

# **WELCOME TO OUR PUBLIC OPEN HOUSE**

## **Eglinton Crosstown Light Rail Transit (LRT)**

Preliminary Planning for a Transit Project Assessment  
November 23<sup>rd</sup>, 24<sup>th</sup>, 25<sup>th</sup>, 26<sup>th</sup> & December 2<sup>nd</sup>, 8<sup>th</sup>, 10<sup>th</sup> 2009

### **PLEASE SIGN IN**

Members of the Project Team are available to discuss the project with you.

There is a roll plan of the entire corridor for your review.

Please feel free to ask questions and fill out a comment sheet.

Visit us at: [www.toronto.ca/transitcity](http://www.toronto.ca/transitcity)

# Open House Objectives

Provide updated information about the Eglinton Crosstown Light Rail Transit (LRT) Project, covering:

- Responses to frequently heard comments at Open Houses 2 and 2A
- Details and locations of specific surface stops and underground stations
- Preferred solutions at Jane St., Weston Rd., Black Creek Dr., Wynford Dr. and Don Mills Rd.
- Locations of surface facilities (emergency exit buildings, vent shafts and substations)
- Construction methods
- Potential environmental impacts and recommended mitigation measures
- Next steps

We  
are  
here



## Open House 1 – Aug/Sept 2008

**WHAT IS PLANNED?** Introduce the idea of the LRT, provide preliminary stop and station locations and outline potential construction methods.

## Open House 2 – June/July 2009

**HOW MIGHT IT WORK?** Show preliminary concepts including typical stops and stations and preliminary concept for each stop and station.

## Open House 2A (Airport Connection) – Sept 2009

**HOW DO WE CONNECT TO THE PEARSON INTERNATIONAL AIRPORT?** Show alternatives and the preferred route from Martin Grove Rd to Pearson International Airport, including proposed stops.

## Open House 3 – Nov/Dec 2009

**WHAT IS THE PREFERRED CONCEPT?** These boards outline the preferred design concept, including the recommended methods of constructing the LRT, identification of potential impacts that may arise (both during construction and during operation of the LRT), and proposed means of minimizing and mitigating impacts.

*A “Frequently Asked Questions” handout is available that addresses issues / questions received to-date, and provides other project information. If your issue / question is not presented here, or you have not received a response, staff will be happy to speak to you tonight.*

# About the Eglinton Crosstown LRT

The Eglinton Crosstown Light Rail Transit (LRT), part of the Transit City LRT Plan, is approximately 33 kilometres in length, from Pearson International Airport in the west to Kennedy Station in the east. It will provide high-quality east-west transit service across the City of Toronto.



The Transit City LRT Plan is premised on developing a widely-spaced network of electric light-rail lines, each on its own right-of-way. The lines reach all across Toronto, all connecting with the City's existing and planned rapid transit routes.

In total, 120 km of service will be added over the entire city. By 2021, the new lines would carry 175 million riders per year.

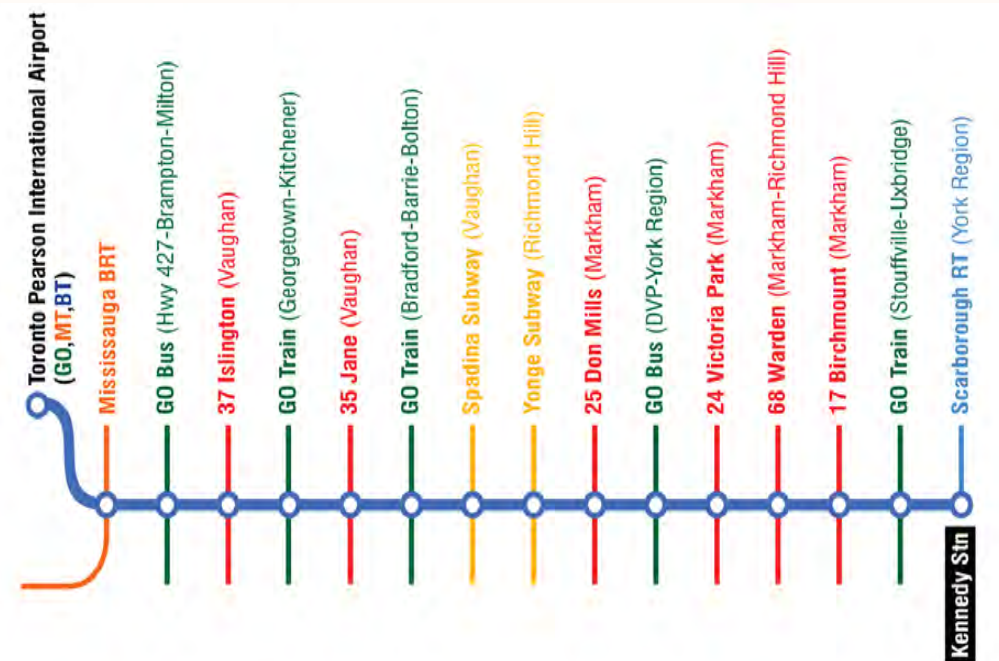




## Inter-Regional Connections

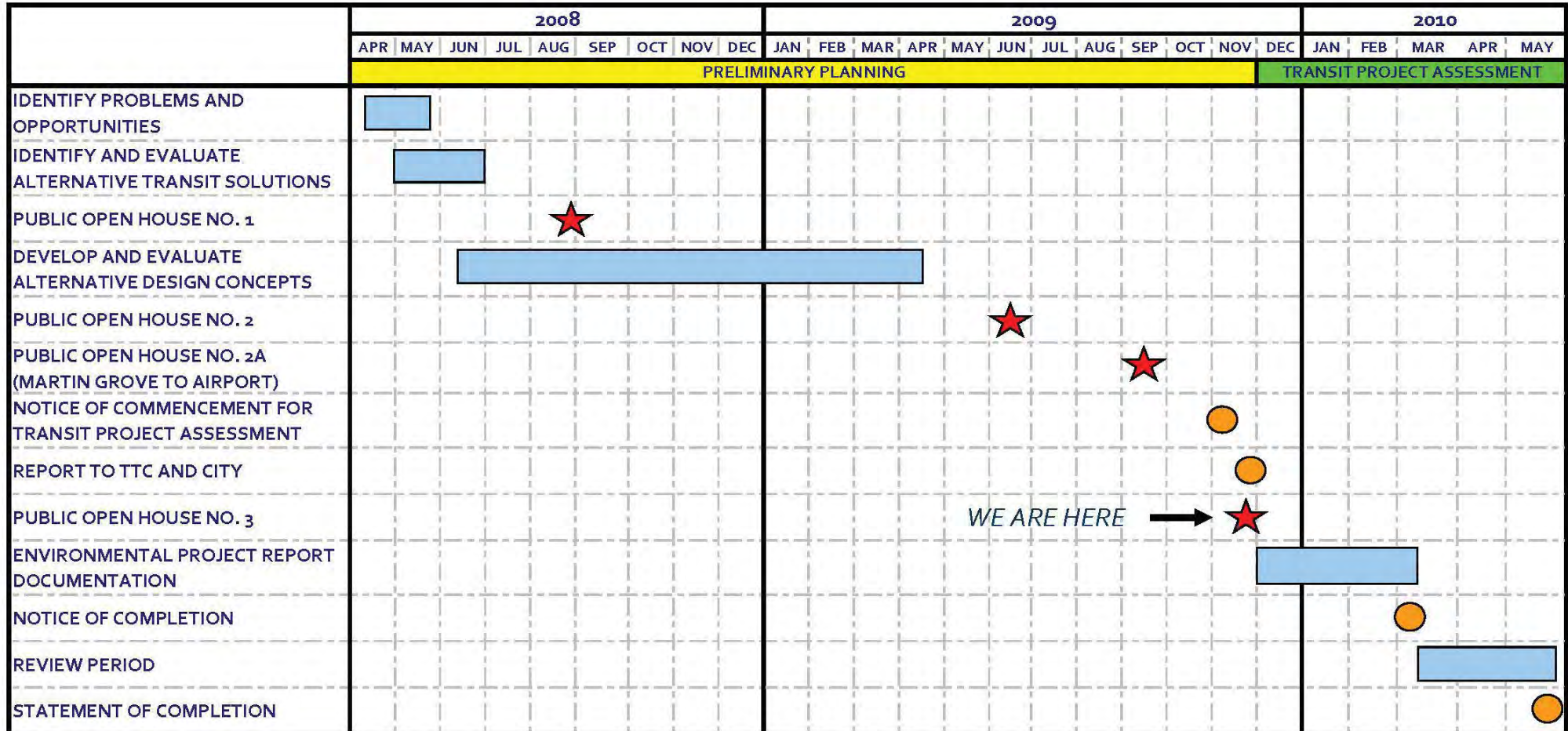
The LRT will be designed to provide smooth connections to existing and proposed higher-order transit facilities including:

- Mississauga Transit BRT (future)
- GO Transit
- Jane LRT (future)
- Spadina Subway
- Yonge Subway
- Bloor-Danforth Subway
- Don Mills LRT (future)
- Scarborough-Malvern LRT (future)
- Scarborough RT



These connections will provide Torontonians with the ability to ride seamless, high-speed, high-frequency transit service throughout most of the City and also provide inter-regional transit connections.

