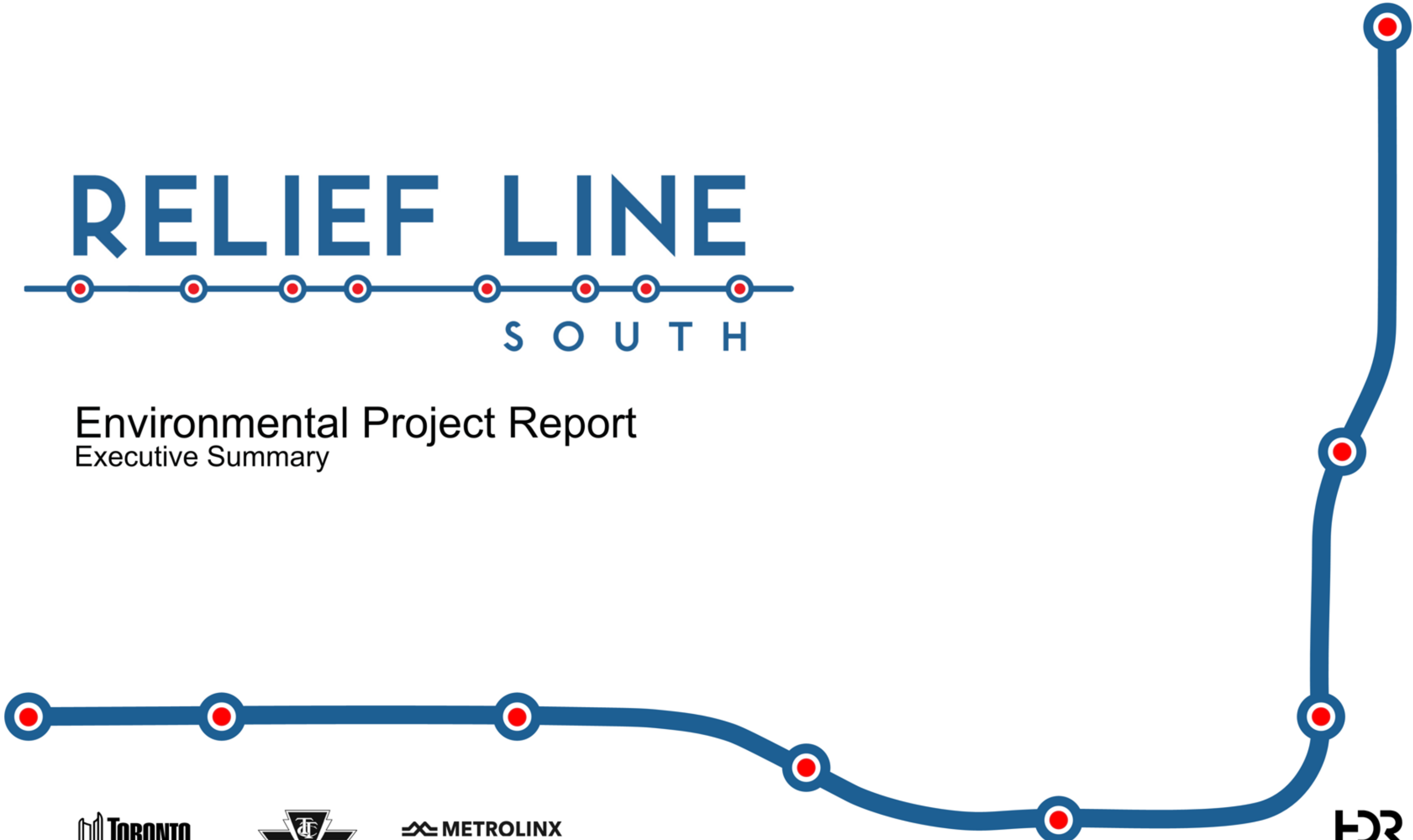


RELIEF LINE



Environmental Project Report Executive Summary



Introduction and Background (Section 1)

Providing additional rapid transit capacity into and within the downtown Toronto area has long been an objective for the City of Toronto. Existing transit services are reaching or exceeding their practical capacity during peak periods. Significant inbound transit capacity deficiencies exist during the morning peak period, particularly on Line 1 (Yonge) south of Bloor and at the Bloor-Yonge interchange, and several GO rail lines, but also on streetcar routes east and west of downtown. With continued growth projected for the City of Toronto and the Greater Toronto and Hamilton Area (GTHA), there is an urgent need for improvements. A number of potential infrastructure, operational, and policy improvements to provide additional transit capacity into and within downtown Toronto have been considered; however, these measures will not on their own be sufficient to address capacity issues during peak periods into the future. As such, there exists a need to examine additional opportunities to enhance rapid transit, particularly into the downtown area.

In response to these issues, and the concern that the planned *Yonge North Subway Extension* (YNSE) into York Region would exacerbate crowding on the Yonge Subway line, in 2009 Toronto City Council approved a series of motions requesting that Metrolinx prioritize a Relief Line within its 15-year plan; that Metrolinx prioritize the Relief Line in advance of the YNSE; and that the Toronto Transit Commission (TTC) commence studies to evaluate the merits of the Relief Line.

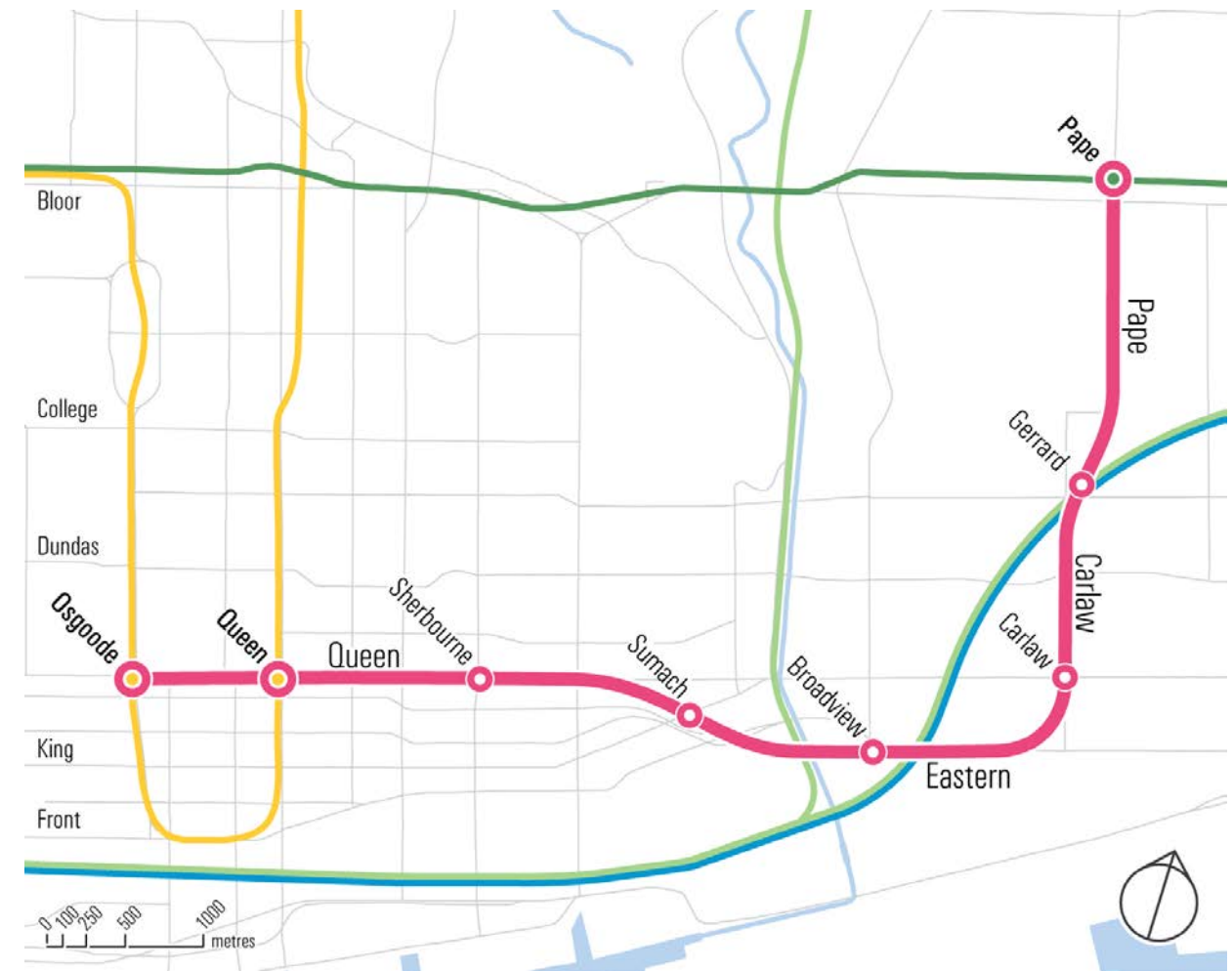
The *Downtown Rapid Transit Expansion Study (DRTES) – Phase 1 Strategic Plan*, completed and adopted in October 2012, found that while policy actions could aid in improving downtown transportation issues, it was clear that a Relief Line was required to address Downtown Toronto's transit needs in the future. Four Relief Line options, all of which helped alleviate transit capacity issues from the north and east, were evaluated, with one carried forward for further refinement.

Launched in 2014, DRTES Phase 2 – renamed the *Relief Line Project Assessment (RLPA)* – built on the work completed as part of Phase 1 and included the technical analysis of potential stations and alignments, evaluation of options, and conceptual design and functional planning studies for the recommended Relief Line. This process was complemented through extensive public engagement which sought feedback at multiple points throughout the RLPA.

In July 2016, Toronto City Council approved the RLPA preferred alignment for the Relief Line from Pape to Downtown via Queen/Richmond, subject to further assessment of a local segment of the alignment between Queen Street and the area north of the GO tracks on Pape Avenue. In May 2017, City Council approved the Carlaw alignment within the local segment and authorized commencing the Transit Project Assessment Process (TPAP) and advancing planning and design for the Relief Line South.

This Environmental Project Report (EPR) documents the TPAP followed and conclusions reached, per the Guide for Ontario's Transit Project Assessment Process, for the Relief Line South, comprising the alignment and stations approved by Toronto City Council (shown in **ES Figure 1**). It was prepared to satisfy the requirements of the Ontario Regulation 231/08, Transit Projects and Metrolinx Undertakings (Transit Project Regulation).

ES Figure 1: Relief Line South Alignment and Station



Background

Plans to serve Downtown Toronto with rapid transit have existed in various forms for over 100 years. As early as 1910, a concept for a rapid transit system was drawn up that proposed a roughly U-shaped subway that would connect to the Bloor-Danforth corridor at Dovercourt to the west and at Broadview to the east – an alignment similar to the Relief Line options under consideration today. The idea was revisited several times between then and the commencement of DRTES, although repeatedly deferred for various reasons.

Several key policies and planning documents support the rationale for this project, including but not limited to:

- Provincial Policy Statement (2014);
- Growth Plan (2017);
- Metrolinx's 2041 Regional Transportation Plan; and
- City of Toronto Official Plan (2015 Office Consolidation).

Purpose of Project

The purpose of the Relief Line South is to address the issues set forward by the RLPA Problem Statement, developed based on analysis undertaken to identify and assess the need for rapid transit improvements into, and within, the downtown area of Toronto.

RLPA Problem Statement

The health and vitality of downtown Toronto is supported by, and depends on, an extensive transit network composed of:

- Longer-distance commuter rail services provided by GO Transit;
- The TTC subway system serving many short and medium length passenger trips; and
- A network of surface streetcar and bus services providing more local travel to, and within, the downtown area.

Each of these transit modes is currently operating close to its maximum capacity at peak times, and congestion on the rapid transit network serving downtown Toronto is increasing. An increase in transit demand has been driven by the significant growth in office space and employment in Downtown Toronto during the past decade. The pattern of growth in travel into and within the downtown area for the past 25 years has been accommodated by two fundamental factors:

- A large increase in GO rail passengers travelling from outside the City of Toronto to the major employment destinations in the downtown area; and
- A very large increase in multiple-unit residential buildings both within the downtown area, and immediately adjacent to the downtown, resulting in increased short trip-making by active transportation modes (walking, cycling) and shorter-distance transit trips. The large increase in downtown residential development has also led to a substantial increase in off-peak direction travel at peak times from home locations in the downtown to employment destinations outside the downtown area.

In the past decade, a range of programs have been implemented to significantly increase overall transit use in the city; further capacity improvements to the existing rapid transit network are planned over the next several years. However, even with the planned improvements, by 2031:

- The Yonge Subway line (Line 1) will be at or over capacity;
- Bloor-Yonge Station will continue to experience congestion;
- Many GO transit routes will be nearing or at capacity; and
- Surface routes will increasingly be impacted by congestion.

