# EXECUTIVE SUMMARY

## E.1. INTRODUCTION

The Toronto Transit Commission (TTC) and City of Toronto have undertaken a Transit Project Assessment for the 33 kilometre long Eglinton Crosstown Light Rail Transit (Eglinton Crosstown LRT) corridor that would link the Pearson International Airport with the Kennedy Station. The Eglinton Crosstown LRT will connect with the Spadina Subway Line, the Yonge Subway Line, the Scarborough RT and the planned Jane Street LRT, Don Mills Road LRT, Scarborough-Malvern LRT, and Mississauga BRT. This study recommends that bus services along Eglinton Avenue be replaced by Light Rail Transit (LRT) with electrically powered light rail vehicles operating in a designated right-of-way located primarily in the centre of the street.

This change in transit service along Eglinton Avenue is recommended as part of the TTC Transit City Plan for a widely-spaced network of electric light-rail lines throughout the city, with seamless interconnections to existing and future transit services. The Eglinton Crosstown LRT is one of seven new lines being planned as part of Transit City to provide a new high quality transit service along several busy existing transit routes.

### Study Area

The west limits of the study area consists of a broad area bounded by Dixon Road to the north, the Pearson International Airport lands to the est, Eglinton Avenue to the south and Martin Grove Raod to the east. Then the study area consists of a 500 metre band to the north and to the south of Eglinton Avenue from Renforth Drive in the west to Kennedy Road in the east of the study area. See **Exhibit 1**.

Several related studies and studies outside the scope of this Transit Project Assessment are being carried out concurrent with this Eglinton Crosstown LRT Transit Project Assessment to investigate:

- The connection of the Eglinton Crosstown LRT within Pearson International Airport lands (TTC, Metrolinx and Greater Toronto Airports Authority, to be initiated);
- The proposed Mississauga/ GO Transit BRT terminal at Commerce Boulevard (City of Mississauga);
- The proposed Mississauga/ GO Transit BRT extension from Commerce Boulevard to 0Kipling Station (via Eglinton Avenue and Highway 427) (Metrolinx, to be initiated);
- The proposed TTC Maintenance and Storage Facility located north of Eglinton Avenue west of Black Creek Drive (TTC);
- The Jane Street LRT, the Don Mills Road LRT and the Scarborough-Malvern LRT (TTC);
- Improvements to the Highway 427/Highway 401 interchange (MTO);
- Georgetown Corridor Rail Expansion (Metrolinx); and
- The connection of the Eglinton Crosstown LRT to Kennedy Station east of Kennedy Road (TTC).

The connection of the Eglinton Crosstown LRT with the Kennedy Station is being investigated as part of a separate Scarborough Rapid Transit (SRT) Project. The design is addressing improved integration between the existing subway, the SRT, the Eglinton Crosstown LRT and Scarborough-Malvern LRT lines and buses. The connection of the Eglinton Crosstown LRT to Kennedy Station will be the subject of an EA amendment.

The connection of the Eglinton Crosstown LRT with the Airport Terminal lands will be determined following completion of Metrolinx's Airport Precinct Study and the Greater Toronto Airports Authority Transportation Master Plan. Subsequently, TTC and the City will comply with applicable environmental assessment regulations for the finalization of the alignment on the federally-owned airport lands.

The preferred connection of the Eglinton Crosstown LRT with the TTC Maintenance and Storage Facility at Black Creek Drive is reflected in this Transit Project Assessment, although the TTC Maintenance and Storage Facility itself is undergoing a separate environmental assessment.

### Study Process – Transit Project Assessment

This study was conducted following Ontario's Transit Project Assessment process in accordance with Ontario Regulation 231/08 for Transit Projects and Greater Toronto Transportation Authority Undertakings (Transit Projects Regulation). The Transit Projects Regulation exempts proponents of all public transit projects from the requirements under Part II of the *Environmental Assessment Act* and creates a process that certain projects must follow in order to be exempt. The Transit Project Assessment process is a proponent-driven, self-assessment of potential impacts of a transit project on the environment that provides framework for an accelerated consultation process. While the Ministry of the Environment does not approve the project, the Minister does provide a notice to proceed and can request additional consideration if the Minister deems that the project has negative impacts on matters of provincial importance.

### Policies

Toronto Official Plan

The Toronto Official Plan (OP) presents a vision for a more liveable City and directs growth to specific areas within the City. Generally, potential growth areas are well served by transit, the existing road network and existing infrastructure. The areas that have the most potential to accommodate growth and redevelopment are the Downtown and Central Waterfront, the Centres, the Avenues, and the Employment Districts.

Avenues are important corridors along major streets where redevelopment and growth is encouraged. Reurbanization and growth on the Avenues is intended to create new housing and job opportunities as well as improvements to the pedestrian environment, making the area attractive to residents, workers, and visitors alike. Growth and redevelopment of the Avenues should be supported by high quality transit services combined with urban design and traffic engineering practices that promote a street that is safe, comfortable and attractive. The east and west portions of Eglinton Avenue are identified as Avenues in the OP.

Toronto Transit City Light Rail Transit Plan

In 2007, the TTC developed a plan that built upon the transit concepts in several studies, including the Toronto Official Plan, the TTC Ridership Growth Strategy, Building a Transit City and the Mayor's "Transit City" Platform (2006), and recommended a network of electric light-rail lines throughout the City, each with its own right-of-way. There are seven new lines proposed, with a total length of 120 kilometres, all connecting with the City's existing and planned rapid transit routes. By 2031, it is estimated that the new lines would carry 175 million riders per year.

