is likely to intensify in the future. In conjunction with these transit improvements are increased mobility choices, improved accessibility to transit services, and a higher share of trips taken by transit, walking and cycling. The RTP sees the transportation system as an opportunity to create valuable and attractive places within the Study Area, with the creation of more transit and pedestrian-friendly streetscapes and improved walking and cycling amenities.

3.1.2 Municipal Policy

City of Toronto Official Plan

The City of Toronto's Official Plan (Office Consolidation June 2015) sets out the vision and direction for future growth and development to create a livable, attractive, healthy, prosperous and sustainable city. It aims to steer growth to key intensification areas that are well served by transit and that present the greatest opportunity for redevelopment. Specifically, growth is targeted in the Downtown, Central Waterfront, Centres, Avenues, and Employment Districts. At the same time, established residential neighbourhoods will be preserved and are not expected to accommodate significant future growth.

Existing Employment Areas are to support compact mixed used development and to be integrated along the City's transportation corridors. In order to further support existing Employment Areas, investments in transit infrastructure is needed to link these areas with surrounding residential and open spaces.

The Official Plan also provides direction for multi-modal transportation integration, supporting future growth and land use development. Increasing existing use of transportation corridors and public transit services will enhance the connectivity of people and places through reducing reliance on the automobile. The City of Toronto is committed to enhancing both local and regional transit services, and identifies a future new GO Rail station along the Barrie Corridor at Bloor Street West in the southern end of the Study Area.

The Study Area is located within the Davenport Village Secondary Plan, and contains a variety of land use designations intended to promote allocated growth and mixed used development. Various land uses throughout the Study Area including residential, commercial, industrial and open space land uses, providing opportunities for economic growth, healthy living and recreational activities.

Three railway lines, along with the abutting employment uses, pose issues of connectivity and result in somewhat isolated pockets of residential areas that are may not be well connected to available transit services or community amenities. The variety of land uses also results in abrupt transitions between residential uses and heavy employment or utility uses. The proposed overpass, along with future development and investment, will enhance the community's connectivity with surrounding transit services and amenities while maintaining its diverse and dynamic neighbourhood character.

The Toronto Official Plan supports the expansion of passenger rail services while also supporting the protection and creation of healthy and vibrant communities along these corridors. Specific policies relating to the expansion of passenger rail service were identified by the City of Toronto and can be found in Sections 2.1, 2.2 and 3.4 of the Toronto Official Plan. **Table 3** outlines key policies considered.

Table 3 City of Toronto Official Plan Key Policies Considered

Chapter	Sub-Chapter Title	Policy	Description
2.1	Building a More Livable Urban Region	Policy 1 (e)	The City will work with neighbouring municipalities and the Province of Ontario to address mutual challenges and to develop a framework for dealing with growth across the GTA which increase the efficiency and safety of the road and rail freight networks in the movement of goods and services.
2.2	Structuring Growth in the City: Integrating Land Use and Transportation	Policy 3 (g)	The City's transportation network will be maintained and developed to support the growth management objective of this Plan by supporting increased use of existing rail corridors within the City for enhanced local and inter-regional passenger service.
3.4	The Natural Environment	Policy 21	Major Facilities such as airports, transportation/rail infrastructure, corridors and yards, waste management facilities and industries and sensitive land uses such as residences and educational and health facilities will be

Chapter	Sub-Chapter Title	Policy	Description
			appropriately designed, buffered and/or separated from each other to prevent adverse effects from noise, vibration, odour and other contaminates, and to promote safety.

As residential and employment intensification proceeds in the Study Area, future development and investment should align with Official Plan policies. Consideration should be given to enhancing connectivity with surrounding transit services and public amenities; improving the transitions between different uses; and ensuring a high-quality public realm and open space network; and encouraging active mobility. Official Plan policies also indicate that the rail corridors within the Study Area are important elements of the transportation network. The introduction of an elevated guideway should be planned and designed to allow for a future station in the vicinity of Bloor Street West.

"Feeling Congested"

The 2014 "Feeling Congested" initiative is part of the City of Toronto's on-going five year Official Plan Review and Municipal Comprehensive Review Process. The initiative aims to alleviate congestion by connecting the residents of the City of Toronto to the decision making process. Through a three phase consultation process, residents had the opportunity to contribute on a variety of topics including light rail transit, cycling lanes, and GO Transit.

The "Feeling Congested" initiative also reviewed the four transportation policy areas of the City of Toronto, including the Rapid Transit Evaluation Framework, Surface Transit Network, Cycling Policy Framework and Rights-of-Way Maps and Schedules. The "Feeling Congested" process developed eight transportation project evaluation criteria which include:

- Experience;
- Public Health & Environment;
- Healthy Neighbourhoods;
- Affordability;
- Choice;
- Social Equity;
- Shaping the City; and
- Supporting Growth.

An analysis considering the rail overpass within the context of the eight above criteria, and linking these eight criteria to relevant City of Toronto Official Plan policies, is provided in Section 4.2.3.

As a result of input from the public, stakeholders, Metrolinx, neighbouring regional municipalities, the Ministry of Municipal Affairs and Housing (MMAH), and other provincial bodies, the "Feeling Congested" initiative has led to an amendment to the City of Toronto's Official Plan's transportation policies (OPA 274).

3.2 Natural Environment

A Natural Heritage Study Report was completed by McIntosh Perry Consulting Engineers Ltd in December, 2015, and an Arborist Report was also completed by IBI Group (see **Appendix B**).

These studies included a review of background information and documentation of the existing conditions of flora, fauna and aquatic species within the Study Area as well as the cumulative impacts of the proposed Project. Field investigations were undertaken in October 2014 and catalogued all flora, fauna and aquatic species within the Study Area. A review of Species at Risk (SAR) was also undertaken.

3.2.1 Terrestrial

3.2.1.1 Study Area

The overall Study Area for the Natural Heritage Study Report was bounded by Bloor Street West in the south and St. Clair Avenue West in the north and was limited to the GO Transit ROW.

The Study Area for the Arborist Report was within the Barrie Corridor property line and adjacent 600cm, between Bloor Street West and St. Clair Avenue West.

For an illustration of the study area, refer to **Appendix B** Natural Heritage Study Report including Arborist Report.

3.2.1.2 Methodology

Terrestrial Investigations

A background data collection and field survey were completed as part of the Natural Heritage Study Report. Information collected during these investigations was used to document the existing environmental conditions present within the Study Area.

Background Data Collection

Background information was collected from a variety of sources including the Wildlife Atlases and the Ontario Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) databases. In addition to these sources, Project specific information was reviewed and included the following:

- Barrie Corridor Planning Study Report (2012);
- Davenport Diamond Conceptual Design Drawings (2014);
- Metrolinx meeting minutes (2014); and
- Davenport Diamond Grade Separation Feasibility Study Update (September 30, 2015).

Field Survey

A field survey took place on October 1, 2014 to acquire information on the Study Area terrestrial ecosystem. The field survey identified the following:

- Existing vegetation communities;
- Species at Risk (SAR);
- Watercourses (within 30 metres of Study Area);
- Resident or migrant bird and wildlife species; and
- Critical habitat areas.

Tree Inventory

Phase One

Through the initial Phase One assessment, trees along the Barrie Corridor and adjacent property were assessed and inventoried on October 2, 2014. Trunk diameter was measured using a calibrated diameter tape as well as a distance laser system for trees on private property at a standard height of 1.4 metres above grade (diameter at breast height, or DBH). In conjunction with the site visit, a Tree Removal and Protection Plan was developed.

Trees were assessed based on:

- Tree health at time of analysis;
- Structural integrity;
- Species response to proposed construction;
- Projected tree age and longevity; and
- Status as safety hazard in its adjacency to the Barrie Corridor and/or other existing and proposed utilities.

Phase Two

The Phase Two assessment further examined tree species' response to the proposed construction based on the HMM Feasibility Study Update Concept – Alternative 4 (November, 2014). Trees were then categorized based on their location as per the Phase One survey as follows;

- Category 1 – Trees with DBH diameter of 30 cm or more, situated on private property, on the subject site
- Category 2 – Trees with DBH diameter of 30 cm of more, situated on private property, within 600 cm of the subject property
- Category 3 – Trees of all diameters situated on City-owned parkland within 600 cm of the subject property; and
- Category 5 – Trees of all diameters situated within the City road allowance adjacent to the subject property.

3.2.1.3 Description of Existing Conditions

Flora

As the Study Area is urban and of linear context with heavily disturbed soils and a large population of non-native species, it was not possible to define the Ecological Land Classification (ELC). The site is described as highly influenced by human activity and represents a culturally-created vegetation community. Many of the plant species present within the Study Area are non-native and are considered invasive, often displacing native species in urban environments due to their reproductive qualities and their tolerance of anthropogenic disturbances. The vegetation existing within the site may more accurately be defined as an assemblage of opportunistic vegetation species.

There were 32 varieties of woody vegetation and 39 varieties of herbaceous vegetation found within the Study Area. The majority of the trees assessed within the Study Area are cultural plantings in public parkland, on the western adjacency of the corridor. These trees are generally of good health and structure and are at the midpoint of their urban lifespan. Background research identified several Species at Risk (SAR) found within the general vicinity of the study site (Natural Heritage Information Centre, 2014); however, there were no SAR observed during the field visit on October 1, 2014. **Table 4** presents plant SAR known to be within the general Study Area.

Table 4 Flora Species at Risk

Species Name	Federal Status	Provincial Status	Habitat Protected	Suitable Habitat Present
Butternut (*Juglans cinerea)*	Endangered	Endangered	No	Yes
Red Mulberry (*Morus rubra*)	Endangered	Endangered	Yes	No
White Wood Aster (*Eurybia divaricate*)	Threatened	Threatened	Yes	No

Fauna

Within the Study Area, the Barrie Corridor may provide some use as a wildlife corridor within the urban environment. It is considered habitat for several species of both resident and migratory bird populations. Bird species observed during the field visit include American Goldfinch; Blue Jay; Chipping Sparrow; Common Yellowthroat; European Starling; Fox Sparrow; Herring Gull; House Finch; House Sparrow; Mourning Dove; Northern Cardinal; Northern Mockingbird; Red-Winged blackbird; Ring-Billed Gull; Rock Dove; Song Sparrow; and White-Throated Sparrow.

Due to the timing of the field visit, many of the bird species observed represent migrating individuals. Migratory birds may utilize the area during breeding season although habitat available within the Study Area is limited and the range of species which utilize the corridor may be limited. The Rock Dove and European Starling (not protected under the *Migratory Birds Convention Act, 1996*) were observed during the field visit on October 1, 2014 and are known to nest under several of the bridge structures present along the rail corridor.

Background research identified several SAR found within the general vicinity of the study site (Natural Heritage Information Centre, 2014). The urban environment coupled with the lack of forage area and habitat, makes utilization of the rail corridor and Study Area difficult for many SAR. The only SAR observed within the Study Area limits was the Monarch, which likely utilizes the corridor for breeding during the summer months; however, individuals observed in October 1, 2014 represent migrating individuals which may be commonly found across southern Ontario each fall. The Milksnake may be found within the Study Area given the suitable habitat, however, it is unlikely that this species uses the area for more than foraging during winter months. Furthermore, it is likely that it may only be incidentally encountered if present.

Table 5 presents fauna SAR known to be within the general Study Area.

Table 5 Fauna SAR

Species Name	Federal Status	Provincial Status	Habitat Protected	Suitable Habitat Present
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Special Concern	No	No
Eastern Musk Turtle (Historic) (*Sternotherus odoratus*)	Special Concern	Threatened	Yes	No
Spiny Softshell (*Apalone spinifera*)	Threatened	Threatened	Yes	No
Milksnake (*Lampropeltis triangulum*)	Special Concern	Special Concern	No	Yes
Queensnake (Historic) (*Regina septemvittata*)	Endangered	Endangered	Yes	No
Eastern Ribbonsnake (Historic) (*Thramnophis sauritus*)	Special Concern	Special Concern	No	No
Common Nighthawk (*Chordeiles minor*)	Threatened	Special Concern	No	Yes
Chimney Swift (*Chaetura pelagica*)	Threatened	Threatened	Yes	No
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	Threatened	Special Concern	No	Yes
Barn Swallow (*Hirundo rustica*)	Threatened	Threatened	Yes	Yes
Redside Dace (*Clinostomus elongates*)	Endangered	Endangered	Yes	No
Northern Myotis (*Myotis septentrionalis*)	Endangered	Endangered	Yes	No
Little Brown Myotis (*Myotis lucifugus*)	Endangered	Endangered	Yes	Yes
Eastern Small-footed Myotis (*Myotis leibii*)	None	Endangered	Yes	No

3.2.2 Aquatic

As there are no surface or subsurface watercourses within 30 m of the Study Area, there are no associated aquatic habitat or species present within the Study Area. This information was confirmed in consultation with the Toronto and Region Conservation Authority (TRCA) and no buried/infilled creeks were revealed during these discussions.

3.2.3 Soils and Groundwater

3.2.3.1 Study Area

A Phase One Environmental Site Assessment (ESA) was completed by ARCADIS Canada Inc. (ARCADIS) in May, 2015 (see **Appendix C**). The Study Area for the Phase One ESA includes properties within 300 m of the rail line centre line, generally bounded by St. Clarens Avenue/Lansdowne Avenue in the east and Laughton Avenue, Perth Avenue, Dundas Street West and/or the CP Rail Line in the west. The north and south boundaries are St. Clair Avenue West and Dundas Street West.

3.2.3.2 Methodology

The Phase One ESA methodology was developed in accordance with CSA Standard Z768-01 and included a review of available records, a site visit and interpretation and reporting of the findings.

Records Review

A review of available relevant and historical records for properties within the Phase One Study Area was undertaken including:

- Geological and soil maps;
- Topographical maps;
- Aerial photographs;
- City directories
- Previous environmental reports
- Fire insurance plans
- Ministry of Natural Resources and Forestry (MNRF) Biodiversity database;
- Ontario Ministry of the Environment and Climate Change (MOECC) Freedom of Information Requests; and
- Private and government environmental databases through the EcoLog Environmental Risk Information System (ERIS).

Site Visit

Site visits were completed to identify on-site and nearby land use activities that may affect the Phase One Property and surrounding lands. The site visits were conducted on October 14 and November 7, 2014 on the east and west sides of the Barrie Corridor respectively. Photographs were taken on both site visits for documentation purposes.

3.2.3.3 Description of Existing Conditions

The Phase One ESA identified 236 potentially contaminating activities (PCAs) that have the potential to impact soil and/or groundwater activity. The 236 PCAs included coal and lumber yards, textile manufacturing, rubber manufacturing, electrical transformer station, oil and fuel storage, foundries, chemical and paint manufacturing and printing operations in addition to a long history of rail use.

The EPR Study Area is located within the Credit Valley, Toronto and Region and Central Lake Ontario (CTC) Source Protection Region. The CTC Source Protection Region is comprised of the Source Water Protection Areas for Credit Valley, Toronto and Region and Central Lake Ontario. According to the CTC Source Protection Region Plan (2015), there are no Wellhead Protection Areas or Intake Protection Zones located in the EPR Study Area.

3.3 Socio-Economic Environment

A Land Use Planning and Socio-Economic Analysis Report was completed by Urban Strategies Inc. in April, 2015 (see **Appendix D**), which provides a summary and analysis of existing neighbourhood conditions, socio-economic characteristics and planning initiatives in areas around the Barrie Corridor. The report also identifies planning and urban design issues and the opportunities associated to align transit infrastructure investments with community building initiatives.

3.3.1 Land Use

3.3.1.1 Study Area

The Study Area boundaries include Bloor Street West to the south, Davenport Road in the north and 200m east and west of the Barrie Corridor.

3.3.1.2 Description of Existing and Future Land Uses

Existing

The communities within the Study Area are diverse in character, featuring both low density and high density built forms, a mix of residential dwellings, and an ethnically diverse population.

The Study Area contains multiple land uses ranging from residential and open space to commercial, institutional and industrial uses. Employment areas predominantly straddle the Barrie Corridor with a mix of industry, manufacturing and wholesaling activities. These employment areas provide a buffer along the Barrie Corridor for the adjacent commercial and residential areas. Some of the historical industrial uses have been converted to commercial, office, studio or residential.

Aside from the scattered small-scale convenience shops and supermarkets, the Study Area has one emerging commercial hub located along Wallace Avenue from Symington Avenue to just east of Lansdowne Avenue. This area has historically been and remains a business and commercial hub. Residential land uses are located farther back from the Barrie Corridor with a few exceptions. The majority of the residential dwellings are single-detached and semi-detached. Although most of the residential development within the Study Area is setback from the Barrie Corridor, there are a few townhouses directly adjacent to the Barrie Corridor, and in some cases with only 20 metres of separation. Newer apartment buildings developed along the Barrie Corridor have increased setbacks.

Figure 24 characterizes land uses within the vicinity of the Study Area.

Future Development

The area has been evolving and continues to experience positive transformation from an industrial corridor to one which integrates residential, employment, retail and community amenities. In addition to three major redevelopments underway, the community is expected to experience significant new development and a growing cluster of business activity.

Within the Study Area, redevelopment interest has intensified over recent years, with several significant developments planned, underway or recently completed. A new library is proposed at 299 Campbell Avenue along with an 18-storey mixed use residential project. The lands to the east of the rail line and to the north and south of Dupont Street have emerged as key locations for larger-scale redevelopment and mixed use infill. Development on the block bounded by the CP Rail tracks to the south and Davenport Road to the north is directed by the Davenport

Village Secondary Plan. Ongoing development of these lands is transforming the former industrial site into a mixed use area, with a combination of townhouses, live/work units, office space, and a new park.

Construction is also underway at the northwest corner of Lansdowne Avenue and Dupont Street, where Fuse Condominiums was recently approved, and will contain 558 units within 23 and 27 storey towers. On the south side of Dupont Street is the former American Standard site where the partial conversion and redevelopment of three former industrial buildings has been completed, bringing new live/work units, rental apartments, and ground floor retail to the area. The vacant lands on the west side of this block have been recently developed with two 14-storey condominium buildings, known as Upside Down Condominiums. At 1439 Bloor Street West, a site plan application is under review to permit the development of a 12 storey mixed-use building with ground floor retail, although to date there is little activity underway on the site.

There is an opportunity for the City of Toronto to collaborate with active developers in the area to capitalize upon city-building opportunities, and to explore potential design strategies that can ensure new developments are well-integrated with the Project. Key development sites that should be the focus of these discussions include Fuse Condominiums, the proposed 299 Campbell Avenue condominium and library, and Phases 6 and 7 of the Davenport Village Secondary Plan.

The area is well connected by transit and active transportation routes north/south within the Study Area, however, east/west connections are limited given the current at-grade Barrie Corridor. In the immediate vicinity of the Study Area there are a number of existing and planned transit and trail improvements that can be better connected to the Davenport communities such as the West Toronto Rail path, the Green Line and the Bloor GO station as proposed in the City's Official Plan.

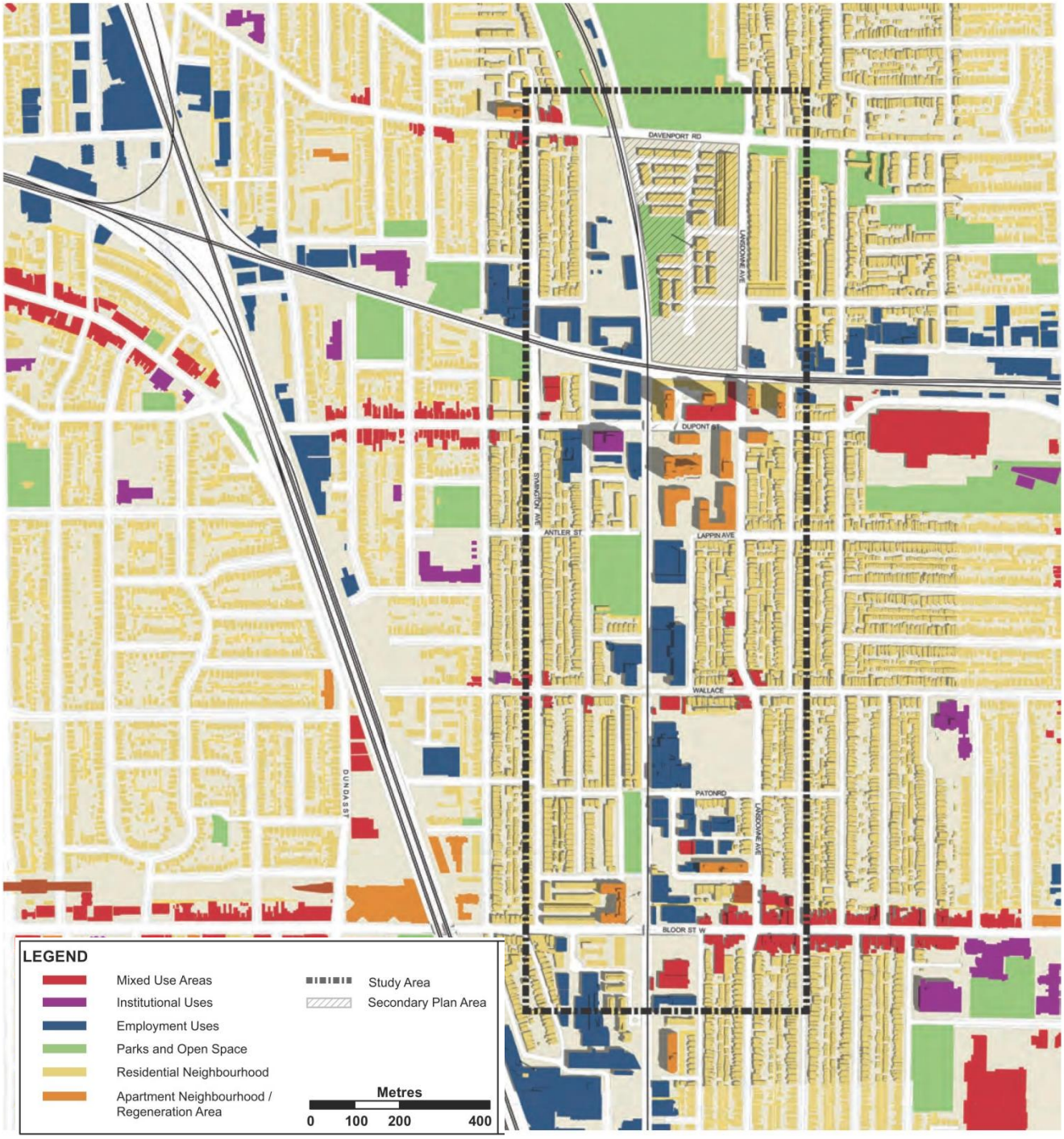
Figure 25 presents the existing community context, planned developments in the area, and the proposed Project. Integrating the range of existing and planned land uses with the elevated guideway will be a key consideration throughout the Project planning and design process.

Population and Employment

The Davenport Community is located within Wards 17 and 18 in the City of Toronto. The 2011 population for Ward 17 was 7,670 and 9,490 for Ward 18. The population in the Davenport Community within both Wards is diverse, with a large proportion of residents of Portuguese decent (17% in Ward 17, 15% in Ward 18). Other nationalities include Italian, Philippine and Chinese.

The Study Area contains a range of land uses providing employment opportunities. There is a wide array of land uses along the Barrie Corridor. Employment Areas are predominantly located adjacent to the railway, with a mix of industrial, manufacturing and wholesaling activities backing onto the rail Barrie Corridor, although they no longer rely on rail access. These employment uses serve as a buffer between the Barrie Corridor and the low-rise residential areas located farther away from the Barrie Corridor. Significant employers within the Study Area include Ubisoft located at 224 Wallace Avenue and the Nitta Gelatin Factory located at 40 Paton Road.

Figure 24 Land Uses within the Vicinity of the Study Area



Source: Davenport Community Rail Overpass, Land Use Planning and Socio-Economic Analysis. Urban Strategies Inc. July 2015, revised April 2016.

Figure 25 3D Model: Existing Community Context, Planned Developments and Proposed Project

Source: Davenport Community Rail Overpass, Land Use Planning and Socio-Economic Analysis. Urban Strategies Inc. July 2015, revised April 2016.

3.3.2 Community Features/Parks

3.3.2.1 Study Area

The Study Area boundaries include Bloor Street West to the south, Davenport Road in the north and 200 m east and west of the Barrie Corridor; the 200 m buffer is considered to capture community features and parks potentially impacted by this project.

3.3.2.2 Description of Existing Conditions

The Study Area includes community facilities and services that are located within surrounding neighbourhoods. Facility and services include a day care, several places of worship schools, community centres and libraries. A new library is also proposed at 299 Campbell Avenue.

The Study Area has a variety of community features and parks connected through the City's existing cycling and trail network. There are also several small and large open parks providing residents with space for recreation and leisure. The largest park within the Study Area is Earlscourt Park which provides residents with multiple recreation opportunities as well as a number of parkettes for leisure. Additional smaller parks within the Study Area include:

- Wallace Emerson Park (located at Dufferin Street and Dupont Street);
- Campbell Avenue Park (located at Campbell Avenue and Antler Street);
- Erwin Krickhahn Park (located at Rankin Crescent and Paton Road); and
- Davenport Village Park (located between Davenport Road and Dupont Street).