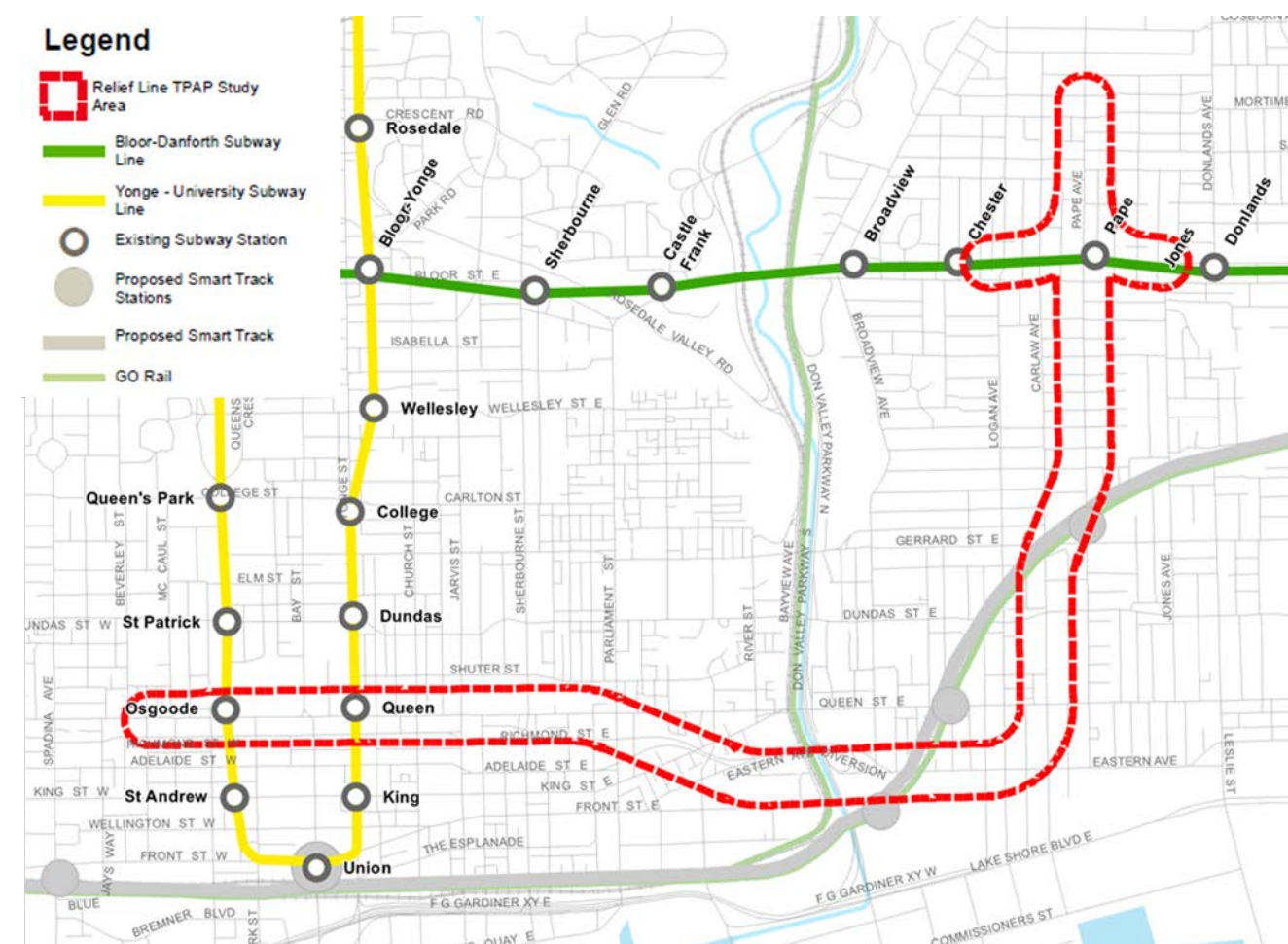
This assessment reviewed the need and justification for the Relief Line South, documented the existing conditions and identified constraints in the study area, provided a detailed description of the preliminary design put forward for this Transit Project, outlined the predictable environmental

effects of the Transit Project, and provided recommendations for addressing the effects through further study or mitigation.

Study Areas

The study area for the purposes of this EPR encompasses the recommended Transit Project and is illustrated in **ES Figure 2**. The study area extends for 120 metres on either side of the centreline of the Relief Line South alignment and includes the entirety of the Transit Project and all property that may need to be temporarily or permanently acquired for the Transit Project.

ES Figure 2: Relief Line South Study Area

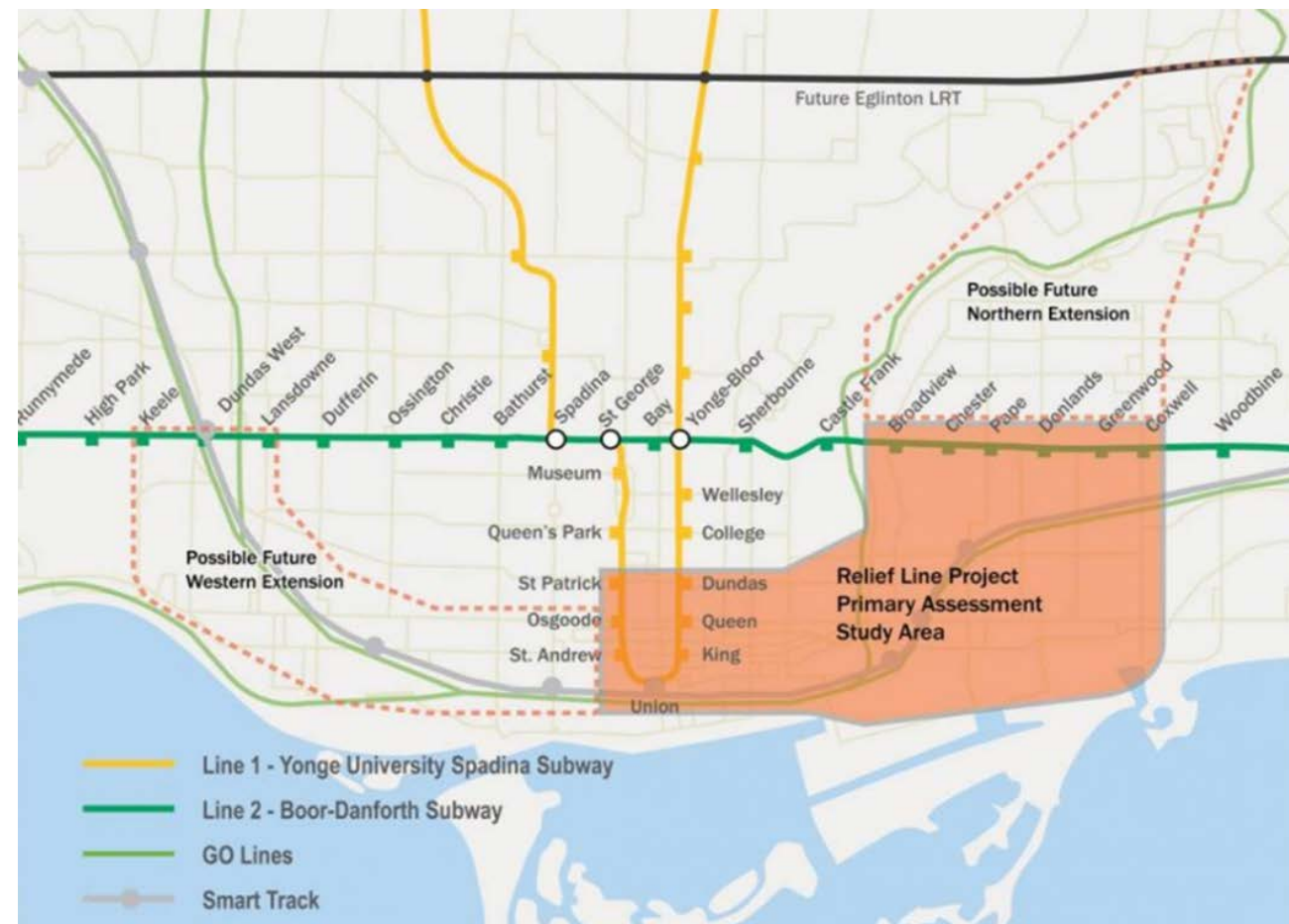


For some environmental and technical disciplines a different study area was considered, as how and where specific effects may be experienced varies. These study areas are outlined in **ES Table 1**. The study area that was used for all pre-planning activities is shown in **ES Figure 3**.

ES Table 1: Study Areas by Discipline

Discipline	Study Area
Transportation	Relief Line South Study Area & RLPA Study Area
Socio-Economic Environment	Relief Line South Study Area & RLPA Study Area
Natural Environment	Relief Line South Study Area
Cultural Heritage	The Cultural Heritage Assessment Report (CHAR) defined study specific areas along the Relief Line South corridor. Each study area included all parcels proposed for project components (e.g. stations, excavations, or laydown areas) and all adjacent parcels to the project component parcels. The Sumach Station Study Area also included a section of the below grade corridor where tunnelling is predicted to exceed acceptable vibration limits during construction.
Archaeology	Relief Line South Study Area
Utilities	Along Relief Line South Alignment
Geotechnical	Relief Line South Study Area
Property Impacts	Relief Line South Study Area

ES Figure 3: RLPA Study Area



Proponent

The proponents of the Environmental Project Report are the City of Toronto (including TTC) and Metrolinx, an agency of the Province of Ontario. The proponents agree to abide by the obligations and commitments outlined in this report.

Overview of Environmental Project Report

This EPR documents the planning, consultation, and decision making process followed before and during the course of the TPAP. It provides a detailed description of the Transit Project and existing and future conditions in the Transit Project study area, and summarizes potential environmental effects that could occur with the implementation of the Relief Line South project. The EPR also proposes mitigation measures and monitoring activities to address the documented environmental effects.

To facilitate the review of this EPR in the context of TPAP requirements, a concordance table (**ES Table 2** and **ES Table 3**) has been prepared.

ES Table 2: Concordance Table (1 of 2)

TPAP Requirement	Section of EPR Where Requirement is Addressed
A statement of the purpose of the transit project and a summary of any background information relating to the transit project.	Section 1 (Introduction)
A final description of the transit project including a description of the preferred design method.	Section 3 (Preferred Transit Project Design)
A description of any other design methods that were considered once the project commenced the transit project assessment process.	N/A
A map showing the site of the transit project.	Section 1 (Introduction)
A description of the local environmental conditions at the site of the transit project.	Section 5 (Existing and Future Conditions)
A description of all studies carried out, including a summary of all data collected or reviewed and a summary of all results and conclusions.	Section 5 (Existing and Future Conditions), Section 6 (Detailed Assessment of Impacts, Proposed Mitigation and Monitoring of the Transit Project), and Appendix 6-1 to Appendix 6-5
The assessments, evaluation and criteria for any impacts of the preferred design method and any other design method (described above) that were considered once the project's transit project assessment process commenced (does not include pre-planning work).	Section 6 (Detailed Assessment of Impacts, Proposed Mitigation and Monitoring of the Transit Project)
A description of any proposed measures for mitigating any negative impacts the transit project might have on the environment.	Section 6 (Detailed Assessment of Impacts, Proposed Mitigation and Monitoring of the Transit Project)

ES Table 3: Concordance Table (2 of 2)

TPAP Requirement	Section of EPR Where Requirement is Addressed
If mitigation measures are proposed, a description of the proposal for monitoring or verifying the effectiveness of the mitigation measures.	Section 6 (Detailed Assessment of Impacts, Proposed Mitigation and Monitoring of the Transit Project)
A description of any municipal, provincial, federal, or other approvals or permits that may be required.	Section 7 (Commitment to Future Work)
A consultation record, including: <ul style="list-style-type: none"> • A description of the consultations and follow up efforts carried out with interested persons, including Aboriginal communities; • A list of the interested persons, including Aboriginal communities who participated in the consultations; • Summaries of the comments submitted by interested persons, including Aboriginal communities; • A summary of any discussions with Aboriginal communities including discussions of any potential impacts of the transit project on constitutionally protected Aboriginal or treaty rights, and copies of all written comments submitted by Aboriginal communities; and • A description of what the proponent did to respond to concerns expressed by interested persons, including Aboriginal communities. 	Section 4 (Consultation), Appendix 4-1 through 4-12
If a “time out” was taken during the transit project assessment process, a summary of each issue including: <ul style="list-style-type: none"> • A description of the issue; • A description of what the proponent did to respond to the issue and the results of those efforts; and • The dates that notices for the “time out” were given to the Director and the Regional Director. 	No time out required.