# Study Schedule



## Issues Raised from Open Houses 2 and 2A

Seven Public Open Houses were held between June 15 and September 2, 2009

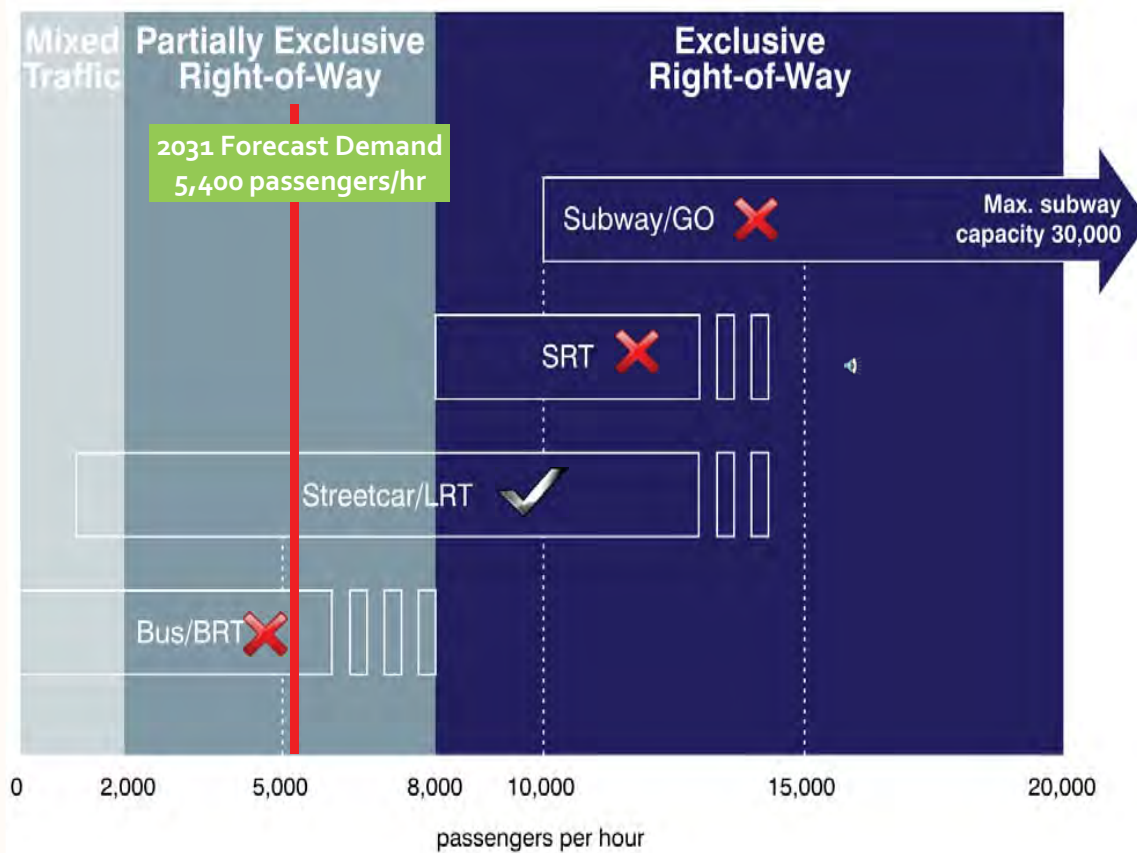
- Over 1140 people attended the 7 sessions at Open Houses 2 and 2A
- 370 comment sheets or e-mails were received from you by the end of the comment period

<b>Parallel bus service on Eglinton Ave.</b>	Parallel bus service is not proposed at this time. The distance between stops and stations is a balance between providing fast service and convenient access to local attractions. See panel 12 for more information.
<b>Distance between Bayview and Brentcliffe Stations</b>	The station proposed at Brentcliffe has been moved to Laird following a review of station spacing distance and an evaluation of future population and employment within 300 metres and 500 metres of a station at Brentcliffe versus a station at Laird. See panel 40 for more information.
<b>Route to the Airport from Martin Grove</b>	The preferred route between Martin Grove Road and the Airport is along Eglinton Avenue to Commerce Boulevard, and then along Commerce Boulevard, Convair Drive and Silver Dart Drive to the Airport. See panel 19 for more details.
<b>Impacts during construction</b>	Detailed mitigation plans will be developed during the design stage and shared with the community prior to implementation. See panels 49-55 and 59.
<b>Noise and vibration</b>	A noise and vibration assessment was undertaken for the Eglinton Crosstown LRT corridor. Vibration isolation will be provided where required. See panels 61-62 for more information.
<b>How will traffic be affected at key intersections</b>	More detailed traffic analyses were undertaken following Open House 2 in response to comments heard from the public regarding traffic. See panels 14-17.
<b>LRT at surface versus completely underground</b>	Some commenters felt the entire project should be underground to provide higher speeds, while others believed a surface LRT provides a more pleasant riding environment. The project provides the most cost-effective solution toward meeting the goals of speed, accessibility and minimizing impact.



# Preferred Technology – Light Rail Transit

## Transit Rights-of-Way and Technologies



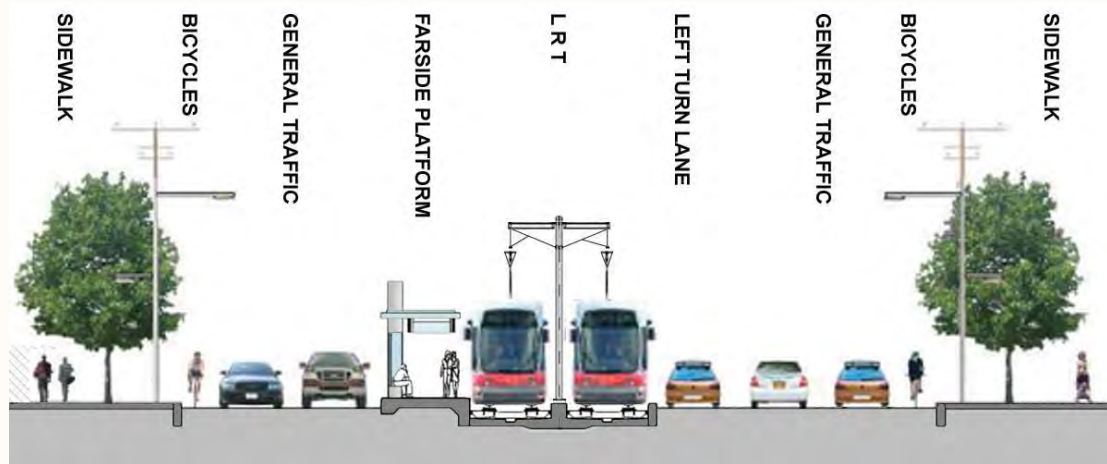
The ridership forecast for the year 2031 at the location with the highest demand in this corridor is 5,400 passengers per hour in one direction.

The forecast travel demand falls below the minimum 10,000 people per hour required to support the massive capital investment of a subway. It also falls below the minimum 8,000 people per hour required to support the capital investment of Scarborough Rapid Transit (SRT) technology.