3.3.3 Noise and Vibration

A Noise and Vibration Assessment was completed by J.E. Coulter Associates Limited in January, 2016 and revised in May 2016 (see **Appendix E**). The study assessed the effect of the change in noise and vibration levels in the Study Area as a result of the Project during operation and construction.

3.3.3.1 Study Area

The Study Area extends from 200 m north of Davenport Road to 200 m south of Bloor Street West and up to 300 m east or west of the tracks.

3.3.3.2 Methodologies and Existing Conditions

Operational Noise

The MOEE/GO Transit Draft Protocol for Noise and Vibration Assessment (Version 9, January 1995) (the Protocol) outlines the required assessment approaches and criteria to assess GO Transit noise impacts. The assessment of the noise effects of the overpass are based on a comparison of the existing sound levels to the future with-project sound levels. In this assessment, impacts are evaluated on a comparison of future sound levels with and without the Project (also referred to as the pre-Project and post-Project) or to a set of minimum exclusion sound levels. For the

purposes of this Project, a stated time horizon of 10 years has been used, which is based on Metrolinx's RER plan, targeting 15 minute service levels. The protocol evaluates noise from the projects based on the Adjusted Noise Impact. The noise impact assessment is based on the comparison of existing sound levels (14 diesel trains) to the ultimate sound levels with 180 electric trains operating on the overpass. The impact is based on the difference between the higher of the pre-Project noise (which is the combination of the ambient noise and the rail noise) and 55 dBA L_{eq},16hr (daytime) or 50 dBA L_{eq},8 hr (nighttime), and the post-Project noise (which is the combination of the ambient noise and the post-Project rail noise). The impact scale from the protocol is noted in **Table 6** below.

Table 6 MOEE/GO Transit Draft Protocol Impact Scale

Adjusted Noise Impact Level	Impact Rating
0 - 2.99 dBA	Insignificant
3 - 4.99 dBA	Noticeable
5 - 9.99 dBA	Significant
10+ dBA	Very Significant

Within the Study Area, land uses are predominantly residential, including a variety of low-rise, mid-rise, and high-rise development. In addition, there are several commercial and industrial buildings adjacent to the corridor, particularly around the Davenport Diamond and on the east side of the corridor between Dupont Street and Bloor Street West.

Noise impacts from transportation projects are evaluated at nearby noise sensitive receptors. Although not explicitly referred to in the Protocol, the types of receptors considered in the assessment are outlined below. A full list of receptors within the study area can be found in **Appendix E**.

- Residential development, including private homes and multi-unit dwellings;
- Hospitals, assisted living facilities, nursing homes;
- Schools and other educational facilities such as daycares;
- Hotels and motels;
- Places of worship; and
- Commercial/industrial buildings with uses that are especially sensitive to noise or vibration.

As described above, the assessment of noise effects was based on a comparison of the existing sound levels to the future with-project sound levels. **Table 7** below provides the scenarios reviewed in the noise assessment.

Table 7 Noise Assessment Scenarios

Scenario	Crossing Type	Trains Per Day	Type of Train	Year
1	At-grade	14	Diesel	2015
2	Elevated	36	Diesel	2025
3	Elevated	180	Electric	2025

Operational transportation (roadway and railway) noise was assessed using the CadnaA noise prediction program. In order to document the sound from the existing diamond, long-term sound level measurements and a series of attended measurements were taken at several locations adjacent to the Davenport Diamond. These measurements confirmed the incremental noise associated with the diamond, and provided the adjustment that would need to be applied in order to account for the noise produced by trains passing over the diamond, which would be eliminated with the overpass.

The noise study found that sound levels from freight trains passing over the diamond reached maximum levels of approximately 105 dBA at 5 m (a sound power level of 127 dBA Lw). For GO Trains, the maximum sound level was found to be approximately 111 dBA at 5m (a sound power level of 133 dBA Lw). The corresponding standard maximum sound level to use for crossovers in the FTA guideline is approximately 90 dBA at 15 m or 100 dBA at 5 m (not accounting for ground effect). The measurements indicate that the crossover noise of the Davenport diamond is 10 dBA (or twice as loud) higher than general estimates would indicate.

Unlike the railway's tangent tracks, which are line sources, the crossover is a point source. For point sources, noise reduces at a much faster rate than line sources. The impact of the diamond noise then drops at a faster rate than the passby noise from the railway. At 150 m north or south of the diamond, the passby noise begins to dominate over the diamond's effect.

The measurements indicated that there is some noticeable variation in the maximum sound level from trains passing over the Diamond, particularly with freight traffic. Slower moving trains tend to produce longer maximum sound levels as they cross the Diamond. However, the sound level lasts for a longer period of time. The average sound level over a longer period, then, is not significantly affected by the variation in the speed of trains.

Generally the impact from the project is greatest away from major roadways, as the noise from the roads dominates the ambient sound level in their immediate vicinity. As no major roadways run parallel to the corridor (within the Study Area) between the railway and nearby receptors, the contribution of roadways to the sound level in the Study Area is generally minimal and concentrated around the areas where the GO Transit tracks cross over or underneath roadways. The assessment of the overpass is not as sensitive to the prediction of roadway noise.

Operational Vibration

The extent of the vibration impacts is determined by first confirming that the vibration levels are or will be above 0.14 mm/s. Individuals are typically more sensitive to increases in vibration levels than they are to increases in sound levels. For example, an increase in vibration levels could generate a higher impact on the receiver than a similar increase in sound levels.

According to the Protocol, the vibration levels from GO Transit operations (which exclude maintenance and construction) should not exceed 0.14 mm/s RMS. If the vibration levels with the project in place exceed the higher of the existing vibration level or 0.14 mm/s RMS by 25% or more, vibration mitigation needs to be investigated where technically, economically, operationally, and administratively feasible.

The vibration assessment process involved a series of vibration measurements at various points adjacent to the corridor. A total of four locations were selected to get a broad representation of conditions that occur at various soil types. The locations were selected based on one of two factors: some points were selected because of the likelihood of vibration impacts in that area; the remainder of the points were selected to provide an indication of vibration levels characteristic for that particular soil type. In some cases, a single location served both purposes. At each location, two vibration measurement points were used. The first measurement point was located at approximately the same setback as nearby residential receptors are from the existing track. The second measurement point is located approximately 6.5m closer to the tracks to reflect the new location of the nearest track.

The existing vibration levels measured at the four measurement locations are shown in **Table 8** below. Location 1 represents an area where the future elevated guideway will be located. Locations 2, 3, and 4 are representative of the vibration levels where the tracks will move closer to the receptors on the west side of the corridor, where the track is on the ramp leading up to the guideway. The four measurement locations are shown in **Appendix E**.

Table 8 Measured Vibration Levels

Location	Soil Type	Distance to Track (m)	Maximum Vibration Level (mm/s RMS)	Number of Trains Measured	Average Vibration Level (MM/s RMS)
1	Sandy	10	0.77	5	0.72
		16	0.45	5	0.40
2	Clay till	20	0.15	5	0.14
		26	0.12	5	0.12
3	Sandy	24	0.53	5	0.46
		30	0.49	5	0.41
4	Clay till	24	0.09	1	0.09
		30	0.07	1	0.07

3.3.4 Air Quality

An Air Quality Impact Assessment was completed by ARCADIS in April, 2016 (see **Appendix F**). This assessment evaluated the cumulative air quality effects that may arise due to the proposed Project.

3.3.4.1 Study Area

The Study Area was limited to the area between College Street in the south, Rogers Road in the north, Keele Street to the west and Dufferin Street in the east.

3.3.4.2 Methodology

To assess current air quality in the Study Area, historical air quality monitoring data from a Metrolinx ambient air quality monitoring station located at 372 Wallace Avenue was used. Metrolinx has developed and implemented an Ambient Air Quality Monitoring and Report Plan approved by the MOECC, with monitoring stations located adjacent to the GO Kitchener rail corridor. The 372 Wallace Avenue station is located within the Study Area, approximately 25 m from the GO Kitchener rail corridor at the end of Wallace Avenue. The MOECC also measures air contaminants at various locations throughout Ontario, and reports on the state of Ontario's air quality on an annual basis. The Toronto Downtown and Toronto West MOECC monitoring stations were also considered for comparison with the Metrolinx station: Toronto West (MOECC 35125 – located approximately 9 km from the Study Area), and Toronto Downtown (MOECC 31103 – located approximately 5 km from the Study Area).

The potential impact of contaminate emissions on air quality in the vicinity of the GO Transit rail corridor was evaluated using the CAL3QHCR specialized transportation dispersion model for above grade rail and road sources. The primary contaminants of concern included particulate matter less than 2.5 microns ($PM_{2.5}$), nitrogen dioxide (NO_2 including NOx and NO), sulphur dioxide (SO_2), carbon monoxide (CO), acrolein, acetaldehyde, benzene, benzo(a)pyrene, butadiene, formaldehyde, and greenhouse gases. The ozone limiting method was used to estimate NO_2 concentrations based on NOx emission rates.

To evaluate the potential impact of the proposed Project at nearby receptor locations, model predicted concentrations from proposed GO Transit operations in combination with emissions from the east-west CP rail corridor and local arterial roadways were added to local background concentrations and compared to applicable provincial and/or federal ambient air quality criteria, standards or guidelines.

The assessment covered three scenarios:

1. Existing Conditions (2015) - Current GO Rail service (14 trains/day) with one track for GO Trains and existing at grade crossing of GO Corridor and CP Corridor.

2. Future No-Build (2025) – Hourly Midday service (36 diesel trains/day) with one track for GO Trains and existing at grade crossing of GO Corridor and CP Corridor.
3. Future Build Overpass (2025) – Hourly Midday service (36 diesel trains/day) with two tracks for GO Trains and GO Corridor grade separated above the CP Corridor via 2% slope.

3.3.4.3 Description of Existing Conditions

Historical air quality monitoring data from the Metrolinx ambient air quality monitoring station at 372 Wallace Avenue was obtained. The results of the study show, through modelling and monitoring, that the existing air quality in the Study Area is typical of an urban setting, which is characterized by elevated pollutant concentrations in relation to rural areas, with periodic exceedances of applicable air quality criteria.

Historical monitoring data within the Study Area indicates that background levels of:

- SO_2, NO_2, CO, acetaldehyde, 1,3-butadiene and formaldehyde concentrations are well within applicable criteria;
- Acrolein, benzene and $PM_{2.5}$ concentrations periodically exceed applicable criteria; and
- Benzo(a)pyrene regularly exceeds applicable criteria.

It should be noted that benzene and benzo(a)pyrene exceedances are not unique to the Study Area and the City of Toronto, but are a widespread occurrence across urban southern Ontario.

Based on a comparison of historical monitoring data with applicable MOECC criteria, the expected contaminants of concern associated with the Project are those with historical exceedances: PM2.5, acrolein, benzene and benzo(a)pyrene.

Historical monitoring data outlines a typical urban airshed with occasional smog periods during which air quality is compromised. In Ontario, the smog season occurs from May through September, with most events of compromised air quality occurring as a result of northward transboundary flow of polluted air masses from the Ohio Valley in the United States.

3.4 Cultural Heritage and Archaeology

3.4.1 Built Heritage and Cultural Heritage Landscapes

A Cultural Heritage Screening Report (CHSR) was completed by Taylor Hazell Architects in June, 2015 and revised in April 2016 (see **Appendix G**). This CHSR allows Metrolinx to determine properties with identified or potential cultural heritage value and addresses built heritage resources and cultural heritage landscapes. When making decisions about properties with cultural heritage value, all ministries and public bodies prescribed under O.Reg 157/10, including Metrolinx, are subject to the Standards and Guidelines for Conservation of Provincial Heritage Properties, prepared pursuant to Part II of the *Ontario Heritage Act*.

3.4.1.1 Study Area

The Study Area for the CHSR is bounded by St. Clair Avenue West and Bloor Street West to the north and south respectively. The east and west limits were narrowed to assess the potential operational impacts to properties contiguous to the Study Area rather than the potential construction impacts. The EPR Study Area is bounded by just north of Davenport Road and Bloor Street West to the north and south respectively (see **Figure 2**, Section 1.4). Therefore properties identified in the CHSR outside of the EPR Study Area were not carried forward for further assessment in Section 4 of this EPR, as noted below.

3.4.1.2 Methodology

The CHSR studied properties directly adjacent to the Barrie Corridor between Bloor Street West and St. Clair Avenue West. The CHSR Study Area was narrowed from the TPAP Study Area to assess potential operational impacts to properties. Through a site visit and background review, 153 properties in the Study Area were screened for heritage potential. The background review included the use of GIS and aerial photography, the City of Toronto's Inventory of Heritage Properties (Heritage register) and previous Environmental Assessments within the Study Area. Sites containing built or landscape resources over 40 years of age were further evaluated under the *Ontario Heritage Act* (O. Reg. 9/06) to determine the potential for cultural heritage value and the requirement for further heritage planning work.

3.4.1.3 Description of Existing Conditions


Davenport Subway

Of the 153 properties screened within the Study Area, 37 were considered to contain built heritage or cultural resources over 40 years of age. Through a further evaluation process using the criteria set in O.Reg. 9/06, 11 of these properties met the criteria for potential heritage value. These 11 properties are owned by either Metrolinx (e.g., Davenport Subway), Hydro One, City of Toronto or Private Owners. From the 11 properties, two properties (St. Clair Avenue West Subway and 1550 St. Clair Avenue) were outside of the EPR Study Area and therefore not carried forward for further assessment.

Table 9 shows the Provincial Properties Owned by Metrolinx, Provincial Properties Owned by Hydro One, Privately-owned Properties with Identified Heritage Value and municipally-owned Properties with Heritage Potential.

Table 9 Properties with Identified or Potential Heritage Value

Structure	Applicable Section of the *Heritage Act*
Owned by Metrolinx	
Bloor Street West Subway	Part III.1 – Standards & Guidelines for Conservation of Provincial Heritage Properties (S&G PHP)
Dupont Street Railway	Part III.1 – S&G PHP
Davenport Road Subway	Part III.1 – S&G PHP
St. Clair Avenue West Subway (outside EPR study area)	Part III.1 – S&G PHP
Owned by Hydro One	
75 Wiltshire Avenue	Part III.1 – S&G PHP
39 Wiltshire Avenue	Part III.1 – S&G PHP
Privately Owned	
224 Wallace Avenue	Part IV (included on Heritage Register)
30 Powerhouse Street	Part IV (included on Heritage Register)
1550 St. Clair Avenue (outside EPR study area)	Part IV (included on Heritage Register)
Municipally Owned	
19 Wiltshire Avenue	Part IV
1200 Lansdowne Avenue (Earlscourt Park)	Part IV

The CHSR identified three properties that are currently included on the City of Toronto's Heritage Register and are therefore protected under Part IV of the *Ontario Heritage Act* and are listed in **Table 10**.

Table 10 Properties Listed on the City of Toronto Heritage Register

Property Address	Applicable Section of the *Heritage Act*
224 Wallace Avenue	Part IV, Section 27
1550 St. Clair Avenue West (outside EPR study area)	Part IV, Section 27
30 Powerhouse Street	Part IV, Section 29

3.4.2 Archaeology

In December 2008, Archaeological Services Inc. (ASI) completed a Stage 1 Archaeological Assessment for the Davenport Diamond Rail Grade Separation Class EA in the City of Toronto. The Stage 1 Archaeological Assessment is included in **Appendix H**.

3.4.2.1 Study Area

The Study Area for the 2008 Stage 1 Archaeological Assessment extended along the GO Barrie Corridor between St. Clair Avenue to the north, 750 m south of Bloor Street West to the south, Keele Street to the west and Dufferin Street to the east.

3.4.2.2 Methodology

The Stage 1 Archaeological Assessment was conducted in accordance with the *Ontario Heritage Act, 2005* and the MTCS draft *Standards and Guidelines for Consultant Archaeologists, 2006.* The Stage 1 Archaeological Assessment has been entered into the Ontario Public Register of Archaeological Reports.

A desktop review of archaeological resources was conducted using the site record forms for registered sites housed at the MTCS, published and unpublished documentary sources, and the files of ASI.

A field visit to the Study Area was conducted on December 3, 2008 in order to confirm the assessment of archaeological site potential and to determine the degree to which development and landscape alterations may have affected that potential.

3.4.2.3 Description of Existing Conditions

The assessment determined that a single archaeological site, Carleton Village Public School, had been registered approximately 500 m east of the Study Area. A review of the physiography and local nineteenth century land use of the Study Area suggested that it has potential for the identification of Aboriginal and Euro-Canadian archaeological sites. The field review determined that CN and CP Rail rights-of-way do not exhibit archaeological site potential due to previous construction disturbances.

As such, since the CN and CP Rail rights-of-way are heavily disturbed additional archaeological assessments are not required within the ROW and the Study Area can be cleared of further archaeological concern.

ASI has confirmed that there are no new sites or development since the undertaking of the Stage 1 Archaeological Assessment.

3.5 Urban Infrastructure

3.5.1 Rail

3.5.1.1 Infrastructure

Within the Study Area, the GO Kitchener Line and GO Barrie Line generally run in a north-south direction and the CP North Toronto Subdivision runs in an east-west direction. The GO Barrie Line and CP North Toronto Subdivision

intersect at the Davenport Diamond. The Davenport Diamond is controlled and maintained by CP Rail, which does not have set schedules for freight service.

GO trains from Barrie currently stop at the following stations:

- Barrie South;
- Bradford;
- East Gwillimbury;
- Newmarket;
- Aurora;
- King City;
- Maple;
- Rutherford;
- York University; and
- Toronto Union.

The Davenport Diamond is located between the latter two stations.

Additional stations outside the Davenport Diamond Study Area are under consideration as detailed in Section 1.3.

3.5.1.2 Operations

Passenger train service between Barrie and Toronto was operated by CN Rail until 1978, then by VIA Rail until termination in 1982. GO Transit introduced train service on the southern section of this route (between Bradford and Toronto) in September 1982. In September 1990 GO Transit extended the Bradford train service to Barrie but this extension was eliminated in July 1993. Service from Barrie was re-introduced in December 2007.

GO Transit train service on the Barrie–Bradford Corridor started with a single round trip to Toronto each weekday until, in September 1998, GO Transit added a second train to the line. A third train was added in 2001 and a fourth train in 2005.

In addition to increasing the number of trains serving the Barrie Corridor, GO Transit has also increased the lengths of the trains. In 2008 service along the Barrie Corridor was almost at full capacity with four trains, each with 10 bi-level cars.

The current level of service for the GO Barrie line is 14 trains per weekday (7 in each peak direction – southbound in the morning and northbound in the evening); there is no GO train service on the Barrie line on weekends (with the exception of some limited summer service).

By 2018, increased peak service as well as the introduction of hourly midday service will bring the trains per weekday to 36. Once the Barrie Corridor has been electrified, further service improvements as well as hourly all-day service will be possible, to a level of 60 trains per day. Ultimately, the Regional Express Rail (RER) concept would see all-day service at 15 minute frequencies in both directions (approximately 180 trains per day) requiring significant investment in Barrie Corridor improvements beyond the current Study Area and subject to a separate environmental assessment.

3.5.2 Traffic

Traffic Impact Assessment - Construction

A separate Traffic Impact Assessment Report was completed by HMM in January 2016 assessing construction impacts (see **Appendix I**). The report includes an assessment of impacts associated with the closure of Wallace Avenue during construction. The assessment also considers the feasibility of the available detour routes and if there are potential temporary measures that can reduce the traffic impacts along these routes.

Traffic Impact Assessment - Operations

A Traffic Impact Assessment Report was completed by MMM Group in February 2015 and revised in June 2015 (see **Appendix I**) addressing operational impacts. This report includes a review of existing traffic operations in the Study Area, and identifies and assesses opportunities to improve traffic operations within the community and understand the potential benefits associated with the proposed Project.

3.5.2.1 Study Area

Traffic Impact Assessment - Construction

Based on proposed detour routes and proposed construction truck traffic to the proposed staging areas, the January 2016 traffic impact assessment Study Area is within the area bounded by Davenport Road in the north, Bloor Street West in the south, Lansdowne Avenue in the east and Symington Avenue in the west.

Traffic Impact Assessment - Operations

The June 2015 traffic impact assessment and active transportation Study Areas are bounded by St. Clair Avenue West in the north, Bloor Street West in the south, Dundas Street/Rail Line in the east and Lansdowne Road in the west.

For an illustration of the above noted study areas, refer to **Appendix I** Davenport Community Rail Overpass Urban Planning and Transportation Study – Traffic Impact Assessment Report: Construction (Figures 4 and 5) and Barrie Rail Corridor Project, Davenport Diamond Grade Separation Feasibility Study – Traffic Impact Assessment of the Elevated Guideway Option: Operations (Figures 5 and 7).

3.5.2.2 Methodology

Traffic Impact Assessment - Construction

To assess potential impacts to traffic operations during construction in relation to developing detour routes, a capacity and level of service operational analysis was completed for key signalized and un-signalized intersections. The baseline conditions for the traffic analysis used traffic volumes collected between 2007 and 2015 provided by the City of Toronto. Development of the alternate detour routes also considered restrictions within the study area (e.g., restricted left turning movements on Bloor Street to Lansdowne Avenue and heavy truck restrictions on Lansdowne Avenue, Wallace Avenue, Symington Avenue and Laughton Avenue); TTC bus and streetcar routes; and current on street parking facilities.

Traffic Impact Assessment - Operations

To assess the potential impacts to traffic operations in regard to the proposed grade separation, an analysis of current and future base transportation networks was established. Development of the future baseline conditions was based on background growth data and future growth projections. Existing traffic operations were assessed using traffic counts obtained from the City of Toronto collected between 2010 and 2013. The analysis also accounted for new traffic generated from three major residential buildings located in the Study Area. Future traffic conditions were assessed under an alternative road network improvement scenario which would connect Lappin Avenue and Antler Street allowing vehicular traffic under the rail separation. Alternative transportation enhancements were also considered including pedestrian and cycling networks.

Active Transportation

A review of active transportation opportunities was undertaken as part of the Urban Planning and Transportation Study. The purpose of this review was to summarize existing and future plans for the pedestrian and cycling network in the Study Area as well as identify potential improvements to the pedestrian and cycling network available under the proposed elevated structure.

For additional information, refer to **Appendix J** Active Transportation Memorandum.

3.5.2.3 Description of Existing Conditions

Traffic Impact Assessment – Construction

There are a number of TTC bus and streetcar routes that traverse the Study Area. These routes include the following:

Streetcar Route:

- 512 St. Clair.

Regular Bus Route

- 47ABC Lansdowne;
- 127 Davenport; and
- 168 Symington.

Community Bus Service

- 402 Parkdale.

Baseline conditions for the traffic analysis was undertaken using volumes obtained from turning movement counts (TMC's) provided by the City of Toronto between the years of 2007 and 2015. **Table 11** outlines the TMC's provided.

Table 11 Summary of Turning Movement Counts

Intersection	Date Collected	AM Peak Hour	PM Peak Hour
Davenport Road and Lansdowne Avenue	2011-Aug-08	07:45–08:45	17:00–18:00
Laughton Avenue and Davenport Road	2012-Nov-12	07:45–08:45	16:15–17:15
Symington Avenue and Davenport Road	2015-Apr-23	07:45–08:45	17:00–18:00
Davenport Road and Caledonia Park Road	2011-May-04	08:00–09:00	16:30–17:30
Dupont Street and Lansdowne Avenue	2011-Feb-08	08:00–09:00	16:00–17:00
Dupont Street and Symington Avenue	2011-Feb-15	08:00–09:00	16:30–17:30
Wallace Avenue and Lansdowne Avenue	2012-Aug-27	08:15–09:15	16:00–17:00
Lansdowne Avenue and Bloor Street West	2010-May-18	07:45–08:45	16:45–17:45
Dundas Street West and Bloor Street	2013-Aug-08	08:00–09:00	16:45–17:45
Sterling Road/Symington Avenue and Bloor Street West	2012-Aug-20	08:15–09:15	16:30–17:30
Dupont Street and Osler Street	2015-Apr-21	07:30–08:30	16:45–17:45
Lansdowne Avenue and Lappin Avenue	2014-Nov-26	08:00–09:00	17:00–18:00
Lansdowne Avenue and Paton Road	2007-Jan-17	07:45–08:45	17:00–18:00
Symington Avenue and Wallace Avenue	2013-May-21	08:00–09:00	17:00–18:00

To assess existing conditions, a Level of Service (LOS) analysis was undertaken at signalized and unsignalized intersections and were graded from a LOS of 'A' to 'F'. The LOS at signalized intersections is presented for the intersection as a whole, while unsignalized intersections it is the LOS of the most critical movement. The following **Table 12** defines the LOS definitions.