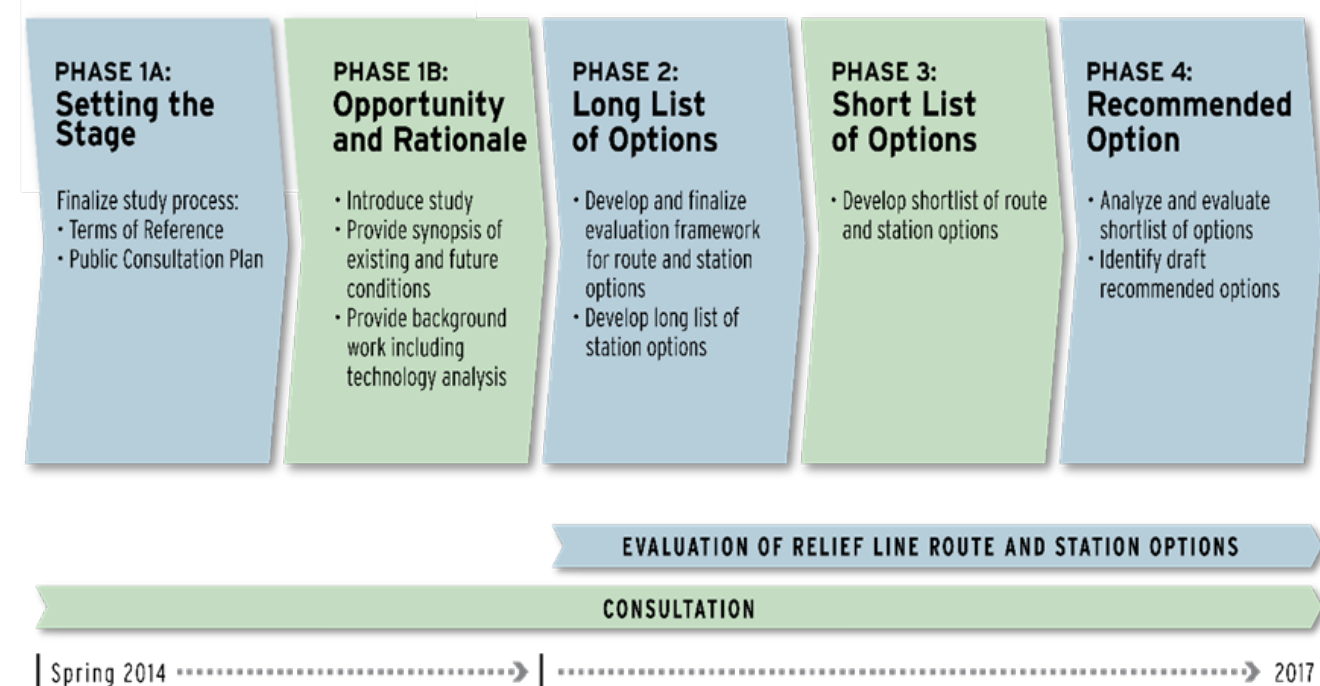
Study Process (Section 2)

Pre-Planning - Relief Line Project Assessment

The RLPA consisted of four major phases of work, each of which included technical analysis and regular public consultation and engagement, as illustrated in **ES Figure 4** and described below.

A number of assumptions informed the planning process from the identification and evaluation of alternatives through to conceptual design and the identification of impacts and mitigation measures. In general the Relief Line South was assumed to follow standard TTC design standards for station, alignment, and running structure. Further, traditional TTC construction methods—twin bore tunnels and cut and cover construction at stations and special track work—are assumed.

ES Figure 4: RLPA Study Process



Phase 1 – Problem Statement and Rationale for the Project

Phase 1 defined the study’s Terms of Reference and finalized a Public Consultation Plan (described in Section 4). This phase identified the decision points where public and stakeholder comments would be sought and it included:

- The proposed evaluation framework;
- The long list of options for potential stations;
- The evaluation process for the long list of station options;
- The shortlist of options for potential stations and alignments;
- The evaluation process for the shortlisted options; and
- Recommended alignment and stations.

Additionally, Phase 1 had the following additional objectives:

- Introduce the study to the public;
- Document existing and future conditions (see Section 3); and
- Summarize background work from the earlier studies (see Section 1.5).

Phase 2 – Evaluation Framework and Long List of Options

Next, an evaluation framework was established to define the evaluation approach for all stages of the project. The output of this process was a list of criteria for the station, corridor, and alignment evaluation phases organized based on the evaluation framework developed as part of the Review of the City's Official Plan Transportation Policies (Feeling Congested?). The eight broad factors include:

- Choice – develop an integrated network that connects different modes to provide for more travel options;
- Experience – capacity to ease crowding/congestion; reduce travel times; make travel more reliable, safe and enjoyable;
- Social Equity – do not favour any group over others; allow everyone to good access to work, school and other activities;
- Shaping the City – use the transportation network as a tool to shape the residential development of the City;
- Healthy Neighborhoods – changes in the transportation network should strengthen and enhance existing neighbourhoods; promote safe walking and cycling;
- Public Health and Environment – support and enhance natural areas, encourage people to reduce how far they drive;
- Affordability – investment in public transportation should support economic development; allow workers to get to jobs more easily allow goods to get to markets more efficiently; and
- Supports Growth – improvements to the transportation system should be affordable to build, maintain and operate.

Concurrent with the development of the evaluation framework, a long list of station options was developed and made available for public comment.

Phase 3 – Short List of Options

The objective of Phase 3 was to develop a short list of corridor options. As a start to this process, the long list of station options identified in the previous phase was reviewed using the project evaluation. Criteria deemed as critical included overall engineering feasibility (physical constraints presenting insurmountable challenges, e.g., presence of major utilities, ability to maintain existing subway operations), as well as the ability to access the TTC's subway maintenance and storage facility at Greenwood Yard.

Once the critical items were addressed and screened, the remaining station options were evaluated. Following the determination of the emerging preferred interchange station options, corridors were developed to encompass the well-performing inline stations with the preferred interchange stations used as “anchors.”

Phase 4 – Recommended Options

The objective of Phase 4 was to determine the preferred alignment and station locations, advance the preferred option through conceptual design, and undertake the required environmental studies for the EPR. Leading to this, the corridor options identified in Phase 3 were evaluated using the corridor-level evaluation criteria developed in Phase 2. The corridor evaluation criteria considered the characteristics of both the stations and alignments that fall within the corridor boundaries.

A list of alignment options within the preferred corridor was developed connecting the termini and inline stations. These alignments were put through the alignment-level evaluation. As with the corridor evaluation, the alignment evaluation considered characteristics of both the stations and the alignment itself. The outcome of this process was a preferred alignment with station locations.

Following City Council approval of the preferred alignment, conceptual design was initiated to bring the subway design to a level of detail sufficient to adequately identify the environmental impacts associated with the project and propose mitigation and monitoring measures.

Transit Project Assessment Process

The TPAP is an environmental assessment process developed specifically for the approval of public transit projects. The Transit Projects Regulation, Ontario Environmental Assessment Act, Regulation 231/08, exempts proponents of all public transit projects from the requirements under Part II and Part II.1 of the Environmental Assessment Act, and creates a process that certain projects must follow in order to be exempt. The TPAP is a proponent-driven, self-assessment process and does not require that a transit project be approved by the Minister of the Environment, Conservation and Parks before proceeding.

The regulation does not require proponents to look at the rationale and planning alternatives to public transit or the rationale and planning alternatives or alternative solutions to the particular project. The Minister may give notice to proceed but can only act if there is a potential for a negative impact on a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest, or on a constitutionally protected Aboriginal or treaty right. Proponents must complete the prescribed steps of the TPAP within specified time frames.

If a person, including members of the public, regulatory agencies and Indigenous communities, has concerns about this Project, objections can be submitted to the Minister within 30 days of the Notice of Completion. Objections received after the 30-day objection period will not be considered by the Minister. Proponents will be given an opportunity to comment on the concerns raised in an objection before the Minister acts. After the 30-day review period has ended, the Minister has 35 days within which certain authority may be exercised. A proponent may not proceed with a transit project before the end of the 35-day period unless the Minister gives a notice allowing the proponent to proceed.

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 or consultation; or,
- A notice allowing the proponent to proceed with the transit project subject to conditions.

If the Minister gives notice requiring that further steps be taken (e.g. conduct additional studies), the proponent must prepare a revised EPR and submit it to the Minister. If, within 30 days after receiving the revised EPR, the Minister is of the opinion that it still does not appropriately address negative impacts, the Minister can terminate the TPAP and require the proponent to comply with Part II of the Ontario Environmental Assessment Act or to comply with an approved class environmental assessment before proceeding with the transit project. If the Minister does not act within the 35-day period, the transit project may proceed as planned.

Project Description (Section 3)

The proposed Relief Line South, as show in **ES Figure 1**, is a 7.4 kilometre subway line (including trail tracks), with four in-line stations and three interchange stations connecting with the existing Line 1 and Line 2 subways. The entire alignment will be underground, including the proposed Don River crossing.

Alignment

The Relief Line South subway running structure and station platforms are primarily located within existing road right-of-ways. There is a proposed station at University Avenue (Osgoode Station) along Queen Street West. Crossovers which allow trains to switch between the westbound and eastbound tracks are provided west of University Avenue, where the underground tail tracks extend to John Street.

The alignment continues east underground along Queen Street to the proposed Queen Station interchange at Yonge Street. Another station is proposed at Queen Street East and Sherbourne Street. As it approaches Berkeley Street, the alignment turns southeast towards Adelaide Street East, where there is a station at Sumach Street. The alignment continues with a crossing under the Don River south of Eastern Avenue. A station is proposed at Broadview and Eastern Avenues.

The alignment continues underground following Eastern Avenue and then begins to curve northeast at Booth Avenue. The curve continues until Queen Street East and Carlaw Avenue where there is a proposed station. The alignment continues to follow under Carlaw Avenue until it curves northeast between Gerrard Street East and Riverdale Avenue towards Pape Avenue, A station is proposed at this location.

The alignment then continues north following under Pape Avenue to Danforth Avenue, where there is a proposed interchange with Line 2 at Pape Station. Crossovers which allow trains to switch between the northbound and southbound tracks are provided north of Pape Station, where the tail tracks extend to Westwood Avenue. There are proposed wye tracks connecting the Relief Line South and tail tracks to Line 2 northwest and northeast of the interchange station, which are necessary for trains to access Greenwood Yard.

The subway is proposed as a twin bore tunnel that is generally within the bedrock in the downtown core, with the exception of the Don River crossing. At Dingwall Avenue along the Pape Avenue segment, the alignment rises above the bedrock to transition up to the proposed interchange at Pape Station.

Stations

The Relief Line South will have eight stations, including two interchange stations connecting to Line 1 at Osgoode (University Avenue) and Queen Stations (Yonge Street), and an interchange station connecting to Line 2 at Pape Station (Danforth Avenue). There will be two intermodal stations providing connections to the proposed Gerrard-Carlaw and East Harbour SmartTrack stations. Stations will also have connections to surface routes including buses and streetcars.

Stations will have a street entrance, concourse and platform level, and a “centre platform” configuration where passengers can board and exit trains via a single platform between the two tracks. Stations will be designed in accordance with the TTC Design Manual, AODA and will be fully accessible to persons of all abilities.

Station-to-station distances for the Relief Line South are summarized in **ES Table 4**.

ES Table 4: Station to Station Distances (Measured from Centre of Platform)

From	To	Approximate Distance
Osgoode Station	Queen Station	420 m
Queen Station	Sherbourne Station	1010 m
Sherbourne Station	Sumach Station	750 m
Sumach Station	Broadview Station	1000 m
Broadview Station	Carlaw Station	1040 m
Carlaw Station	Gerrard Station	770 m
Gerrard Station	Pape Station	1290 m

Osgoode Station

A Relief Line South station is proposed at University Avenue and Queen Street West in a “T” configuration with the existing Osgoode Station for Line 1, which will provide for direct transfers between the two subway lines and improved accessibility for the existing Osgoode Station. The Line 1 station will be modified to accommodate additional stairs and escalators from the Relief Line South below.