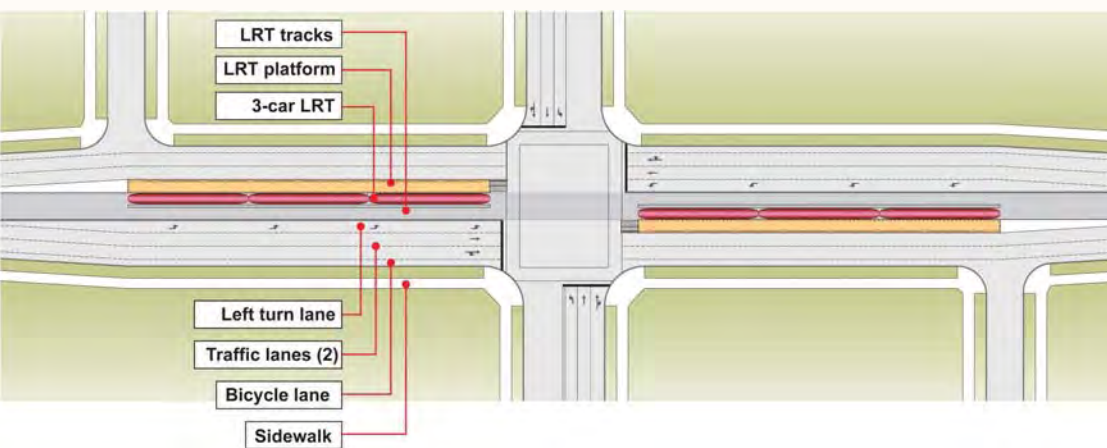
The forecast travel demand falls within the upper range for Bus/Bus Rapid Transit (BRT); however this technology has limited ability to serve any potential ridership increase in the corridor above the forecast.

As such Bus/BRT, SRT-style technology and Subway/GO were not carried forward as transit technologies. LRT is the preferred technology for the Eglinton corridor.

# Design Concept – Surface Stop



Typical cross section with farside platform



Typical plan with farside platforms

Surface platforms are 90m long.

Most intersections will have farside platforms with left turn lanes. Some intersections will have nearside, parallel or centre platforms without left turn lanes. Farside platforms are located beyond the intersection in the direction of travel. Nearside platforms are located before the intersection in the direction of travel.

Compared to typical streetcar platforms, LRT platforms will:

- be wider and longer
- provide shelter along the entire length
- be accessible
- provide lighting
- include ticket vending machines and other amenities

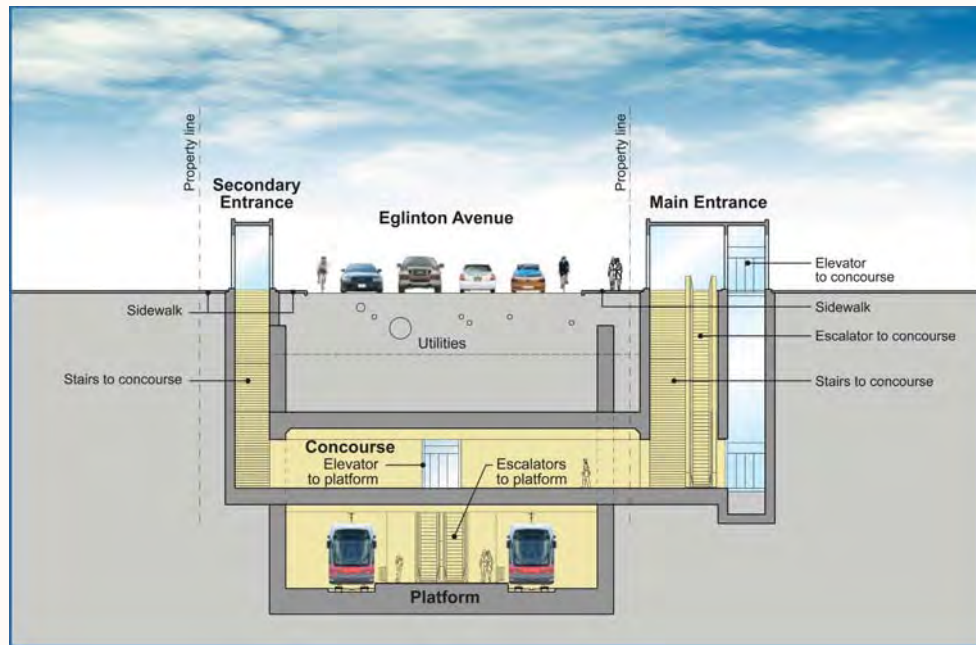
The LRT cross section will be designed to carry two lanes of through traffic in the corridor and operate at surface in the centre of the roadway on a raised median from Pearson International Airport to Black Creek Drive and from Brentcliffe Road to Kennedy Road.

Section	Existing No. of Lanes per Direction	Proposed No. of Lanes per Direction
<i>Airport to Martin Grove</i>	Primarily 2	2
<i>Martin Grove Road to Weston Road</i>	2	2
<i>Weston Road to Black Creek Drive</i>	3	2
<i>Black Creek Drive to Keele Street</i>	2	2
<i>Keele Street to Brentcliffe Road</i> <sup>(1)</sup>	Primarily 2	Primarily 2
<i>Brentcliffe Road to Kennedy Road</i>	2 + HOV lane	2

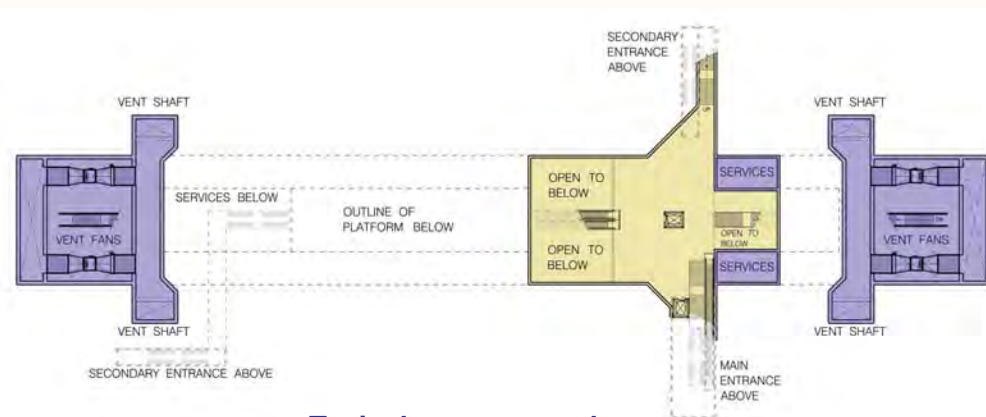
(1) In the section from Keele Street to Brentcliffe Road, the LRT will be underground. Lane configurations on Eglinton Avenue in this section will be unaffected.



# Typical Underground Station



Typical cross section



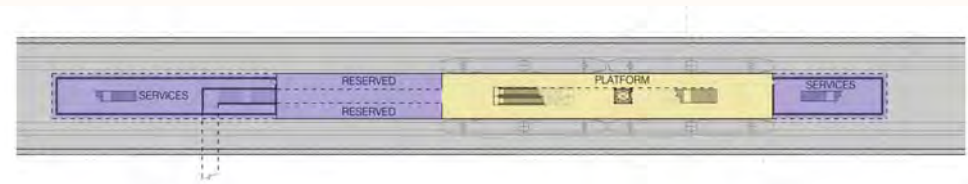
Typical concourse plan

## Entrance & Payment Method

The typical underground station will include three station entrances, located on each side of Eglinton Avenue and at either end of the station. The entrances will be connected to a station concourse level through an underground walkway. The main entrance will be accessible in accordance with TTC Easier Access Standards including an elevator, escalator and stairs connecting to the concourse level. Elevator and escalator connections will be provided between the concourse and platform levels.

All Transit City LRT routes will be proof-of-payment except at interfaces with subway stations. Ticket vending and validation machines will be located at the concourse level of LRT stations. At subway stations, the LRT will be accessed through existing subway paid entrances as well as new automatic entrances at select locations.

Platform length will be 60m initially, and expandable to 90m.



Typical platform plan

# Typical Portal



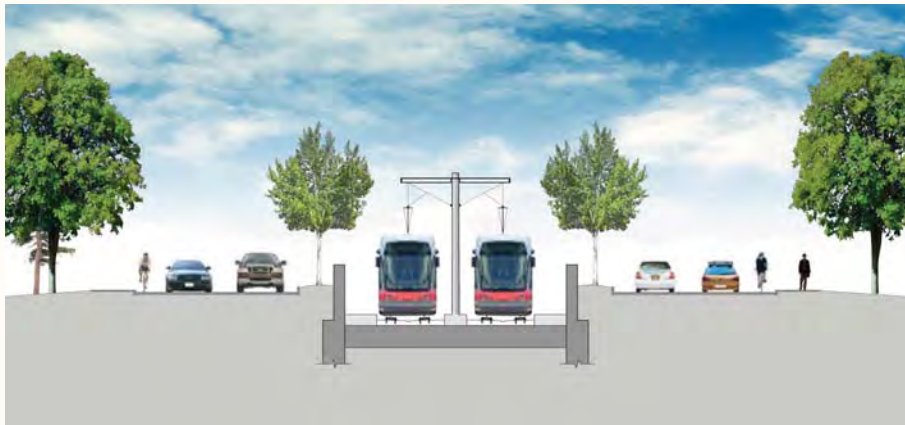
A portal is the approach entrance where the LRT surface section transitions into the LRT underground section

There are four portals for the Eglinton Crosstown LRT, one at each opening to the tunnel section as well as two at Don Mills Station. The west tunnel portal is currently planned for east of Black Creek Drive and the east tunnel portal is currently planned for east of Brentcliffe Road. The portals at Don Mills Station are planned immediately to the east and west of the station.