Table 12 Level of Service Definitions

Level of Service	Signalized Intersection Control Delay per Vehicle (s/veh)	Unsignalized Intersection Control Delay per Vehicle (s/veh)
A (Free Flow)	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E (Capacity)	> 55 and ≤ 80	> 35 and ≤ 50
F (Forced Flow)	> 80	> 50

The results of the existing conditions (2015) analysis indicate that seven out of the 10 signalized intersections are operating an acceptable capacity of LOS C or better. The three intersections that are approaching or operating at capacity are as follows:

- Davenport Road and Lansdowne Avenue – operating at capacity during the morning peak hour and at an acceptable level during the afternoon peak hour. As increasing the cycle length time will not improve effective capacity; no improvements are recommended at this time.
- Davenport Road and Caledonia Road – operating near capacity during both morning and afternoon peak hours, with acceptable LOS as a result of low overall delays. The eastbound left turning movement has been identified as the critical movement at this intersection. While increasing the cycle length, optimization of the cycle length and split, capacity at this intersection can be improved to within acceptable levels. Since the heavy movements are eastbound through and southbound left are operating within acceptable delays, improvements are not recommended.
- Symington Avenue and Bloor Street West – operating at capacity during the morning peak hour, but acceptable during the afternoon peak hour.

With respect to the four unsignalized, stop-controlled intersections, they are generally operating well without major delays. The one exception is the intersection at Lansdowne Avenue and Lappin Avenue, which is operating at capacity during the afternoon peak hour, with extensive delays and congestion on the stop-controlled eastbound and westbound movements. This is a result of high north-south volumes on Lansdowne Avenue. The current traffic volumes do not warrant a traffic signal and there are no further recommendations for this intersection.

The following **Table 13** outlines the LOS for each intersection.

Table 13 Intersection Capacity and Level of Service for Existing Conditions

Site Location	AM Peak Hour Trips			PM Peak Hour Trips		
	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]
Signalized Intersections						
Davenport Road and Lansdowne Avenue	D (48.8)	**0.98**	EB,NBTR	C (31.6)	0.82	EB, WB
Laughton Avenue and Davenport Road	B (17.5)	0.61		B (13.7)	0.53	

Site Location	AM Peak Hour Trips			PM Peak Hour Trips		
	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]
Symington Avenue and Davenport Road	B (17.2)	0.68		B (15.6)	0.69	
Davenport Road and Caledonia Park Road	C (30.8)	**0.94**	EBL	D (37.3)	**0.93**	EBL, WBTR, SBL
Dupont Street and Lansdowne Avenue	B (17.2)	0.67		C (20.8)	0.78	WB
Dupont Street and Symington Avenue	B (19.1)	0.68		B (14.6)	0.58	
Wallace Avenue and Lansdowne Avenue	B (15.4)	0.35		B (15.3)	0.47	
Lansdowne Avenue and Bloor Street West	B (14.5)	0.55		B (18.3)	0.55	
Dundas Street West and Bloor Street West	C (24.7)	0.63		C (22.0)	0.76	NBTR
Sterling Road/ Symington Avenue and Bloor Street West	C (21.5)	0.65		C (32.7)	0.78	EBTL, NB
Unsignalized Intersections						
Dupont Street and Osler Street	E (37.1)	0.41	SB	D (27.7)	0.36	
Lansdowne Avenue and Lappin Avenue	D (29.3)	0.29		**F (345)**	**1.55**	**EB, WB**
Lansdowne Avenue and Paton Road	D (28.2)	0.24		D (34.0)	0.26	
Symington Avenue and Wallace Avenue	B (12.6)	0.54		B (13.2)	0.52	

Notes: i. For unsignalized intersections, the LOS is defined by the movement with the highest delay.
ii. Maximum volume-to-capacity (v/c) ratio
iii. Critical movement represents the worst performing movement at the intersection. For signalized intersections, critical movements are those with a v/c ratio exceeding 0.85. For unsignalized intersections, critical movements are those with LOS E or F.

Future background conditions (2018) were also assessed using a traffic growth rate of 1%. Assuming that there are no changes to signal timing plans and there are no improvements to the road network, it assumed that operating conditions will deteriorate. **Table 14** outlines the intersection capacity and LOS for 2018.

Table 14 Intersection Capacity and Level of Service for Future Background Conditions (2018)

Site Location	AM Peak Hour Trips			PM Peak Hour Trips		
	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]
Signalized Intersections						
Davenport Road and Lansdowne Avenue	D (44.7)	**0.99**	EB, SBTR	D (37.2)	0.89	EB, WB
Laughton Avenue and Davenport Road	B (18.4)	0.63		B (14.8)	0.58	
Symington Avenue and Davenport Road	B (18.5)	0.70		B (17.7)	0.75	
Davenport Road and Caledonia Park Road	C (32.7)	**0.98**	EBL, SBL	D (40.4)	**0.96**	EBL, WBRT, SBL
Dupont Street and Lansdowne Avenue	B (18.0)	0.69	SB	C (17.6)	0.89	
Dupont Street and Symington Avenue	B (19.2)	0.68		B (15.8)	0.64	
Wallace Avenue and Lansdowne Avenue	B (15.4)	0.36		B (15.8)	0.51	
Lansdowne Avenue and Bloor Street West	B (14.8)	0.56		B (19.3)	0.63	

Site Location	AM Peak Hour Trips			PM Peak Hour Trips		
	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]
Dundas Street West and Bloor Street West	C (26.0)	0.67		C (27.3)	0.85	NB
Sterling Road/ Symington Avenue and Bloor Street West	C (22.8)	0.68	EB	C (32.7)	0.86	EB, NB
Unsignalized Intersections						
Dupont Street and Osler Street	E (42.9)	0.46	SB	D (34.2)	0.44	
Lansdowne Avenue and Lappin Avenue	D (31.4)	0.32		**F (559)**	**2.02**	EB, WB
Lansdowne Avenue and Paton Road	D (29.4)	0.25		E (40.2)	0.32	EB
Symington Avenue and Wallace Avenue	B (12.9)	0.55		C (15.1)	0.53	

Notes: Notes: i. For unsignalized intersections, the LOS is defined by the movement with the highest delay.
ii. Maximum volume-to-capacity (v/c) ratio
iii. Critical movement represents the worst performing movement at the intersection. For signalized intersections, critical movements are those with a v/c ratio exceeding 0.85. For unsignalized intersections, critical movements are those with LOS E or F.

Traffic Impact Assessment - Operations

The existing traffic operations were assessed using traffic counts obtained from the City of Toronto that were collected between the years of 2010 and 2013. The traffic counts at the intersection of Lansdowne Avenue at Lappin Avenue was contracted by MMM Group and undertaken by TSA Inc. A list of the traffic count data used in the study is shown in **Table 15**.

Table 15 Traffic Count Data Sources

	Traffic Count Data		Signal Timing Data
Intersection	**Date**	**Source**	**Source**
Bloor Street West @ Dundas Street	08-Aug-13	City of Toronto	City of Toronto
Bloor Street West @ Lansdowne	18-May-10	City of Toronto	City of Toronto
Davenport @ Lansdowne Avenue	08-Aug-11	City of Toronto	City of Toronto
Dupont Street @ Lansdowne Avenue	08-Feb-11	City of Toronto	City of Toronto
Dupont Street @ Symington Avenue	15-Feb-11	City of Toronto	City of Toronto
Lansdowne Avenue @ Paton Road	17-Jan-07	City of Toronto	-
Lansdowne Avenue @ Wallace Avenue	27-Aug-12	City of Toronto	City of Toronto
Old Weston Road @ St Clair Avenue West	15-Nov-12	City of Toronto	City of Toronto
Annette Street, Dundas Street & Dupont Street @ Old Weston Road	16-Feb-11	City of Toronto	City of Toronto
Dundas Street @ Dupont Street	18-Apr-05	City of Toronto	City of Toronto
Lansdowne Avenue @ Lappin Avenue	26-Nov-14	MMM Group	-

To assess existing and future conditions during peak periods, a LOS analysis was undertaken at key intersections within the Study Area and were graded from a LOS of ‘A’ to ‘F’. The LOS ratings are an indication of the estimated average delay per vehicle using the intersection. The following **Table 16** summarizes the LOS indicators and their respective ranges of delay.

Table 16 Intersection Levels-of-Service (LOS)

Signalized			Unsignalized	
Average Delay (sec)	**LOS**	**Operation (signalized intersections only)**	**Average Delay (sec)**	**LOS**
< 10	*A*	*Acceptable operation*	< 10	A
10 - 20	B		10 - 20	B
20 - 35	C		20 - 30	C
			30 - 40	D
35 - 55	D			
55 - 80	E	Marginally acceptable operation – occasional queuing	40 - 50	E
> 80	F	Unacceptable operation – persistent queuing	>50	**F**

Refer to **Table 17** for the LOS at key intersections**.**

Table 17 Intersections Level of Service – Existing Conditions (2014)

Intersection	Intersection Level of Service		V/C of Worst Performing Approach[3]	
	AM Peak Hour	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
Old Weston Road @ St Clair Avenue West	C	D	NBT = 0.70, SBT = 0.80	WBT = 0.92 SBT/SBL/SBR = 0.79
Annette Street, Dundas Stret & Dupont Street @ Old Weston Road	**F**	**F**	Most movements operating beyond capacity	Most movements operating beyond capacity
Dupont Street @ Symington Avenue	B	B	EBT/EBL = 0.42 SBT/SBL/SBR = 0.44	SBT/SBL/SBR= 0.42
Bloor Street West @ Dundas Street West	C	C	EBT/EBL = 0.96 WBL = 0.69	NBT/NBL/NBR = 0.89
Bloor Street West @ Lansdowne Avenue	B	B	EBT/EBL/EBR = 0.72 SBT/SBL = 0.68	WBT/WBL/WBR = 0.69 SBT/SBL =0.65
Lansdowne Avenue @ Paton Road	B	B	SBT/SBL = 0.43; SBR = 0.41	SBT/SBL = 0.51; SBR = 0.47
Lansdowne Avenue @ Wallace Avenue	B	B	EBT/EBL/EBR = 0.37 SBT/SBL/SBR = 0.39	NBT/NBL/NBR = 0.53
Lansdowne Avenue @ Lappin Avenue	A	A	SBT/SBR = 0.17; SBL = 0.03	WBL/WBT/WBR = 0.59
Dupont Street @ Lansdowne Avenue	B	C	EBT/EBR = 0.76 SBT/SBL/SBR = 0.70	WBT/WBL = 0.91 EBT/EBL = 0.79
Davenport Road @ Lansdowne Avenue	C	C	EBT/EBL/EBR = 0.69 SBT/SBL = 0.67	WBT/WBL/WBR = 0.64 EBT/EBL/EBR = 0.63

Notes: V/C: Volume / Capacity ratio; EBT: Eastbound Through Lane(s) EBL: Eastbound Left Turn Lane EBR: Eastbound Right Turn Lane EB: Eastbound NB: Northbound SB: Southbound WB: Westbound

The existing roadway network is operating at acceptable levels of service, with all but one of the signalized intersections operating below a level 'D' service. The only intersection working beyond its capacity is Annette Street/Old Weston Road/Dupont Street and Dundas Street West. However, this intersection is located at the far limits of the Study Area and is not expected to be impacted through the proposed elevated railway. The above table

[3] *Volume to Capacity Ratio (V/C) = 1. Volume to Capacity Ratio are calculated as V/C. As traffic volumes grow, the resulting ratio gets larger. Typically a desirable V/C ratio is in the order of 0.85 or lower.*

also describes intersection approaches that are operating at a higher V/C ratio (e.g., over the desirable level of 0.85).

Future development within the Study Area was also assessed at 299 Campbell Avenue, 830 Lansdowne Avenue, and 980 Lansdowne Avenue. These residential developments are expected to generate increases to the Study Area traffic as shown in **Table 18**. An increase of one per cent per annum across the entire road network is expected and was used in future traffic analysis.

Table 18 Site Trip Generation for Design Year (2015)

Site Location	Land Uses	Units built	GFA (sqf)	AM Peak Hour Trips			PM Peak Hour Trips		
				Inbound	Outbound	Total	Inbound	Outbound	Total
299 Campbell Avenue	Residential	274	228,001	29	50	79	54	50	104
	Retail	-	13,649						
	Office	-	21,431						
830 Lansdowne Avenue	Residential	558	456,519	37	102	139	126	99	225
	Retail	-	52,582						
	Office	-	0						
980 Lansdowne Avenue	Residential	1400	1,403,623	54	231	286	198	121	319
	Retail	-	0						
	Office	-	0						

The scenario examined regarding future Study Area traffic is Scenario 1 - future traffic with the base road network.

Active Transportation - Walking and Cycling

The existing neighbourhoods adjacent to the GO Barrie Corridor, particularly the community to the west of the corridor, suffer from constrained connectivity from the presence of the GO Barrie and GO Kitchener rail corridors. There are however existing pedestrian connections at Bloor Street West, Dupont Street and Davenport Road. These connections require pedestrians to cross under the existing rail structure which offer confined space and poor lighting conditions. Refer to **Figure 26** for existing pedestrian and cycling crossings.

Following the review, opportunities to improve pedestrian and cycling connectivity within the study area were identified and include:

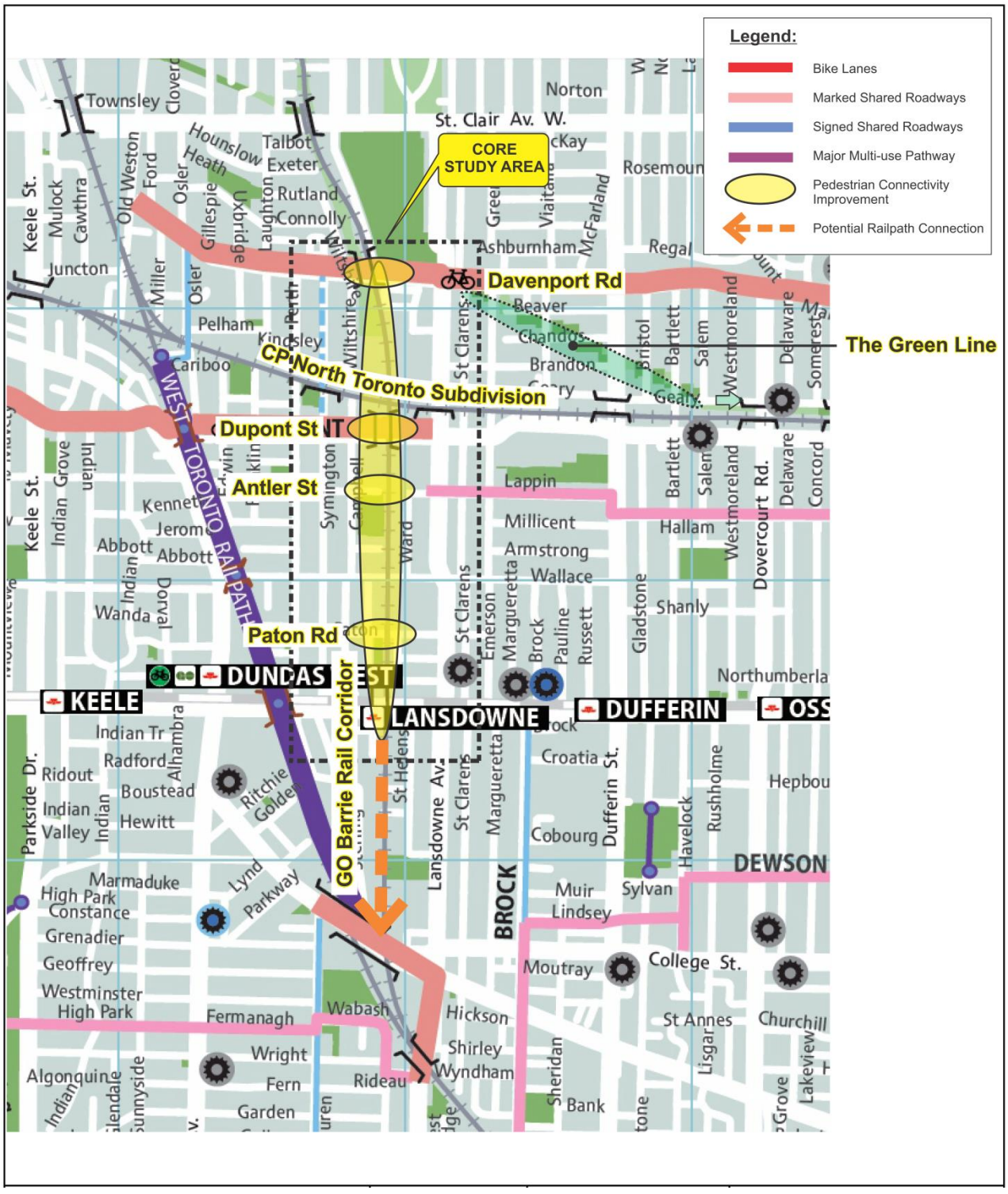
- Pedestrian/bicycle pathway along the GO Barrie Rail Corridor;
- New pedestrian/cyclist crossing at Paton Road within the rail ROW;
- Pedestrian/cyclist crossing at Lappin Avenue/Antler Street, subject to City of Toronto property acquisition;
- Pedestrian/cyclist crossing at Dupont Street;
- Creation of a Greenway multi-use path for pedestrian and cyclists within the GO Barrie Corridor; and
- Great neighbourhood connections.

Refer to **Figure 27** for opportunities to improve pedestrian connectivity and **Appendix J** for additional information.

Figure 26 Existing Pedestrian and Cycling Crossings

Source: Davenport Community Rail Overpass, Urban and Transportation Study, Traffic Impact Assessment Report. MMM Group. July 2015

Figure 27 Opportunities to Improve Pedestrian Connectivity



Source: Davenport Community Rail Overpass, Urban and Transportation Study, Active Transportation Opportunities. MMM Group. July 2015, Revised May 2016

3.5.3 Utilities

3.5.3.1 Below Ground

As noted in the Davenport Diamond Grade Separation Feasibility Study (2015), there are several local buried utilities within the Study Area that cross the rail ROW and include gas, watermains, storm sewers and combined trunk sewers. There are also privately owned fibre optic cables. Specifically, the underground utilities are located within the following streets:

- Six watermains at Antler Street/Lappin Avenue, Dupont Street, Davenport Road and St. Clair Avenue West;
- Four storm sewers at Dupont Street, Davenport Road, St. Clair Avenue West and Lambert Avenue;
- Four combined sewers at St. Clair Avenue West and Rogers Road;
- Six gas mains at Antler Street/Lappin Avenue, Dupont Street, Davenport Road and St. Clair Avenue West;
- Toronto hydro conduit at Davenport Road; and
- Bell conduits at Dupont Street and St. Clair Avenue West.

3.5.3.2 Above Ground

Railway owned communication and signalling cables run along the Barrie Corridor and the CP North Toronto corridor.

4. Impact Assessment of the Preferred Design

The following sections provide a detailed description of the potential environmental effects (i.e. any likely changes in the environment) associated with the two development phases (construction and operation) of the preferred design for the Project. The effects are categorized under:

Natural Environment:

- Flora;
- Trees;
- Fauna;
- Aquatic; and
- Soils and Groundwater.

Socio-Economic Environment:

- Land Use and Community Impacts;
- Business and Economic Impacts;
- City of Toronto “Feeling Congested” Policies;
- Noise;
- Vibration; and
- Air Quality.

Cultural Heritage and Archaeology:

- Cultural Heritage Resources; and
- Archaeology.

Urban Infrastructure and Operations:

- Rail;
- Traffic;
- Drainage and Stormwater; and
- Utilities.

The identified mitigation measures to minimize the potential effects are outlined. Effects monitoring (i.e. monitoring to ensure implemented mitigation measures are functioning as intended) associated with environmental factors are also included, where required.

The potential effects on the environment (both positive and negative) were identified for the preferred design through understanding the existing environment within the distinct discipline specific Study Areas, based on existing information sources and field investigations documented in Section 3 and ongoing consultation with stakeholders as documented in Section 5.

Next, avoidance/mitigation/compensation measures were developed, where possible and as required, and applied to prevent/minimize/off-set potential negative environmental effects for the Preferred Design. More specifically, the intent of these measures is as follows:

Avoidance: ..... The first priority is to prevent the occurrence of negative effects (adverse environmental effects) associated with implementing an alternative.

Mitigation: ..... Where adverse environmental effects cannot be avoided, it will be necessary to develop the appropriate measures to remove or alleviate to some degree the negative effects associated with implementing the alternative.

Compensation: ..... In situations where appropriate mitigation measures are not available, compensation measures may be required to counterbalance the negative effect through replacement (in kind), or provision of a substitute or reimbursement.

Given the above noted intentions, the avoidance/mitigation/compensation measures were developed based on professional expertise reflecting on current procedures, historical performance, and existing environmental conditions. These measures were developed and documented in the ‘Mitigation Measures’ subsections below.

Compliance with applicable laws and best management practices is an assumption carried through the assessment of effects. Supplemental data on the impact assessment of the preferred design can be found in corresponding Appendices as noted below.

4.1 Natural Environment

4.1.1 Flora

4.1.1.1 Potential Effects

Removal of vegetation within the Study Area will likely occur; however, due to the large population of invasive species and the absence of rare, at risk, or significant vegetation species or communities, it is not anticipated that the proposed Project will negatively impact vegetation or plant communities.

4.1.1.2 Mitigation Measures

Mitigation measures for the removal of vegetation include:

- Clearing and grubbing will be governed by Ontario Provincial Standard Specifications 201 (Construction Specification for Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders);
- Vegetation removal will be limited to the extent necessary for construction and will be contained within the rail ROW; and
- ROW will be revegetated per the approved landscaping plan develop during detail design.

4.1.2 Tree Survey

4.1.2.1 Potential Effects

This Project may require the removal of the following types of trees:

- 23 Category 1 trees, including Manitoba Maple, Siberian Elm, American Elm, Tree of Heaven, Eastern Cottonwood and Norway Maple. Category 1 includes trees with a diameter at breast height (DBH) of 30 cm or more situated on the subject property;
- One Category 2 tree, a Manitoba Maple. Category 2 includes trees with a DBH of 30 cm or more situated on private property within 6 m of the subject property; and
- One Category 3 tree, a Siberian Elm. Category 3 includes trees of all diameters situated on City-owned parkland within 6 m of the subject property.

For the mature trees within Campbell Avenue Park, impacts may include less sunlight to the canopy and root zones, smaller moisture regime caused by rain shadows of the proposed structure, and the stainless steel finish may reflect UV and heat resulting in the potential for burning or wilting the leaves and/or woody structure. However, as discussed below in the mitigation measures section, the potential for such effects can be reduced through the use of a matte or brushed stainless steel finish instead of a polished stainless steel finish or other material subject to refinement during detail design.

For the mature trees in Erwin Krickhahn Park, all trees are elevated above 1.5m of the existing grade with a retaining wall along the park's eastern edge. Impacts to these mature trees may include less sunlight to lower branches, mid-canopies of semi-mature trees and canopies of juvenile trees and respective root zones. For water, there may be a slightly smaller moisture and drainage regime caused by rain shadows and placement of the proposed structure. Potential UV and heat reflection impacts are anticipated to be similar to the trees located in Campbell Avenue Park.

For parkland trees on western site adjacencies, elevation changes of over 5 m with solid structure could decrease existing sunlight factor and influence long-term health and structural integrity, especially: T49-79, the row of mature Siberian Elms in Campbell Avenue Park; and T29-41, the grouping of trees in Erwin Krickhahn Park.

4.1.2.2 Mitigation Measures

The protection of trees will be undertaken according to City of Toronto *Tree Protection Policy and Specifications for Construction Near Trees* (June, 2013), where applicable. Metrolinx will work with authorities, as necessary, to obtain all applicable permits and approvals.

The potential for transplanting a Sweet Chestnut should be determined during detail design, located along the west side of the GO Barrie Corridor, in between Wallace Avenue and Paton Road.

Tree removal, restoration, and compensation plans will be prepared during detail design, in consultation with affected property owners.

For trees in Campbell Avenue Park, recommended mitigation measures include:

- Minimize or avoid heat effects - use matte or brushed finishes for stainless steel along the entire park length; or use different low-reflective material for commissioned art panels;
- Consider permeable pavers and non-limestone bedding courses within critical root zones; and
- Consider low-albedo paving and concrete treatments to mitigate building up of heat adjacent to trees.

For trees in Erwin Krickhahn Park, recommended mitigation measures include:

- Minimize or avoid heat effects - use matte or brushed finishes for stainless steel along areas with mature or semi-mature trees; or use different low-reflective material here for commissioned art panels; and
- Consider aggregate drainage trenches between existing mature/semi-mature trees and new guideway and cladding to mitigate optimal drainage and water management.

4.1.3 Fauna

4.1.3.1 Potential Effects

The proposed Project is not anticipated to negatively impact the Study Area's long term function as an urban wildlife corridor.

During the construction of the Project, wildlife travel may be temporarily disrupted and habitats temporarily lost due to vegetation removal. This includes potential disturbance to migratory birds such as the Northern Cardinal and Northern Mockingbird which may nest within the Barrie Corridor.