City of Mississauga Official Plan

The west portion of the study area for the Eglinton Crosstown LRT is located within the City of Mississauga. The following section describes the policies of the City of Mississauga Official plan that apply to the study area.

Mississauga's Official Plan (2009), referred to as "Mississauga Plan", aims to achieve the establishment of an urban form which is compact, efficient, comfortable, and supportive of transit within a time horizon of 20 years. Mississauga Plan sets out the City's long rante plans for the road system, parks, environmental policies and lands to be protected.

The City of Mississauga will amend its Official Plan to include a rapid transit corridor from Eglinton Avenue West and Commerce Boulevard to Pearson International Airport via Commerce Boulevard, Convair Drive and Silver Dart Drive.

### Evaluation of Major Functional Design Alternatives

#### Airport Link

Two corridors and eight alternative routes were identified and evaluated for the west limits of the study area (Airport Link). The major constraints for each of the alternatives included highway crossings, geometric and right-of-way constraints, and connections with inter-regional transit. The final recommended route travels along Eglinton Avenue to Commerce Drive, across Highway 401, to Convair Drive, and north on Silver Dart Drive. This route was recommended based on two major factors:

- It offers the best benefit in terms of connection and transfer convenience to Mississauga/GO BRT and Pearson International Airport; and
- It has the least technical constraints including shortest guideway span across Highway 401 and with no impacts to existing on/off ramps.

Vertical Alignment Options from Jane Stop to Keele Station

The segment between Jane Street Road and Keele Street is important as it is the proposed location for the TTC Maintenance and Storage Facility, which is planned to serve three LRT lines. A study for this area was conducted to recommend an Eglinton Crosstown LRT alignment that provides a high quality transit service and flexible connection to the Maintenance and Storage Facility while minimizing property requirements and maintaining the opportunities for development and growth consistent with the City of Toronto's Official Plan. Key technical constraints included bridge structures, area topography, traffic operations, railroads, and the Black Creek Valley. As stated in Section 1.2. of this document, the proposed Maintenance and Storage Facility was not within the scope of this study.

Eight alternatives were identified and evaluated. The recommended alignment is a surface alternative, which incurs the lowest cost, and allows for a secondary (emergency) connection to the proposed Maintenance and Storage Facility. In addition, the traffic analyses performed for the surface alternative demonstrated that a high quality connection can be provided to the proposed Maintenance and Storage Facility (including sufficient Light Rail Vehicle loading and unloading capacity).

#### Don Mills LRT Interface

A separate study for Eglinton Avenue and Don Mills Road intersection was conducted. This intersection is proposed to be the point of interface for two LRT lines, the Eglinton Crosstown LRT and the Don Mills LRT. The objective of this study was to develop and evaluate transportation alternatives, conduct traffic analyses for the alternatives and make recommendations for the area surrounding the intersection.

Sixteen alternatives were identified and evaluated. The recommended alternative places the Eglinton Crosstown LRT underground and Don Mills LRT at surface with a bus terminal on the northeast quadrant of Eglinton Avenue/Don Mills Road intersection. This alternative provides the highest quality of Eglinton Crosstown LRT performance incurring little delay at the Eglinton Avenue and Don Mills Road intersection since it will operate underground without any type of signal delay due to general traffic and the Don Mills LRT. It allows for safer passenger transfers as passengers will transfer directly from Don Mills LRT platform down the stairs to the Eglinton Crosstown LRT platform and vice-versa without conflict with the general traffic. Also, passenger transfers between the Eglinton Crosstown LRT and the bus terminal will be underground with no conflict with the general traffic. In addition, there is less potential for delay to feeder buses entering the bus terminal located in the northeast quadrant of the intersection.