The primary entrance for the Relief Line South is at the southwest corner of University Avenue and Queen Street West and it will replace the existing street entrances at the corners to provide

combined access to both subway lines. The other existing entrances into Osgoode Station will be maintained. The Relief Line South accessible entrance will connect to the existing Osgoode Station passageway to provide an additional accessible route to the Line 1 station at concourse level. It will connect to the Relief Line South upper concourse level for access to the Relief Line South. This station will also have an entrance at the southeast corner of York Street and Queen Street West. This entrance will occupy a portion of the Sheraton Centre Hotel's concourse level and will tie into the PATH network.

Queen Station (Interchange)

A Relief Line South station is proposed at Yonge Street and Queen Street to interchange with Line 1 in a "T" configuration with the existing Queen Station for Line 1. This configuration will provide for direct transfers between the two subway lines. There will be entrances to both subway lines at all four corners of the Yonge Street and Queen Street intersection. A new entrance will be provided at the northwest corner of the Bay Street and Queen Street West intersection, at Nathan Phillips Square. There will also be an underground entrance from the PATH network at the southwest corner of the same intersection.

The Relief Line South station is organized into four levels: platform, concourse, an expanded Queen lower level and a limited expansion of the existing Queen Station concourse. The unpaid fare zones could become part of the PATH network. The Relief Line South concourse level is an intermediate connecting level from the expanded Queen lower level to the platform level.

The proposed configuration provides an accessible route for people making transfers between the two subway lines.

Sherbourne Station

A two-level station is proposed at Queen Street East and Sherbourne Street. It will have a primary accessible entrance at the northwest corner and a second entrance on the north side of Queen Street East on the west side of Seaton Street.

Sumach Station

Sumach Station is a two-level station with its station box located south of the Adelaide Street East and Richmond Street East flyovers. It will have a primary entrance at the southwest corner of the intersection of King and Sumach Streets. There will be two additional entrances located on the north side of King Street East, adjacent to the Adelaide Street East flyover and at the north corner of the intersection of Sumach/Cherry Streets and Eastern Avenue. The Sumach/Cherry/Eastern entrance will be accessible.

Broadview Station

A station is proposed at Eastern Avenue and Broadview Avenue as part of an emerging transit hub. This will be a two-level station with its station box located just east of the Broadview Avenue Extension and under the Sunlight Park Road and Eastern Avenue right-of-ways. It will have a primary entrance at the southeast corner of Sunlight Park Road and the proposed Broadview

extension. Additional entrances are located at the southwest corner of Sunlight Park Road and the proposed Broadview extension; at the northeast corner of Eastern Avenue and Lewis Street; and an entrance on the east side of the GO rail corridor at the edge of the proposed East Harbour development.

The entrances on either side of the proposed Broadview extension will provide good connections to the proposed Broadview streetcar, as well as the future East Harbour SmartTrack Station.

Carlaw Station

A two-level station is proposed at Queen Street East and Carlaw Avenue. Its primary entrance will be located at the northeast corner of the intersection, with a second entrance on the west side of Carlaw and Colgate Avenues.

Gerrard Station

Gerrard Station is proposed as part of an emerging transit hub. It will be a two-level station with the station box located on a diagonal between Carlaw and Pape Avenues. Its primary entrance will be located at the northeast corner of Carlaw Avenue and Gerrard Street East and will be a shared entrance with the Gerrard-Carlaw SmartTrack Station proposed at this location. A second entrance is proposed on Pape Avenue, north of the GO rail corridor.

Pape Station (Interchange)

An interchange station with Line 2 is proposed at Pape Station in an "X" configuration which will provide for direct transfers between the subway lines and the bus terminal. This station will have two entrances on the west side of Pape Avenue. The primary accessible entrance on the east side of Pape Avenue north of Danforth Avenue will be a shared entrance with the existing Pape Station for Line 2.

The proposed configuration provides accessible routes between the new Relief Line South entrances and the expanded Pape entrance/bus terminal, a direct accessible route from the station's primary entrance to the Line 2 eastbound platform, and an additional direct accessible route from the Pape Station entrance to the Line 2 westbound platform.

Ancillary Features

Emergency Exit Buildings

In accordance with National Fire Protection Association (NFPA) 130 regulation, emergency exits from the subway tunnel will be provided throughout the underground system so that the distance to an exit will not be greater than 381m. Emergency exit buildings (EEBs) will be provided at the following locations:

- EEB #1 – near the John Street substation;
- EEB #2 – located within sub-station #2 on Queen Street East between Mutual Street and Jarvis Street;

- EEB #3 – located within sub-station #3 north of Eastern Avenue, between Richmond Street East and Adelaide Street East;
- EEB #4 – between Carlaw Avenue and Morse Street;
- EEB #5 – south of Cavell Avenue on Pape Avenue;
- EEB #6 – north of Browning Avenue on Pape Avenue; and
- EEB #7 – located within sub-station #5 on Pape Avenue, south of Westwood Avenue.

Trackwork

Crossovers

Crossover tracks are included at regular intervals along the Relief Line South alignment:

- Osgoode Station – Double crossovers are proposed west of the proposed Osgoode Station and a front double crossover east of the proposed Osgoode Station.
- Broadview Station – Double crossovers are proposed west of the proposed Broadview Station.
- Pape Station – An optional double crossover is proposed south of the existing Pape Station which would be used for future northern extension of the Relief Line South and for redundancy. The crossover would allow for short turns to support the current direction that every other train will short turn at Pape Station, and would be used for failure management and maintenance operations. Two single crossovers are proposed north of the proposed Pape Station.

Tail Tracks

Tail tracks are located just beyond the double crossovers at both ends of the proposed mainline. The proposed tail tracks are located west from Osgoode Station for standard terminal station operations.

Tail tracks proposed north of Pape Station will be used for standard terminal station operations and for wye track connections.

Pocket/Storage Tracks

A pocket track is proposed north from the proposed Pape Station. The west part of the pocket track is for standard terminal operations and wye track connections to the Line 2 mainline. The northern segment is for overnight and disabled train storage.

Other Special Track Work Requirements

An equilateral turnout will be required north from the proposed Pape Station for the pocket track connection.

Power Source

Traction Power Substations

Traction power will be supplied at 600V DC (nominal voltage level) from traction power substations located at passenger stations and at standalone facilities along the line. There are a total of five substations required for the Relief Line South, one at either end of the Queen and Pape tail tracks, and three inline.

AC Power

Medium voltage power supply will be provided to each of the substations from local hydro overhead or underground network. The power supply arrangement will be finalized during design.

Essential Power

Uninterruptible Power Supplies (UPS) will be provided at each station.

Tunnel Ventilation

As per the requirements of NFPA-130, an Emergency Ventilation System will be provided. The system will be designed to provide a tenable environment along the path of egress from a fire incident in enclosed stations and enclosed trainways and to provide continuous ventilation during maintenance operations when fumes are being generated. In addition, the system helps to moderate the piston effect at stations.

Drainage and Pumping Stations

The entirety of the Relief Line will exhibit a longitudinal gradient of at least 0.3% to ensure adequate run-off and to prevent pooling of water.

Pumping stations will be provided at low points on the alignment as follows:

- At the tail tracks west of Osgoode Station;
- Near the Don Valley Parkway / Don River crossing; and
- Near Carlaw Station (lowest elevation of the alignment).

System Operations

Overnight storage of trains will occur on the tail tracks west of the proposed Osgoode Station and on the pocket track that is north of the proposed Pape Station, in addition to at the existing Greenwood Yard on Line 2.

The technological basis of design for the Relief Line South is the 6-car trains currently being used on Line 2. The stations are designed with a 152.4m (500ft) long platforms consistent with all stations on Line 1, 2 and 4, allowing for a consistent approach in any future upgrades to stations or trains. This includes the potential for a seventh car in a Toronto Rocket (TR) train configuration

to increase the train capacity, the addition of Automatic Train Control (ATC), and with ATC the addition of Platform Edge Doors (PEDs) in stations.

On opening day, the Relief Line South will operate service frequency ranging between 2 minutes 45 seconds and 4 minutes in the AM peak, depending on the number of cars per train (which will be determined through future work). By 2041, demand is forecasted to increase and the service will operate a frequency ranging between 2 minutes and 3 minutes in the AM peak depending on the number of cars per train. The Relief Line South project will be designed to accommodate an ultimate service level of 1 minutes 30 seconds frequency with 6-car trains. This service frequency is estimated to be required when the Relief Line is extended further north.

Construction Plan

The Relief Line South will be constructed following TTC standard practice of construction, involving twin bore tunnels constructed using Tunnel Boring Machines (TBMs). Box structures are employed at tail tracks, special track works, and stations which are constructed with an open cut excavation method. Sequential Excavation Method (SEM), or “mining”, is considered only under special circumstances.

Tunnelled Sections

Tunnelling is the primary method of construction. Tunnelling uses a TBM to excavate a tunnel, handle the excavated material, and place the initial tunnel lining, in a continuous, highly automated process. The front end of the TBM consists of a circular cutting face that excavates the soil and pulls it into its round shell. Tunnelled sections would be lined with reinforced concrete segmental linings.

Launch Shafts

The TBMs would begin tunnelling from three launch shafts, areas that require excavations to the grade of the subway tunnel. Launch Shafts 1 and 2 are proposed to be located on Eastern Avenue, just east of the Don River. This location is ideal for this purpose due to its proximity to the Don Valley Parkway and Lake Shore Boulevard. It is also large enough to accommodate lay down areas for stock-piling tunnel segment liners, as well as areas for excavated spoils prior to being hauled off site. Two sets of TBMs would be launched from this location, in opposite directions, with one set of twin drives going west towards University Avenue and the other set heading east and then north towards Pape Station.

Launch Shaft 3 would be located along Pape Avenue, near the intersections with Browning and Aldwych Avenues. The TBM launched from this shaft will be used to construct one of the two wye sections, extracted close to the existing Line 2, moved back to the launch shaft and then used to construct the other wye section. The launch shaft for wye sections would require less space than the launch shaft and laydown complex at Eastern Avenue, due to the fact there would only be one TBM required to tunnel short distances.

Tunnel Drives

Drives 1 and 2 starting at Launch Shaft 1 and heading towards the west would extend to the intersection of Queen and James Streets. The proposed drives have a distance of approximately 2,500 m with TBMs being extracted at the proposed Queen Station.

Drives 3 & 4 start at Launch Shaft 2 and head east along Eastern Avenue, before turning northwards following Carlaw and Pape Avenues. The drives would extend approximately 2,920 m with the TBMs being extracted at the proposed Pape Station.

Extraction Shafts

TBM extraction shafts are incorporated within the proposed subway station boxes where possible for cost and schedule savings. If locating an extraction shaft within the proposed subway station boxes is not possible, then the extraction shafts are incorporated within the footprints of other cut and cover locations if available.

Extraction shafts for the main tunnel drives for the alignment are proposed within the right-of-way of Queen Street West just west of Yonge Street and within the Pape Avenue right-of-way just south of Danforth Avenue. Extraction shafts for the wye track drives are proposed at the two locations where the track connects with Line 2 near Logan Avenue and Woodycrest Avenue.

Cut and Cover Construction

Where excavation with a TBM is not practical or economical, cut and cover construction is proposed. With this technique, the ground surface is opened to a sufficient depth to construct the subway tunnel or station structure. The sides of the excavation are usually supported by vertical temporary walls to protect adjacent areas. Decking can be installed above the excavation to allow the surface to be used for transportation. Once construction is complete, the excavation is backfilled and the surface reinstated. This method of construction has major impacts on the surrounding area and requires the relocation or support of all utilities.

It is assumed all station boxes and tunnel sections incorporating pocket tracks, crossover tracks, the connection to Line 2, and tail tracks would be built using this technique. Station envelopes would be situated within the existing municipal right-of-way wherever possible. Given that municipal right-of-ways are only about 20 m wide in most locations, a station width of 21 m would require property takings on either side of station box structures.

Sequential Excavation Method

Where neither cut and cover nor tunnelling is practical, Sequential Excavation Method (SEM) may be considered where the tunnel is dug out in small sections and immediately sprayed with pressurized concrete and supported with girders. This method is to be employed in the construction of Sumach Station, to minimize impacts on a nearby heritage structure.

Surface Construction Sites

Surface construction sites will include:

- Launch shaft sites;
- Extraction shaft sites;
- Station locations;
- Special track work locations (e.g. crossover and tail tracks); and
- Emergency exit and substation buildings.

Don River Crossing

The Don River crossing is challenging for constructability purposes due to the changes in the sub-surface soil and bedrock profiles, proximity to the river and the possible flow of process effluent into Lake Ontario, and the built environment that includes the Don Valley Parkway and multiple railway tracks.

The area directly under the Don River may require ground conditioning treatment due to the confluence of conditions that transition in quick succession between shale bedrock to soft ground and back. The purpose of the ground conditioning would be to provide conditions at this location that would then be suitable for a hybrid TBM with the capability for tunnelling in both soft soils and in the shale bedrock.