Suitable habitat for the life processes of the Milksnake was observed within the Study Area; however no suitable habitat for hibernation was observed and so encounters are likely to involve foraging snakes during the spring, summer and early fall. Large bodied snakes such as the Milksnake have been known to become trapped and killed in heavy duty silt fencing.

Three additional SAR, the Common Nighthawk, Chimney Swift and Barn Swallow, may be found within or directly adjacent to the Study Area. The Common Nighthawk may utilize gravel rooftops in the vicinity of the area and is likely present. No nests or nesting activity associated with the Barn Swallow was observed within or adjacent to the Study Area, and it is unknown if this species nests within 200m of the Study Area due to the complex urban landscape; however it is not anticipated that the proposed Project will result in impacts to this species. Regarding the Chimney Swift, no chimney structures exist within the Study Area, although from north of Wallace Avenue to Bloor Street West, there are several chimney structures. However, impacts to this species are not anticipated.

Several other SAR are known to exist within the vicinity of the area including the Monarch, Eastern Musk Turtle, Queensnake, Eastern Ribbonsnake, Snapping Turtle, Spiny Softshell and Redside Dace. However, due to a lack of suitable habitat for these species within or adjacent to the Study Area, it is not expected that these species will be impacted by the Project.

4.1.3.2 Mitigation Measures

To minimize disturbance to migratory birds as required under the *Migratory Birds Conventions Act*, it is recommended that no vegetation clearing occur between April 1 and August 30 unless the area is cleared by an avian specialist or following guidance from MNRF regarding a more specific window.

As recommended by MNRF, silt fencing utilized on site should be without mesh reinforcement to allow for passage by snakes.

Caution should be used when working near the chimney structure at Bloor Street West (directly adjacent to the GO Barrie Corridor) and the north side of Wallace Avenue, during the nesting period of the Chimney Swift from June 1 to August 15 to avoid harming individuals of this species. If a SAR species is observed during construction, the MNRF should be contacted to discuss appropriate action.

4.1.4 Aquatic

4.1.4.1 Potential Effects

There is no aquatic habitat present in the Study Area or within a 30 m buffer, and so it is not anticipated that the proposed Project will impact fish or fish habitat or the aquatic environment.

4.1.4.2 Mitigation Measures

No mitigation measures are required.

4.1.5 Soils and Groundwater

4.1.5.1 Potential Effects

There are 236 potentially contaminating activities located in the Study Area. Potential contaminates could include:

- Volatile Organic Compounds (VOCs);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs);
- Petroleum Hydrocarbons (PHCs);
- Pesticides; and
- Metals and inorganics.

On-site and adjacent ecological receptors include soil invertebrates, occasional avian species (e.g., crows, gulls) and terrestrial species (e.g., squirrels and other rodents). Ecological receptors could be exposed via direct contact with impacted soil or groundwater. Aquatic receptors could be exposed via ground water discharge of contaminants to surface waters

Potential effects to groundwater quality are related to spills of deleterious substances on the ground surface that infiltrate into the subsurface during construction activities.

Effects on surface water quality can also occur through the discharge of water collected during dewatering activities.

4.1.5.2 Mitigation Measures

A soil and groundwater management plan shall be prepared by a Qualified Person as per O.Reg. 153/04, as amended, prior to construction for managing soil materials onsite (including excavation, location of stockpiles, reuse, and offsite disposal). The soil and groundwater management plan shall be prepared in accordance with Management of Excess Soil – A Guide for Best Management Practices (MOECC, 2014), and industry best practices. A copy of the soil and groundwater management plan will be provided to MOECC, Toronto District office for comment. Conveyance of land to the City will be determined during detailed design.

A Record of Site Condition (RSC) for the Greenway will be completed and filed with the MOECC demonstrating that the soil and groundwater meet the applicable Standards. The work necessary to obtain the RSC may involve conducting a risk assessment, completing remediation, or a combination thereof. If a risk assessment is conducted it will involve rigorous review and approval by the MOECC and there will be requirements for clean fill caps and/or hardscape barriers to ensure that human and ecological health is protected in a manner equal to what would be achieved through a generic remediation approach.

An Environmental Spills Prevention and Response Plan will be developed and implemented during construction of the Project.

For effects on surface water quality, groundwater quality samples would be collected prior to construction and this information used to develop an appropriate water discharge plan. Further, if required, the water discharge plan would provide a discharge methodology that protects surface water quality.

A construction dewatering assessment will be conducted prior to construction to determine if a Permit to Take Water is required. Should a Permit to Take Water be required, it will include recommendations for monitoring (e.g., pumping rate/volume monitoring, groundwater level monitoring and groundwater discharge monitoring) during construction dewatering for any potential adverse effects identified during the dewatering assessment

Based on the findings of the Phase One ESA, a Phase Two ESA is recommended. The Phase Two ESA is currently being undertaken and will be completed during detailed design.

4.1.6 Climate Change

Climate change is defined as any significant change in long-term weather patterns. The term can apply to any major variation in temperature, wind patterns or precipitation that occurs over time.

Global warming describes the recent rise in the average global temperature caused by increased concentrations of greenhouse gases (GHGs) trapped in the atmosphere. Scientists have concluded that human activity is largely responsible for recently observed changes to our climate since GHGs are mainly caused by burning fossil fuels to produce energy.

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 MOECC has developed a Climate Change Strategy (MOECC, 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 MOECC 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 a framework of requirements and measuring progress year over year. Deliverables listed in the Five Year Strategy include:

- Establish an executive-sponsored corporate Sustainability Framework by 2015, addressing energy use, emissions and environmental management, and develop and implement workplans and supporting policies for priority initiatives.
- Attain APTA Sustainability Commitment Gold status by 2017 and UITP Sustainability Charter Full Signatory status by 2016.
- Establish a corporate Climate Adaptation Plan covering facilities, practices and protocols, by 2018.
- Introduce cleaner twin-engine Tier 4 locomotives to the GO Transit fleet in 2016, beginning an ongoing conversion program.

4.1.6.1 Impacts of the Project on Climate Change

With these commitments in mind, the impact of the Davenport Community Rail Overpass Project on climate change has been considered. In the near term, Metrolinx is upgrading its fleet of GO trains to Tier 4 compliant engines. However, the annual GHG pollutant burden within the study area is expected to increase for the interim (diesel) condition as a result of increased rail traffic (see **Appendix F** of the EPR). Furthermore, the Government of Ontario has committed to electrification of the GO Barrie Corridor, which will significantly reduce GHG emissions based on lower carbon emissions from the generation of electricity in Ontario, which will effectively eliminate air pollutant emissions from GO Transit Tier 4 diesel locomotives. In addition, public transportation is a beneficial service that can reduce traffic congestion and lessen the need for new and expensive road infrastructure, as well as decrease carbon emissions and air quality concerns associated with automobile use.

As noted in the Arborist Report (see **Appendix B** of the EPR), the construction of the Overpass will require the removal of some trees, which will result in a temporary loss of an existing carbon sink within the local environment of the Study Area. Measures for the compensation of existing tree loss and replacement will be in specified in a Landscape Plan, developed during the detail design phase of the project.

4.1.6.2 Impacts of Climate Change on the Project

As a result of climate change, storm events are predicted to become more intense, which can result in larger volumes of precipitation at one time. Climate change has the potential to impact the project during the construction phase of the project as well as the long-term operation of the Davenport Community Rail Overpass.

Consideration of stormwater is an important part of designing resilient railway infrastructure and will be managed through gravity drainage to the existing storm sewers at road crossings along the guideway. Runoff is expected to be attenuated by infiltration into the earth core of the Mechanically Stabilized Earth (MSE) wall system located at the rail structure approaches. Mitigation measures and a Stormwater Management Strategy are to be developed during detail design.

An increase in storm intensity can make erosion and sedimentation more likely in the Study Area, especially during construction. 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. ESC measures will be installed during construction and monitored during post-construction period.

4.2 Socio-Economic Environment

4.2.1 Land Use and Community Impacts

4.2.1.1 Potential Effects

There are a number of established low-rise residential dwellings near the rail corridor ROW. Near Antler Street and between Wallace Avenue and Paton Road, there are several existing townhouse developments that are immediately adjacent to the ROW. In some cases, the elevated structure will be visible from the second and third storeys of these townhomes, while in other cases their backyards directly abut the rail tracks. A number of newer apartment buildings have also been developed along the rail corridor, however they have been stepped back (per railway setback requirements) to provide additional space alongside the rail corridor.

The proposed overpass and elimination of the at-grade rail crossing at Wallace Avenue will improve east-west pedestrian and vehicular safety. At the same time, it will be highly visible and may block views, creating the perception that the areas to the east and west of the guideway are separate communities.

The introduction of an overpass into an established neighbourhood may result in unfriendly underpass conditions due to inadequate lighting. At key crossing points, including Paton Road, Wallace Avenue, and Dupont Street, there is the risk that these underpass locations will create undesirable environments for pedestrian crossings.

No displacement of existing parks and trails is anticipated as a result of the proposed overpass design and pedestrian and cycling connectivity along with public place marking in select areas will be greatly improved. However, the potential to create unwelcoming conditions near the structure may lead to discouraging park visitors and local residents from using spaces closest to the Barrie Corridor.

Concerns have been expressed about the potential effect of the Project on the property value of adjacent or nearby homes and businesses.

4.2.1.2 Mitigation Measures

Mitigation measures will include:

- This Project will continue be subject to a joint Design Review Panel process with the City of Toronto during detail design that addresses architecture, aesthetics and corporate identity considerations.
- Building on the recommendation of the Residents Reference Panel (**Appendix K**), Metrolinx will continue the process of engagement with the City and the community through the Community Advisory Committee to assist in the development of design elements during the detail design process.Berms will be part of the design, to eliminate short and inaccessible spaces at either ends of the bridge structure. CPTED principles will be followed in detail design.
- Develop a lighting plan during detail design to light the multi-use trail at nighttime.

Metrolinx is committed to coordinate with the City of Toronto over integration with future planned works.

4.2.2 Business and Economic Impacts

4.2.2.1 Potential Effects

Construction and operation of the elevated railway may negatively impact the operation of businesses that are sensitive to noise and vibration.

Businesses in the Study Area may be impacted during construction as a result of localized traffic impacts relating to construction vehicles or traffic diversions.

Positive effects on businesses (i.e. increased patronage) may also be experienced due to additional workforce in the area during construction.

4.2.2.2 Mitigation Measures

The majority of construction will take place within the existing Barrie Corridor and as such avoids direct impacts to businesses. However, Metrolinx will work with sensitive businesses including Ubisoft, to understand how they currently operate and determine potential noise and vibration mitigation that may be achieved through the design of the Project.

A traffic management plan(s) will be developed prior to construction to minimize any impacts to local businesses and indeed residents.

Existing crossing roads will be maintained (minimum one lane per direction) throughout the construction period (excluding brief overnight closures).

4.2.3 Noise

4.2.3.1 Potential Effects – Construction

Unlike long-term operational noise limits, the Province of Ontario and the City of Toronto do not enforce receptor-based sound level limits for construction activity. Instead, bylaws limiting the hours of construction and sound level emissions of construction equipment are used to help control the noise impact of construction. Provincial agencies such as Metrolinx are typically not subject to municipal bylaws. Nevertheless, Metrolinx endeavours to adhere to these local bylaws as a best practice, where practical.

The construction noise assessment found that, based on preliminary equipment usage factors and locations, the sound levels during construction along the corridor would range from 70 to 76 dBA excluding existing railway traffic noise. Agencies such as the Federal Transit Administration (FTA) in the US provide suggested construction noise limits. For residential areas, the limits are 80 dBA during the daytime and 70 dBA during the nighttime, as based on an 8-hour averaging period. Based on these short-term criteria, the construction noise during the daytime is not expected to generate a significant impact, although it will be louder than the existing sound levels.

In rail corridors, nighttime work is often required for activities such as track shifts or bridge span installation. During the nighttime, if construction operations continue as modelled, impacts could occur. If such levels of activity persist for more than 30 days, both the daytime and nighttime sound levels are likely to exceed the FTA's 30-day criterion limit of 75 dBA Ldn (the day/night average sound level). Metrolinx is exempt from municipal noise control bylaws that place limits on the timing of construction activity. Where possible, Metrolinx will strive to adhere to such bylaws.

Because construction will progress from one end of the study area to the other, the construction noise will be highly variable. Not all of the receptors will experience the same sound levels at all times throughout the estimated 1-2 year construction period.

Detailed construction noise impact modelling results can be found in the Noise and Vibration report in **Appendix E.**

4.2.3.2 Mitigation Measures – Construction

To mitigate noise effects associated with construction activities, it is recommended that:

- All equipment used must adhere to guidelines as placed in MOE's NPC-115 guidelines for construction equipment.

- Whenever possible, work zone and time will adhere to local municipal by laws as a best practice. Metrolinx, however, is not required to adhere to municipal by-laws.
- Every effort should be made to minimize impacts on the neighbourhood by limiting nighttime noisy activities.
- Trains passing construction zones may be required to use bells and/or whistles to warn construction personnel for safety reasons. This should be minimized as much as practical while ensuring the safety of everyone involved.
- Construction equipment has safety features such as backup alarms while backing up (beeping sound). This is for the protection and safety of the workers, and is legally required. Consideration will be given to the use of broadband rather than tonal backup beepers.
- It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail occasional monitoring of vibration levels during construction.
- A proactive communications protocol is recommended that would advise residents in advance of nighttime construction or particularly noisy construction at any time.
- A more detailed noise assessment of construction should be completed when the specifics of construction equipment are finalized. This assessment should consider minimizing construction related noise and levels, while balancing construction schedules and expediting construction activity.
- Complete a noise monitoring plan during detail design.

4.2.3.3 Potential Effects – Operational

The raising of the tracks to a higher level does not in itself generate significant (5 dB +) noise impacts. The raising of the tracks combined with service increases up to 36 diesel trains per day does generate some 5 dB or greater noise impacts. Areas immediately around the Diamond will see a very significant reduction in noise (up to 11 dB), even considering the increase in service. A reduction of 10 dB in sound level corresponds approximately to a sound being half as loud. Thus, the removal of the Diamond without an associated increase in traffic is mostly beneficial to the general area. The noise impacts resulting from increasing service to 36 diesel trains on the overpass range from 5 to 7 dB, mostly during the daytime period at areas located further away from the Diamond. The impacts during the nighttime period are lower, ranging from 1 to less than 5 dB. The removal of the Diamond results in lower sound levels at most of the receptors located north of the Diamond. To the south, decreased sound levels can be expected as far south as Dupont Street. Afterwards, the increase in service levels starts to dominate the benefit offered by the removal of the Diamond. Impacts of 5 dB or greater begin at receptors located south of Antler Street, approximately 300m away from the Diamond.

Ultimate train traffic volumes of up to 180 electric GO Trains will generate significant (5 dB to 9.99 dB) noise impacts during the daytime. The relative increase in nighttime traffic volumes is greater and so there are more areas with significant impacts during the nighttime.

Considering the service increase up to 180 electric trains, the removal of the Diamond will still cause outdoor sound levels to decrease up to 8 dB locally around the Diamond. These benefits are particularly notable for those new developments located on the southeast corner of Davenport Road and Lansdowne Avenue, to the northeast of the Diamond. The new condominiums being built on Dupont just southeast of the Diamond will also benefit greatly from the removal of the Diamond and its noise. Once far enough away from the Diamond, the noise impacts will range from 5 to 13 dB, before noise mitigation is applied. These impacts occur primarily at those receptors located south of Dupont.

As electrification is the ultimate goal to facilitate the RER, and as the noise impacts are greatest under this scenario, noise mitigation measures have been considered for Scenario 3, 180 electric GO Trains operating on an elevated guideway.

4.2.3.4 Mitigation Measures - Operational

The effectiveness of noise barriers depends on the source height, the receptor height, and the barrier base height, in addition to some factors such as source-to-barrier and barrier-to-receiver distances. As the mitigation is intended to address the noise from the ultimate scenario (180 electric trains), a 2.0 m high noise barrier has been recommended along the overpass and ramps for the entire Study Area. As the source height for electric trains is considerably lower, shorter barriers can be used to achieve as much attenuation for electric train noise as taller barriers could achieve for diesel driven train noise. This barrier is shown to be effective at mitigating the noise from electric trains at receptors up to 4.5 m high in most cases. Receptors at greater heights, 7.5 m or more, do not benefit from this 2.0 m high barrier in most cases, except where the elevated guideway or ramps are at the same level or above. These receptors would not normally benefit from standard 5.0 m high noise barriers in any case when the noise source is dominated by diesel-electric locomotives.

A taller barrier on the elevated structure (guideway) is not recommended due to visual impacts and potential structural issues with wind load. It is noted that a barrier on the highest part of the guideway is technically not required, as the aerial guideway actually results in a reduction in the sound levels under all scenarios investigated. The 2.0m high noise barrier has been optimized for electric train noise. This short noise barrier's purpose is to provide clearly noticeable and significant (5 dB or more) reductions in electric train noise while minimizing the visual impact associated with a barrier located on an elevated overpass and berm. Taller noise barriers can be considered as the tracks begin returning to grade, provided the visual impact does not offset the acoustic benefit offered by taller noise barriers. Taller noise barriers as the tracks return to grade will be reviewed during Detailed Design.

At Ubisoft (Receptor 68) has been identified as a commercial receptor particularly sensitive to noise and vibration from the railway, the recommended noise barrier provides a significant reduction in the sound levels. This reduction is achieved at the closest façade of the building to the railway, where the railway noise is highest. At increased setbacks, the sound level from the railway will be lower but the barrier benefit will also decrease. The construction of the noise barrier and the electrification of the corridor will produce significant reductions in the air-borne noise generated by the railway within Ubisoft's facility. A more detailed analysis of the noise impact at Ubisoft is recommended during detailed design.

Table 19 below, provides a comparison of the receptor heights, the sound levels with and without mitigation for Scenario 3, with 180 electric GO Trains operating on the elevated guideway. This table shows the benefit provided by the 2.0m high barrier ("Barrier Benefit") at the receptors by comparing the future sound levels with mitigation to the future sound levels without mitigation. The table is sorted by receptor height.

Table 19 Summary of Anticipated Noise and Vibration Effects

Receptor	Receptor Height (m)	Future With-Project Sound Levels Scenario 3 (180 Electric) No Mitigation				Future With-Project Sound Levels Scenario 3 (180 Electric) With Mitigation					
		Daytime (dB $L_{eq,18h}$)		Nighttime (dB, $L_{eq,8h}$)		Daytime (dB $L_{eq,18h}$)			Nighttime (dB, $L_{eq,8h}$)		
		Sound Level	Impact (dB)	Sound Level	Impact (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)
R4	1.5	55	0	50	0	55	0	0	50	0	0
R7	1.5	68.1	0.4	59.2	0.4	68.1	0.4	0	59.2	0.4	0
R8	1.5	56.1	5.9	52.5	2.5	55	0	1.1	50	0	2.5
R11	1.5	55	0	50	0	55	0	0	50	0	0
R18	1.5	64	0.9	56.4	0.8	64	0.9	0	56.4	0.8	0
R29	1.5	67.6	0.4	58.6	0.3	67.6	0.4	0	58.6	0.3	0
R44	1.5	59.8	1.4	56	6	56.5	-1.9	3.3	52.2	2.2	3.8
R45	1.5	57.1	-0.2	53.5	3.5	55.8	-1.5	1.3	52	2	1.5
R46	1.5	55.4	-0.6	51.9	1.9	55	-1	0.4	51.3	1.3	0.6
R52	1.5	58.2	0.9	50	0	58	0.7	0.2	50	0	0
R60	1.5	59.2	-5.8	56.8	-7.3	55	-10	4.2	51.6	-12.5	5.2
R61	1.5	60.9	-1.1	57.9	-2.6	55	-7	5.9	51.1	-9.4	6.8
R62	1.5	59.5	-0.5	56.3	-0.1	57	-3	2.5	53.8	-2.6	2.5
R63	1.5	62.6	2.6	59.3	3.7	60.7	0.7	1.9	57.5	1.9	1.8
R64	1.5	62.9	3.4	59.3	5.5	58.7	-0.8	4.2	54.8	1	4.5
R42	2.5	63.5	7	60.1	10.1	56.3	-0.2	7.2	52.8	2.8	7.3
R43	2.5	63	6	59.5	9.5	56.3	-0.7	6.7	52.1	2.1	7.4
R33	3	67.9	9.7	64.6	11.2	55	-3.2	12.9	50.3	-3.1	14.3
R48	3.5	55	0	50	0	55	0	0	50	0	0
R49	3.5	60	1.1	52.8	2.8	59.3	0.4	0.7	51	1	1.8
R32	4	56.9	1.9	53.6	3.6	55	0	1.9	50	0	3.6
R34	4	55	0	50.6	0.6	55	5.8	0	50	0	0.6
R1	4.5	55	0	50	0	55	0	0	50	0	0
R2	4.5	55	0	50	0	55	0	0	50	0	0
R3	4.5	59.8	0.5	53.3	0.8	59.6	0.3	0.2	52.9	0.4	0.4

Receptor	Receptor Height (m)	Future With-Project Sound Levels Scenario 3 (180 Electric) No Mitigation				Future With-Project Sound Levels Scenario 3 (180 Electric) With Mitigation					
		Daytime (dB $L_{eq,18h}$)		Nighttime (dB, $L_{eq,8h}$)		Daytime (dB $L_{eq,18h}$)			Nighttime (dB, $L_{eq,8h}$)		
		Sound Level	Impact (dB)	Sound Level	Impact (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)
R5	4.5	56.4	1.4	52.9	2.3	55	0	1.4	51	0.4	1.9
R9	4.5	60.5	0.5	54	0.9	60.4	0.4	0.1	53.7	0.6	0.3
R10	4.5	70.7	-5.1	68.3	-6.9	57.5	-18.3	13.2	55.9	-19.3	12.4
R13	4.5	70	0.4	61.1	0.5	69.9	0.3	0.1	61	0.4	0.1
R14	4.5	69.3	0.4	60.4	0.5	69.2	0.3	0.1	60.3	0.4	0.1
R21	4.5	59.1	4.1	55.7	5.7	55	0	4.1	50	0	5.7
R22	4.5	56.3	1.3	52.8	2.8	55	0	1.3	50	0	2.8
R23	4.5	59.5	3.4	55.7	4.9	55.3	-0.8	4.2	50.9	0.1	4.8
R24	4.5	60.8	4.2	57.2	6.7	56.2	-0.4	4.6	51.9	1.4	5.3
R25	4.5	59.8	4.8	56.4	6.4	55	0.8	4.8	50.9	0.9	5.5
R26	4.5	56	1	53.1	3.1	55	0	1	50	0	3.1
R27	4.5	57.8	2.8	54.9	4.3	55	0	2.8	51.4	0.8	3.5
R28	4.5	58.6	3.6	56.3	4.1	55	0	3.6	53.3	1.1	3
R50	4.5	55	0	50	0	55	0	0	50	0	0
R53	4.5	55	0	50.5	0.5	55	0	0	50	0	0.5
R54	4.5	55	0	50	0	55	0	0	50	0	0
R55	4.5	55.5	0.5	52.2	2.2	55	0	0.5	50	0	2.2
R56	4.5	56.6	5.6	52.8	2.8	55	0	1.6	50	0	2.8
R66	4.5	65.1	0.4	57.1	0.6	65	0.3	0.1	57.1	0.6	0
R67	4.5	66.5	0.5	57.8	0.8	66.3	0.3	0.2	57.4	0.4	0.4
R68	4.5	68.4	5.8	65.1	7.4	55	-7.6	13.4	50.7	-7	14.4
R51	5	69.2	8.5	65.9	12.6	60	-0.7	9.2	56.6	3.3	9.3
R20	5.5	56.8	1.2	51.4	-2.7	55.9	0.3	0.9	50	-4.1	1.4
R62b	7	64.1	2.6	60.9	1.6	63.9	2.4	0.2	60.7	1.4	0.2
R6	7.5	59.9	4.9	56.8	4.7	55	0	4.9	50.8	-1.3	6
R12	7.5	55	0	50	0	55	0	0	50	0	0