## E.2. PROJECT DESCRIPTION

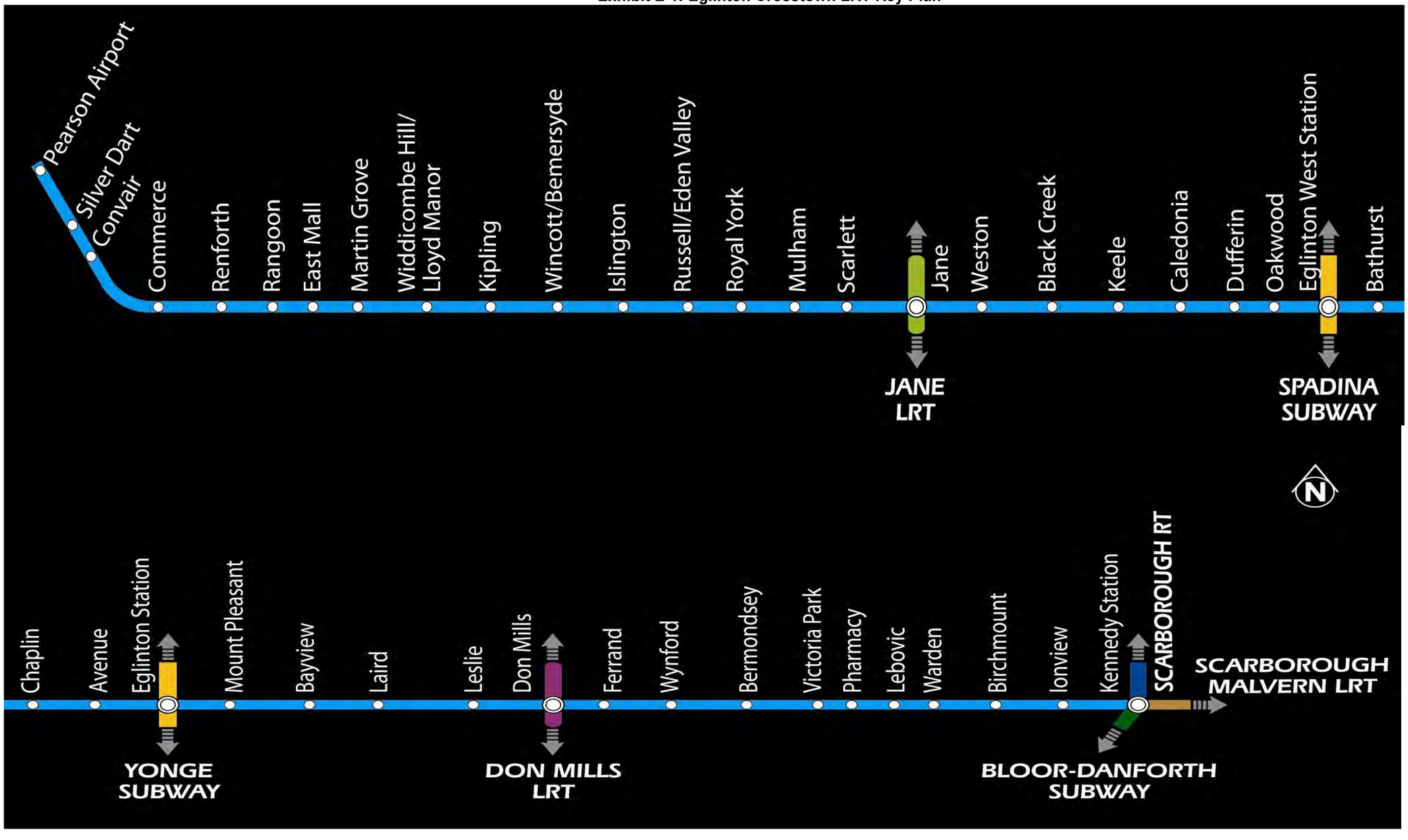
The Eglinton Crosstown LRT includes the following key design components:

LRT at surface from Pearson International Airport to east of Black Creek Drive, underground from east of Black Creek Drive to east of Brentcliffe Road, then at surface from east of Brentcliffe Road to Kennedy Road including a short underground section at Don Mills Road;

- 28 surface stops and 13 underground stations;
- Left turn prohibitions crossing the surface LRT right-of-way, except for signalized intersections;
- Left turn prohibitions from Eglinton Avenue to Martin Grove Road, Kipling Avenue, Islington Avenue, Royal York Road, Scarlett Road, Jane Street, Victoria Park Avenue, Pharmacy Avenue and Birchmount Road.
- Left turn prohibitions from Jane Street and Pharmacy Avenue to Eglinton Avenue.
- New bridge over Highway 401 to connect Convair Drive to Commerce Boulevard;
- Widening of several bridges associated with Mimico Creek, , West Don River, and East Don River, and a culvert extension at Wilson Brook;
- Traction power substations;
- Provision of special track work, emergency exit buildings and ventilation shafts in underground sections; and
- Landscaping, streetscaping and associated amenities.

**Exhibit E-1** presents a key plan of the Eglinton Crosstown LRT.

**Exhibit E-1: Eglinton Crosstown LRT Key Plan**



### Runningway

The Eglinton Crosstown LRT runningway includes dedicated light rail tracks travelling in both directions along the centerline of Eglinton Avenue, Commerce Boulevard, Convair Drive and Silver Dart Drive between Pearson International Airport and Kennedy Road. The runningway will be located at surface from Pearson International Airport to Keele Street and from Brentcliffe Road to Kennedy Road, except at Don Mills Road where it will be underground. The runningway will be underground from Keele Street to Brentcliffe Road.

Typically, the LRT alignment will be located at the centre of the roadway on a raised median to separate the LRT traffic and the general traffic between traffic signals. At intersections, the tracks will be constructed at the same level as the road.

To provide operational flexibility and allow LRVs to change travel directions from one track to another, crossover and storage (pocket) tracks will be provided at a number of locations.

### Stops

Stops are located at surface and at major intersections. A total of 28 stops are proposed including 25 stops along Eglinton Avenue, and one stop each along Commerce Boulevard, Convair Drive and Silver Dart Road. Average stop spacing is approximately 400 to 500 metres.

Most intersections will usually have farside platforms for the LRT with vehicular left turn lanes opposite to minimize space requirements. Some intersections will have nearside, parallel (platforms directly across from one another) or centre platforms, and with or without vehicular left turn lanes. Surface stop platforms are 90 metres long. **Exhibit E-2** presents a typical cross section and **Exhibit E-3** presents a typical plan of a surface stop.

### Stations

A total of 13 underground stations are proposed at major intersections. The average station spacing is approximately 850 metres.

The typical underground station will generally include one main and two secondary entrances. The entrances will be connected to a station concourse level, which is an underground walkway. Stairs, elevator and escalator connections will be provided between each level of the station. Generally, four fire ventilation shafts will be incorporated into stations. **Exhibit E-4** presents a typical cross section of the station layout and **Exhibit E-5** presents a typical station plan.