The area around the tunnel portals will include a zone for tree planting to improve the appearance of the portal areas.

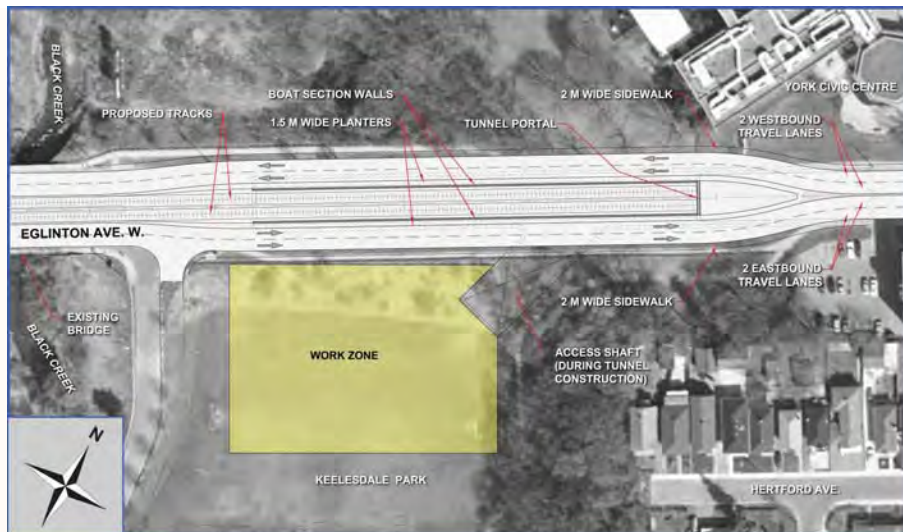
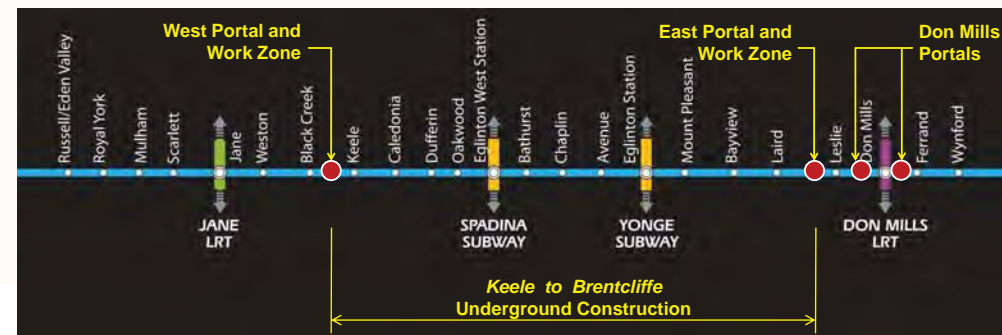


# Portals and Work Zones



Typical cross section

During construction, tunneling will start at the portals. Work zones are located adjacent to the portals and will be used for all associated tunnel construction operations including removal of excavated earth material and storage of tunnel components.



West portal



East portal



## Design Concept – Station and Stop Spacing

- Stop and station locations are selected based on the right balance between good local access and speed of the service. Closely spaced stops provide excellent local access, but speed of the service will suffer if they are too close together.
- The table below highlights this balance using existing TTC examples for bus, streetcar and subway routes.
- Stop and station locations will be located where current TTC services (buses and subways) intersect Eglinton Avenue in order to provide convenient passenger connections between those services and the LRT. Also considered is access to existing neighbourhoods, commercial areas and future developments.

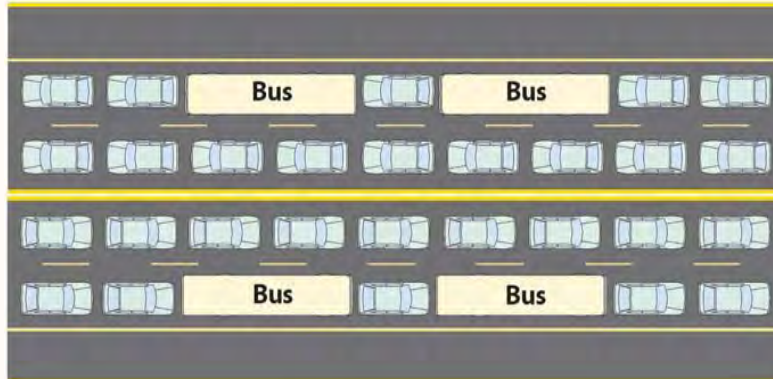
<u>Existing Example (TTC)</u>	<u>Stop Spacing</u>	<u>Route Speed</u>
510 SPADINA Streetcar	280 metres	14 km/hr
34 EGLINTON EAST Bus	299 metres	16 km/hr
32 EGLINTON WEST Bus	317 metres	18 km/hr
Bloor-Danforth Subway	875 metres	30 km/hr
<b>Eglinton Crosstown LRT</b>		
– West Surface Section	670 metres	28-31 km/hr
– Underground	850 metres	32 km/hr
– East Surface Section	660 metres	22-25 km/hr

# Increase Passenger Capacity on Eglinton

## Future without Improved Transit

### “DO NOTHING”

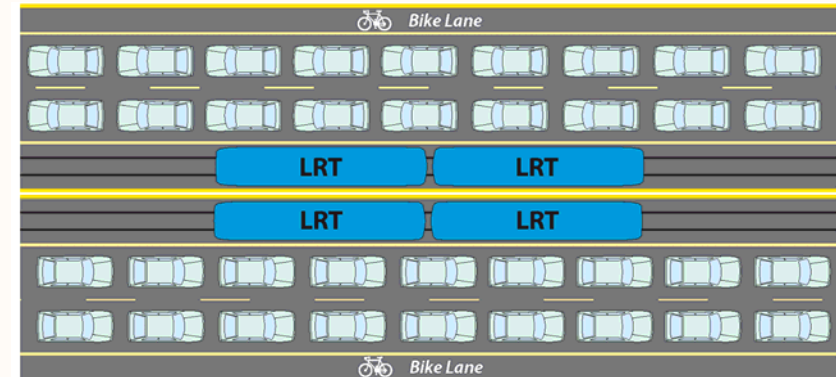
Will result in a lack of travel alternatives to the private auto and an increasing dependency on private auto travel.



## Future with Transit City

### “PROVIDE FREQUENT AND RELIABLE TRANSIT”

Provides an attractive alternative to private auto use, achieved by re-allocating road space to create reserved transit lanes.



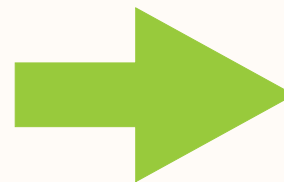
### FUTURE OUTCOME

Traffic congestion will increase, along with increased travel times and longer delays, due to increase in population and employment in the City and surrounding regions.

### People Movement Capacity Per Hour (Example: Eglinton West between Martin Grove Road and Jane Street - 2 existing lanes)

2000 vehicles  
and buses

4100 people



2000 vehicles + 17  
Light Rail Trains \*

6800 people

**60% Increase**

### FUTURE OUTCOME

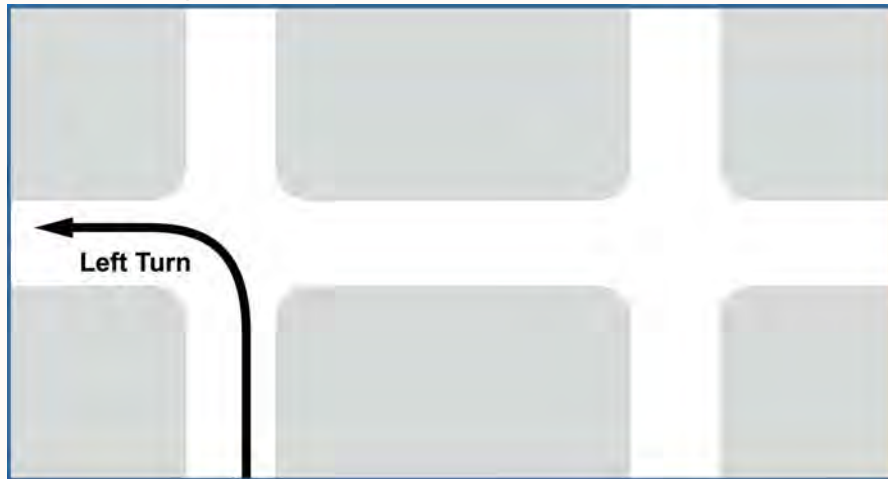
Reserving road space for transit may increase traffic congestion at specific locations. In response, motorists may choose to travel by transit, or change routes and / or times.