Receptor	Receptor Height (m)	Future With-Project Sound Levels Scenario 3 (180 Electric) No Mitigation				Future With-Project Sound Levels Scenario 3 (180 Electric) With Mitigation					
		Daytime (dB $L_{eq,18h}$)		Nighttime (dB, $L_{eq,8h}$)		Daytime (dB $L_{eq,18h}$)			Nighttime (dB, $L_{eq,8h}$)		
		Sound Level	Impact (dB)	Sound Level	Impact (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)
R15	7.5	62.4	0.9	57.6	1.1	62.3	0.8	0.1	57.5	1	0.1
R30	7.5	68.1	6.3	64.8	4.8	55	-6.8	13.1	51.7	-8.3	13.1
R31	7.5	68.2	6.9	64.9	5.7	55.8	-5.5	12.4	52.7	-6.5	12.2
R35	7.5	65.2	7.8	61.7	6.9	57.8	0.4	7.4	53.8	-1	7.9
R36	7.5	65	9.3	61.6	10.8	58.5	2.8	6.5	55.2	4.4	6.4
R37	7.5	65	9.3	61.7	11.3	61.3	5.6	3.7	58	7.6	3.7
R38	7.5	64.8	9.7	61.5	11.5	61	5.9	3.8	57.7	7.7	3.8
R39	7.5	61.1	6.1	57.7	7.7	56.8	1.8	4.3	53.4	3.4	4.3
R40	7.5	60.9	5.9	57.6	7.6	56.9	1.9	4	53.6	3.6	4
R41	7.5	60.2	5.2	56.8	6.8	57.2	2.2	3	53.8	3.8	3
R47	7.5	61.3	6.3	57.9	7.9	60.8	5.8	0.5	57.4	7.4	0.5
R64b	7.5	64.3	4	60.6	5.6	64	3.7	0.3	60.3	5.3	0.3
R65	7.5	65.9	0.9	58.8	-0.4	65.9	0.9	0	58.7	-0.5	0.1
R19	8	55.8	0.8	52.4	2.4	55	0	0.8	50	0	2.4
R60b	8.5	65	-2.8	62	-5	58.6	-9.2	6.4	56.1	-10.9	5.9
R61b	8.5	64.2	0.1	61.1	-1.7	59.2	-4.9	5	56.4	-6.4	4.7
R63b	8.5	64.8	3.7	61.5	3.5	64.8	3.7	0	61.5	3.5	0
R45b	9.5	63.7	6.4	60.2	10.2	63.7	6.4	0	60.2	10.2	0
R46b	9.5	62.8	6.7	59.4	9.4	62.8	6.7	0	59.4	9.4	0
R57	10	64.2	4.8	60.9	3.7	58.6	-0.8	5.6	55.5	-1.7	5.4
R58	10	64.6	2.7	61.2	1	59.3	-2.6	5.3	56	-4.2	5.2
R17	10.5	62.9	0.7	55.4	1.4	62.5	0.3	0.4	54.5	0.5	0.9
R59	10.5	63.6	3.1	58.6	5.2	60.2	-0.3	3.4	53.5	0.1	5.1
R1b	12	55	0	51.1	1.1	55	0	0	50	0	1.1
R16	12	66	-6.3	63.9	-7.8	60.7	-11.6	5.3	59.8	-11.9	4.1
R67b	12	65.5	0.6	56.9	1	65.3	0.4	0.2	56.7	0.8	0.2

Receptor	Receptor Height (m)	Future With-Project Sound Levels Scenario 3 (180 Electric) No Mitigation				Future With-Project Sound Levels Scenario 3 (180 Electric) With Mitigation					
		Daytime (dB $L_{eq,18h}$)		Nighttime (dB, $L_{eq,8h}$)		Daytime (dB $L_{eq,18h}$)			Nighttime (dB, $L_{eq,8h}$)		
		Sound Level	Impact (dB)	Sound Level	Impact (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)	Sound Level	Impact (dB)	Barrier Benefit (dB)
R51b	14	68.2	8.8	64.9	11.6	68.2	8.8	0	64.9	11.6	0
R59b	17.5	63.5	3	59.1	4.3	61.6	1.1	1.9	56.9	2.1	2.2
R19b	20	56.9	1.9	53.5	3.5	55.7	0.7	1.2	52.3	2.3	1.2
R42b	20.5	63.9	5.8	60.2	10.2	63.8	5.7	0.1	60.2	10.2	0
R43b	20.5	64.7	4.1	60.4	9.2	64.7	4.1	0	60.4	9.2	0
R17b	22.5	62.3	-0.6	57.3	-2.3	61.9	-1	0.4	56.9	-2.7	0.4
R44b	41	63.6	4	59.3	9.1	63.6	4	0	59.2	9	0.1
R57b	44.5	63.2	2	60.1	0.3	63.2	2	0	60	0.2	0.1
R58b	46.5	63.6	0	60.7	-1.7	63.6	0	0	60.7	-1.7	0
R16b	63	64.9	-5.2	62.9	-6.5	64.9	-5.2	0	62.9	-6.5	0

Detailed operational noise impact modelling results can be found in the Noise and Vibration report in **Appendix E.**

Detailed daytime and nighttime sound level contours with recommended noise mitigation modeling results can be found in the Noise and Vibration Report in Appendix E. **Figures 28 and 29** illustrates the contours at 4.5m and 15m high receptor elevation for 36 diesel trains during the daytime and **Figures 30 and 31** illustrates the contours at 15m high receptor elevation for 180 electric trains during the daytime.

A more detailed noise and vibration assessment should be conducted once details of the preferred electric locomotive have been determined.

Figure 28 Elevated Guideway 36 Diesel Trains Daytime (4.5 m high Receptor Elevation)

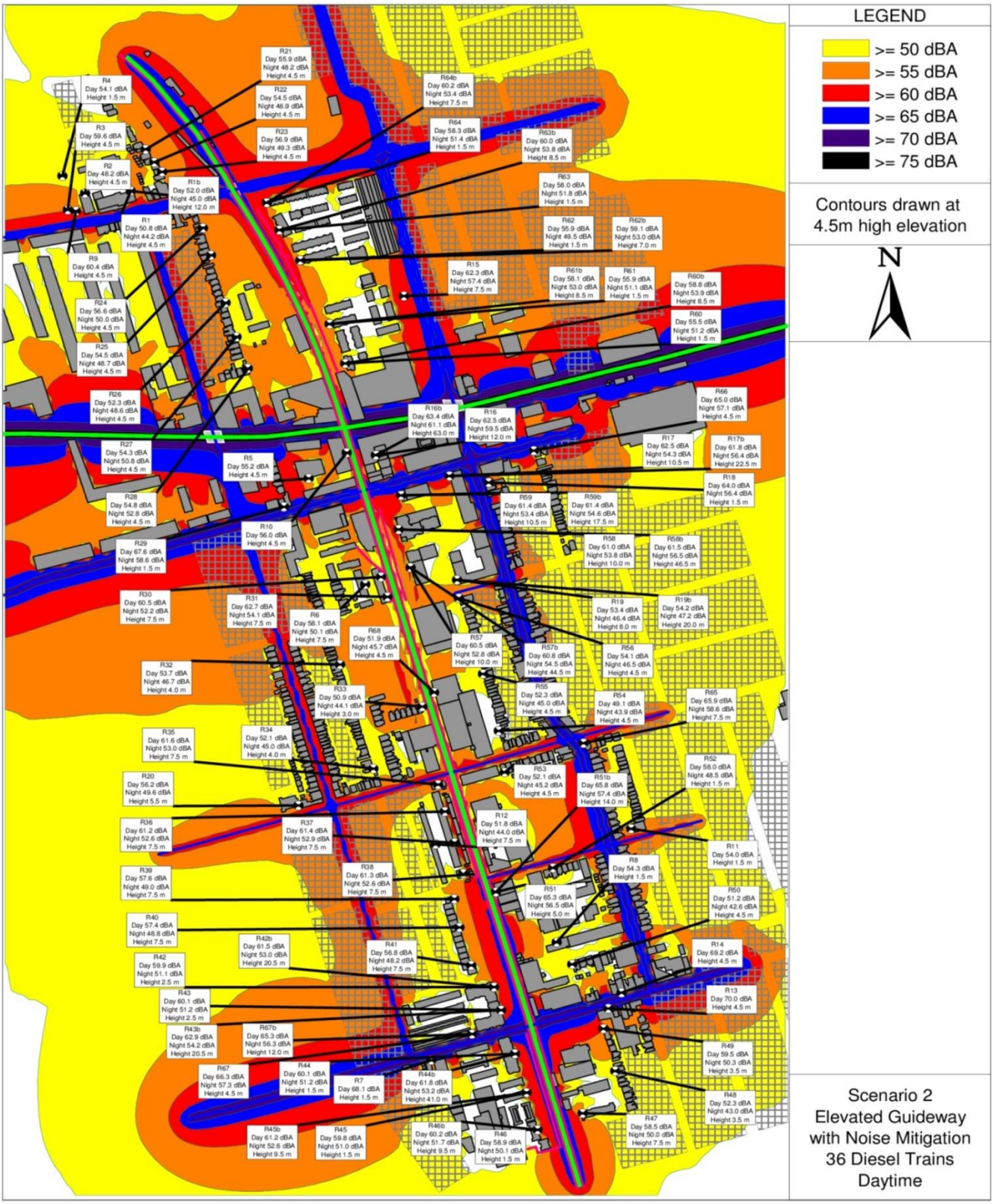


Figure 29 Elevated Guideway 36 Diesel Trains Daytime (15 m high Receptor Elevation)

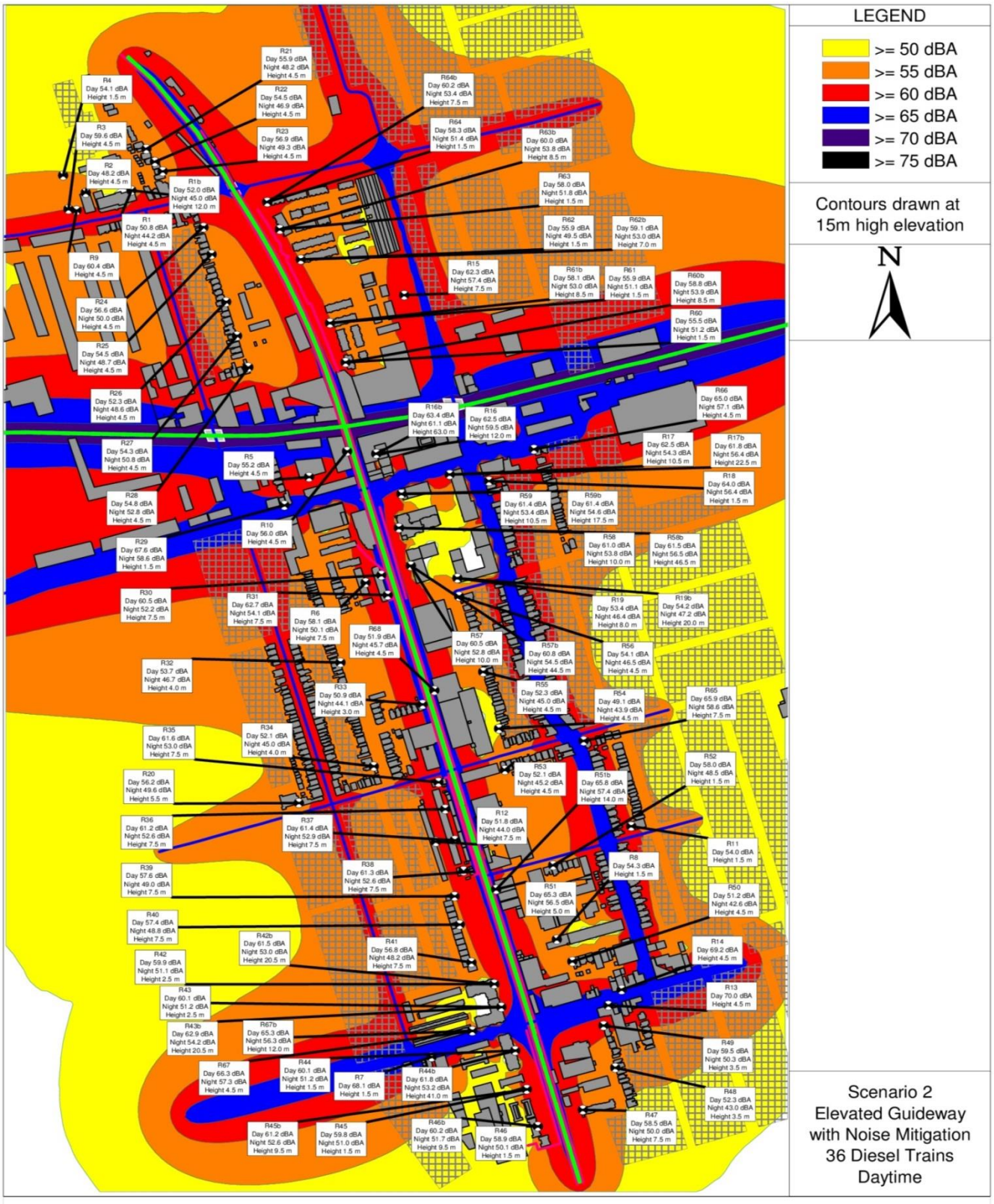


Figure 30 Elevated Guideway 180 Electric Trains Daytime (4.5m high Receptor Elevation)

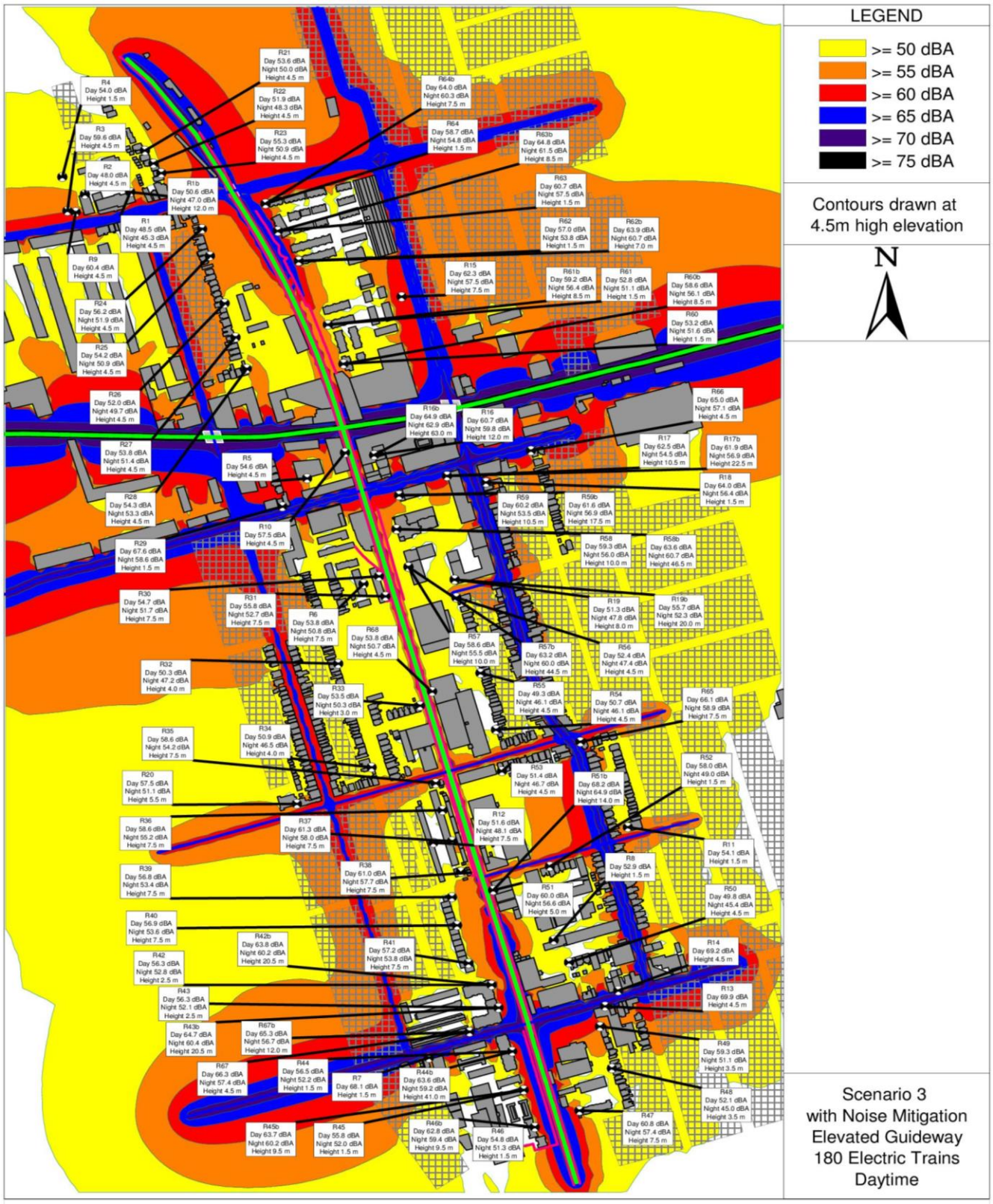
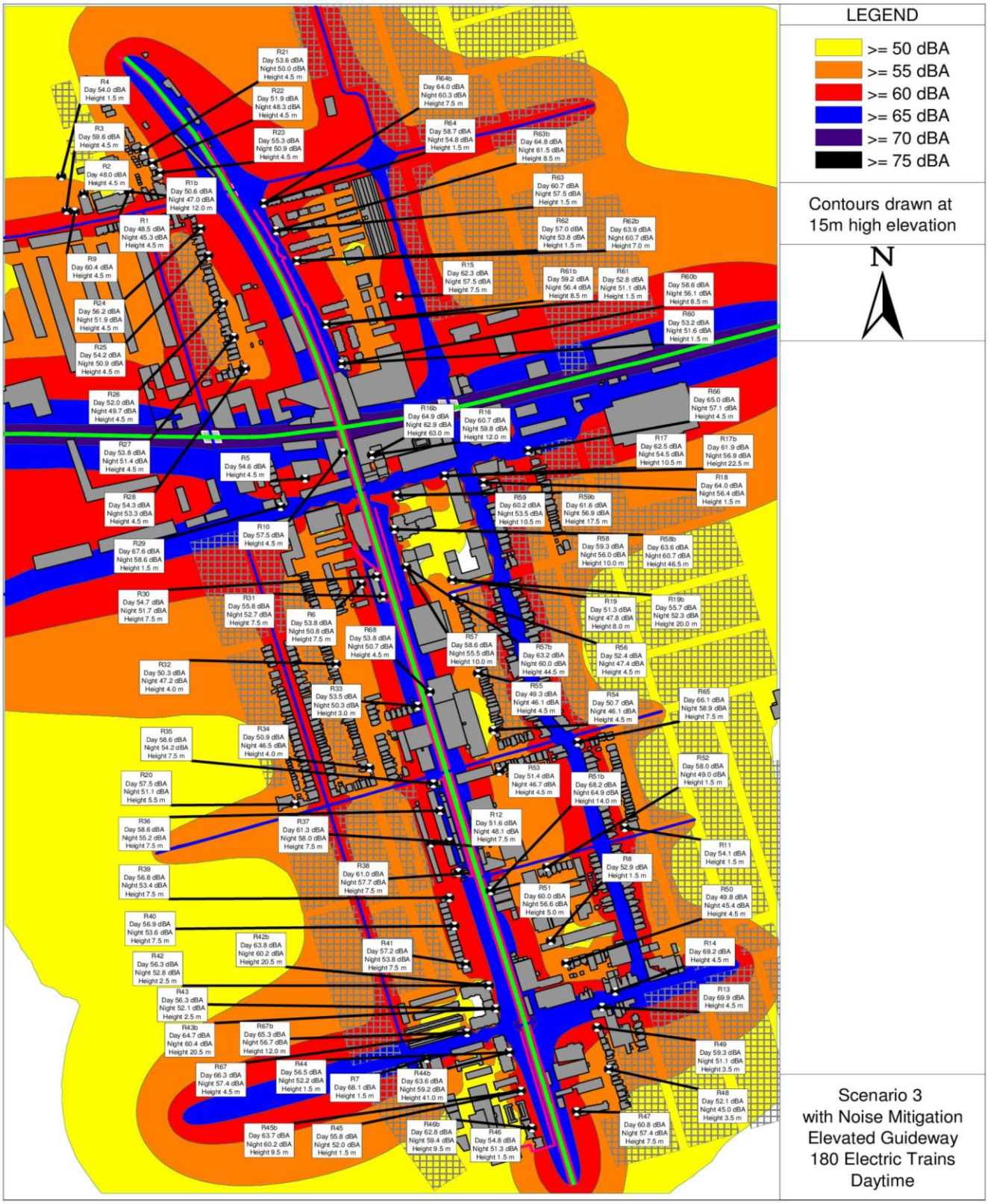


Figure 31 Elevated Guideway 180 Electric Trains (15m high Receptor Elevation)



4.2.4 Vibration

4.2.4.1 Potential Effects – Construction

Based on a review of the corridor, the zone-of-influence associated with the use of vibratory rollers will include several receptors on both sides of the corridor. A caisson drilling will affect far fewer properties, being concentrated on the western side of the corridor within the Study Area. Further, few properties are within 5.1 m zone of influence of the piers.

It is expected that the vibration limits from the City of Toronto by-law will be met during construction. Metrolinx may implement a vibration monitoring program regardless of any municipal requirements as it is not necessarily subject to local noise bylaws. Vibration levels from construction activity are not expected to cause structural damage, per the City of Toronto's vibration limits. Construction vibration levels, however, could reach levels well beyond existing vibration levels along the corridor. Such exceedances could prove to be annoying to some receptors along the corridor.

Detailed construction vibration impact modelling results can be found in the Noise and Vibration report in **Appendix E.**

4.2.4.2 Mitigation Measures – Construction

To mitigate vibration effects associated with construction activities, it is recommended that:

- A proactive communications protocol is recommended that would advise residents in advance of nighttime construction.
- A more detailed vibration assessment of construction should be completed when the specifics of construction equipment are finalized prior to construction start. This assessment should consider minimizing construction related noise and vibration levels, while balancing construction schedules and expediting construction activity.
- Consideration should be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage.
- It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail monitoring of vibration levels during construction. Vibration levels will be confirmed during detail design.
- Complete a vibration monitoring plan during detail design.

4.2.4.3 Potential Effects – Operation

A majority of the receptors immediately adjacent to the corridor currently experience vibration levels well in excess of the limit of 0.14 mm/s RMS. The shift in alignment will result in vibration levels increasing by up to 14% in areas where the track is located on the earth ramp leading up to the guideway until the introduction of electric trains. Once electric trains have been introduced into the corridor, it is expected the vibration levels will drop slightly due to the lower mass of the vehicle. In areas where the tracks are entirely on the elevated guideway, vibration levels should drop considerably (by more than one third).

Detailed operational vibration impact modelling results can be found in the Noise and Vibration report in **Appendix E.**

4.2.4.4 Mitigation Measures – Operation

During detail design, once location of piers supporting the aerial guideway have been determined, a more detailed prediction of the vibration levels within the vicinity of the piers should be conducted, to verify that the vibration levels

will not increase at receptors near the piers. A more detailed noise and vibration assessment should also be conducted once details of the preferred electric locomotive have been determined.

A more detailed review should be conducted to specifically identify the design parameters (in terms of sound and vibration levels) at the Ubisoft business location.

4.2.5 Air Quality

4.2.5.1 Potential Effects – Construction

The construction phase of the Project has the potential to affect air quality in the Study Area due to dust emissions. As with any construction site, these emissions will be of relatively short duration and are unlikely to have any long-lasting effect on the surrounding area.

4.2.5.2 Mitigation Measures – Construction

Prepare and implement a dust management plan for construction activities based on industry best practice to mitigate impacts through the use of proper controls such as:

- Periodic watering of unpaved (non-vegetated) areas;
- Seeding/re-vegetating exposed soil;
- Periodic watering of stockpiles;
- Limiting the speed of construction vehicular travel;
- Covering trucks hauling excess material;
- Sweeping and/or water flushing of the entrances to the construction zones; and
- Installing silt fences around site perimeter to prevent dust migration.

It is also recommended that mitigation measures detailed in *"Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)*[4]*"* be implemented, where practical.

4.2.5.3 Potential Effects – Operational

Service increases from 14 Tier 2 diesel trains/day to 36 Tier 4 diesel trains/day would result in a relatively small increase of contaminant emissions within the Study Area and therefore the interim (prior to electrification) service increase on the overpass does not have a major impact on air quality levels in the study area. For the maximum future build scenario with 36 Tier 4 diesel trains/day travelling through the Study Area, all contaminants are within applicable criteria at receptor locations adjacent to the GO Corridor when modelled contaminant concentrations are added to 90th percentile background concentrations, with the exception of benzene, $PM_{2.5}$ and benzo(a)pyrene. The results of the modelling also indicated that the predicted exceedances of benzene, $PM_{2.5}$ and benzo(a)pyrene criteria are a result of existing background concentrations from other upwind sources, with Project-related emissions of benzene and $PM_{2.5}$ expected to account for less than 1% of applicable criteria at receptors located immediately adjacent to the GO Corridor, and project related emissions of benzo(a)pyrene expected to account for less than 18% of applicable criteria. Detailed air quality impact modelling results can be found in the Air Quality Impact Assessment report (**Appendix F).**

4.2.5.4 Mitigation Measures – Operational

Mitigation measures related to air quality during the operational phase of the Project are not required.