**Exhibit E-2: Typical Surface Stop - Cross Section**

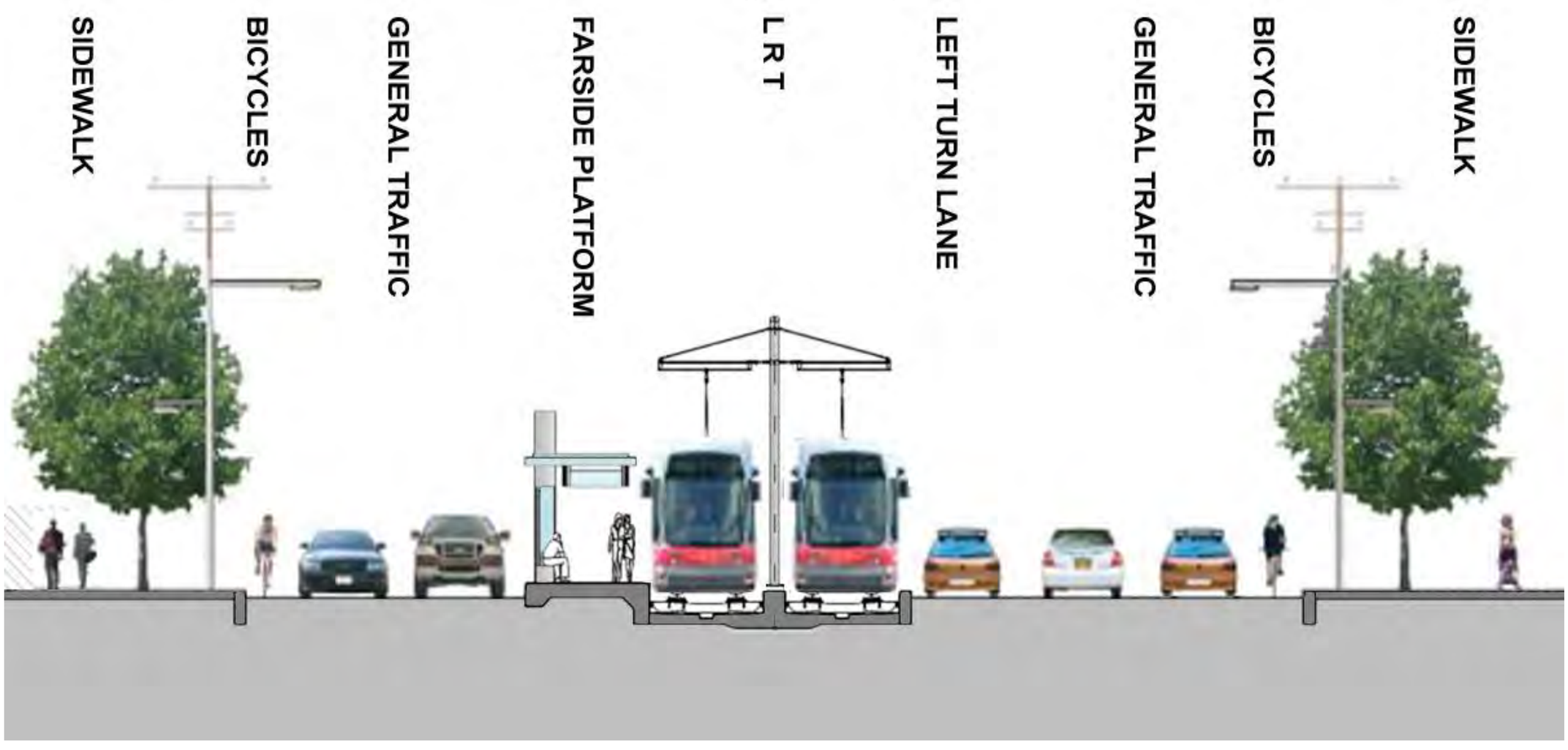


**Exhibit E-3: Typical Surface Stop – Plan**

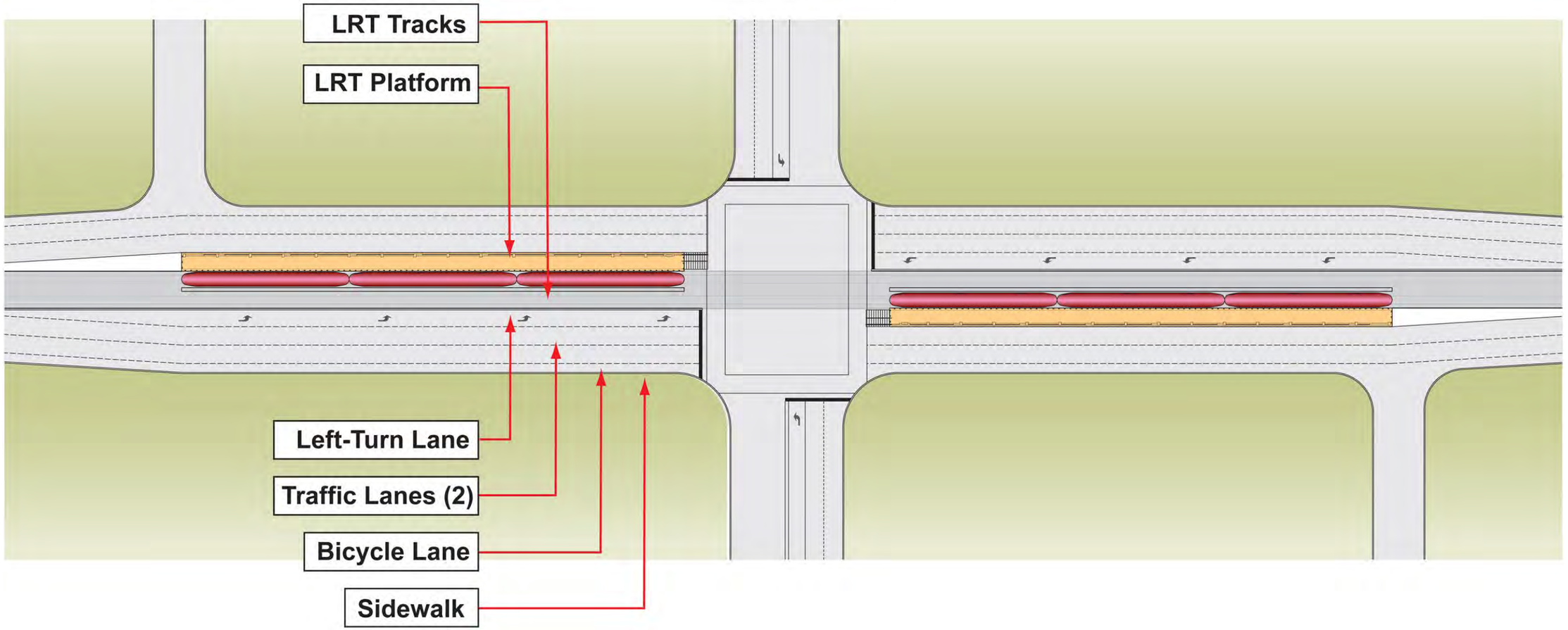