Consultation (Section 4)

Consultation was a significant component of early planning work to ensure the recommended option would benefit residents, businesses, and transit riders. A Public Consultation Plan was developed at the outset of the RLPA with input from stakeholders and the public to define the communication and consultation process to be undertaken during the assessment. The Public Consultation Plan as approved by City Council provided a variety of opportunities for people to learn about and provide input on the RLPA utilizing a suite of communication and consultation activities. These activities generated significant interest in the study – over 3000 face-to-face and over 85,000 online interactions were documented.

Consultation featured a wide range of tools and activities that were designed to be inclusive, accessible and to facilitate broad participation. Communication materials were circulated to promote participation and provide up-to-date information, while consultation activities sought input at key milestones. Avenues for communication and promotion included public notices, the project website, social media, mailing lists, and emails.

A variety of communication, information-sharing and engagement methods were used to ensure easy and accessible participation in the Transit Project and to gather meaningful feedback, including the following:

- Information about the planning for the Relief Line South was posted on the project website (www.reliefline.ca);
- People were encouraged to provide comments in a variety of ways, including on-line surveys and email;
- Approximately 30 public meetings were held between 2014 and 2017, as well as three meetings as part of the TPAP in 2018;
- Stakeholder Advisory Group meetings were held at each phase of the study;
- Project materials and updates were provided to all Indigenous Communities; and
- A variety of media was used to advertise public meetings and other consultation opportunities during each phase, including:
 - Newspaper ads,
 - Flyer drops,
 - Notification on the Relief Line South website, and
 - Tweets from City of Toronto and Metrolinx Twitter accounts.

Details of online and in-person engagement methods, as well as documentation of feedback from stakeholders, Indigenous communities, and the public are provided in Section 4 of the EPR.

Existing and Future Conditions (Section 5)

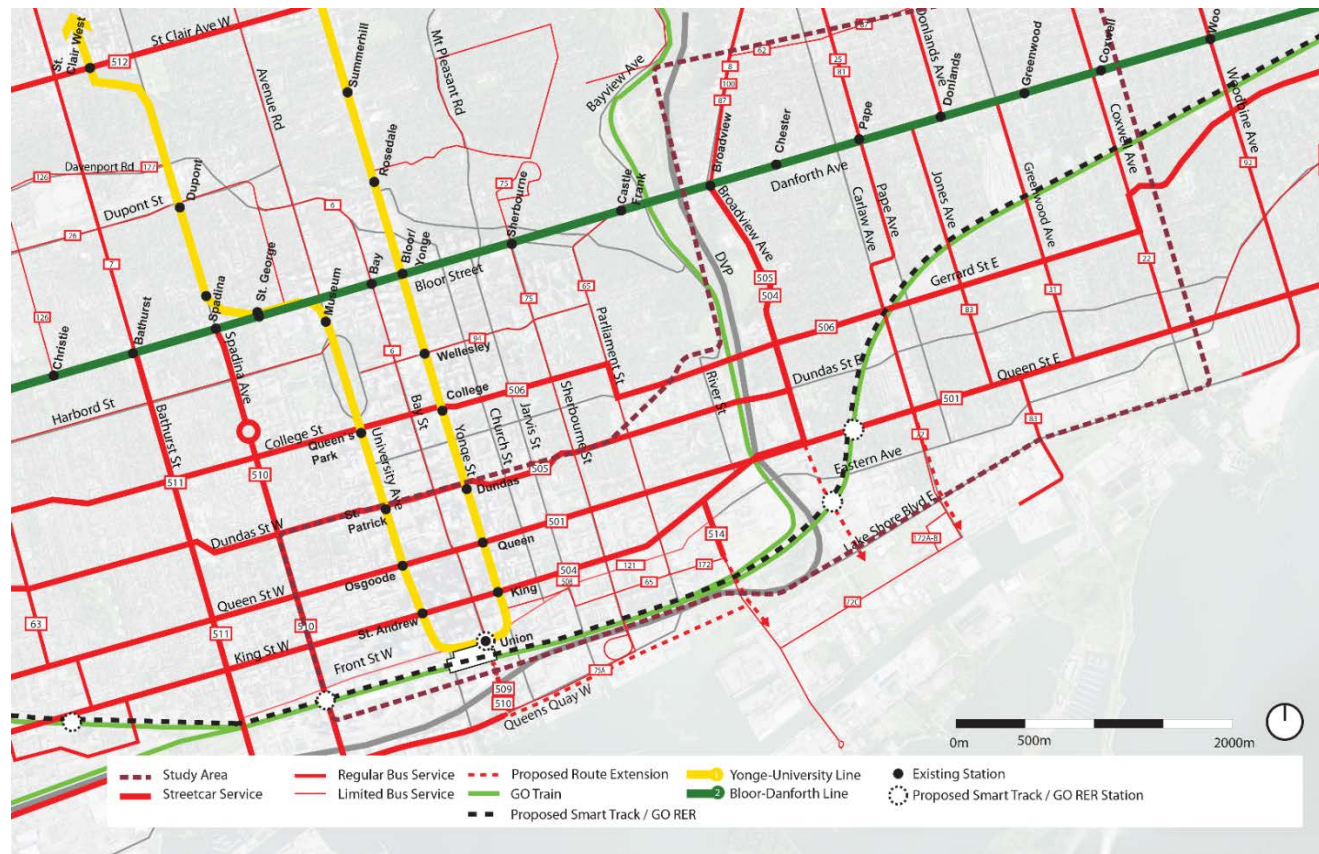
A summary of the existing and future conditions studies are provided below. More detail is provided in Section 5 as well as in **Appendix 5-1**.

Transportation

Transit

As shown in **ES Figure 5**, the study area is served by most transit modes that form part of the Greater Toronto Area's (GTA's) transit network.

ES Figure 5: Transit Networks within the Study Area



Two TTC subway lines, Line 1 and Line 2, intersect the study area. Demand for both lines is high, and as such the TTC runs both lines at their maximum practical frequency during peak periods. Even with the recent introduction of the higher-capacity Toronto Rocket subway cars on Line 1, the Yonge Line regularly operates 11% over capacity. Congestion at Bloor-Yonge Station, a major transfer point between Lines 1 and 2, is also an issue.

Subway improvements which have implications for the study area include: the Line 2 Scarborough Subway Extension and recently opened Line 1 Toronto York Spadina Subway Extension – both which have the potential to increase ridership through Bloor-Yonge Station and into Downtown and ongoing efforts to address capacity deficiencies on Line 1, including signalling system upgrades to allow Automatic Train Control/Operation (ATC/ATO).

The TTC streetcar and bus network provides local and express services. Replacement of the TTC streetcar fleet with new higher-capacity vehicles is currently underway. New streetcar routes have also been planned for the East Bayfront and Port Lands, along Queens Quay East, Cherry Street, Broadview Avenue, and Commissioners Street. In January 2018, these routes were confirmed to be part of a proposed Waterfront LRT route through the Waterfront Transit Reset study.

The GO rail network consists of seven lines across the GTHA. All seven lines converge at Union Station in downtown Toronto, the only existing GO rail station within the study area. Most GO rail lines now provide off-peak service, with the exception of the Milton, and Richmond Hill lines. GO

rail lines that enter downtown from the east and intersect the study area include Lakeshore East, Stouffville and Richmond Hill. With the exception of the number 16 Hamilton-Toronto Express bus, all peak-hour GO service to the downtown core is provided by GO rail lines.

Metrolinx's 10-year Regional Express Rail (RER) program will provide improved service on most lines by running trains faster and more frequently, and providing all-day service. Service will be greatly improved on the lines within the study area. The City's SmartTrack program offers an enhancement on the RER program, by providing additional stations within the city and an integrated fare structure with the TTC. In June 2016, the Metrolinx Board approved 12 new stations across the GO rail network, six designated as SmartTrack Stations, two of which are within the study area – East Harbour and Gerrard-Carlaw, both on the Lakeshore East / Stouffville Corridor. The stations are anticipated to be open in 2024. SmartTrack station siting and design is occurring in collaboration with Relief Line South planning and design.

Several funded Light Rail Transit (LRT) lines located in the inner suburbs of Toronto are also expected to have impacts on transit demand into the study area. These include the:

- Eglinton Crosstown LRT (underway);
- Finch West LRT; and
- Sheppard East LRT.

Roads

The road network is a dense grid composed of arterial, collector, and local roads. Richmond and Adelaide streets are the preferred east-west routes for most downtown bound non-transit vehicles. The study area is also served by two expressways; the Don Valley Parkway (DVP), running parallel to the Don River, and the Gardiner Expressway, running along the southern boundary of the study area.

Cycling Network

The study area is served by a network of on and off road bicycle facilities. This network includes separated bike lanes along Richmond, Adelaide, and Simcoe Streets; a cycle track on Sherbourne Street; and an off-road path along Lake Shore Boulevard East.

PATH

The PATH network consists of over 30 kilometres of underground pedestrian tunnels, elevated walkways, and at-grade walkways throughout the downtown core.

Rail Network

There are three major rail corridors within the study area, primarily used for passenger service, as discussed above. There is also a GO train storage yard located at the foot of the Don River. Metrolinx, as part of its ongoing improvement works, including RER and electrification, has identified track improvements required to implement the GO Reference Network, including

additional tracks along the Union Station Rail Corridor, and the Kingston Subdivision (Lakeshore East Line).

Socio- Economic Environment

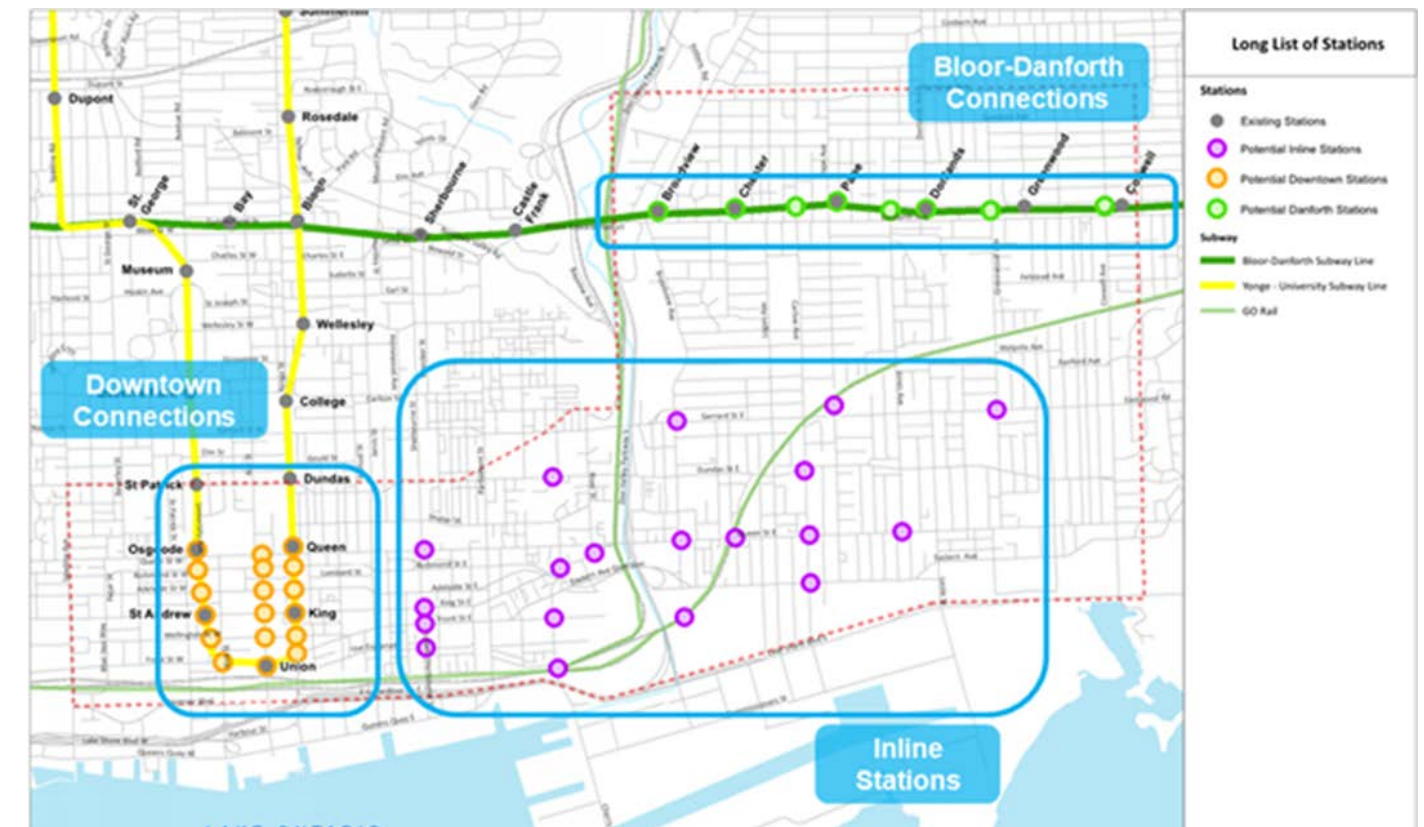
The existing conditions review highlights variations in the socio-economic character of the study area. The discussion is organized by the three focus areas: Downtown, inline, and Danforth (ES Figure 6).