For those choosing not to alter their travel behaviour, increased travel times and longer delays will be experienced.

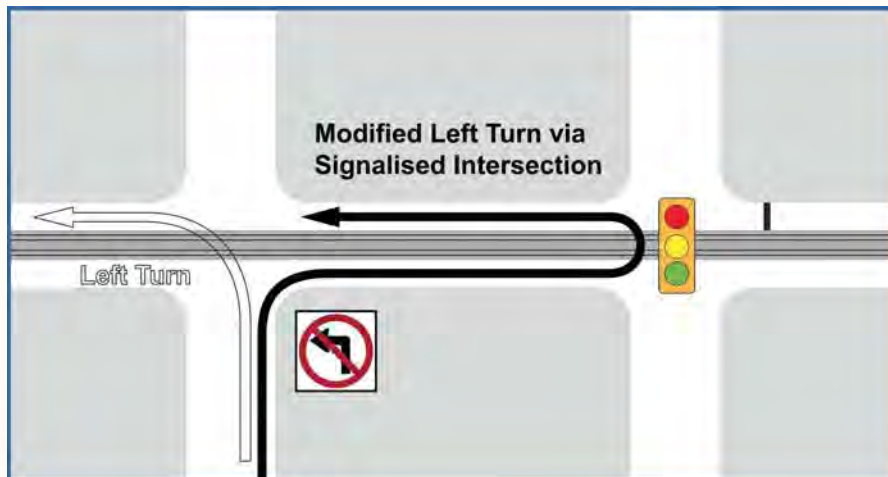
\* 2 Light Rail Vehicles per Train.

# Accommodating Left Turns Between Signals

Existing:



Proposed:



Between signalized intersections, the LRT will travel in a transit right-of-way in the centre of the street physically separated from vehicular traffic to enhance LRT operating speed, reliability and safety.

Left turns from minor streets and driveways across the transit right-of-way will not be permitted.

Motorists will instead turn right and then U-turn at the signal.





# Accommodating Left Turns at Key Intersections – The Challenge

In order to ensure fast and reliable transit service, left turn restrictions are being recommended for 9 stops along Eglinton Avenue. The analysis shows that maintaining the current intersection arrangement would result in:

- Long pedestrian delays
- Delays for left turning vehicles
- Delays for cars going through intersections
- Added delay for the LRT

Many cities around the world are using innovative ways of accommodating left turns without eating up green signal time at a busy intersection.

At Open Houses 2 and 2A, it was proposed to prohibit left turns in all directions at 10 intersections. Left turning traffic would have been re-routed. Following feedback from the community, we revisited the effects of re-routing in all directions and determined :

- At Martin Grove Road and Victoria Park Avenue, all left turning traffic will be **re-routed** to new or existing roads.
- At seven intersections, a fresh approach called the **median U-turn** is being recommended:
  - At Kipling Avenue, Islington Avenue, Royal York Road, Scarlett Road and Birchmount Road, median U-turns located on Eglinton Avenue will replace left turns onto north/south streets.
  - At Jane Street and Pharmacy Avenue, median U-turns will replace left turns in all directions.
- At Warden Avenue, this approach is not being recommended because the analysis showed no benefits from re-routing or U-turns.

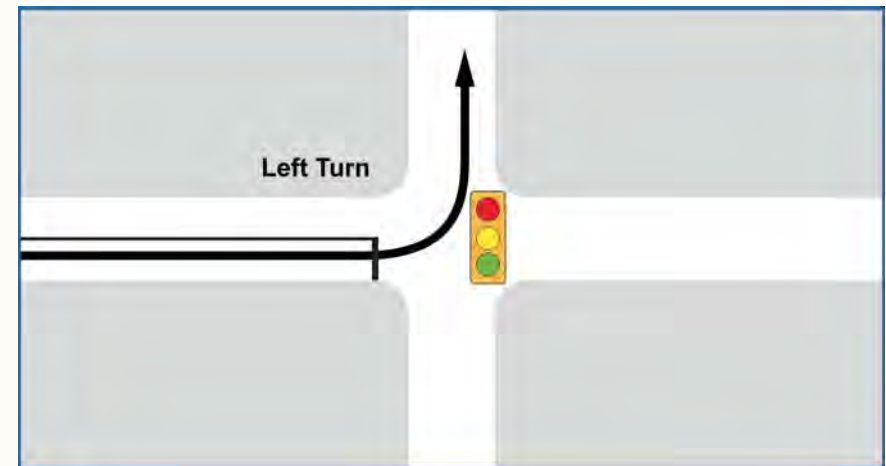


# Accommodating Left Turns at Key Intersections – Median U-Turns

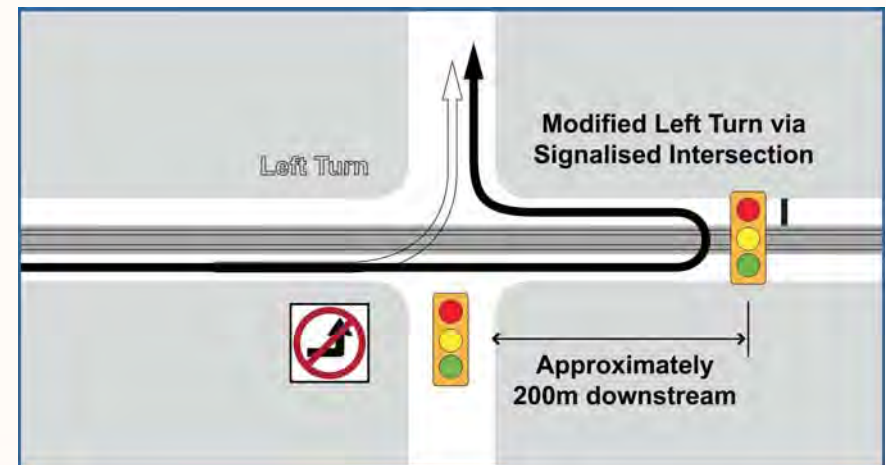
## How does it work?

- Drivers wanting to turn left from Eglinton Avenue onto an intersecting cross street must first travel through the intersection.
- Drivers will then make a U-turn at the signal downstream of the intersection.
- Drivers then turn right at the intersecting street.
- Through traffic in the same direction is not stopped by the U-turn signal.

Accommodating Left Turns (Existing)



Accommodating Left Turns (Median U-Turn)



# Accommodating Left Turns at Key Intersections – Advantages of Median U-Turns

## Reduced Travel Time

Median U-turns along Eglinton Avenue will result in:

- Shorter wait times for pedestrians  
(10 seconds less per location)
- Shorter wait times for left turning vehicles  
(10 seconds less per location)
- Faster, more reliable service for the LRT  
(3-5 minute reduction in schedule variability)
- Reduced delay and better progression for through traffic on the major arterial
- Shorter traffic cycle length  
(90 seconds instead of 120 seconds)

## Increased Transit Reliability

- Modifying left turns will greatly increase the chances of the LRV passing through a green signal – this will reduce the occurrence of bunching (when two or more transit vehicles arrive in quick succession.)

## Other Successful Applications

This model has been implemented in other Canadian cities: Calgary, Vancouver and Edmonton. In the U.S. it is being used in Florida, Michigan, Maryland and New Jersey.

## Safety\*

- 20 – 50% percent lower crash rates than comparable conventional intersections.
- Reduction in the probability of head-on and angle crashes.