[4] *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Cheminfo Services, March 2005.*

4.3 Cultural Heritage and Archaeology

4.3.1 Built Heritage and Cultural Heritage Landscapes

4.3.1.1 Potential Effects

Of the 153 properties in the CHSR Study Area, 37 contained resources (built or landscape) over 40 years of age. These properties were screened using the criteria in Ontario Regulation 9/06 – Criteria for Determining Cultural Value or Interest (O. Reg. 9/06) to determine the potential for cultural heritage value and the requirement for further heritage planning work. Of the 37 properties containing resources over 40 years of age, 11 properties met criteria under O. Reg. 9/06 for potential heritage value and are as follows. As stated in Section 3.4 and noted below, two of these properties do not lie within the EPR Study Area and therefore have not been further assessed:

- Bloor Street West Subway;
- Dupont Street Railway;
- Davenport Road Subway;
- St. Clair West Subway (outside EPR Study Area);
- 75 Wiltshire Avenue;
- 39 Wiltshire Avenue;
- 224 Wallace Avenue;
- 30 Powerhouse Street;
- 1550 St. Clair Avenue West (outside EPR Study Area);
- 19 Wiltshire Avenue; and
- 1200 Lansdowne Avenue (Earlscourt Park).

Additional information can be found in the Cultural Heritage Screening Report in **Appendix G**.

4.3.1.2 Mitigation Measures

A Cultural Heritage Evaluation Report (CHER) will be completed for properties owned by Metrolinx that may be impacted by the Project (Bloor Street West Subway, Dupont Street Railway and Davenport Road Subway). For provincial properties owned by Hydro One that will be impacted by the Project, a CHER will be completed by Hydro One or by Metrolinx on behalf of and with the agreement of Hydro One. For properties owned by the City of Toronto that will be impacted by the Project, a CHER will be completed by the City of Toronto or by Metrolinx on behalf of and with agreement of the City of Toronto. A review will be completed during detailed design to confirm that the design has not changed in the area of any properties with identified or potential heritage value. If design affects heritage value, a Heritage Impact Assessment (HIA) will be completed.

Cultural heritage related approvals will also be confirmed during detailed design.

4.3.2 Archaeology

4.3.2.1 Potential Effects

The Metrolinx and CP Rail rights-of-way do not retain archaeological site potential due to the previous construction disturbances. The existing ROW was cleared of further archaeological concern.

4.3.2.2 Mitigation Measures

Should the project extend beyond the existing Rail ROW identified in the Stage 1 archaeological assessment (refer to **Appendix H**), then additional archaeological work may be required. The detailed design will be reviewed to ensure that the scope of the project was captured within the area cleared of archaeological potential. Should previously unknown or unassessed deeply buried archaeological resources be uncovered during development, alteration of the site must immediately cease; Metrolinx shall engage a licensed archaeologist to carry out archaeological fieldwork in compliance with the *Ontario Heritage Act*. Any person discovering human remains must

immediately notify the police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services.

4.4 Urban Infrastructure and Operations

4.4.1 Rail

4.4.1.1 Potential Effects

During the detail design phase, potential effects to the CP Rail and Metrolinx lines will be reviewed to confirm that there will be no effects to the rail lines, services, and operations.

4.4.1.2 Mitigation Measures

Mitigation measures will be reviewed during detail design, in consultation with CP Rail. MSE walls and piers should be treated with graffiti resistant paints and be able to be subjected to pressure washing in accordance with Design Reference Manual (DRM) Architectural Finishes requirements (CI-0701).

4.4.2 Traffic

4.4.2.1 Potential Effects

Traffic During Construction

It is estimated that an average of 20-30 trucks per day will be accessing different staging areas within the Study Area, assuming that approximately 10% on the road during peak periods. During the closure of Wallace Avenue, local traffic will still have access to residential areas along Campbell Avenue, Rankin Crescent and Lappin Avenue. To accommodate the closure of Wallace Avenue, through traffic will be detoured to Lansdowne Avenue, Symington Avenue, Bloor Street West and Dupont Street. It is also expected that local traffic within the Study Area will find their own way in and out of residential neighbourhoods and not necessarily follow the provided detour routes.

In addition to the above, assuming that no changes are made to the existing traffic signal plans and no improvements are made to the road network, diverted traffic from the closure of Wallace Avenue does not appear to cause any significant impact on adjacent intersections. **Table 20** summarizes the comparison of intersections capacity and level of service (LOS) for 2018 conditions and the closure of Wallace Avenue during construction.

Currently at the intersection of Lansdowne Avenue and Lappin Avenue (stop-controlled), the eastbound and westbound legs have high delays during the afternoon peak hour and get worse with the addition of diverted traffic from the north and south direction.

For additional information refer to the Traffic Impact Assessment Report in **Appendix I**.

Table 20 Comparison of Intersection Capacity and Level of Service

Intersection	Future Background Conditions (2018)						During Construction – Wallace Avenue Closure					
	AM Peak Hour Trips			PM Peak Hour Trips			AM Peak Hour Trips			PM Peak Hour Trips		
	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]	LOS (Delay in Seconds)[i]	v/c[ii]	Critical Movements[iii]
Signalized Intersections												
Davenport Road and Lansdowne Avenue	D (44.7)	**0.99**	EB, SBTR	D (37.2)	0.89	EB, WB	D (36.2)	**0.94**	EB, SBTR	D (37.2)	0.89	EB, WB
Laughton Avenue and Davenport Road	B (18.4)	0.63		B (14.8)	0.58		B (18.6)	0.63		B (14.9)	0.58	
Symington Avenue and Davenport Road	B (18.5)	0.70		B (17.7)	0.75		B (18.8)	0.71		B (17.8)	0.76	
Davenport Road and Caledonia Park Road	C (32.7)	**0.98**	EBL, SBL	D (40.4)	**0.96**	EBL, WBRT, SBL	C (32.7)	**0.98**	EBL, SBL	D (40.4)	**0.96**	EBL, WBTR, SBL
Dupont Street and Lansdowne Avenue	B (18.0)	0.69	SB	C (17.6)	0.89		B (19.4)	0.72		C (27.1)	**0.91**	
Dupont Street and Symington Avenue	B (19.2)	0.68		B (15.8)	0.64		B (19.5)	0.69		B (16.7)	0.64	
Wallace Avenue and Lansdowne Avenue	B (15.4)	0.36		B (15.8)	0.51		B (15.6)	0.39		B (16.7)	0.56	
Lansdowne Avenue and Bloor Street West	B (14.8)	0.56		B (19.3)	0.63		B (15.9)	0.64		C (21.0)	0.68	
Dundas Street West and Bloor Street West	C (26.0)	0.67		C (27.3)	0.85	NB	C (26.0)	0.67		C (27.3)	0.85	NB
Sterling Road/Symington Avenue and Bloor Street West	C (22.8)	0.68	EB	C (32.7)	0.86	EB, NB	C (31.0)	0.67		C (3.7)	0.86	EB **(DL),** NB, SBL
Unsignalized Intersections												
Dupont Street and Osler Street	E (42.9)	0.46	SB	D (34.2)	0.44		E (46.5)	0.49	SB	E (35.2)	0.45	
Lansdowne Avenue and Lappin Avenue	D (31.4)	0.32		**F (559)**	**2.02**	EB, WB	D (34.3)	0.34		**F (840)**	**2.29**	**EB, WB**
Lansdowne Avenue and Paton Road	D (29.4)	0.25		E (40.2)	0.32	EB	D (32.6)	0.34		E (43.6)	0.41	EB
Symington Avenue and Wallace Avenue	B (12.9)	0.55		C (15.1)	0.53		B (13.6)	0.45		B (14.0)	0.52	

Notes: i. For unsignalized intersections, the LOS is defined by the movement with the highest delay.

ii. Maximum volume-to-capacity (v/c) ratio

iii. Critical movement represents the worst performing movement at the intersection. For signalized intersections, critical movements are those with a v/c ratio exceeding 0.85. For unsignalized intersections, critical movements are those with LOS E or F.

Traffic During Operations

The traffic operations in 2015 and 2025 for the base road network scenario shows a slight decrease in level of service when compared to existing conditions; however the impact to traffic operations is minor in nature and not significant enough to result in unacceptable operations at any of the key intersections within the Study Area. For more details, refer to **Appendix I**.

4.4.2.2 Mitigation Measures

Traffic During Construction

A traffic management plan will be developed and reviewed by the City of Toronto prior to construction activities. The construction contractor will determine their own haul routes in consultation with the City of Toronto through developing a Construction Management Plan.

It is suggested that intersections along detour routes and adjacent to the construction area be monitored for congestions and adjust signal timing plans and phasing as required, and in consultation with the City of Toronto. As noted in the Traffic Impact Assessment Report in **Appendix I**, the following recommendations are also proposed:

- Prohibit on street parking and/or stopping during construction through the AM and PM peak hours on Wallace Avenue (between Symington Avenue and Lansdowne Avenue); Bloor Street West (between Helens Avenue and Lansdowne Avenue); Symington Avenue (between Dupont Street and Bloor Street West); and Lansdowne Avenue (between Dupont Street and Bloor Street West);
- Subject to further review, consider protected phase for eastbound left turn at intersection of Symington Avenue and Bloor Street West;
- Hold a pre-tender meeting with City of Toronto;
- Hold a pre-construction meeting between the design team, City of Toronto, police, fire, and EMS;
- Discuss work zone co-ordination/conflicts with City of Toronto;
- Discuss closure of Wallace Avenue with TTC;
- Advise local residents and motorists of Wallace Avenue closure;
- Encourage public to consider use of alternate modes of travel;
- Maintain pedestrian and cyclist access through work zone, if possible;
- Use variable message signs to provide anticipated travel time alerts ;and
- Consider extension of daily construction working hours.

Metrolinx will complete an evaluation of construction traffic on area roads. Metrolinx will also provide a Construction Management Plan to the City of Toronto.

4.4.3 Drainage and Stormwater

4.4.3.1 Potential Effects

Stormwater will be managed through gravity drainage to the existing storm sewers at road crossings along the guideway. Runoff is expected to be attenuated by infiltration into the earth core of the bermed wall system located at the rail structure approaches. Stormwater management strategies will be confirmed through detail design.

4.4.3.2 Mitigation Measures

A stormwater management strategy including mitigation measures will be developed during detail design.

4.4.4 Utilities

4.4.4.1 Potential Effects

Overhead Toronto Hydro wires at Wallace Avenue will either be temporarily raised, or permanently buried, in order to accommodate the rail overpass. The preferred solution will be discussed further with Toronto Hydro. There may be temporary disruption to usage while these works occur.

4.4.4.2 Mitigation Measures

Utility companies will be contacted during detail design to establish any specific mitigation required in order to reduce potential temporary disruption to usage. During detailed design, Metrolinx will coordinate with the City of Toronto regarding utilities. Metrolinx will coordinate with the City of Toronto Capital Works Program on works proposed within this vicinity.

4.5 Summary of Potential Effects, Mitigation Measures, Net Effects and Monitoring Requirements of the Preferred Design

A summary of potential effects, mitigation measures and monitoring requirements is provided in the following **Table 21**.

Table 21 Potential Environmental Effects, Mitigation Measures and Monitoring

Potential Effect	Mitigation Measures	Monitoring
Natural Environment		
Flora		
Removal of vegetation	• Clearing and grubbing will be governed by Ontario Provincial Standard Specifications 201 (Construction Specification for Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders); • Vegetation removal will be limited to the extent necessary for construction and will be contained within the rail ROW; and • ROW will be revegetated per the approved landscaping plan develop during detail design.	• Monitor construction activities to ensure disturbance to vegetation is minimized. • Monitor construction activities to ensure equipment and machinery is contained in the designated staging areas and work zones. • Monitor construction to ensure that topsoil is being separated from other soil materials.
Removal of trees	• Protection of trees in accordance to City of Toronto Tree Protection Policy and Specifications for Construction Near Trees (June, 2013), where applicable. Metrolinx will work with authorities, as necessary, to obtain all applicable permits and approvals. • The potential for transplanting a Sweet Chestnut should be determined during detail design, located along the west side of the GO Barrie Corridor, in between Wallace Avenue and Paton Road. • A tree removal, restoration, and compensation plan will be prepared during detail design, in consultation with affected property owners. For trees in Campbell Avenue Park, recommended mitigation measures include: • Minimize or avoid heat effects - use matte or brushed finishes for stainless steel along the entire park length; or use different low-reflective material here for commissioned art panels; • Consider permeable pavers and non-limestone bedding courses within critical root zones; and • Consider low-albedo paving and concrete treatments to mitigate building up of heat adjacent to trees. For trees in Erwin Krickhahn Park, recommended mitigation measures include: • Minimize or avoid heat effects - use matte or brushed finishes for stainless steel along areas with mature or semi-mature trees; or use different low-reflective material here for commissioned art panels; and • Consider aggregate drainage trenches between existing mature/semi-mature trees and new guideway and cladding to mitigate optimal drainage and water management.	• Monitor installation of silt fencing and/or tree protection fencing to ensure it is constructed properly and thereafter monitor fencing to ensure it is properly maintained. • Monitor installation of tree protection barriers to ensure they are constructed properly and thereafter monitor fencing to ensure it is properly maintained. • Monitor installation of compensation plantings to ensure they are installed properly. • Monitor that trees protection measures are installed correctly and in good repair.
Fauna		
Disturbance to migratory birds	• No vegetation clearing occur between April 1 and August 30 unless the area is cleared by an avian specialist or following guidance from MNRF regarding a more specific window.	• Monitor to ensure construction activities do not interfere with any active nests of protected migratory birds, if construction activities are to occur during the core breeding bird period. • Monitor to ensure any construction activities that may result in the destruction of active nests of protected migratory birds are mitigated through discussion between Metrolinx, MNRF and Environment Canada.
Disturbance to Milk snakes	• Consider using silt fencing without mesh reinforcement.	• Monitor that any milk snakes encountered are reported that no harm comes to them during construction.
Displacement of structures for Chimney Swifts (SAR)	• Caution should be used when working near the chimney structure at Bloor Street West (directly adjacent to the GO Barrie Corridor) and the north side of Wallace Avenue, during the nesting period of the Chimney Swift from June 1 to August 15 to avoid harming	• If the chimney structure at Bloor Street West is determined not to be sealed or capped, monitor the structure during the appropriate timing windows (as per Bird Studies Canada

Potential Effect	Mitigation Measures	Monitoring
	individuals of this species. • If a SAR species is observed during construction, the MNRF should be contacted to discuss appropriate action.	survey protocols and consultation with MNRF) to determine if Chimney Swift are present.
Soils and Groundwater		
Disturbance of contaminated soil during construction	• Prepare a soil and groundwater management plan by a Qualified Person as per O. Reg. 153/04, as amended, prior to construction for managing soil materials onsite (including excavation, location of stockpiles, reuse, and offsite disposal). The soil and groundwater management plan shall be prepared in accordance with Management of Excess Soil - A Guide for Best Management Practices (MOECC 2014), and industry best practices. A copy of the soil and groundwater management plan will be provided to MOECC, Toronto District office for comment. • A Record of Site Condition (RSC) for the Greenway will be completed and filed with the MOECC demonstrating that the soil and groundwater meet the applicable Standards. The work necessary to obtain the RSC may involve conducting a risk assessment, completing remediation, or a combination thereof. If a risk assessment is conducted it will involve rigorous review and approval by the MOECC and there will be requirements for clean fill caps and/or hardscape barriers to ensure that human and ecological health is protected in a manner equal to what would be achieved through a generic remediation approach. • Develop and implement an Environmental Spills Prevention and Response Plan to ensure proper mitigation and notification procedures are in place during construction. • For effects on surface water quality, groundwater quality samples would be collected prior to construction and this information used to develop an appropriate water discharge plan. Further, if required, the water discharge plan would provide a discharge methodology that protects surface water quality. • Conduct a construction dewatering assessment prior to construction to determine if a Permit to Take Water or Environmental Activity Sector Registry is required is required. Should either be required, include recommendations for monitoring (e.g., pumping rate/volume monitoring, groundwater level monitoring and groundwater discharge monitoring) during construction dewatering for any potential adverse effects identified during the dewatering assessment. • Based on the findings of the Phase One ESA, a Phase Two ESA is recommended. The Phase Two ESA is currently being undertaken and will be completed during detailed design.	• Perform regular inspections to ensure that equipment and stockpiles do not extend beyond construction areas. • ESC measures shall be inspected to ensure they are functioning and are maintained as required. If ESC measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities. • Monitor the movement of soils to ensure the SMP is followed.
Land Use and Community Impacts		
Visual impact of elevated structure on adjacent communities	• This Project will continue be subject to a joint Design Review Panel process with the City of Toronto during detail design that addresses architecture, aesthetics and corporate identity considerations. • Building on the recommendation of the Residents Reference Panel (**Appendix K**), Metrolinx will continue the process of engagement with the City and the community through the Community Advisory Committee to assist in the development of design elements during the detail design process.Berms will be part of the design, to eliminate short and inaccessible spaces at either ends of the bridge structure. Crime Prevention Through Environmental Design (CPTED) principles will be followed in detail design. • Develop a lighting plan during detail design to light the multi-use trail at nighttime. • Metrolinx is committed to coordinate with the City of Toronto over integration with future planned works.	• N/A
Undesirable environments below the rail structure	• This Project will continue be subject to a joint Design Review Panel process with the City of Toronto during detail design that addresses architecture, aesthetics and corporate identity considerations.	• N/A

Potential Effect	Mitigation Measures	Monitoring
	• Building on the recommendation of the Residents Panel (**Appendix K**), Metrolinx will continue the process of engagement with the City and the community to develop specific visual design details during the detail design process. • Berms will be part of the design, to eliminate short and inaccessible spaces at either ends of the bridge structure. • CPTED principles will be followed in detail design. • Develop a lighting plan during detail design to light the multi-use trail at nighttime.	
Business and Economic Impacts		
Potential negative impacts to businesses sensitive to noise and Vibration (e.g., Ubisoft)	• During detail design, Metrolinx to work with Ubisoft to understand how they currently operate and determine potential noise and vibration mitigation.	• Monitor construction noise regularly to ensure that noise control measures are being adequately applied. If noise control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Localized traffic impacts related to construction vehicles or traffic diversions	• Develop a traffic management plan(s) prior to construction. • Maintain existing crossing roads in operation (minimum one lane per direction) throughout the construction period (excluding brief overnight closures).	• Monitor that the traffic management plan is effective in mitigating localized construction impacts.
Noise & Vibration		
Noise - Construction		
Increase in noise levels due to construction activity	• All equipment used must adhere to guidelines as placed in MOE's NPC-115 guidelines for construction equipment. • Whenever possible, work zone and time will adhere to local municipal by laws as a best practice. Metrolinx, however, is not required to adhere to municipal by-laws. • Every effort should be made to minimize impacts on the neighbourhood by limiting nighttime noisy activities. • Trains passing construction zones may be required to use bells and/or whistles to warn construction personnel for safety reasons. This should be minimized as much as practical while ensuring the safety of everyone involved. • Construction equipment has safety features such as backup alarms while backing up (beeping sound). This is for the protection and safety of the workers, and is legally required. Consideration will be given to the use of broadband rather than tonal backup beepers. • It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail occasional monitoring of vibration levels during construction. • A proactive communications protocol is recommended that would advise residents in advance of nighttime construction or particularly noisy construction at any time. • A more detailed noise assessment of construction should be completed when the specifics of construction equipment are finalized. This assessment should consider minimizing construction related noise and levels, while balancing construction schedules and expediting construction activity. • Complete a noise monitoring plan during detail design.	• Monitor construction noise regularly to ensure that noise control measures are being adequately applied. If noise control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Noise – Operation		
Potential increase in noise levels	• A 2.0 m high noise barrier has been recommended along the overpass and ramps for the entire Study Area. This short noise barrier's purpose is to provide clearly noticeable and significant (5 dB or more) reductions in electric train noise while minimizing the visual impact associated with a barrier located on an elevated overpass and berm. Taller noise barriers can be considered as the tracks begin returning to grade, provided the visual	• N/A

Potential Effect	Mitigation Measures	Monitoring
	impact does not offset the acoustic benefit offered by taller noise barriers. Taller noise barriers as the tracks return to grade will be reviewed during Detailed Design. • At Ubisoft (Receptor 68) has been identified as a commercial receptor particularly sensitive to noise and vibration from the railway, the recommended noise barrier provides a significant reduction in the sound levels. This reduction is achieved at the closest façade of the building to the railway, where the railway noise is highest. At increased setbacks, the sound level from the railway will be lower but the barrier benefit will also decrease. The construction of the noise barrier and the electrification of the corridor will produce significant reductions in the air-borne noise generated by the railway within Ubisoft's facility. A more detailed analysis of the noise impact at Ubisoft is recommended during detailed design.	
Vibration - Construction		
Potential increase in vibration during construction	• A proactive communications protocol is recommended that would advise residents in advance of nighttime construction. • A more detailed vibration assessment of construction should be completed when the specifics of construction equipment are finalized prior to construction start. This assessment should consider minimizing construction related noise and vibration levels, while balancing construction schedules and expediting construction activity. • Consideration should be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage. • It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail monitoring of vibration levels during construction. Vibration levels will be confirmed during detail design. • Complete a vibration monitoring plan during detail design.	• Consideration should be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage. • Monitor construction vibration regularly to ensure that vibration control measures are being adequately applied. If vibration control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Vibration – Operation		
Potential increase in vibration during operation	• During detail design, once location of piers supporting the aerial guideway have been determined, a more detailed prediction of the vibration levels within the vicinity of the piers should be conducted, to verify that the vibration levels will not increase at receptors near the piers. A more detailed noise and vibration assessment should also be conducted once details of the preferred electric locomotive have been determined. • A more detailed review should be conducted to specifically identify the design parameters (in terms of sound and vibration levels) at the Ubisoft business location.	• N/A
Air Quality		
Construction		
Potential for nuisance dust and emissions during construction	Prepare and implement a dust management plan for construction activities based on industry best practice to mitigate impacts through the use of proper controls such as: • Periodic watering of unpaved (non-vegetated) areas; • Seeding/re-vegetating exposed soil; • Periodic watering of stockpiles; • Limiting the speed of construction vehicular travel; • Covering trucks hauling excess material; • Sweeping and/or water flushing of the entrances to the construction zones; and	• Regular inspection of construction work zones to ensure that dust suppression measures are being adequately applied. If dust suppression measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.

Potential Effect	Mitigation Measures	Monitoring
	• Installing silt fences around site perimeter to prevent dust migration. It is also recommended that mitigation measures detailed in "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)[5]" be implemented, where practical.	
Operational		
Potential for nuisance dust and emissions during operations	• Mitigation measures related to air quality during the operational phase of the Project are not required.	• N/A
Cultural Heritage		
Effects on cultural heritage resources	• A Cultural Heritage Evaluation Report (CHER) will be completed for properties owned by Metrolinx that may be impacted by the Project (Bloor Street West Subway, Dupont Street Railway and Davenport Road Subway). • For provincial properties owned by Hydro One that will be impacted by the Project, a CHER will be completed by Hydro One or by Metrolinx on behalf of and with the agreement of Hydro One. • For properties owned by the City of Toronto that will be impacted by the Project, a CHER will be completed by the City of Toronto or by Metrolinx on behalf of and with agreement of the City of Toronto. • A review will be completed during detailed design to confirm that the design has not changed in the area of any properties with identified or potential heritage value. If design affects heritage value, a Heritage Impact Assessment (HIA) will be completed. • Cultural heritage related approvals will also be confirmed during detailed design.	• Monitor to confirm that staging/construction activities avoid cultural heritage resources.
Archaeology		
Effects on archaeological resources	• Should the project extend beyond the existing Rail ROW identified in the Stage 1 archaeological assessment (refer to **Appendix H**), then additional archaeological work may be required. • The detailed design will be reviewed to ensure that the scope of the project was captured within the area cleared of archaeological potential. • Should previously unknown or unassessed deeply buried archaeological resources be uncovered during development, alteration of the site must immediately cease; Metrolinx shall engage a licensed archaeologist to carry out archaeological fieldwork in compliance with the Ontario Heritage Act. • Any person discovering human remains must immediately notify the police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services.	• N/A
Rail		
Effects on CP Rail operations	• Mitigation measures will be reviewed during detail design, in consultation with CP Rail. • MSE walls and piers should be treated with graffiti resistant paints and be able to be subjected to pressure washing in accordance with Design Reference Manual (DRM) Architectural Finishes requirements (CI-0701).	• N/A
Traffic		
Potential localized traffic impacts related to construction vehicles or traffic diversions	• A traffic management plan(s) will be developed and reviewed by the City of Toronto prior to construction activities. • The construction contractor will determine their own haul routes in consultation with the City of Toronto through developing a Construction Management Plan.	• Regular monitoring of construction access operations.

[5] *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Cheminfo Services, March 2005*.