The Downtown includes the City's urban core and central business district. Business Improvement Areas (BIAs) cover the entirety of the Downtown portion of the study area, indicating far-reaching local involvement on the part of participating businesses. The downtown area is the most transit-accessible part of the city, and contains the highest concentration of key attractions. Areas within and around the downtown area generally have higher Neighbourhood Equity Scores (a combined ranking of economic opportunity, social development, health etc.) relative to other parts of the study area.

The inline area has less of a commercial focus; however, a range of business activities can be found. Business Improvement Areas (BIAs) extend along Queen Street and in the St. Lawrence neighbourhood. There is also a BIA on Gerrard Street East between Greenwood and Coxwell Avenues, and a major neighbourhood service node near Gerrard Street and Pape Avenue. Institutional destinations include the Bridgepoint Active Healthcare facility located near Gerrard Street and Broadview Avenue and George Brown College at Sherbourne and King Streets. Certain neighbourhoods within the Inline Study Sub-Area are among the lowest income areas across the overall RLPA study area, particularly those near Gerrard Street and Parliament Street. Regent Park is the only designated Neighbourhood Improvement Area within the study area. Neighbourhood Equity Scores in this area are in the mid- to low-end of the scale.

The Bloor-Danforth portion generally consists of established residential neighbourhoods, and therefore is not a key location of major destinations or institutions; however, there are three BIAs along Danforth Avenue within the Study Area. The established character of the neighbourhoods in the area means that there is a high proportion of seniors living in the community who may need to regularly access neighbourhood health facilities. Neighbourhood Equity Scores in this area are mixed.

ES Figure 6: Socio-economic Focus Areas



Land Use

There has been significant development activity within the study area over recent years. These development projects equate to more than six million gross square feet of proposed and constructed development, nearly two thirds of which is residential. For all development types, the “pipeline”, or number of applications submitted and/or approved, represents a far greater amount of potential development than what was actually constructed in that time period.

Each of the three focus areas features qualities and opportunities that can be capitalized upon with the introduction of new rapid transit service. While the Downtown currently has the highest densities within the study area, future development opportunities within this section of the study area are more limited than other areas, given the existing built-up context.

The inline area offers the greatest redevelopment and city building potential; existing mixed-use corridors and major regeneration or employment districts are the areas experiencing the most significant amount of growth and redevelopment. Areas of focus include the Regent Park neighbourhood, the West Don Lands, the former Unilever site (now known as East Harbour), the evolving South of Eastern Employment District, the King and Sherbourne community, the mixed-use Carlaw Loft District, and Riverdale Plaza/Gerrard Square.

Within the Bloor-Danforth Terminus Study Sub-Area, neighbourhoods are highly stable and already have good access to high-order transit service. Given this context, a new subway station in this area is unlikely to stimulate significant redevelopment.

Natural Environment

The study area is highly urbanized, therefore there are no Environmentally Significant Areas, Areas of Natural or Scientific Interest, or Provincially Significant Wetlands. The study area does contain areas of the Don River designated as “Urban River Valley” under the Greenbelt Plan. The study area is located within the Toronto and Region Source Protection Area. The TRSPA is in the CTC Source Protection Region, and falls under the CTC Source Protection Plan. Since the study area falls within the TRSPA, it is subject to the regulations of the Clean Water Act.

The study area is located within the Don River watershed and contains the reaches of the lower Don River often referred to as the “Don Narrows”. In general, habitat quality in the Don River watershed is poor due to the small patches of existing natural cover isolated from other natural features. Natural communities along the lower Don River also suffer from high levels of disturbance. Wildlife inhabiting the study area are species highly adapted to an urban environment. The native plant species located along the lower Don River within the study area are generally common in Ontario and globally, however much of the flora located along the lower Don River are exotic or invasive species.

Existing river conditions are also generally poor. High nutrient and bacteria levels in the Lower Don River are an ongoing problem that is significantly influenced by effluent discharges from the North Toronto Wastewater Treatment Plant as well as combined sewer overflows. This pollution, combined with a loss in riparian and wetland habitats, has resulted in low biodiversity of all aquatic species and poor in-stream habitat in the Lower Don River. Pressure from intensive urban development has resulted in highly disturbed terrestrial and aquatic habitats that facilitate invasion by non-native plants which threaten the natural ecosystems. There are currently 21 species of fish known to occur in the Don River watershed, of which 81% are native, however a 2005 survey of the lower Don River subwatershed identified only nine fish species. Flooding in the Lower Don River is attributed to its broad, unconfined floodplain and intensive development within the watershed.

There are records of occurrence for three Species at Risk (SAR) within the study area: barn swallow, peregrine falcon, and butternut. In addition to these SAR, seven species were identified through the desktop screening as having a moderate to high potential to be found in the study area: western chorus frog, monarch, yellow-banded bumble bee, chimney swift, little brown myotis, northern myotis, and white wood aster.

Some sections of the lower Don River are engineered or channelized. The Don Mouth Naturalization and Port Lands Flood Protection Project has designs for many improvements to the lower Don River within the study area, including in-stream habitat structures, backwater wetlands and riparian plantings. Opportunities to integrate the design ideas and proposed habitat improvements in the Don Narrows should be further investigated and coordinated with the planned Relief Line South crossing of the Don River.

Cultural Environment

Built Heritage Resources and Cultural Heritage Landscapes

To identify all cultural heritage resources potentially impacted by the Relief Line South, a CHAR was completed, which defined study areas around the proposed station locations, all above-grade project components, and areas of the Relief Line South corridor where below-grade tunnelling is predicted to exceed acceptable vibration limits. All parcels proposed for project components, as well as all adjacent parcels to the project component parcels, were included in the analysis. In some cases, additional parcels were included if they were determined to be particularly susceptible to excavation or construction vibration, or if they included built sections that were structurally connected to buildings adjacent to project parcels. Sections of the corridor where impacts from tunnelling are predicted to be well below accepted vibration thresholds were excluded from the analysis.

The study areas from west to east are: Osgoode and Queen Stations (Interchanges), Sherbourne Station, Sumach Station, Broadview Station, Carlaw Station, Gerrard Station, and Pape Station (Interchange). The Sumach Station Study Area includes a section of the below grade corridor where tunnelling is predicted to exceed acceptable vibration limits during construction.

Within these study areas, the CHAR identified a total of 112 known and potential cultural heritage resources. Fifty are protected heritage properties, of which two are national historic sites (also municipally designated), one is a Provincial Heritage Property, and 11 are designated under Part IV of the Ontario Heritage Act. The west portion of the Queen and Osgoode Stations includes 39 protected heritage properties within the Queen Street West Heritage Conservation District, designated under Part V of the Ontario Heritage Act.

Also identified were one property with intention to designate under Part IV of the Ontario Heritage Act, nine properties listed on the City of Toronto Heritage Register, and 49 properties with structures 40 or more years old that were evaluated to have potential cultural heritage value or interest.

Archaeological Resources

Thirty-seven registered archaeological sites are located within the study area. Additionally, the Stage 1 Archaeological Assessment has also determined that there is potential for the presence of archaeological resources to be preserved within all or portions of the following Project Areas:

- a. Sherbourne Station: above ground infrastructure footprints encompassing greenspace/paved area northwest of where Sherbourne and Queen Streets intersect as well as paved area in northeast corner of Seaton and Queen Streets.
- b. Sumach Station: above ground infrastructure footprints encompassing greenspace northeast of King and Sackville Streets (Sackville Park) as well as greenspace west of Richmond Street Eastern Avenue merger.
- c. Broadview Station: all above ground infrastructure footprints.

- d. Carlaw Station: above ground infrastructure footprints encompassing paved area in southwest corner of Carlaw and Colgate Avenues as well as greenspace in southwest corner of the schoolyard for Morse Street Junior P.S.
- e. Gerrard Station: above ground infrastructure footprints in paved area north (1) and northeast (2) of Riverdale Shopping Centre.
- f. Pape Station: above ground infrastructure footprint (northern street entrance) west of Pape Avenue.
- g. Cut and cover construction areas: ground surface (pavement) disturbances located along Pape Avenue (encompassing Launch Shaft 3 and Extraction Shafts 2 and 3), along Queen Street West (encompassing Extraction Shaft 1), as well as within Queen Street East encompassing the subterranean station footprint for Sherbourne Station and within Carlaw Avenue encompassing the subterranean station footprint for Carlaw Station.
- h. Launch Shafts 1 and 2: ground surface (pavement) disturbances located within the Broadview Station subterranean station footprint.
- i. Wye track connections: ground surface (greenspaces and residential structures on periphery) disturbances located within Logan Avenue and Langford Parkettes.

As such, it is recommended that these areas have archaeological potential requiring further archaeological assessment in the form of Stage 2-3 property survey and assessment as described in the Stage 1 Archaeological Assessment

Utilities

Within the Relief Line South study area, utilities including AT&T, Bell, Cogeco, Rogers, and TELUS telecommunication lines, Enbridge gas lines, high pressure oil pipelines, Sanitary Sewers, Storm Sewers, Combined Sewers, watermains, Enwave chilled water and steam tunnels, and Toronto Hydro lines are present. The utilities are typically confined to existing road rights-of-way. Utility impacts and relocation strategies will be confirmed during the detailed design phase of the project.

Geotechnical

The Conceptual Geotechnical Design Report is available in **Appendix 3-4**. A list of geotechnical challenges that are anticipated during the project is included in **ES Table 5** to **ES Table 7**, along with potential mitigation measures.

ES Table 5: Summary of Anticipated Geotechnical Challenges

Geotechnical Challenges	Description of the Potential Challenge
Deep Bedrock Valleys and Mixed Face Tunnelling	Tunnelling through the Don River Bedrock Valley (between approximately Station 3+000 and 3+300) is expected to carry out within loose / soft to firm overburden and mixed-face tunnelling (soil-bedrock transition) should be expected.
Bedrock Shunts (Thrusts)	Bedrock shunts are believed to be related to ice movement (reactivation – stick slip shearing). They may partially occur along pre-existing weak surfaces/joints in the bedrock. The bedrock shunts may pose the risk of significant groundwater inflow into the tunnel and/or poor rock conditions possible with clay seams.

ES Table 6: Summary of Anticipated Geotechnical Challenges

Geotechnical Challenges	Description of the Potential Challenge
Naturally-occurring BTEX and Subsurface Gases	Naturally-occurring benzene, toluene, ethylbenzene, and xylenes (collectively BTEX) have been encountered within shale bedrock during recent tunnelling projects in the Toronto area. BTEX can impact tunnel spoil management and disposal options. Naturally occurring subsurface gases (methane, hydrogen sulphide and carbon dioxide) may also be present within the overburden and shale bedrock.
Water-Bearing Non-cohesive Zones/Groundwater Control	The tunnel is anticipated to be constructed below the groundwater table. Tunnelling and excavations for the construction of all stations are expected to extend below the groundwater level. Water-bearing non-cohesive soil zones are anticipated to be present within the overburden, and will need appropriate control, particularly when tunnelling within the overburden.

ES Table 7: Summary of Anticipated Geotechnical Challenges

Geotechnical Challenges	Description of the Potential Challenge
In Situ Stresses and Swelling of Shale Bedrock	Shale bedrock may experience swelling when stresses are relieved due to excavation or tunnelling. The swelling and in situ stresses in the shale bedrock may impact the temporary and permanent tunnel liner and station box design.
Presence of Cobbles and Boulders	The presence of cobbles and/or boulders may impact machine selection and adopted method for tunnelling through overburden and excavations at station locations. It should be assumed that cobbles/boulders are comprised of a variety of different lithology's including native bedrock but also glacial erratics from the Canadian Shield with a wide range in strengths.