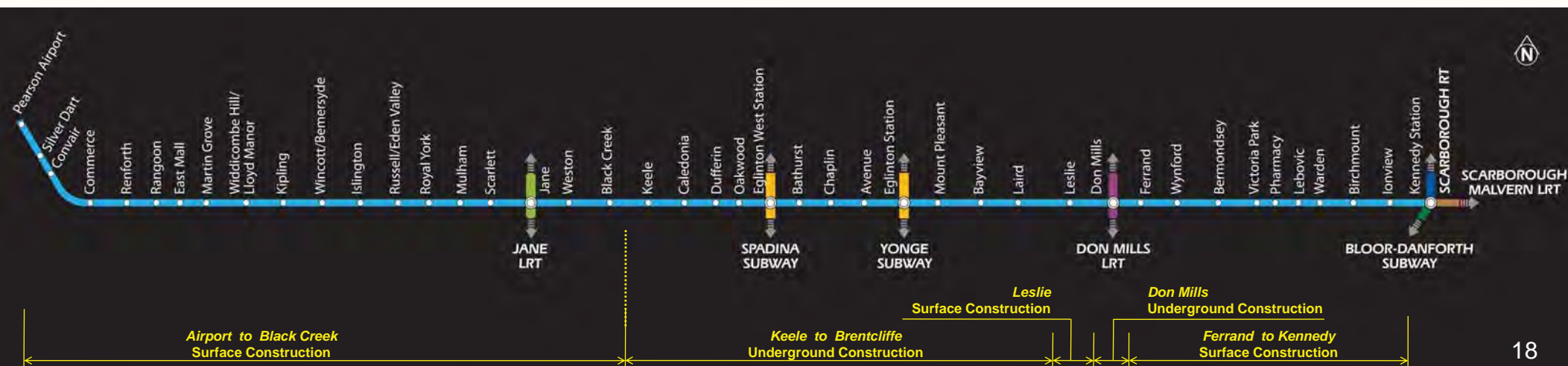
*\*Source: Synthesis of the Median U-Turn Intersection Treatment, Safety, Operational Benefits (U.S. Department of Transportation Federal Highway Administration)*



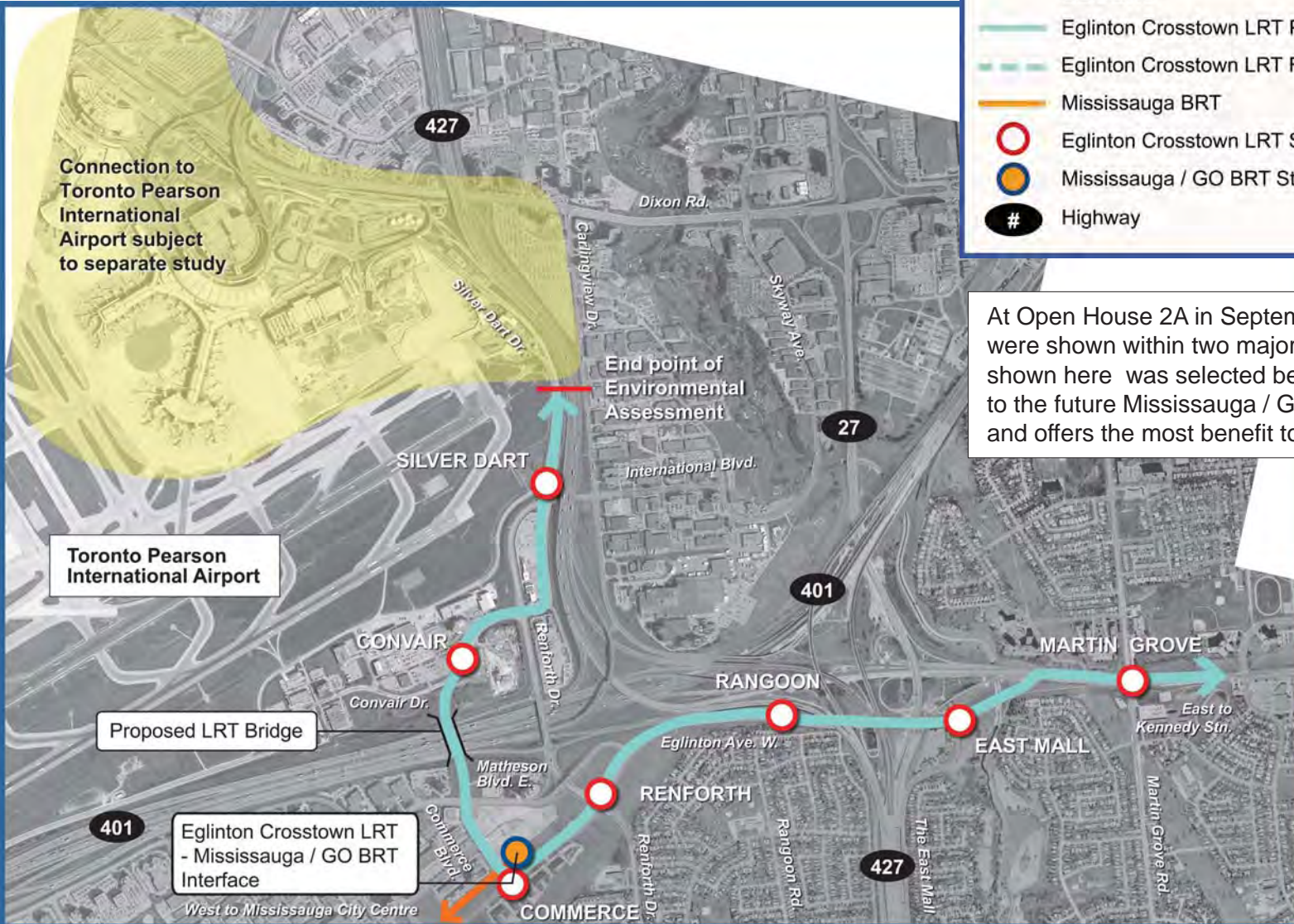


# Eglinton Crosstown LRT Project Description

- Key stops and all stations are presented from west to east in the following panels. In addition, a roll-out drawing showing the entire project is available for viewing.
- The LRT will operate at surface from Pearson International Airport to Black Creek Drive and from Leslie Street to Kennedy Road.
- Between Keele Street and Brentcliffe Road the width of Eglinton Avenue is too narrow to accommodate two lanes of traffic in each direction with the addition of the LRT. Therefore, the LRT will operate underground in this section. Don Mills Station will also be underground.



# Airport Connection



## LEGEND

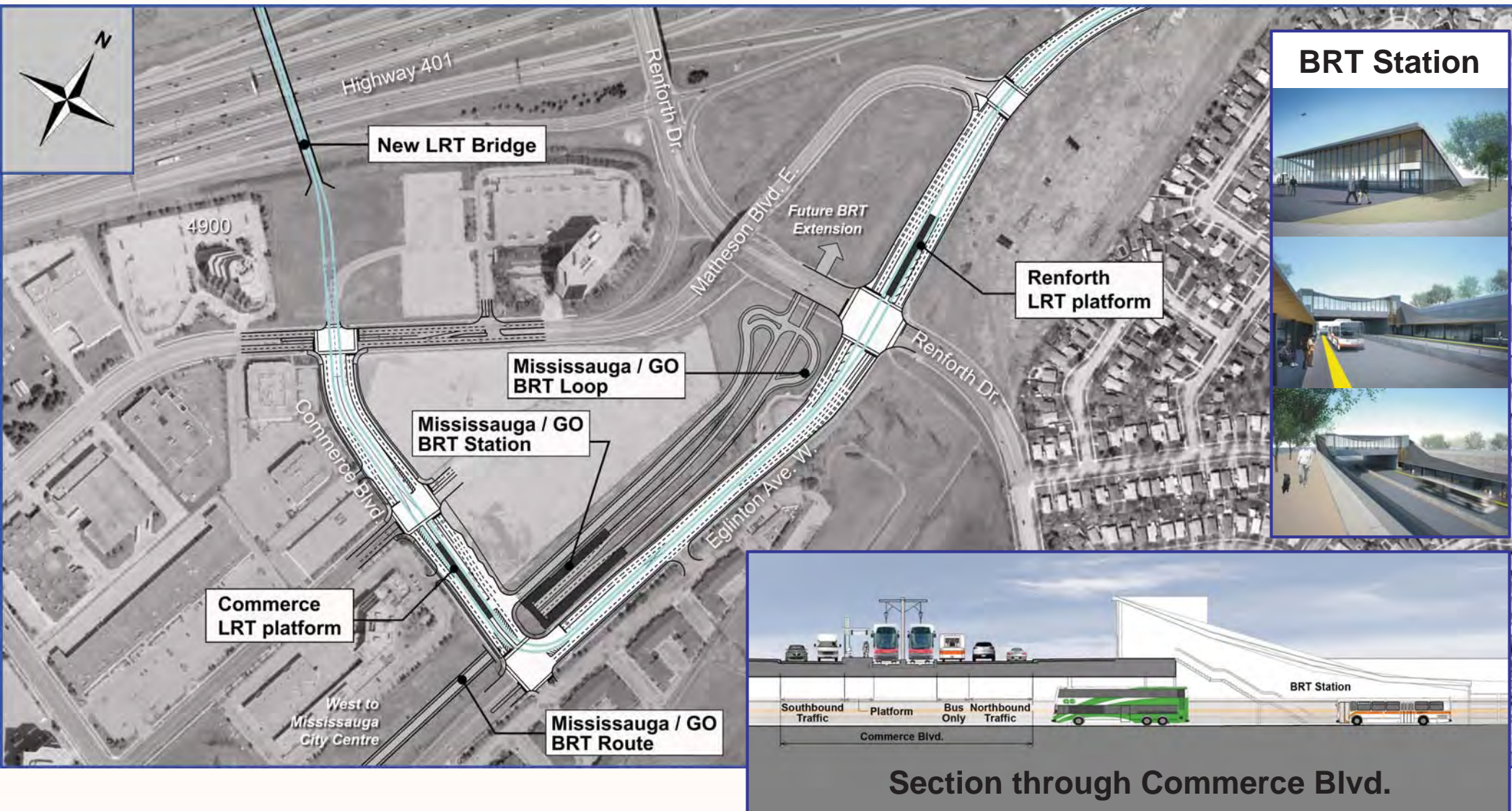
- Eglinton Crosstown LRT Proposed Route
- - - Eglinton Crosstown LRT Future Connection to Airport
- Mississauga BRT
- Eglinton Crosstown LRT Stop
- Mississauga / GO BRT Station
- # Highway