Potential Effect	Mitigation Measures	Monitoring
	• It is suggested that intersections along detour routes and adjacent to the construction area be monitored for congestions and adjust signal timing plans and phasing as required, and in consultation with the City of Toronto. As noted in the Traffic Impact Assessment Report in **Appendix I**, The following recommendations are also proposed: • Prohibit on street parking and/or stopping during construction through the AM and PM peak hours on Wallace Avenue (between Symington Avenue and Lansdowne Avenue); Bloor Street West (between Helens Avenue and Lansdowne Avenue); Symington Avenue (between Dupont Street and Bloor Street West); and Lansdowne Avenue (between Dupont Street and Bloor Street West); • Consider protected phase for eastbound left turn at intersection of Symington Avenue and Bloor Street West; • Hold a pre-tender meeting with City of Toronto; • Hold a pre-construction meeting between the design team, City of Toronto, police, fire, and EMS. • Discuss work zone co-ordination/conflicts with City of Toronto; • Discuss closure of Wallace Avenue with TTC; • Advise local residents and motorists of Wallace Avenue closure; • Encourage public to consider use of alternate modes of travel; • Maintain pedestrian and cyclist access through work zone, if possible; • Use variable message signs to provide anticipated travel time alerts; and • Consider extension of daily construction working hours. Metrolinx will complete an evaluation of construction traffic on area roads. Metrolinx will also provide a Construction Management Plan to the City of Toronto.	
Drainage and Stormwater Management		
Potential impacts to be confirmed during detail design	• Develop a stormwater management strategy including mitigation measures during detail design.	• N/A
Utilities		
Significant impacts to utilities are not anticipated	• Utility companies will be contacted during detail design to establish any specific mitigation required in order to reduce potential temporary disruption to usage. • During detailed design, Metrolinx will coordinate with the City of Toronto regarding utilities. • Metrolinx will coordinate with the City of Toronto Capital Works Program on works proposed within this vicinity.	• N/A
Property		
Potential property acquisition requirements	• A legal survey will be completed during detailed design to confirm property impacts. • Undertake a review during the early stages of detail design to identify temporary easements for construction or other purposes, to accommodate the project work. • Engage and negotiate with affected owners regarding easements that may be required for the works.	• N/A

4.6 Additional Monitoring Requirements

4.6.1 Compliance Monitoring Plan (CMP)

Metrolinx will develop a Compliance Monitoring Plan (CMP) document, which is a summary of all commitments made in the EPR. The overall goal of the CMP is to provide direction so that the project is implemented 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. The commitments that form the basis of the CMP will be transcribed directly from the EPR. The document will include:

- Mitigation measures to minimize environmental effects;
- Monitoring and reporting activities to confirm effectiveness of the mitigation measures;
- Commitments to future actions; and
- Additional studies and work to be carried out.

4.6.2 Environmental Mitigation and Monitoring Plan (EMMP)

Metrolinx will develop an Environmental Mitigation and Monitoring Plan (EMMP) which will include the commitments of the CMP and any other potential environmental impacts or approval requirements that arise during detail design and during additional environmental studies, as required. The EMMP includes relevant mitigation measures and requirements for potential environmental impacts and include a list of the required permits and approvals for the Project. Once permits and approvals are received for the Project, or findings from additional environmental studies are received, the Consultant will be responsible for updating the EMMP to include any additional mitigation measures or requirements. Any new monitoring or reporting requirements shall also be reflected in the EMMP.

The Consultant will be responsible to implement the requirements of the EMMP during detail design and construction. This includes providing environmental monitoring services and adhering to reporting requirements as detailed in the EMMP, providing instruction to the design team and Contractor as required, and issuing preventive and/or corrective action requests as required. The EMMP includes a procedure for preventive and corrective action in the event of findings of non-compliance during environmental monitoring, as well as follow up and reporting procedures.

5. Consultation Process

In accordance with Section 8 of *Ontario Regulation 231/08*, this chapter summarizes the consultation activities carried out with the public, property owners, review agencies, Aboriginal communities and other stakeholders during the course of the Davenport Community Rail Overpass Project, including a summary of feedback and comments received and how they were considered.

The TPAP included a consultation program based on the following principles:

- Make all reasonable efforts to ensure that potentially affected or interested parties have information available to them and are given the opportunity to provide their opinions;
- Document the Project consultation process so that the process can be transparent, understood and tracked;
- Be responsive by providing opportunities for interested parties to comment on the Project at key stages and by ensuring that such comments are addressed in the EPR;
- Be meaningful by identifying how comments and concerns have been considered throughout the Project; and
- Be flexible by allowing response to new issues that emerge as the Project proceeds.

A Project Mailing list was continually updated in response to Project feedback and was utilized to inform stakeholders of key consultation milestones. The Project Mailing list is included in **Appendix K**.

In order to achieve these goals, consultation was carried out prior to commencement of the TPAP and throughout the process. All consultation activities were carried out in accordance with O.Reg.231/08. The consultation program included:

- Notifications;
- Public meetings;
- Meetings with agencies;
- Identification of, and correspondence with, potentially affected Aboriginal communities; and
- Public review opportunities.

5.1 Consultation Activities

Metrolinx offered a wide range of communication methods to the general public, review agencies, property owners, Aboriginal communities and other interested groups and carried out the following activities to solicit comments and feedback on the Project:

- Project Website;
- Community Meetings;
- Residents Reference Panel;
- Stakeholder Working Group Meetings;
- Public Information Centres;
- Community Workshops;
- Notifications/Newspaper Advertisements;
- Door to Door Notifications;
- Email Updates (E-Blasts); and
- Facebook chat.

5.1.1 Project Website

The Project website was dedicated to keeping the public up-to-date on the latest developments of the Project, providing notice of upcoming Public Information Centres, serving as a virtual library for materials presented at the

Public Open Houses and other Project documentation and providing a means for the public to comments on the Project.

5.2 Pre-Notification Consultation

5.2.1 Consultation Structure and Process

Consultation is a key component of a successful project. Since this Project was recognized to be associated with a number of different stakeholders, a consultation process was developed to maximize engagement and facilitate input.

5.2.1.1 Definition of Stakeholders

Stakeholders are individuals, groups, or organizations, who may affect, be affected by, or perceive themselves to be affected by a decision, activity, or outcome of the Project. For this Project, the following stakeholders were identified:

- Metrolinx;
- Canadian Pacific Railway Limited;
- City of Toronto;
- Ministry of the Environment and Climate Change;
- Ministry of Natural Resources and Forestry;
- Toronto and Region Conservation Authority;
- Ministry of Tourism, Culture and Sport;
- Aboriginal Communities; and
- Residents, businesses and other organizations within and adjacent to the Study Area.

5.2.2 Public Consultation

5.2.2.1 Email Updates (E-blasts)

Throughout the Davenport Diamond Grade Separation project Metrolinx provided several email updates (e-blasts) to interested persons. As the project progressed, the recipient list grew from approximately 60 subscribers to 380 subscribers. Metrolinx provided e-blasts to inform subscribers of project notifications, project updates, new project material, upcoming community meetings and community meeting recaps. For copies of e-blasts provided to subscribers see **Appendix K**.

5.2.2.2 Metrolinx Q&A Community Sessions

Meeting with Property Owner of 1453 Dupont Street

A meeting between Metrolinx, IBI group, and a property owner (1453 Dupont Street) was held on September 10, 2015. The purpose of the meeting was to obtain plans from the property owner and developer and discuss the current design and planning concerns for land-use development, GO stations, and the elevated structure.

BIG MEETING on Bloor

The notice of the BIG MEETING was published on the Bloordale BIA website. This session was held on April 1, 2015, from 7:00 to 9:00 PM, at the New Horizons Tower. The purpose of this meeting was to introduce the Project

and answer questions from interest groups. A formal presentation was led by Metrolinx. The meeting minutes were distributed to all the meeting participants and are included in **Appendix K**.

DIGIN Barrie Line Rail Bridge – Meeting with Metrolinx

DIGIN is a local community group located in the Bloor Street West neighbourhood. The notice of the meeting was published on the Junction Triangle website. The session was held on Wednesday, March 11, 2015, from 7:00 to 9:00 PM, at the Davenport Perth Neighbourhood Centre. The purpose of this meeting was to introduce the upcoming renovation to the Barrie Corridor as part of the Davenport Diamond Community Rail Overpass Project. A formal presentation concerning RER and its relevance to the Davenport community and discussion session was led by Metrolinx. The meeting minutes were distributed to all the meeting participants and are included in **Appendix K**.

5.2.2.3 Residents Reference Panel

As part of the Project preliminary consultation phase, 35 local residents were randomly selected from a diverse panel of volunteers to form a Residents Reference Panel, representing the Davenport community. Updates and information about the Davenport Reference Panel can be found on the Panel website (http://www.metrolinx.com/en/aboutus/inthecommunity/davenportpanel/).

The Reference Panel was tasked with studying the Project and providing detailed recommendations to inform the design of the overpass and the unlocked public space underneath. The Reference Panel met several times and produced a summary report, the recommendations of which are summarized below and also included in **Appendix K**.

The Reference Panel Recommendations

The recommendations include:

- Creating inviting, safe and separated cycling and walking paths underneath the overpass that also link to other parks and trail systems;
- Using skilful, contemporary design to reduce the scale and profile of the overpass, while incorporating a range of aesthetic features;
- Creating a new public square at Wallace Avenue;
- Incorporating a pedestrian bridge and observation deck into the overpass design where it crosses the CP Rail freight tracks to ensure continuous north-south connectivity;
- Building a pedestrian bridge at the north end of the Barrie Corridor connecting the pathway to Earlscourt Park;
- Redeveloping local parks and public spaces to feature new uses and a more naturalized habitat;
- Incorporating distinctive signage and place-making features that heighten local connectivity and create local attractions;
- Preserving land at the south end of the Barrie Corridor for a future Bloor Street GO Station;
- Ensuring compliance with accessibility standards for all ages and abilities;
- Protecting the health and well-being of local residents by mitigating both construction and ongoing noise, vibration, dust and emissions;
- Ensuring public safety by funding long-term maintenance and improving lighting, cellular receptivity, and access to emergency services;
- Designing features which preserve the industrial and cultural heritage of the neighbourhood;
- Ensuring the new public spaces are open and welcoming year-round;

- Prioritizing the use of natural materials, textures, sustainable plantings and native species; and
- Establishing a mechanism for ongoing community stewardship, sustainability and a long-term endowment or commitment to ensure sufficient funds to maintain and animate the site.

5.2.2.4 Public Information Centres

Public Information Centre #1

An email notice was published and shared with various stakeholders in advance of the event to provide relevant information regarding the study and the process. PIC #1 was held on May 12, 2015, from 7:00 to 9:00 PM, at the Davenport Perth Neighbourhood Centre. The purpose of PIC #1 was to introduce the Project and the process, including issues and concerns that had already been identified, and also to address any questions raised by attendees. A formal presentation was led by Metrolinx and MASS LBP. An information brochure (**Appendix K**) was distributed at the meeting which presented main Project highlights, how to get involved and next steps. PIC #1 materials are included in **Appendix K**.

Public Information Centre #2

In June 2015, an email notice was published and shared with various stakeholders in advance of the event to provide relevant information regarding the study progress and a summary of the residents' reference panel, and details about PIC #2. PIC #2 was held on June 23, 2015, from 6:30 to 8:30 PM, at the Davenport Perth Neighbourhood Centre, to provide background Project information, Project progress, the recommended option, TPAP process and future timelines. Attendees were invited to keep current with the Project by signing up to receive relevant updates. An information brochure (**Appendix K**) was distributed at the meeting which presented main Project highlights, how to get involved and next steps. Summaries of environmental studies and the residents' reference panel recommendations were also available. PIC #2 materials are included in **Appendix K**.

Public Information Centre # 3

In January 2016, an email notice sent to various stakeholders and agencies in advance of PIC #3 to provide relevant information regarding the study progress and a summary of the residents' reference panel report in addition to details about PIC #3. Notices were also published in the York Guardian and Bloor West Villager on January 7, 2016. The notice and invitation for PIC #3 are included in **Appendix K.**

PIC #3 was held on January 18, 2016, from 6:30 to 8:30 PM, at the Davenport Perth Neighbourhood Centre, to present the development of the project up to the selection of a preferred design, discuss how residents' concerns have been addressed through the preferred design, and provide more details on the preferred design and its key elements. An information brochure was distributed at the meeting which presented the key design features of the project, answers to common public questions, and a comparison of the overpass and tunnel options. There was also a question and answer session with Metrolinx staff and a presentation from the "Options for Davenport" community group. PIC #3 materials are included in **Appendix K.**

5.2.2.5 Summary of Public Comments

Public Information Centre #1

Comments and concerns expressed included a variety of potential environmental impacts from construction and operation of the rail overpass. Residents were concerned about tree removal, noise and vibration, and air pollution as a result of construction and operation of the rail overpass. Residents also expressed concern that a large, concrete overpass would attract undesirable behaviours and crime, present areas for public drinking, drug use, harassment, vandalism and graffiti. Solutions presented by the residents included ensuring sufficient lighting of the area, and incorporating public art into the design.

The timing of electrification was discussed and residents indicated a preference for an accelerated process. Another key item that was discussed is a new station at Bloor Street. Residents believe that a new station will be beneficial to the community. Regarding potential public space, participants expressed strong support towards improving neighbourhood connectivity, create public spaces, walking and cycling routes.

A report documenting PIC # 1 activities is included in **Appendix K**.

Public Information Centre #2

Resident comments and concerns from PIC #2 related to the potential construction effects of the project (e.g., staging location, traffic and noise impacts), potential track operation impacts on air quality and noise, brownfield remediation, potential changes in property values, lighting under the new structure and the visual look of the new overpass.

Residents were interested to know the method used to evaluate construction and operation impacts as well as the criteria used for selecting the overpass option. They also expressed interest in benefits this overpass would have for the overall community.

Public Information Centre # 3

Residents expressed concern with the TPAP and the recommendation of the overpass as the preferred option (felt like Metrolinx was not being responsive to their concerns). Many also expressed that the community was not provided the opportunity to consider all options equally. Participants also felt a lack of trust with Metrolinx, an issue of safety (e.g., derailment), felt that the tunnel option is the better choice, the project is being rushed, having a station at Bloor Street West would be a benefit to the community and some are skeptical on the electrification timing given other projects.

5.2.3 Agency Consultation

5.2.3.1 City of Toronto

Several Councillor, MP and MPP briefings were provided by Metrolinx to the following elected officials:

- Ana Bailão – City of Toronto Councillor, Ward 18;
- Cesar Palacio – City of Toronto Councillor, Ward 17;
- MP Julie Dzerowicz – Davenport; and
- MPP Cristina Martins - Davenport.

Several Technical Advisory Committee (TAC) Meetings were held with the City of Toronto and Metrolinx. TAC members included:

City of Toronto:

- Shalin Yeboah, Senior Project Manager, Major Capital Infrastructure Co-ordination Office, Deputy City Manager;
- Harold Madi, Director, Urban Design, City Planning;
- Deanne Mighton, Urban Designer, Toronto and East York District, Urban Design, City Planning;
- Nigel Tahair, Program Manager, Toronto & East York District – Wards 14, 18-22, 27-32, Transportation Planning Section, City Planning;
- Ed Presta, Project Manager, Infrastructure Planning (City Wide), Transportation Infrastructure Management, Transportation Services;
- Kanchan Maharaj, Engineer, Infrastructure Asset Management & Programming (City Wide);

- Alex Shevchuk, Project Manager, Landscape Architecture Unit, Parks, Forestry & Recreation Division;
- Arthur Beauregard, Manager, Tree Protection and Plan Review, Parks, Forestry and Recreation;
- Transportation Infrastructure Management, Transportation Services;
- David Brutto, Planner, Toronto & East York District – Wards 14, 18-22, 27-32, Transportation Planning, City Planning;
- Jamie McEwan, Manager, Midtown Section (Wards 21, 22, 27), Community Planning – Toronto & East York District, City Planning;
- Richard Beck, Program Manager, Etobicoke York District – Wards 1-7, 11-13 & 17, Transportation Planning Section, City Planning;
- Barry Brooks, Senior Planner, Midtown Section (Wards 21,22, 27), Community Planning – Toronto & East York District, City Planning;
- Marijana Bulatovic, Senior Engineer, Engineering & Construction Services; and
- Mary MacDonald, Senior Manager, Heritage Preservation, Urban Design, City Planning.

Metrolinx:

- Jason Ryan, Acting Director, Environmental Programs and Assessment;
- Renée Pettigrew, Manager, Environmental Programs and Assessment;
- Laura Romeo, Project Manager, Environmental Programs and Assessment;
- Melissa Webb, Project Co-ordinator, Environmental Programs and Assessment.
- Nick Spensieri, Director, Barrie Rail Corridor, Capital Projects Group;
- Stefan Tzianetas, Project Manager, Barrie Rail Corridor, Capital Projects Group;
- Beth Kapusta, Senior Manager, Design Excellence, Project Planning and Development;
- John Potter, Senior Advisor, Design Excellence, Planning and Policy;
- Margaret Goodfellow, Senior Advisor, Design Excellence, Planning and Policy; and
- Manuel Pedrosa, Manager, Community Relations.

TAC meetings occurred on the following dates:

- TAC #1 – April 1, 2015;
- TAC #2 – May 7, 2015;
- TAC #3 – June 2, 2015;
- TAC #4 – June 12, 2015;
- TAC #5 – July 7, 2015;
- TAC #6 – August 10, 2015;
- TAC #7 – September 17, 2015;
- TAC #8 – February 25, 2016;
- TAC #9 – March 22, 2016;
- TAC #10 – April 11, 2016; and

- TAC #11- May 12, 2016.

For meeting minutes from TAC meetings with the City of Toronto and Metrolinx see **Appendix K**.

During the Davenport Diamond project several letters were also issued between the City of Toronto and Metrolinx and are summarized in **Table 22** below.

Table 22 Correspondence between the City of Toronto and Metrolinx

Comments/Concerns	Response
April 16, 2015 – Elise Croll (Metrolinx) to Tim Laspa (City of Toronto): Following up from the April 1 (TAC Meeting # 1) and 9 (Transportation Planning) meetings, attached to the memorandum was the 2010 feasibility study. The 2010 and 2014 feasibility study is currently being updated to reflect changes related to RER and electrification initiatives. Metrolinx requested the City review and comment on the 2010 and 2014 studies.	Comments were received by the City of Toronto on the 2010 and 2014 Feasibility Study.
June 16, 2015 - Jennifer Keesmaat (City of Toronto) to James Purkis (Metrolinx): Expressed concerns the City had regarding review of information received. Relevant sections from the Official Plan were listed for Metrolinx to consider; key issues and relevant items. The City also noted concerns with timing of this project; a suggested process for successful completion of this project as well as the roles and responsibilities of the City.	**June 26, 2015 - James Purkis (Metrolinx) to Jennifer Keesmaat (City of Toronto):** Metrolinx noted the timing of the feasibility studies and associated technical studies as well as previous discussions between Metrolinx and the City. Metrolinx also addressed concerns raised in previous correspondence that included a full grade separation at Wallace Avenue (not feasibility with underpass option); park connections; and planning studies associated with the TPAP have included identification of new development and specific meeting with developers. Furthermore, this letter listed Metrolinx's efforts in assisting with the collaboration.
July 14, 2015 - Jennifer Keesmaat (City of Toronto) to James Purkis (Metrolinx): In response to the June 26, 2015 letter, the City listed concerns about communications; need to strengthen the collaboration between Metrolinx and the City; issue of various community impacts; and due to the lack of previous resources and collaboration, additional time was needed for City staff to understand the project before Notice of TPAP Commencement.	No additional letter response. Ongoing discussions held.
August 21, 2015 - Tim Laspa and Harold Madi (City of Toronto) to Elise Croll (Metrolinx): The City provided comments on the Reference Panel recommendations that were developed at the August 18, 2015 (discussion on reference panel recommendations) meeting.	No response required. Comments were discussed at next TAC meeting.
September 15, 2015 - Harold Madi (City of Toronto) to Elise Croll (Metrolinx): Proposed a list of Performance Measures and Key Design Directions for the Davenport Community Rail Overpass; bridge structure; and Multi-Use Trail.	No response required. Comments were discussed at next TAC meeting.
November 4, 2015 - Jennifer Keesmaat (City of Toronto) to Bruce McCuaig (Metrolinx): For discussion, the City of Toronto provided a framework outline for next steps.	**November 12, 2015 - Bruce McCuaig (Metrolinx) to John Livey (City of Toronto):** Set out Metrolinx's plans for moving ahead with the infrastructure improvements on the Barrie Corridor in order to increase service levels consistent with the plans that have been set out for the RER. After postponing the TPAP twice, the TPAP will be initiated in January 2016. Metrolinx also noted that any postponement beyond January 2016 will result in delays to increase transit service and electrify the corridor.

Comments/Concerns	Response
November 18, 2015 - John Livey (City of Toronto) to Bruce McCuaig (Metrolinx): In response to the November 12, 2015 response the City provided a summary of correspondence from the City to Metrolinx. The City's review of the "Draft Davenport Community Rail Overpass Metrolinx Policy Evaluation" concluded that the tunnel option represents greater long term City building benefits over the overpass option. It was also noted that further discussion is needed to review the level of assessment to capture the long term societal impacts and benefits which are missing from the evaluation. In addition, more time is required as well as public engagement to address this and other City issues.	No additional letter response provided. Ongoing discussions held through TAC.
November 24, 2015 - **Jennifer Keesmaat (City of Toronto) to Bruce McCuaig (Metrolinx):** The City provided additional details explaining the position of the Planning Division for this project. With respect to timing, the City requested details regarding the project schedule for the 10 year delivery point and further clarification as to why postponing the schedule until Spring 2016 will risk meeting targeted implementation date. The City confirmed that they are not recommending a tunnel option at this time (based on information provided to date), and believes that more work is required to build on the initial draft Policy Evaluation. Further public engagement is also recommended related to the issues of long term societal benefits and impacts. The current January 2016 deadline provides insufficient time for City staff review as well as to undertake any remaining work. City urges Metrolinx to reconsider this deadline based on the comments provided.	**December 4, 2015 - James Purkis (Metrolinx) to Jennifer Keesmaat (City of Toronto):** Responding to the City's November 24, 2015 memorandum, clarification was provided regarding stakeholder engagement and policy assessment. The letter also expressed avoiding further delays and starting TPAP in January 2016; Metrolinx's continuous commitment in community engagement; inclusion of new station would require a significant change in the scope of study area and environmental studies and would delay the project even further. With respect to the tunnel option, it includes impacts to the Rogers Road area, significantly extends the consultation period and cost of the initiative.
December 9, 2015 – Jennifer Keesmaat (City of Toronto) to James Purkis (Metrolinx): In response to the December 4, 2015 response the City provided additional points of clarification to the provincial commitment, timing of study introductions, the TPAP process, project schedule, project delay, station analysis, and the need for careful planning.	No additional letter response provided.
January 18, 2016 – Peter Wallace (City of Toronto) to Bruce McCuaig (Metrolinx): On behalf of Toronto City Council, the City opposed the overpass grade separation option within the Davenport Rail Grade Separation TPAP, and supported a tunnel option for this rail grade separation.	No letter response provided.
February 15, 2016 – Jennifer Keesmaat (City of Toronto) to James Purkis (Metrolinx): The City requested additional information on how the project makes provision for an anticipated interchange station on the Bloor-Danforth subway line (Line 2), and; how the project has addressed the need to remove the Dupont Street underpass condition now that an elevated structure is being planned.	**March 8, 2016 –James Purkis (Metrolinx) to Jennifer Keesmaat (City of Toronto):** Metrolinx provided additional information on the new station analysis and confirmed that protection for a potential new station has been made as part of the Davenport Diamond Grade Separation project. With regards to restoring the current Dupont Street underpass to an at-grade condition, Metrolinx confirmed they would support the City's work plan aimed at normalization of this crossing. Metrolinx agreed to collaborate with a City lead effort on the normalization of all of Dupont Street.
April 21, 2016 - Jennifer Keesmaat (City of Toronto) to Bruce McCuaig (Metrolinx): The City provided a summary on the following key issues City staff have with the Davenport Diamond project: a comprehensive vision, multimodal station, cycling connections,	**April 27, 2016 – James Purkis (Metrolinx) to Jennifer Keesmaat (City of Toronto):** Metrolinx responded to each of the key issues raised by the City. Metrolinx committed to continue to meet with the City of Toronto at the established Technical Advisory Committee meetings and other ad

Comments/Concerns	Response
Dupont Street, the Greenway, parks, noise and vibration, safety, and construction liaison committee.	hoc meetings to work together to tackle the challenges and opportunities presented by this project.

5.2.3.2 Toronto and Region Conservation Authority (TRCA)

In an email dated April 30, 2015, Metrolinx introduced the study including high level details regarding the proposed overpass (e.g., offers the most potential community benefits, poses the least impact during construction, most cost effective), key points for the study and the study process to be followed.

In a letter dated May 5, 2015 TRCA responded and noted that a TRCA regulated area is present within the southwest section of the Study Area, however, the site where the overpass and elevated rail is proposed, is not regulated by TRCA. TRCA also provided their areas of interest which include TRCA regulated areas and TRCA program and policy areas. TRCA also advised that Metrolinx contacted the Ministry of Natural Resources and Forestry (MNRF) to confirm if there are program interests related to Areas of Natural and Scientific Interest, Provincially Significant Wetlands and Provincially Endangered Species. In addition, they also noted that contact should be made with a relevant federal agency to confirm if there are issues related to federally endangered species.

5.2.3.3 Toronto Transit Commission (TTC)

A meeting between Metrolinx and Toronto Transit Commission was held on April 30, 2015. Metrolinx introduced the project, RER initiative, and surface transportation renovation. Project timelines and feasibility studies for Davenport Diamond and Stouffville Corridor projects, and collaboration opportunities between Metrolinx and TTC were discussed.