Detailed Assessment of Impacts, Proposed Mitigation and Monitoring of the Transit Project (Section 6)

The environmental impacts for the Relief Line South project are categorized as follows:

- Permanent Impacts to Existing Features: Permanent displacement impacts associated with the built form of the Relief Line South. This includes impacts related to the construction of tunnels, station entrances, emergency exit buildings, substations, ventilation shafts, passageways, and easements;
- Temporary Construction Impacts: Temporary impacts, occurring only during construction; and
- Operations and Maintenance Impacts: Ongoing and long-term impacts related to operations and maintenance of the Relief Line South.

Property Requirements

Properties identified for acquisition are categorized into five groups, or tiers, for the purposes of communication of potential impacts to impacted property owners and occupants. Tiers 1-3 relate specifically to permanent impacts associated with the Transit Project and Tiers 4 and 5 relate to the property temporarily required for construction. The tiers are summarized below in **ES Table 8**.

ES Table 8: Summary of Property Impact Tiers

Tier	Description
1	Permanent property requirement for a new surface structure (e.g., EEB, entrance, vent shaft). This can result in a partial or full taking, to be determined as part of detailed design.
2	Permanent underground easement for new underground structure (e.g., tunnel, underground passageway, etc.)
3	Permanent easement preferred by the TTC for above and below ground TTC structures. The general requirement is a 3 m lateral easement with the following exceptions: <ul style="list-style-type: none"> • 1 m around a proposed vent or fan shaft when on private property • No easement required for substation buildings except when not located along the public right-of-way; then a 4.5m easement must be provided to allow for an access road
4	Temporary property requirement (partial taking, surface or underground easement)
5	Temporary property requirement (full take) (e.g., a proposed staging area occupying a majority of a property including any structures)

Temporary Property Requirements

Temporary property acquisitions are required where construction footprints extend past the public right-of-way. These include construction staging and laydown areas, launch and extraction shafts, open cut excavation areas, and temporary underground easements. The size of the requirement and the type of activity to occur determines whether the impact is classified as Tier 4 or Tier 5. Tier 4 are considered a partial taking or underground easement where the day-to-day activities of the property can continue without unreasonable impedance. Tier 5 impacts are construction activity areas that are judged to require the entire property to proceed.

Permanent Property Requirements

Permanent property acquisition for the project is primarily focused around the eight proposed stations where space is required to accommodate entrance buildings, vent shafts, and other station-related infrastructure. Additional permanent property acquisitions are required between stations for Emergency Exit Buildings (EEBs), electrical substations, and additional emergency ventilation shafts not connected to a station. Some properties along the corridor will have more than one 'tier' of property impact.

In total, based on a spatial query using the City of Toronto's Property Boundary database, there are 761 parcels affected along the length of the Project.

Conceptual Structural Protection Requirements

Structural protection requirements for construction of the Relief Line South project arise from the potential risk of ground settlement, vibrations and groundwater draw-down. Considering that the majority of the Relief Line South is proposed to be situated at a much lower alignment depth, and in the shale bedrock layer, the settlement of existing buildings at the surface may not be a major concern for the majority of tunnel construction, especially when TBMs are employed.

However, the depth of the alignment increases the risk from settlement wherever open-cut excavation is required, for example at station sites. Socketing the toes of the piles into the bedrock during construction of the temporary shoring can be considered as possible design measures to address this risk. Properly designed and implemented settlement monitoring systems are recommended.

Permanent Impacts to Existing Features

Species at Risk

Of ten species at risk (SAR) with potential to occur in the Study Area, two were identified to have potential to be directly impacted by the Project. The monarch and yellow-banded bumble bee may use the open areas, such as meadows, roadsides and the Don River riparian corridor for foraging or to build nest sites. The monarch, and its food plant, common milkweed, were observed along the Don River Corridor and at Corktown Common during the 2017 field investigation. Potential impacts to habitats for monarchs and yellow-banded bumble bees are expected to be temporary in duration and local in scale. There is abundant similar habitat in the study area and surrounding region, and the Project is not expected to have an adverse effect on the local population of monarch or yellow-banded bumblebee.

Mitigation will include clearing vegetation outside of the active season for wildlife to avoid harm to individuals and replanting/restoring it when the construction period is over to replace the habitat for monarch and yellow-banded bumble bee. Implementation of best management practices during site preparation and construction will also prevent adverse indirect effects (e.g., dust settlement) on the ponds/marshes and urban forest in Corktown Common.

Drainage and Stormwater Management

Given the urban nature of the corridor, the project will not add significant impervious areas. All the proposed stations will be below grade and the surface runoff due to the proposed work will be mainly associated with station entrances and traction power substations. Consideration will be taken to ensure any drainage towards the residential properties is minimized.

There are generally limited opportunities to provide stormwater management for runoff associated with the Transit Project. The details of new storm water management facilities to be included as part of the Transit Project will be developed during the detailed design phase and will be discussed with the appropriate approval agency (City of Toronto, TRCA).

Most of the run-off in the area is currently captured through the municipal storm sewer system. Under proposed conditions, storm runoff will be generated mainly from the roof of station entrances and traction power substations and will therefore not require any quality control; however, as a best practice, it is recommended to provide treatment measures where feasible to promote water balance and peak flow reduction through infiltration.

Buildings and Property

Properties identified for acquisition are categorized into five groups, or tiers, for the purposes of communication of potential impacts to affected property owners and occupants along the corridor. Tiers 1-3 relate specifically to permanent impacts associated with the Transit Project. There are a total of 749 affected properties identified for a Tier 1, 2, and/or 3 property taking. A breakdown summary is provided in **Section 6.2.3**.

Property acquisition required for the Transit Project will be conducted by the City of Toronto. In acquiring property, the City balances community need with the rights of individual property owners, including tenants. The total property acquisition process and resulting compensation is intended to leave the affected parties “whole” and thereby mitigating negative impact.

Aesthetics

Transit facilities will alter the visual setting of communities within which they are located. Particular attention will be paid to the location and design of stations and ancillary structures during the detailed design phase of the project to ensure that these facilities will not have negative impacts. Design Excellent guidelines will be prepared to guide design.

Built Heritage Resources and Cultural Heritage Landscapes

The Cultural Heritage Assessment Report (CHAR) determined that the Transit Project will potentially result in permanent impacts to two protected heritage properties and one listed heritage property, and that above-ground components will also potentially result in permanent impacts to the Queen Street West Heritage Conservation District (HCD), designated under Part V of the *Ontario Heritage Act*. Additionally, there is potential for permanent impacts to nine properties of potential cultural heritage value or interest.

The direct impacts include destruction of, or damage to, heritage attributes during construction of new components, or the addition of new components that are incompatible or unsympathetic to the design or appearance of properties of cultural heritage value or interest and cultural resources. Construction of new project components may also result in indirect impacts, including shadows that change the appearance of heritage attributes, or obstruction of significant views or vistas from, or to, cultural heritage resources.

Property specific recommendations for cultural heritage resources are provided in the CHAR that includes avoidance and further impact assessment and conservation planning to ensure impacts from below and above grade project components will be mitigated during detailed design.

Archaeological Resources

The Stage 1 Archaeological Assessment determined that there is potential for the presence of archaeological resources to be preserved along the alignment (areas described in the existing condition section above). It is recommended that these areas have archaeological potential

requiring further archaeological assessment in the form of Stage 2-3 property survey and assessment.

Utilities

By utilizing deep tunnelling construction for the majority of the Relief Line South alignment that is within road rights-of-way and private lands, impacts to utilities are largely minimized. Temporary support and protection of the affected utilities will be sought where possible; however for utilities that will be in direct conflict with the permanent works or for large utilities that cannot be temporarily braced, these utilities will be permanently relocated. In locations where open cuts and station boxes are required for construction of the alignment or stations, utilities in conflict will need to be suspended in place or relocated.

Temporary Construction Impacts

Fisheries and Aquatic Habitat

The proposed work at the Lower Don River crossing involves tunnel boring under the river, where there is the potential to encounter soft mucky soils. The preferred construction option is to use ground conditioning treatment for the soils and then tunnel bore through it. This construction method could result in sediment release to the river, thereby affecting fish habitat conditions. Additionally, vibrations caused by tunnel boring under the river may influence the behaviour of fish residing near the crossing location.

Mitigation measures will include a comprehensive monitoring regime. In situ water quality measurements will be recorded immediately downstream of the crossing, two to three times per day. Environmental conditions will also be assessed in the river including a preliminary characterization of the habitat immediately downstream of the crossing and documentation of conditions throughout the monitoring program. Sediment barriers to prevent surface runoff into the watercourse will also be installed, and a fuel spill response plan developed to prevent the transfer of contaminants to the river in the event of a spill.

Vegetation, Wildlife and Terrestrial Habitat

The majority of the Project will be constructed underground and as such avoids most impacts to vegetation and wildlife habitat. Furthermore, existing wildlife habitat in the study area is limited due to levels of urbanization. However, there may be some surface impacts during required open cut construction.

Any required clearing is recommended to occur outside of the breeding bird window or vegetation should be checked for active bird nests by an environmental monitor prior to clearing. Additionally, vegetation will be replanted/restored when construction period is over to replace the trees that were cleared. All re-vegetation must follow City vegetation compensation protocols.

Soils

Tunnelling and box structure construction activities will cause displacement of the soils and bedrock. This may result in ground movement and settlement during construction activities. A detailed settlement analysis will be completed during the detailed design phase of the project. Ground movement mitigation measures, such as shoring, will be applied during construction as necessary and a settlement monitoring program will be implemented. Review and alert levels (i.e. settlement limits) will be established as part of the development of the settlement monitoring program.

Groundwater

Temporary impacts to the groundwater conditions may be expected during construction, particularly where dewatering activities are undertaken, and can induce settlements. Impacts to the groundwater conditions and associated potential ground movements may generally be mitigated through design and construction strategies that minimize dewatering requirements. This includes excavation support systems that provide cut-off to groundwater inflow (e.g. diaphragm walls and/or secant piles) within the overburden and tunnelling methodologies that use a pressurized face to control water-bearing soils.

Drainage and Stormwater Management

Sedimentation and soil erosion is anticipated during the cut-and-cover construction at stations and special track structures. An Erosion and Sediment Control (ESC) Plan and Specifications for construction activities will be provided during the detail design stage. The ESC Plan and Specifications will be prepared in accordance with the Greater Golden Horseshoe Area Conservation Authorities Erosion and Sediment Control Guidelines for Urban Construction.

Contaminated Properties

A number of potentially contaminated properties were identified along the Project. Based on the review of these potentially contaminated properties, 73 properties were identified as having a high risk of potentially affecting the proposed tunnel alignment. Further investigation is required to confirm whether contamination is actually present and if it presents risks to the project. Mitigation strategies that may be considered include excavation and disposal, implementation of engineered controls such as barriers, or substitution of construction materials to address chemical incompatibilities.

Source Water Protection

The Project falls within the Toronto and Region Source Protection Area (TRSPA) in the CTC Source Protection Region. As part of the CTC Source Protection Plan, a vulnerable area is identified in the vicinity of the Don River with policies to protect against potential threats from fuel and sewage spills that may impact the nearby Lake Ontario drinking water supply intakes.

Although the project is outside of the more vulnerable intake protection zones for the nearby Lake Ontario intakes, the project's study area intersects an IPZ3 zone. This IPZ3 zone is an event-based area where various kinds of spills can be a significant threat to the sources of drinking water.

As described in Sections 6 and 7, an Environmental Spills Prevention and Response Plan will be developed to ensure proper mitigation and notification procedures are in place during construction. The Environmental Spills Prevention and Response Plan will fulfill the requirements of the CTC Source Protection Plan for this project.

Impacts of the Project on Climate Change

Greenhouse gas (GHG) emissions associated with construction activities are attributable to:

- Manufacturing of construction materials;
- Energy consumed at construction sites;
- Energy used in the movement of people, materials and equipment to and from the site; and
- Infrastructure design and size.

These key factors will impact the overall carbon footprint generated from the construction of the Transit Project which will in turn have an impact on climate change. Best management practices will be implemented to minimize the potential release of GHG emissions during construction, including ensuring that construction equipment is well maintained.

Impacts of Climate Change on the Project

Increasing incidents of extreme weather events due to climate change have the potential to result in power outages, damage to infrastructure, and disruption to transportation which can ultimately delay construction of the Relief Line South. In addition, health and safety of construction personnel may be compromised during these extreme events.

Adequate plans for severe weather events and emergencies, closures and rerouting, will be implemented during the construction phase. Health and safety plans should also be developed to ensure that personnel are properly trained to recognize and respond to hazards and emergencies caused by extreme weather events.

Air Quality

Suspended particulate matter (SPM or dust) is the primary contaminant of concern that may impact air quality during the construction of Relief Line South infrastructure. Best management practices will be implemented to prevent the potential release of dust and other airborne pollutants off site.