At Open House 2A in September 2009, five alignment alternatives were shown within two major corridors. The preferred alignment shown here was selected because it provides the best connection to the future Mississauga / GO Bus Rapid Transit (BRT) station and offers the most benefit to transit users for the lowest cost.

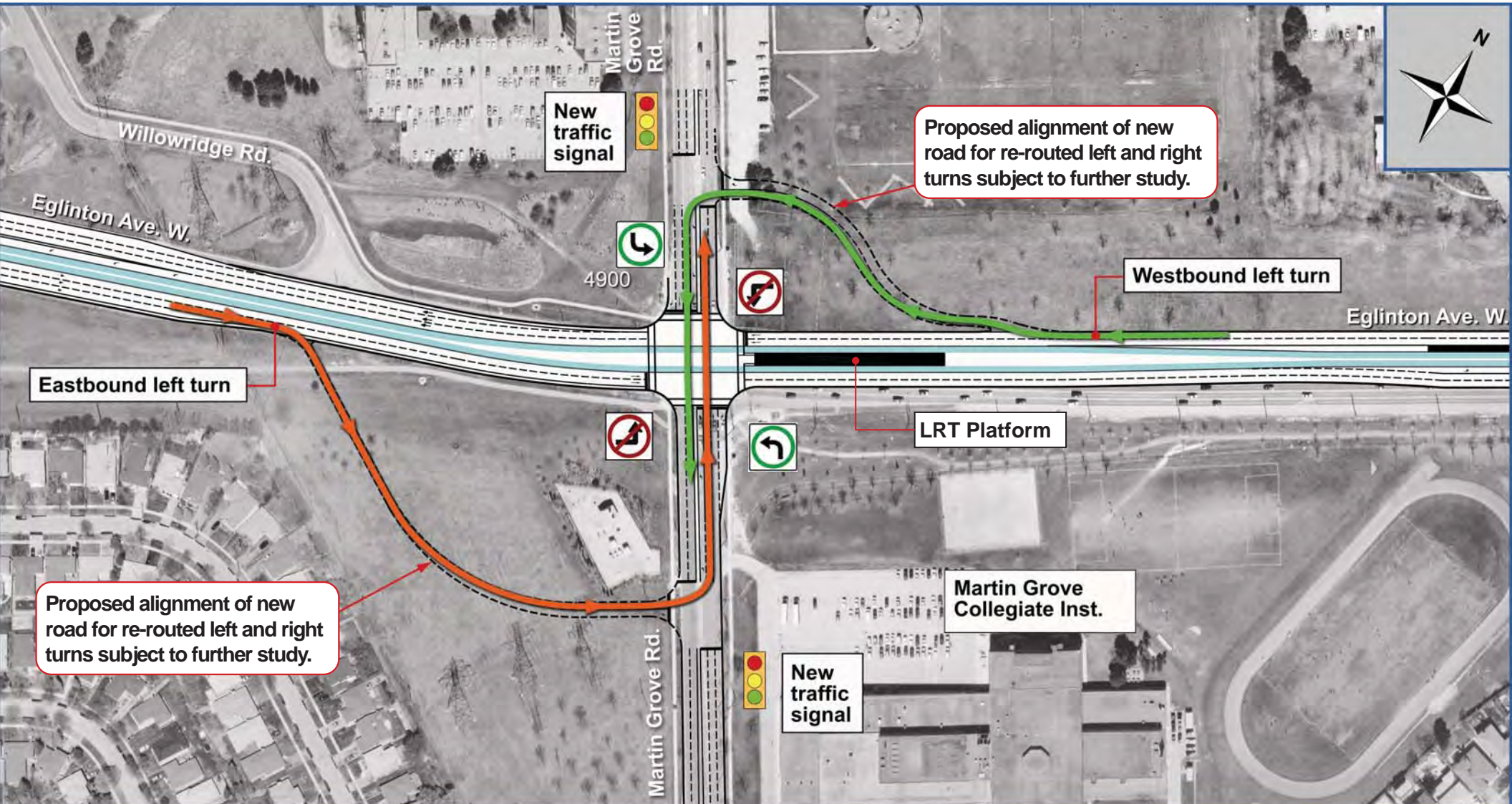