**Exhibit E-4: Typical Underground Station - Cross Section**

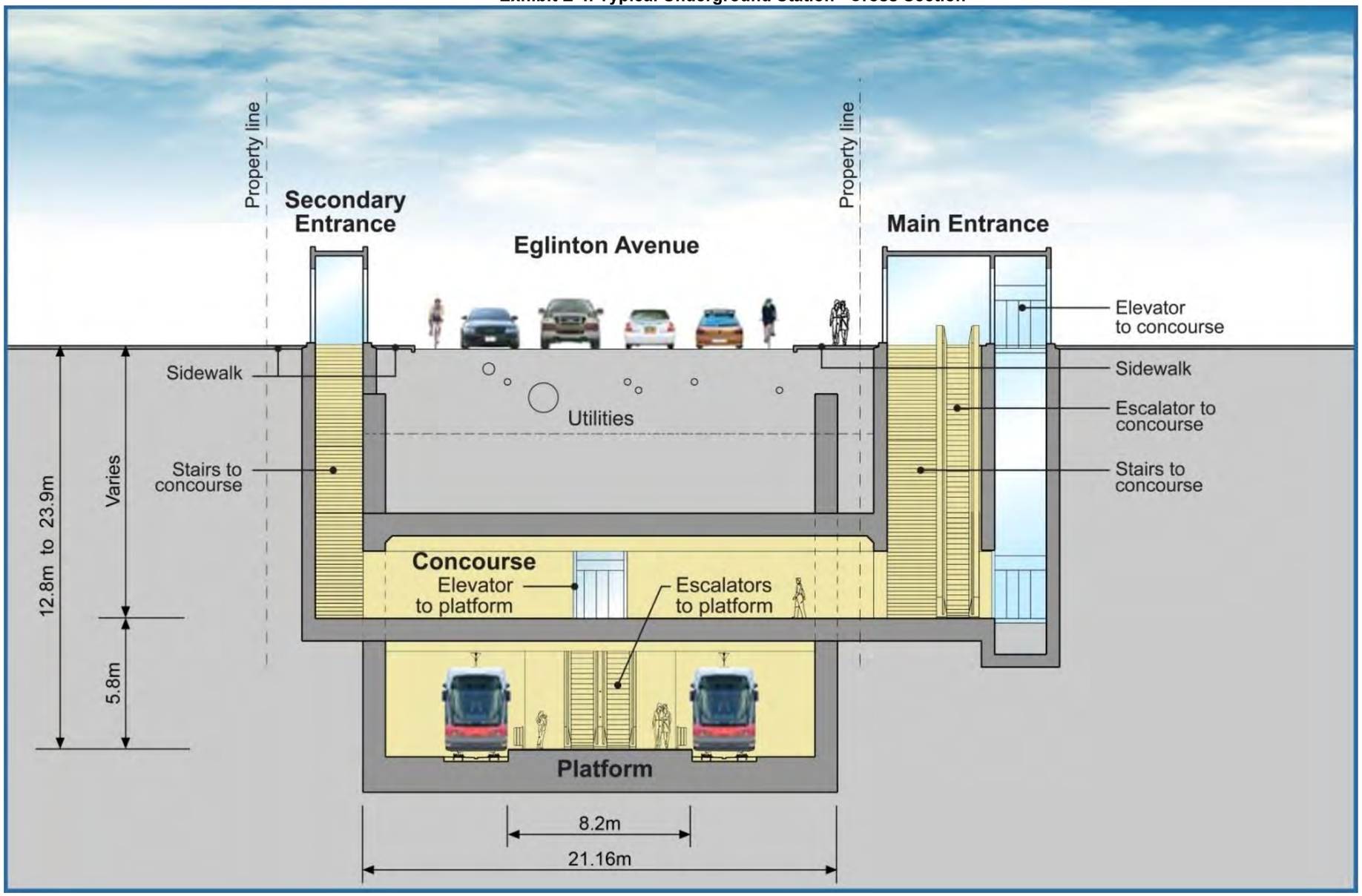
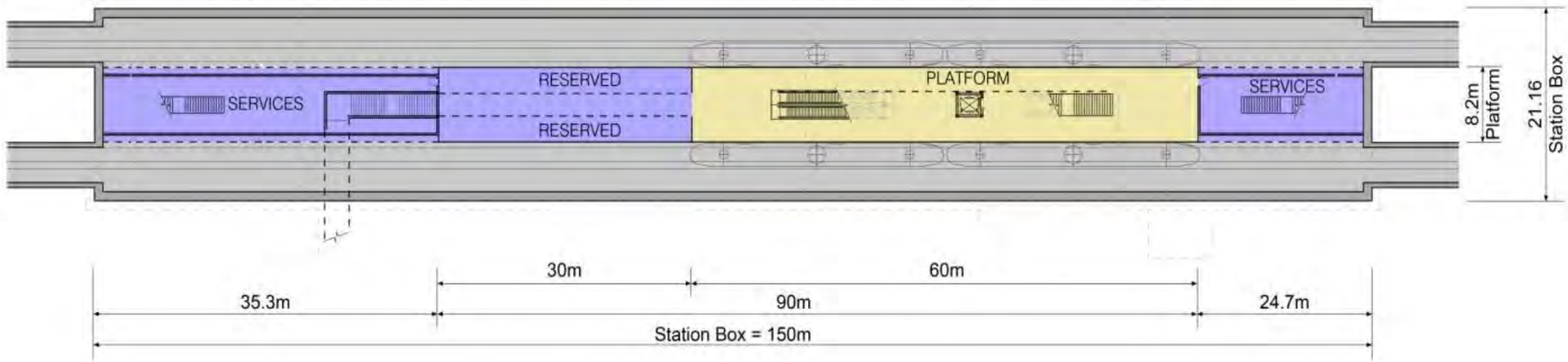
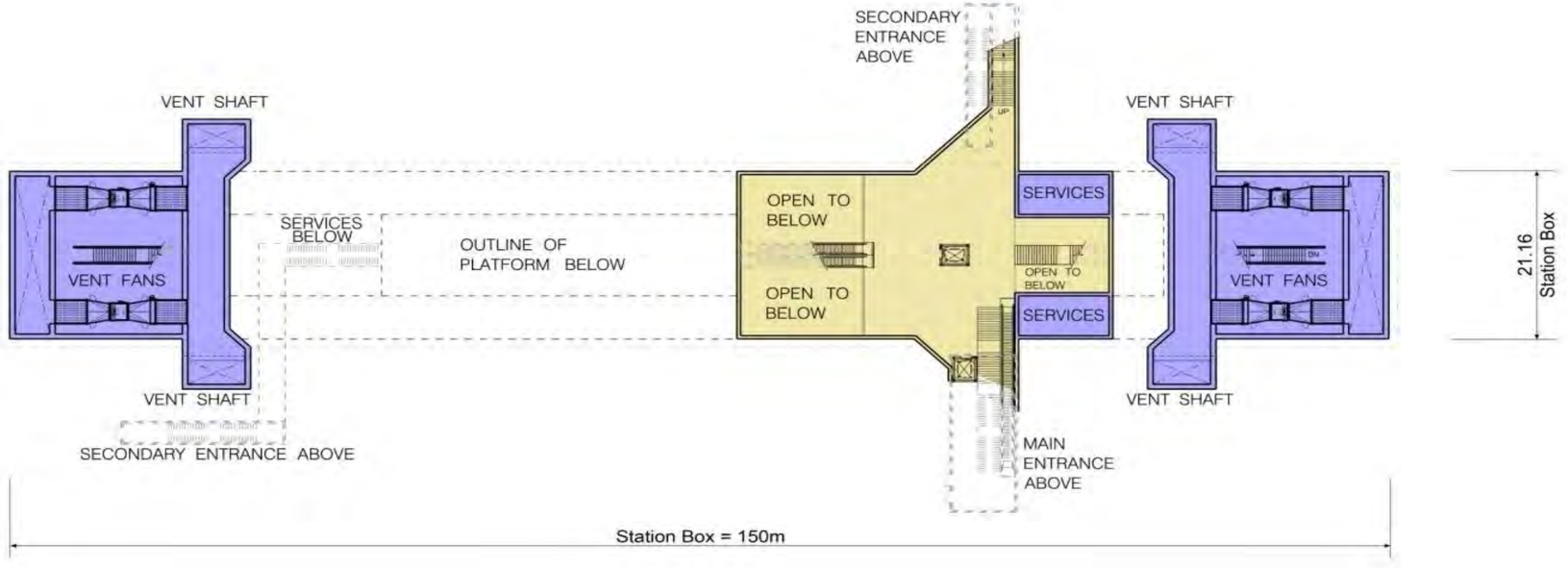