On February 22, 2016 Metrolinx met with the TTC to provide an update on the project. Metrolinx discussed construction staging, operations, detailed design and construction with the TTC. Further conversations will continue to be held with the TTC during detailed design.

5.2.3.4 Ministry of the Environment and Climate Change (MOECC)

In a letter dated February 26, 2015, Metrolinx introduced the study and the process to be followed, and noted that additional consultation will be undertaken with any organizations identified by MOECC, that were not previously consulted. The letter also requested assistance in identifying any Aboriginal communities that may have interest in the study.

5.2.3.5 Ministry of Natural Resources and Forestry (MNRF)

In a letter dated June 5, 2015, Metrolinx introduced the study, and requested that the Ministry of Natural Resources and Forestry confirm any program interests related to the study for areas of natural and scientific interest, provincially significant wetlands, and provincially endangered species. In addition, available mapping and GIS information was requested.

5.2.3.6 Canadian Pacific Railway (CPR)

In an email dated February 26, 2015, Metrolinx sent the conceptual design and design criteria to CP. CP responded on April 29, 2015 having no comments for the conceptual design report.

5.2.3.7 Utilities

A meeting was held with Hydro One and Infrastructure Ontario on July 31, 2015. Metrolinx introduced the RER program and the TPAP process for Metrolinx projects. Hydro One indicated their interest and informed that GIS

information has been shared in the context of the Metrolinx GIS 10 year plan. Hydro One and Infrastructure Ontario explained the technical review process and Hydro One would share the information sheets on typical project processes. Typical projects either involve licences or easements. The level of liaison between Metrolinx and Hydro One has yet to be decided.

5.2.4 Aboriginal Communities and First Nations Consultation

Letters dated June 1, 2015 were issued to eight First Nation Communities suggested by the MOECC informing the communities about PIC #2 on June 23, 2014.

In separate letters dated June 5, 2015, Metrolinx introduced the study, and requested that the Aboriginal Affairs and Northern Development Canada and the Ministry of Aboriginal Affairs, assist in the identification of specific Aboriginal communities that may be affected by, or interested in the study.

5.3 TPAP Consultation

5.3.1 Notice of Study Commencement

The Notice of Study Commencement was issued on January 28, 2016. The notice was published in the Bloor West Villager and York Guardian on January 28, 2016 and February 4, 2016. The notice was distributed via unaddressed admail and was sent to 9400 businesses, apartments and homes. The notice was also sent to business, apartments and homes within 30 m of the study area via addressed mail.

5.3.2 Public Consultation

5.3.2.1 Metrolinx Q&A Community Sessions

Site Tour with Community Groups

On February 19, 2016 Metrolinx conducted a site tour with representatives from local community groups including Options for Davenport, Junction Triangle Rail Committee, and Davenport Village Community. A project update was provided with explanations given on various features of the proposed overpass.

Community meeting co-hosted by BIG, Options for Davenport, Davenport Village Community Association, Junction Triangle Rail Committee

On March 2, 2016 Metrolinx was invited as a panel member to this community meeting with BIG, Options for Davenport, Davenport Village Community Association, and the Junction Triangle Rail Committee. Metrolinx provided a brief presentation that included an overview of the project followed by a Q&A session alongside other panelists. The key issues raised at the meeting included the Bloor Station advocacy, an international design competition, Earlscourt Park bridge and funding for public realm enhancements and ongoing maintenance and public space programming.

Visit to St. Sebastian Elementary School

On March 10, 2016 Metrolinx visited Miss Keenan's Grade 2 class at St. Sebastian Elementary School. The class had been referring to the Davenport Diamond project through "Teaching Math through Social Justice". Metrolinx was invited to give a presentation and answer three questions the class had.

Options for Davenport

On March 11, 2016 Metrolinx met with Options for Davenport to provide a briefing on electrification and new station analysis.

On April 22, 2016 Metrolinx met with Options for Davenport to brief the group on the agenda for PIC #4 held on April 27, 2016.

Junction Triangle Rail Committee and Davenport Village Community Association

On April 22, 2016 Metrolinx met with the Junction Triangle Rail Committee and Davenport Village Community Association. The topics of discussion included new renderings, noise and vibration impacts and an international design competition.

Foundry Loft Town Hall Meetings

On May 3, 2016 Metrolinx gave a presentation at the Foundry Lofts Town Hall meeting with the City of Toronto and Options for Davenport in attendance. Questions centred on the tunnel vs. overpass concerns, noise and vibration (in particular high-rise units), responsibility of maintenance of the multi-use path, and electrification.

5.3.2.2 Metrolinx Community Drop-In Sessions

Metrolinx organized several community drop-in sessions to engage the community in their neighbourhood to answer questions, explain the TPAP process and next steps. In advance of the community drop-In sessions Metrolinx sent 14,000 mailers to inform the local community of the dates and location of these sessions. Community drop-in sessions occurred on the following dates:

- Wednesday, February 24, 2016 - 11 am to 1 pm - Perth/Dupont Library, 1589 Dupont Street;
- Friday, February 26, 2016 - 11:30 am to 1:30 pm - MPP Cristina Martins Consituency Office, 1199 Bloor Street West;
- Saturday, February 27, 2016 – 12 pm to 2 pm - Perth/Dupont Library, 1589 Dupont Street;
- Thursday, March 31, 2016 - 5 pm to 7 pm - Perth/Dupont Library, 1589 Dupont Street;
- Saturday, April 2, 2016 – 12pm to 2 pm - Perth/Dupont Library, 1589 Dupont Street;
- Thursday, April 7, 2016 - 5 pm to 7 pm - MPP Cristina Martins Consituency Office, 1199 Bloor Street West;
- Friday, April 8, 2016 - 11 am to 1 pm - MPP Cristina Martins Consituency Office, 1199 Bloor Street West; and
- Wednesday, April 13, 2016 - Lansdowne subway station and Wallace Avenue retail strip.

For copies of the mailers provided and more details on the comments and questions received at these Community Drop In sessions see **Appendix K**.

5.3.2.3 Door to Door Notifications

In addition to the standard methods of notification, Metrolinx also provided the following door to door notifications to keep the community informed:

- January 11, 2016 and January 13, 2016 – Metrolinx delivered postcards promoting PIC #3 held on January 18, 2016 to 3500 residents to engage both the Davenport and Rogers Road communities.
- April 13, 2016 – Metrolinx distributed flyers to 1500 residents to promote the ongoing survey at www.metrolinxengage.com.

For copies of materials received by the local community as part of the door to door notifications see **Appendix K**.

5.3.2.4 Public Information Centres

Public Information Centre # 4

In April 2016, an email notice was sent to various stakeholders and agencies in advance of PIC #4 to provide relevant information regarding the study progress and details about PIC #4. Notices we also published in the York

Guardian and Bloor West Villager on April 14, 2016. The notice and invitation for PIC #4 are included in **Appendix K.**

PIC #4 was held on April 27, 2016, from 6:30 to 8:30 PM, at St. Sebastian Elementary School, to present the findings of the environmental studies Metrolinx completed to evaluate potential impacts from the Overpass solution. The studies were released on the Metrolinx website on April 20, 2016 in advance of the public meeting to assist in having an informed discussion on the results. Approximately 170 people attended the public meeting including Councillor Bailao and MPP Cristina Martins. There was a presentation given by Metrolinx staff and technical experts followed by a question and answer session. PIC #4 materials are included in **Appendix K.**

5.3.2.5 Summary of Public Comments

Public Information Centre # 4

Residents comments and concerns from PIC #4 related to the noise impacts and proposed mitigation for increased service levels. Residents expressed concern about the noise level for the multi-use pathway underneath the overpass as well as noise levels for high rise residents adjacent to the corridor. Participants were also interested to know who would maintain the multi-use pathway. Metrolinx was also asked to commit to an international design competition for the overpass.

For public comments and Metrolinx responses on the draft EPR see **Appendix K.**

5.3.3 Agency Consultation

The draft EPR was circulated to City of Toronto on February 12, 2016, MOECC on February 10, 2016, and MTCS on February 10, 2016 for review and comment. Comments were received from the City of Toronto on March 15, 2016, April 8, 2016 and May 9, 2016, the MOECC on March 18, and March 29, 2016 and MTCS on March 31, 2016. For agency comments and Metrolinx responses on the draft EPR see **Appendix K**.

5.3.4 Aboriginal Communities and First Nations Consultation

Letters dated January 7, 2016 were issued to twelve First Nation Communities informing the communities about the January 18, 2016 PIC #3. In addition to the eight communities suggested by MOECC, letters were also issued to Beausoleil First Nation, Chippewas of Georgina Island, Chippewas of Rama First Nation, and Métis Nation of Ontario.

In an email dated January 26, 2016 Scugog First Nation responded to the Notice of Commencement and requested if there are any employment programs for aboriginal persons on the Metrolinx project.

In an email dated January 22, 2016 and letter dated January 29, 2016, the Mississaugas of the New Credit First Nation responded to the Notice of Commencement. The email noted that they have a low level of concern about this project and requested that if there are any changes to the project, that Metrolinx notify them immediately. Mississaugas of the New Credit First Nation also requested a meeting with Metrolinx. They also requested copies of all associated environmental and/or archaeological reports. They also noted in the letter that they should be on site when field work (e.g., environmental and/or archaeological) is undertaken.

5.3.5 Notice of Completion

The Notice of Study Completion was issued on May 26, 2016. The notice was published in the Bloor West Villager and York Guardian on May 26, 2016 and June 2, 2016. The notice was also distributed via unaddressed admail and was sent to 9400 businesses, apartments and homes. The notice was also sent to businesses, apartments and homes within the study area via addressed mail. For a copy of the Notice of Completion see **Appendix K**.

6. Permits and Approvals

6.1 Regulatory Framework

The regulatory framework within which Metrolinx operates is at the federal and provincial level. While Metrolinx's GO Transit network is not currently federally regulated, the requirements of several statutes must be met by Metrolinx, including the *Railway Safety Act (RSA)*, the *Transportation of Dangerous Goods Act* and regulations, the *Canada Transportation Accident Investigation and Safety Board Act*, the Canada Labour Code, and the *Canada Transportation Act*. As explained in Section 6.2 below, as a Provincial Agency, Metrolinx is not subject to municipal approvals or permits but will consider relevant by-laws and agreements in the operation of the GO Transit network.

Metrolinx is responsible for the safe and environmentally-responsible operation of the GO Transit network. As such, Metrolinx is committed to ensuring compliance with the *Occupational Health and Safety Act*, *Accessibility for Ontarians with Disabilities* Act (AODA), *Environmental Assessment Act* and all applicable regulations. Metrolinx internal safety and environmental policies and procedures will be used to identify and achieve regulatory requirements.

6.2 Permits and Approvals

It is anticipated that the following federal and provincial permits and/or approvals will be required for the Project:

- Compliance to the *Migratory Birds Convention Act* (MBCA, 1994) for site clearance activities;
- Consultation with local utility companies to ensure issues are addressed in accordance with utility crossing agreements;
- If the construction dewatering assessment determines a requirement, a Permit to Take Water (PTTW) from the MOECC, or Environmental Activity Sector Registry (EASR); should dewatering exceed 50,000 litres per day;
- Cultural heritage related approvals will be confirmed during detailed design; and
- If a SAR species is observed during construction, the MNRF should be contacted to discuss appropriate action.

Metrolinx is committed to adhering to the intent of relevant municipal permits, approvals and requirements to the greatest extent possible. To ensure cooperation and coordination, information will be provided to the City of Toronto for review and comment through the Community Advisory Committee; however a formal permit and/or approval will not be sought. In addition, Metrolinx is committed to submitting relevant plans to the TRCA for review and comment.

It is anticipated that the following information will be provided for review and comment:

- Stormwater Management Strategy to the City of Toronto for comment on the discharge of water and wastewater;
- Information relating to construction activities within the existing road right-of-way or within other City-owned lands to the City of Toronto;
- Information relating to plans for tree protection and removal to the City of Toronto;
- Any relevant heritage reports to the City of Toronto Heritage Preservation Services (HPS); and
- Traffic management plan to the City of Toronto including EMS.

7. Future Commitments

The following list provides a preliminary set of commitments to be undertaken during the detail design phase of the Project. The potential impacts and mitigation measures in these areas have been identified, evaluated and assessed in the earlier sections of this EPR. As part of the normal evolution of a project, the detail design phase may lead to refinement or modification of the proposed preliminary design as described in this EPR. It is anticipated that any changes to the design will not affect the original intent and commitments; however, these commitments should be reviewed further during the detail design to ensure completeness and will be tracked in the Metrolinx Issues Design Tracker.

Environmental Mitigation and Monitoring Plan

Metrolinx will develop an EMMP which will include the commitments of the CMP and any other potential environmental impacts or approval requirements that arise during detail design and during additional environmental studies, as required. The EMMP includes relevant mitigation measures and requirements for potential environmental impacts and include a list of the required permits and approvals for the Project. Once permits and approvals are received for the Project, or findings from additional environmental studies are received, the Consultant will be responsible for updating the EMMP to include any additional mitigation measures or requirements. Any new monitoring or reporting requirements shall also be reflected in the EMMP.

The Consultant will be responsible to implement the requirements of the EMMP during detail design and construction. This includes providing environmental monitoring services and adhering to reporting requirements as detailed in the EMMP, providing instruction to the design team and Contractor as required, and issuing preventive and/or corrective action requests as required. The EMMP includes a procedure for preventive and corrective action in the event of findings of non-compliance during environmental monitoring, as well as follow up and reporting procedures.

Natural Environment

- The rail corridor ROW will be revegetated per the approved landscaping plan developed during detail design.
- Protection of trees in accordance to the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees, where applicable.
- Removal, restoration and compensation plans to be developed during detail design, in consultation with affected property owners.
- For trees in Campbell Avenue Park minimize or avoid heat effects; consider permeable pavers and non-limestone bedding courses within critical root zones; and consider low-albedo paving and concrete treatments. For trees in Erwin Krickhahn Park, minimize or avoid heat effects; and consider aggregate drainage trenches between existing mature/semi-mature trees and new guideway cladding.
- Metrolinx will work with authorities as necessary to obtain all applicable permits and approvals.
- It is recommended that no vegetation clearing takes place in between April 1st and August 30th of any year unless the area is cleared by an avian specialist or as per guidance from the MNRF regarding a more specific window.
- Confirm during detail design the potential for transplanting the Sweet Chestnut Tree.
- Use caution when working near chimney structures during the nesting period of the Chimney Swift from June 1 to August 15.
- Silt fencing without mesh reinforcement is recommended to be used on-site by MNRF to allow for passage of snakes.

Soils, Stormwater and Groundwater

- Prepare a stormwater management plan.
- Prepare a soil and groundwater management plan by a Qualified Person as per O. Reg. 153/04, as amended, prior to construction for managing soil materials onsite (including excavation, location of stockpiles, reuse, and offsite disposal). The soil and groundwater management plan will be prepared in accordance with Management of Excess Soil - A Guide for Best Management Practices (MOECC 2014), and industry best practices. A copy of the soil and groundwater management plan will be provided to MOECC, Toronto District office for comment.
- A Record of Site Condition (RSC) for the Greenway will be completed and filed with the MOECC demonstrating that the soil and groundwater meet the applicable Standards. The work necessary to obtain the RSC may involve conducting a risk assessment, completing remediation, or a combination thereof. If a risk assessment is conducted it will involve rigorous review and approval by the MOECC and there will be requirements for clean fill caps and/or hardscape barriers to ensure that human and ecological health is protected in a manner equal to what would be achieved through a generic remediation approach.
- Develop and implement an Environmental Spills Prevention and Response Plan to ensure proper mitigation and notification procedures are in place during construction.
- For effects on surface water quality, groundwater quality samples would be collected prior to construction and this information used to develop an appropriate water discharge plan. Further, if required, the water discharge plan would provide a discharge methodology that protects surface water quality.
- A construction dewatering assessment will be conducted prior to construction to determine if a Permit to Take Water or Environmental Activity Sector Registry is required. Should either be required, it will include recommendations for monitoring (e.g., pumping rate/volume monitoring, groundwater level monitoring and groundwater discharge monitoring) during construction dewatering for any potential adverse effects identified during the dewatering assessment
- Based on the findings of the Phase One ESA, a Phase Two ESA is recommended. The Phase Two ESA is currently being undertaken and will be completed during detailed design.

Land Use and Community Impacts

- This Project will continue be subject to a joint Design Review Panel process with the City of Toronto during detail design that addresses architecture, aesthetics and corporate identity considerations.
- Building on the recommendation of the Residents Reference Panel (**Appendix K**), Metrolinx will continue the process of engagement with the City and the community through the Community Advisory Committee to assist in the development of design elements during the detail design process.Berms will be part of the design, to eliminate short and inaccessible spaces at either ends of the bridge structure. CPTED principles will be followed in detail design.
- Develop a lighting plan during detail design to light the multi-use trail at nighttime. In response to feedback for engagement with the community and stakeholders, a study looking at the impact of shadows from the overpass will be completed during detail design.
- Metrolinx is committed to coordinate with the City of Toronto over integration with future planned works.

Business and Economic Impacts

- Work with Ubisoft to understand how they currently operate and determine potential noise and vibration mitigation.
- Develop traffic management plan(s).

- Existing crossing roads will be maintained (minimum one lane per direction) throughout the construction period (excluding brief overnight closures).

Air Quality, Noise and Vibration

- All equipment used must adhere to guidelines as placed in MOE's NPC-115 guidelines for construction equipment.
- Whenever possible, work zone and time will adhere to local municipal by laws as a best practice. Metrolinx, however, is not required to adhere to municipal by-laws.
- Every effort should be made to minimize impacts on the neighbourhood by limiting nighttime noisy activities.
- Trains passing construction zones may be required to use bells and/or whistles to warn construction personnel for safety reasons. This should be minimized as much as practical while ensuring the safety of everyone involved.
- Construction equipment has safety features such as backup alarms while backing up (beeping sound). This is for the protection and safety of the workers, and is legally required. Consideration will be given to the use of broadband rather than tonal backup beepers.
- It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail occasional monitoring of vibration levels during construction.
- A proactive communications protocol is recommended that would advise residents in advance of nighttime construction or particularly noisy construction at any time.
- A more detailed noise assessment of construction should be completed when the specifics of construction equipment are finalized. This assessment should consider minimizing construction related noise and levels, while balancing construction schedules and expediting construction activity.
- Complete a noise monitoring plan during detail design.
- A 2.0 m high noise barrier has been recommended along the overpass and ramps for the entire Study Area. As the source height for electric trains is considerably lower, shorter barriers can be used to achieve as much attenuation for electric train noise as taller barriers could achieve for diesel driven train noise. The 2.0m high noise barrier has been optimized for electric train noise. This short noise barrier's purpose is to provide clearly noticeable and significant (5 dB or more) reductions in electric train noise while minimizing the visual impact associated with a barrier located on an elevated overpass and berm. Taller noise barriers can be considered as the tracks begin returning to grade, provided the visual impact does not offset the acoustic benefit offered by taller noise barriers. Taller noise barriers as the tracks return to grade will be reviewed during Detailed Design.
- At Ubisoft (Receptor 68) has been identified as a commercial receptor particularly sensitive to noise and vibration from the railway, the recommended noise barrier provides a significant reduction in the sound levels. This reduction is achieved at the closest façade of the building to the railway, where the railway noise is highest. At increased setbacks, the sound level from the railway will be lower but the barrier benefit will also decrease. The construction of the noise barrier and the electrification of the corridor will produce significant reductions in the air-borne noise generated by the railway within Ubisoft's facility. A more detailed analysis of the noise impact at Ubisoft is recommended during detailed design.
- A proactive communications protocol is recommended that would advise residents in advance of nighttime construction.
- A more detailed vibration assessment of construction should be completed when the specifics of construction equipment are finalized prior to construction start. This assessment should consider minimizing construction related noise and vibration levels, while balancing construction schedules and expediting construction activity.

- Consideration should be given to monitoring of vibration during vibration intensive activities, to confirm that levels do not approach those required for structural damage.
- It is recommended the vibration limits in the City of Toronto bylaw not be exceeded. This may entail monitoring of vibration levels during construction. Vibration levels will be confirmed during detail design.
- Complete a vibration monitoring plan during detail design.
- During detail design, once location of piers supporting the aerial guideway have been determined, a more detailed prediction of the vibration levels within the vicinity of the piers should be conducted, to verify that the vibration levels will not increase at receptors near the piers. A more detailed noise and vibration assessment should also be conducted once details of the preferred electric locomotive have been determined.
- A more detailed review should be conducted to specifically identify the design parameters (in terms of sound and vibration levels) at the Ubisoft business location.
- Prepare and implement a dust management plan.
- It is also recommended that mitigation measures detailed in *"Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities (March 2005)*[6]*"* be implemented, where practical.

Cultural Heritage

- A Cultural Heritage Evaluation Report (CHER) will be completed for properties owned by Metrolinx that may be impacted by the Project (Bloor Street West Subway, Dupont Street Railway and Davenport Road Subway).
- For provincial properties owned by Hydro One that will be impacted by the Project, a CHER will be completed by Hydro One or by Metrolinx on behalf of and with the agreement of Hydro One.
- For properties owned by the City of Toronto that will be impacted by the Project, a CHER will be completed by the City of Toronto or by Metrolinx on behalf of and with agreement of the City of Toronto.
- A review will be completed during detailed design to confirm that the design has not changed in the area of any properties with identified or potential heritage value. If design affects heritage value, a Heritage Impact Assessment (HIA) will be completed.
- Cultural heritage related approvals will also be confirmed during detailed design.

Archaeology

- Should the proposed Project extend beyond the existing rail ROW, additional archaeological work may be required.
- Review of the detailed design to ensure that the scope of the project was captured within the area cleared of archaeological potential.
- Should previously unknown or unassessed deeply buried archaeological resources be uncovered during development, alteration of the site must immediately cease; Metrolinx shall engage a licensed archaeologist to carry out archaeological fieldwork in compliance with the *Ontario Heritage Act*.
- Any person discovering human remains must immediately notify the police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services.

Rail

- Mitigation measures will be reviewed during detail design, in consultation with CP Rail.

[6] *Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Cheminfo Services, March 2005.*

- MSE walls and piers should be treated with graffiti resistant paints and be able to be subjected to pressure washing in accordance with Design Reference Manual (DRM) Architectural Finishes requirements (CI-0701).

Traffic

- Develop traffic management plan with the City's review.
- The construction contractor will determine their own haul routes in consultation with the City of Toronto through developing a Construction Management Plan.
- Metrolinx will complete an evaluation of construction traffic on area roads. Metrolinx will also provide a Construction Management Plan to the City of Toronto.
- Monitor intersections along detour routes and adjacent to the construction area for congestions and potential adjustment to signal timing plans and phasing in consultation with the City of Toronto.

Drainage and Stormwater Management

- Develop a stormwater management strategy including mitigation measures during detail design.

Utilities

- Contact utility companies during detail design and establish any specific mitigation.
- During detailed design, Metrolinx will coordinate with the City of Toronto regarding utilities.
- Metrolinx will coordinate with the City of Toronto Capital Works Program on works proposed within this vicinity.

Property Acquisition

- A legal survey will be completed during detailed design to confirm property impacts.
- Undertake a review during the early stages of detail design to identify temporary easements for construction or other purposes, to accommodate the project work.
- Engage and negotiate with affected owners regarding easements that may be required for the works.

7.1 Future Consultation

Consultation during detail design will be undertaken with adjacent property owners and key agencies, including the City of Toronto, CP Rail and stakeholder groups through the establishment of the Community Advisory Committee. The Committee is made up of representatives from:

- Community Groups/Associations;
- Local Business;
- Local Condominium Boards and Multi-Unit Housing;
- Cycle TO Ward 18;
- Members of the public;
- Members of the Residents' Reference Panel;
- Three positions for residents (not affiliated with a community group); and
- Two positions for local businesses.

The Committee's work will be focused on informing the design brief by evolving the preliminary design during detailed design. The Committee will also have a critical role to play in providing advice on implementation, stewardship and construction planning.

Further discussions will also continue during detailed design with City of Toronto staff to address project key issues including;

- Comprehensive Vision of the physical overall and the public realm integration into the surrounding neighbourhood including planting zones, lighting, public art and paths.
- Multi-modal Station consideration at Bloor Street and cycling connections from the Greenway integration into the City's cycling network growth plans.
- Dupont Street underpass at the point of intersection with the rail corridor.
- Operation and maintenance requirements of the Greenway.

7.2 Addendum Process

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 MOECC and the MOECC 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. Changes that are inconsistent with the EPR generally include changes where the potential environmental effects were not originally addressed 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 the City of Toronto and Metrolinx (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.

If changes to the Project indicate that an addendum is required, Metrolinx will have the option of proceeding with the Project changes under the provisions/requirements for an individual environmental assessment in accordance with Part II of the *Environmental Assessment Act.*

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.

8. References

AECOM, 2015:
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