Noise and Vibration

Perceptible noise and vibration from construction activities are anticipated as part of the Project, both for the construction of the stations and other surface infrastructure, and potentially during the construction of the tunnel. It is expected that the operation of TBMs will result in perceptible vibrations at sensitive receptors along the preferred route, and these vibrations may in turn result in audible noise within building.

While adherence to the City of Toronto construction vibration criteria will protect against structural damage for most homes and buildings, there is a slight risk that more significant damage may occur at lower levels in older buildings. Mitigation measures are proposed to prevent this, including considering alternate criteria, as appropriate, during the preparation of the City of Toronto Vibration Control Form.

Construction will abide by the City's by-laws, as applicable. Control measures are recommended to be implemented to prevent potential disturbance from tunnel and surface construction equipment and activities to nearby receptors. These include establishing protocols for receiving, investigating, and addressing noise complaints, and pro-actively communicating with the public in advance of construction.

Buildings and Property

Temporary property acquisitions are required where construction footprints extend past the public right-of-way. Property required for construction of the Project include construction staging and laydown areas, launch and extraction shafts, open cut excavation areas, and temporary underground easements.

In total, there are 343 properties identified for partial acquisition/easement (Tier 4) and 30 properties for full temporary acquisition (Tier 5). Eighteen (18) of the 30 properties identified for Tier 5 are also identified for Tier 1 (permanent structure). Indirect property impacts may also occur during construction that relate to the disruption to residents and businesses caused by construction activities. Properties and structures adjacent to the construction zone are also susceptible to impacts arising from vibration and ground settlement.

The City will negotiate temporary easements and construction agreements with property owners on a case-by-case basis. To the extent possible, following construction, the lands acquired will be restored to pre-construction conditions. In all cases, the resulting compensation is intended to leave the affected owner "whole," thereby mitigating any impacts. Impacts to businesses and residents will be mitigated by requiring contractor(s) to minimize any inconvenience caused by construction activities to business owners, residents, and property owners, and establishing a Construction Liaison Committee to act as the community's advocate. Properties at risk of impact from settlement or vibration will be identified through the establishment of a zone of influence. The owners of the identified properties will be contacted to have a precondition survey completed.

Aesthetics

Construction work can impair the visual setting of the surrounding environment on a temporary basis. Other concerns that may be associated with construction include mud tracking; improperly stored construction debris; and damage to trees, and other elements of the public realm. Measures to minimize adverse aesthetic impacts associated with construction will be taken, including providing hoardings and storing debris appropriately.

Human Health and Safety

Local employees and residents as well as Transit Project construction workers will potentially be affected by construction-related noise, vibration and dust. Another important issue is the health and safety of construction workers. Construction can also have health and safety implications for pedestrians and cyclists, due to the increased potential for tripping and slipping hazards and bike lane and sidewalk closures or detours. Plans detailed in other sections, such as noise and vibration, will address many concerns. In addition, the proponent will monitor contractor compliance with applicable legislation and regulations. The proponent's safety policies for staff and standard specifications for construction contracts will require full compliance with all applicable legislation and regulations.

Built Heritage Resources and Cultural Heritage Landscape

The Cultural Heritage Assessment Report (CHAR) identified 107 properties of known or potential cultural heritage value or interest that may be directly or indirectly impacted by the Project during construction. Direct impacts include destruction of, or damage to, heritage attributes during excavations and construction of new components. The indirect impacts are primarily from construction vibration, and may damage heritage attributes during excavation and construction of above and below grade project components. .

Property specific recommendations for cultural heritage resources are provided in the CHAR that includes avoidance, protection during adjacent excavation and construction, and further impact assessment and conservation planning to ensure impacts from all project components will be mitigated during detailed design and construction.

Archaeological Resources

Prior to the use of the laydown areas and prior to the construction of the permanent infrastructure components related to the Relief Line South, Stage 2-3 archaeological assessment will be required for the areas containing archaeological potential as determined by the Stage 1 Archaeological Assessment.

Pedestrian, Cycling, Automobile, and Transit Movements

Potential disruption will be limited due to the tunnelling construction method for the line sections. However, cut-and-cover works will directly impact:

- Existing surface transit service;
- Existing subway service at the connecting stations and wye track connections to Line 2;
- Traffic, including both vehicular and pedestrian/cyclist movements;
- Driveways and private roads for adjacent properties;
- Sidewalks and building entrances/exits for adjacent properties; and
- Bicycle lanes.

During the design phase, traffic management plans will be developed. Trade-offs between minimizing construction duration and maintaining access will be addressed. Additionally, work will be carried out in a manner as to ensure the least interference with pedestrians and cyclists, and will include temporary decking, fencing, pavement markings, etc. as required to provide safe, accessible, and continuous routes.

Rail

The potential to produce minor track settlement exists at each of the three locations where the Relief Line South will pass under rail corridors and where an underground pedestrian connection will be constructed under the rail corridor at the proposed Broadview Station.

The majority of the subway running structure, including at the two rail crossings, is proposed to be constructed using twin tunnel boring machines (TMBs), which minimize settlement effects compared to open cut methods. Construction approach of the passageway beneath the Lakeshore East/Stouffville GO corridor will be further refined during preliminary and detailed design. Conceptually, precast concrete sections for the underground connection could be installed, as long as the temporary shoring to support this excavation is installed ahead of time. This methodology is commonly employed for underground pedestrian crossings across GO corridors.

During preliminary and detailed design stages of the Project, settlement analysis will be done for all structures within the zone of influence. Mitigation plans will be developed for any areas where settlement risk is deemed unacceptable. Monitoring during construction will include ground settlement measures.

Utilities

Services will be maintained to the greatest extent possible during relocation and notice of planned service interruptions will be provided to service users prior to interruptions. The location of all plant, potential conflicts and the relocation strategy will be confirmed with service providers during the Detailed Design phase.

The two main approaches that will be considered for impacted utilities are:

1. Temporary support for small utilities that are not in direct conflict with the permanent works. Minor utilities that are not in direct conflict with the Relief Line alignment or stations will be supported and protected during construction where possible; and
2. Relocation of utilities that will be in direct conflict with the permanent works or for large utilities that cannot be temporarily braced. Any utilities that are in direct conflict with the Relief Line alignment will require relocation.

Operations and Maintenance Impacts

Impacts of the Project on Climate Change

The Relief Line South is designed as a means of relieving crowding on Line 1 and at the Yonge-Bloor station interchange in addition to providing transit coverage to a broader area of Toronto. The operation of the Relief Line South is expected to have a positive influence on public transit ridership and surrounding land use by concentrating residences and employment around the new stations. Concentrating land uses can reduce the distance people need to travel to work by way of locating jobs and amenities closer to residences which can ultimately reduce GHG emissions.

Impacts of Climate Change on the Project

The Relief Line South will be located below ground and will be susceptible to flooding events which may result in power outages, damage to infrastructure and disruption to transportation. In addition, there are components of the subway system which will be located above ground and which could be directly impacted by extreme weather conditions. The surface components of the Relief Line South which will need to be designed to withstand extreme weather conditions include the traction power substations, ventilation shaft exhausts for the tunnel and emergency exit infrastructure. To mitigate the impact of climate change on the Project, TTC will implement plans for severe weather events and emergencies, closures and rerouting and traveller information alerts.

Air Quality

Small, localized impacts on suspended particulate matter levels are anticipated due operation of the Relief Line South. The operation of the existing rail transit system can produce particulate matter or “rail dust” as a result of steel wheels rolling on steel rails. To mitigate rail dust, TTC will adhere to conditions outlined in all permits, authorizations and/or approvals, and ensure equipment is kept in a state of good repair.

Noise and Vibration

The MOEE/TTC Protocol establishes a limit for ground-borne vibration of 0.1 mm/s, which is to be applied at the outside premises of the building(s) being assessed. Adherence to this limit protects against both annoyance and adverse structural impacts. The MOEE/TTC Protocol specifically excludes commercial and industrial properties; however, the preferred Relief Line South route is projected to pass underneath buildings of this nature, such as concert venues and studios, which

have interior environments that are considered to be sensitive to ground-borne vibration and noise. Appropriate ground-borne vibration and noise limits for such spaces have been identified.

For the purposes of this study, the ground-borne vibration effects were determined for segments of the mainline, and for the wye tracks near Pape Station which connect the Relief Line South tracks with the Line 2 tracks. In no location are the established limits expected to be exceeded. In light of this, no additional mitigation measures have been proposed beyond the measures that are already integrated into the proposed design; however, it will be important to maintain the facilities in order to avoid noise and vibration issues that may arise through regular wear on the system. The TTC has systems in place to detect and respond to conditions that may result in elevated noise and vibration levels.

The information required to complete accurate sound level impact predictions for ancillary facilities, such as the location of ventilation systems for subway stations, transformer ratings, tunnel ventilation, etc., will not be available until the detailed design stage. However, noise controls for such installations are considered to be routine, and therefore designing these facilities to comply with the MECP stationary source sound level limits is not expected to pose any technical problems during the detailed design stage.

Stray Current

Stray current corrosion, which is a form of electrolytic corrosion, occurs on buried metallic structures and differs from other forms of corrosion damage in that the current, which causes the corrosion, has a source external to the affected structure.

A number of measures will be used in order to minimize uncontrolled stray currents. Where the subway crosses a high-pressure steel pipeline, a monitoring program will be put in place similar to other locations on the TTC network.

Pedestrian, Cycling, Automobile, and Transit Movements

The proposed stations and expansion of the three existing stations have the potential for localized negative impacts due to potential increased activity in the vicinity of the station. Additional traffic analysis must be completed during detailed design to address the proposed station traffic. Monitoring of traffic volumes on public roads and transit schedules post-construction will allow for the City to identify future issues and develop mitigation measures.

Overall, the Relief Line will add significant transportation capacity to the eastern half of the City of Toronto, reducing automobile kilometres travelled and improving transit speed and reliability.

Commitments to Future Work (Section 7)

During this TPAP, the City of Toronto, TTC, and Metrolinx have worked closely with key stakeholder agencies to address and resolve any issues or concerns that have arisen through the development of the conceptual design. Further design work will provide the level of detail required

to finalize property requirements, planning initiatives, construction issues, and permits and approvals. The complete Future Commitments table can be found in Section 7.

In addition to the commitments for future work, the City of Toronto, TTC, and Metrolinx have worked closely with stakeholder agencies to identify the permits and approvals which may be required during the design phases. The complete table of required permits and approvals can be found in Section 7.1.

Impact Monitoring

Impact monitoring is a necessary continuation of the construction and operational application of the proposed works. It is designed to evaluate the need to review or update the environmental protection and mitigation measures during future design phases, or to trigger the implementation of contingency plans that may include remedial measures needed to achieve project goals and objectives. A monitoring plan will be prepared in accordance with Subsection 9(2)(8) of Ontario Regulation 231/08.

Construction Compliance and Impact Monitoring

Compliance with the mitigation measures identified in Section 6 and the commitments documented in Section 7 will be monitored by TTC under its Compliance Monitoring Program. Preceding construction, a compliance monitoring plan will be created. This plan will describe how compliance with all the commitments outlined in this Environmental Project Report (EPR), as well as conditions of any permits and approvals will be monitored during the construction phase of the Project. Compliance reports will summarize the results of the compliance monitoring plan for construction and state compliance with commitments outlined in this EPR and the conditions of any permits and approvals.

Operational Compliance and Impact Monitoring

The TTC has standard procedures for spills management, accidents or malfunctions, and infrastructure inspection. These procedures will be followed during the operation phase of the Project. For monitoring of the natural and social environment the following steps should be incorporated:

- Monitoring must be directed at fulfilling one or more objective sets, be subject to analysis and lead to potential actions;
- Monitoring should be for identifying problems, establishing a background reference, and evaluating the effectiveness of controls;
- Technology performance monitoring should be to confirm that the facility operates as designed, if remedial design improvements are needed, or if it needs maintenance. This will assist in improving future designs;
- The monitoring program will be directed at connecting impact analysis with technology performance assessment;

- The strategy will recognize and incorporate existing monitoring programs; and
- The monitoring will lead to reporting on results and taking appropriate follow-up action. This is a key component that fulfils due diligence expectations.

Environmental Project Report Addendum Process

An addendum to this EPR will be prepared if significant changes to the Project occur after the Notice of Completion is issued. This will be done in accordance with Section 15 of the Ontario Regulation 231/08. Steps to complete the Addendum include:

1. Preparation of an Addendum to the EPR;
2. Preparation of a Notice of Addendum to the EPR; and
3. Distribution of the Notice of Addendum to relevant stakeholders, the public and the MECP.