**Exhibit E-5: Typical Underground Station – Plan**




Station Platform




Station Concourse

### Portals

Portals are the approach entrances where the LRT surface section transitions into the underground section. The west portal is currently planned west of Keele Street and the east portal is currently planned east of Brentcliffe Road. Additional portals are also located east and west of Don Mills Road to provide a grade separation with the Don Mills LRT and the Eglinton/Don Mills intersection.

### Bus Terminals

Off-street bus facilities are proposed at Keele Station (4-bay bus terminal), Caledonia Station (bus loop) and Don Mills Station (7-bay bus terminal). **Exhibits E-6** and **E-7** present the layout of the two bus terminals.

### Special Track Work, Emergency Exit Buildings, and Traction Power Sub-Stations

Special Track Work

Proposed locations for operational crossover tracks are: between Commerce Boulevard and Renforth Drive; east of Martin Grove Stop; west of Wincott/Bemersyde Stop; between CNR/CPR rail line and TTC Maintenance and Storage yard; between TTC Maintenance and Storage yard and Black Creek Stop; east of Keele Station; east of Eglinton West Station; east of Eglinton Station; west of Laird Station; and east of Pharmacy Stop. Proposed locations for tail tracks or storage (pocket) tracks are: north of Silver Dart Stop, north of Commerce Boulevard, west of Islington Stop; east of Jane Stop; west of Keele Station; west of Eglinton West Station; west of Eglinton Station; east of Laird Station; and west of Don Mills Station.