# Commerce Stop (BRT Interface) and Renforth Stop



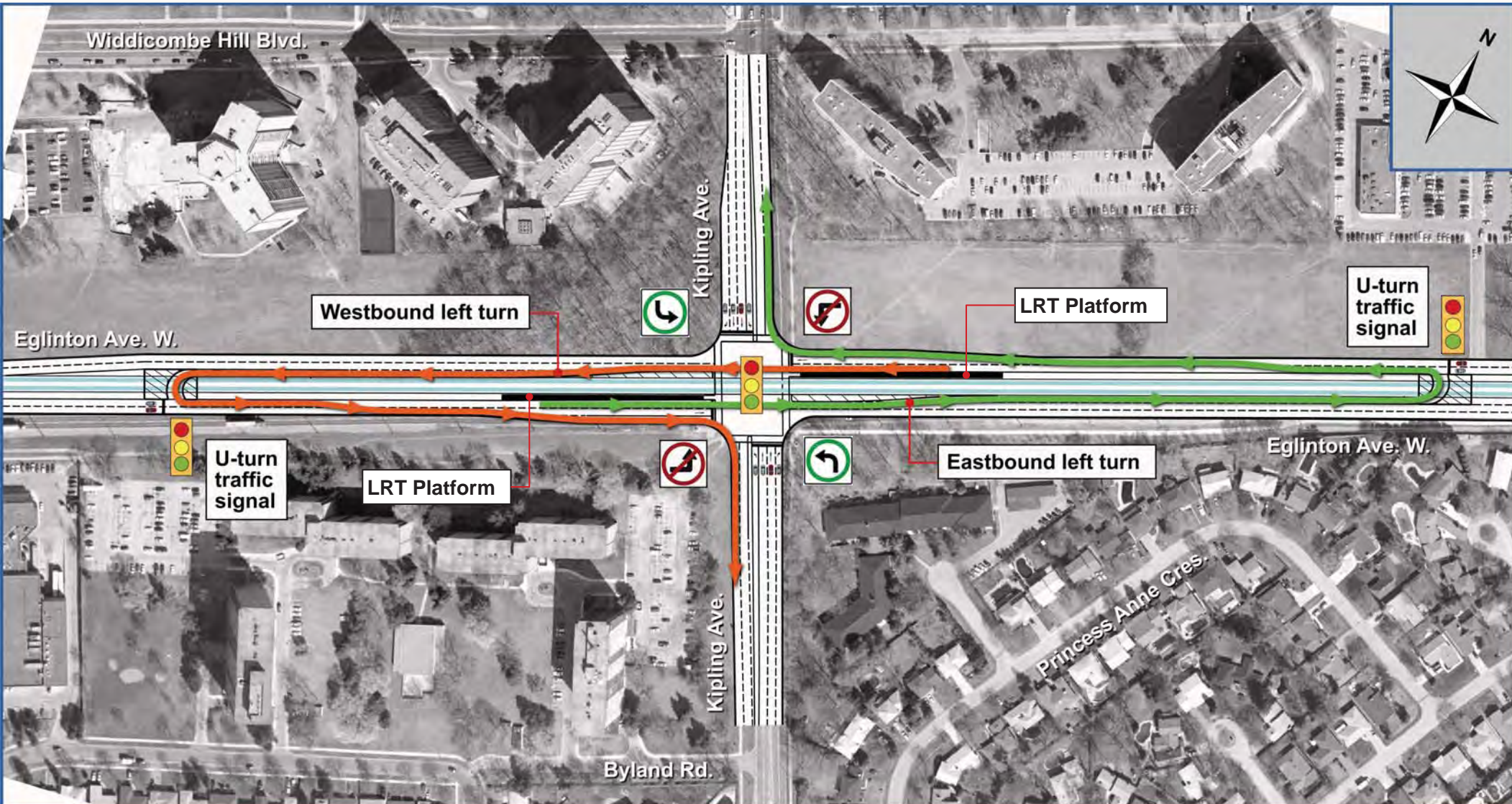


# Martin Grove Stop (Re-routed Left Turn)



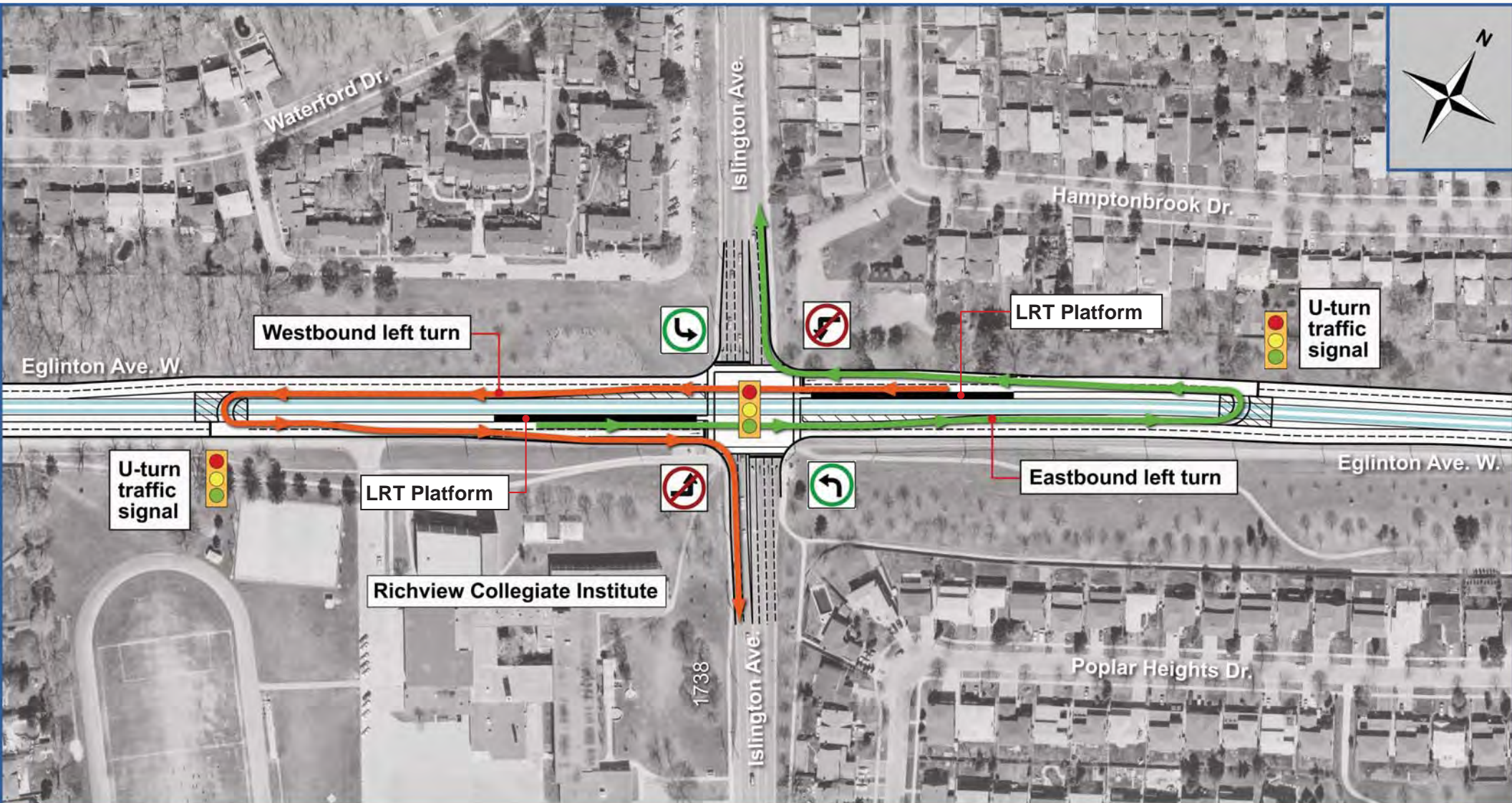


# Kipling Stop (U-turn)



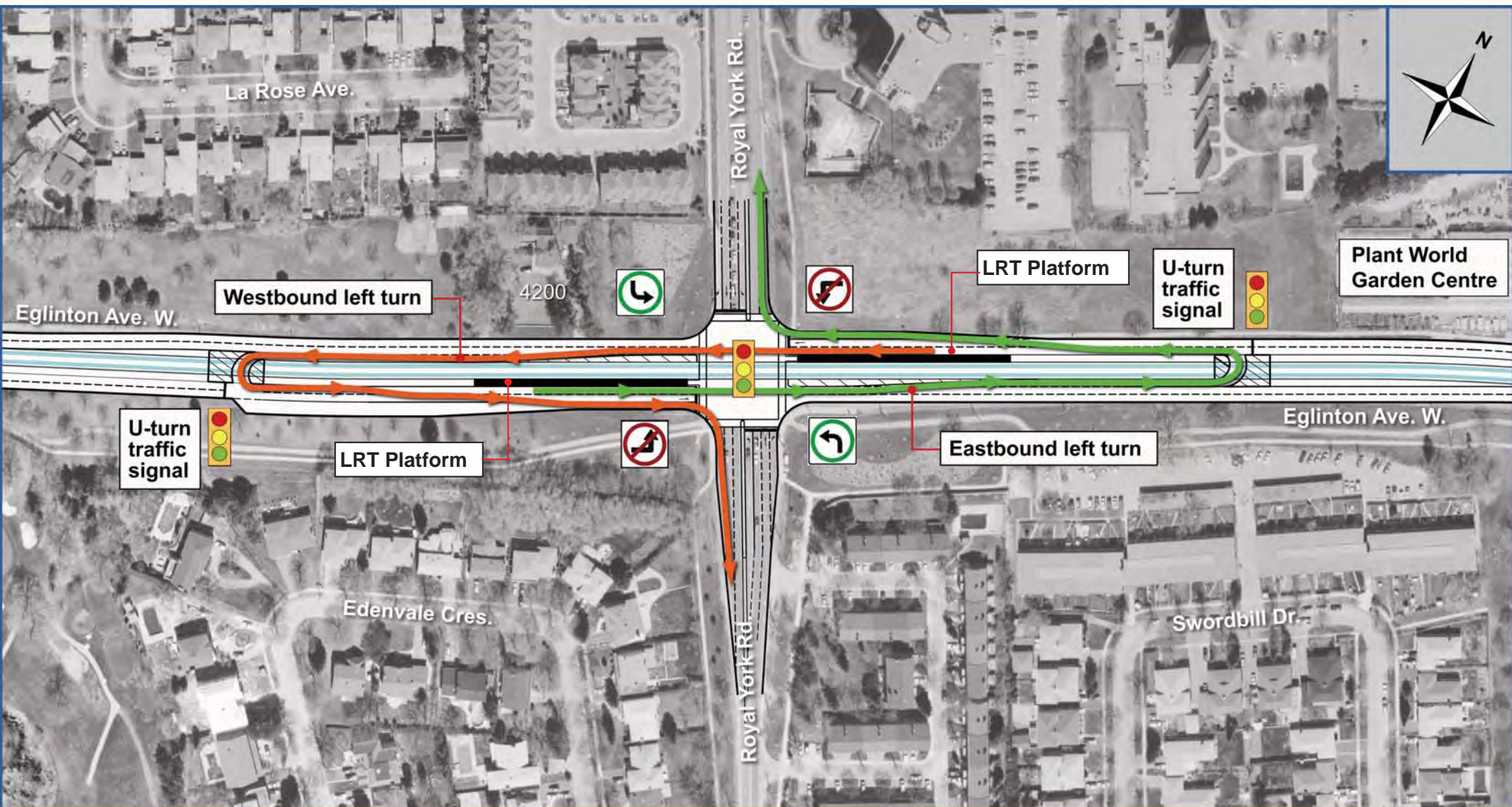


# Islington Stop (U-turn)





# Royal York Stop (U-turn)





# Scarlett Stop (U-turn)