Emergency Exit Buildings

A total of six Emergency Exit Buildings (EEBs) are proposed along the underground segment. Exhibit 8 presents the location of the EEBs. The EEBs are located between the following roads:

- Caledonia Road and Dufferin Street (EEB 1 at Little Boulevard);
- Allen Road and Bathurst Street (EEB 2 at Glen Cedar Road);
- Avenue Road and Yonge Street(EEB 3 at Eglinton Park/North Toronto Community Memorial Centre);
- Yonge Street and Mount Pleasant Road (EEB 4 at Dunfield Avenue);
- Mount Pleasant Road and Bayview Avenue (EEB 5 at Banff Road); and,
- Bayview Avenue and Laird Drive (EEB 6 at Rumsey Road).

**Exhibit E-6: Don Mills Bus Terminal**

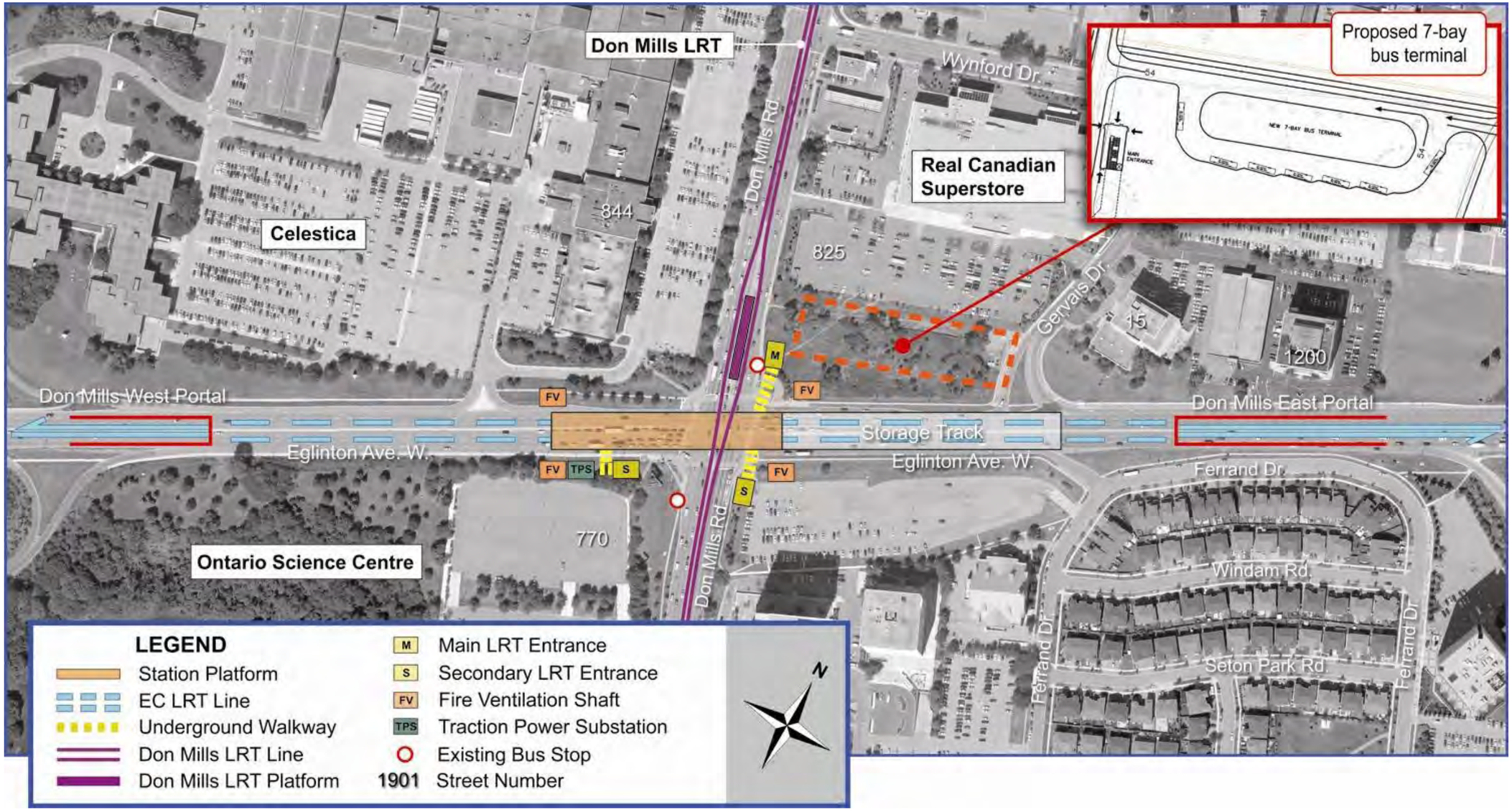


**Exhibit E-7: Keele Bus Terminal**

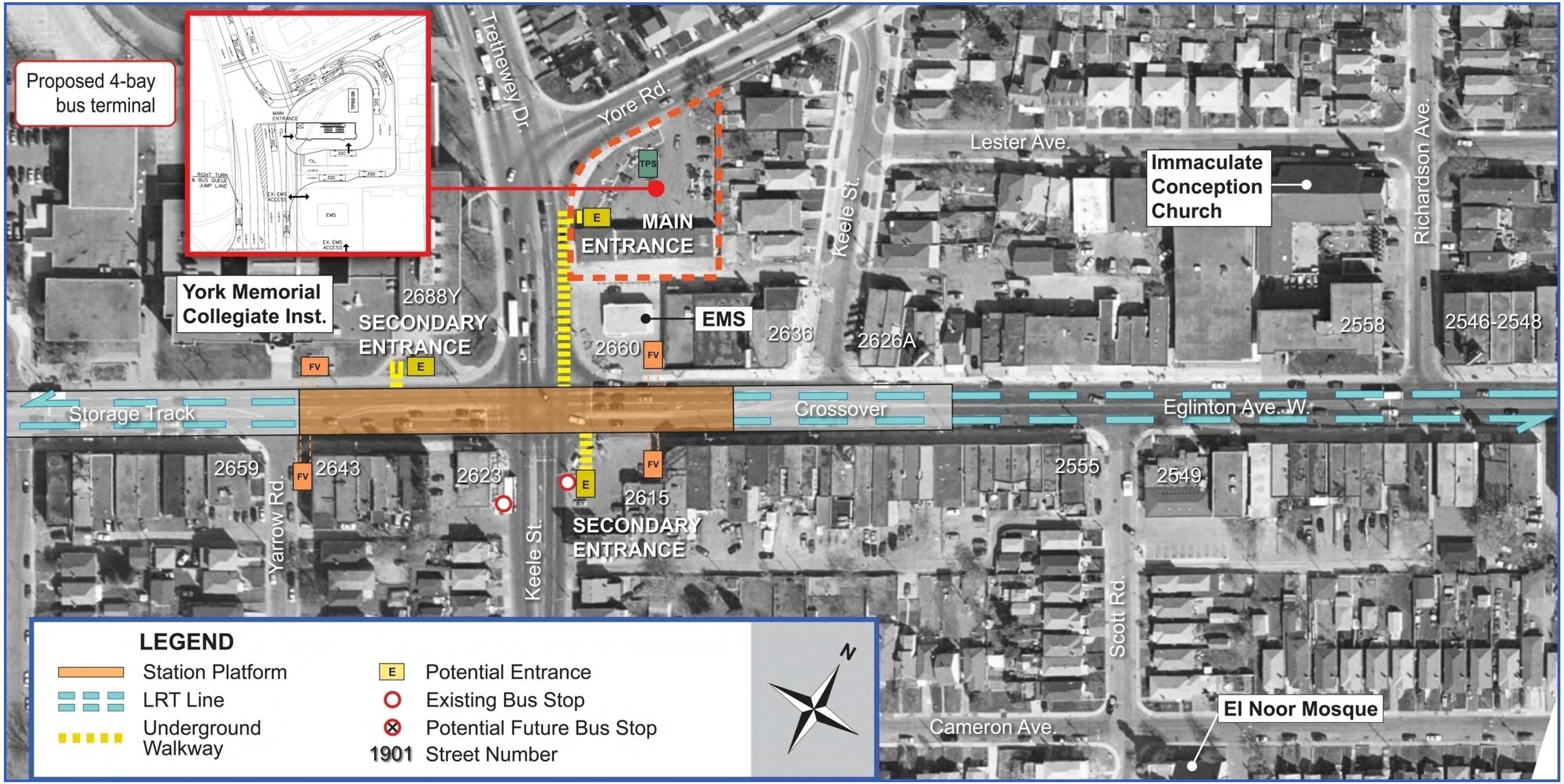


**Exhibit E-8: Location of Emergency Exit Buildings (EBBs)**

Traction Power Substations

Seventeen traction power substations are proposed along the Eglinton Crosstown LRT with an average of 1.5 kilometre spacing for the surface sections and 2.0 kilometre spacing for the underground sections. Requirements for traction power substations at Pearson International Airport and Kennedy Station are not included in the scope of the Environmental Project Report. **Exhibit E-9** presents the location of the traction power substations (TPSS). The proposed TPSS locations are close to the following:

- TPSS #1 - Silver Dart Stop;
- TPSS #2 - Renforth Stop;
- TPSS #3 - East Mall Stop;
- TPSS #4 - Widdicombe Hill/Lloyd Manor Stop;
- TPSS #5 - Islington Stop;
- TPSS #6 - Mulham Place Stop;
- TPSS #7- Jane Stop;
- TPSS #8 - Keele Station;
- TPSS #9 - Dufferin Station;
- TPSS #10 - Bathurst Station;
- TPSS #11 - Eglinton Station;
- TPSS #12 - Bayview Station;
- TPSS #13 - the East Portal;
- TPSS #14 - Don Mills Station;
- TPSS #15 – Wynford Stop;
- TPSS #16 – Victoria Park Stop; and,
- TPSS #17 – Warden Stop.

## Roadway, Intersection and Bridge Modifications

Roadway Modifications

Two lanes of traffic will be maintained in each direction along Eglinton Avenue. Where two lanes of traffic in each direction currently exist from Martin Grove Road to Weston Road and from Black Creek Drive to the west portal, Eglinton Avenue will be widened by one lane in each direction to accommodate the LRT. Where three lanes of traffic currently exist from Weston Road to Black Creek Drive and Brentcliffe Road to Kennedy Road, one lane of traffic in each direction will be removed to accommodate the LRT. A second southbound lane along Commerce Boulevard from Matheson Boulevard to Eglinton Avenue will be constructed for bus only use to facilitate bus movements in the vicinity of the City of Mississauga BRT/GO Terminus at Eglinton Avenue/Commerce Boulevard intersection.

The area of Eglinton Avenue crossing under the eight bridges at Highways 427 and 27 will require further widening, since the eastbound and westbound LRT tracks will be separated to accommodate the bridge support piers between the tracks.

**Exhibit E-9: Location of Traction Power Substations (TPSS)**