

TORONTO TRANSIT COMMISSION REPORT NO.

MEETING DATE: November 18, 2013

SUBJECT: YONGE- EGLINTON AND EGLINTON WEST
INTERCHANGE STATIONS
METROLINX EGLINTON CROSSTOWN LIGHT RAIL
TRANSIT PROJECT –
PRELIMINARY CONCEPT DESIGN APPROVALS

ACTION ITEM

RECOMMENDATION

It is recommended that the Board:

- a) Approve the preliminary design concepts for Yonge-Eglinton and Eglinton West interchange stations presented in this report as they adequately address the TTC's fundamental requirements that:
 - customers can transfer between transit modes in a direct, convenient way with no backtracking or circuitous movements, and enjoy fast and easy inter-modal transfers which are the hallmark of the TTC system; and
 - the new Light Rail Transit stations not negatively affect the existing subway station and TTC system operating performance.

- b) Note that:
 - the design for Yonge-Eglinton interchange station requires upgrades to the fire ventilation system for Eglinton subway station to current code requirements, and up to \$50 Million will be included in a future Capital Budget request;
 - the selected Bidder of the Metrolinx Alternative Financing and Procurement process may bring forward alternative designs that are significantly different from the preliminary designs presented in this report;
 - the interchange stations at both Yonge-Eglinton and Eglinton West will require significant excavation under the existing subway structures and will require weekend closure of portions of the Yonge-University-Spadina subway line;
 - the constructability analysis, cost and schedule are not included in this report as they have not been established for the station modifications in sufficient detail;
 - an update on the status of the Metrolinx Eglinton Crosstown Light Rail Transit Project is included in this report; and
 - future design and construction staging recommendations will be brought forward to the Board for approval including: Kennedy Station preliminary concept design; final designs for the three interchange subway stations; the number and duration of subway closures required; and any material or significant change to the concepts presented in this report.

FUNDING

The Metrolinx-City of Toronto-TTC Master Agreement provides that expenditures related to the implementation of the Eglinton Crosstown Light Rail Transit Project are the sole responsibility of Metrolinx; however, the recommended design concept has two cost implications to the TTC:

- the cost to upgrade fire ventilation equipment for Eglinton subway station will be incorporated in the Metrolinx Eglinton Crosstown contract. This scope is part of the TTC Fire Ventilation Upgrade Project; however, the cost is not included in the proposed 2014-2023 Capital Budget. This expenditure will be included in future TTC Capital Program budget requests. While Metrolinx has estimated this cost to be approximately \$50M, TTC staff has not verified this amount; and
- The proposed Yonge-Eglinton concept design requires weekend subway closures. A number has not been determined yet. The cost of weekend closures, regardless of the number required, will be shared with the TTC in the instances where the TTC would benefit from the closure to perform its own work including the resignalling project (Automatic Train Control), the Tunnel Liner Rehabilitation Project, and the Structural Remediation Project. The TTC cost is currently included in various Capital Projects and will be charged to the appropriate project(s) that would benefit from such closures.

BACKGROUND

The Eglinton Crosstown Light Rail Transit (ECLRT) Project is a Metrolinx project that will run along and underneath Eglinton Avenue from Black Creek Drive in the west to Kennedy subway station in the east. Ten kilometres of the line will be underground between Black Creek and Laird Drive, with three of the proposed Light Rail Transit (LRT) stations directly connecting to the TTC's existing Eglinton West, Eglinton, and Kennedy subway stations.

At its meeting on May 30, 2012, the TTC Board received the report "*LRT Projects in Toronto – Project Delivery*". The report provided information regarding the implications to the TTC of the Province of Ontario's decision to deliver the LRT Program in Toronto by Alternative Financing and Procurement (AFP) and Infrastructure Ontario with TTC as the Operator. The TTC Board confirmed its commitment to work with the Province of Ontario, Metrolinx and Infrastructure Ontario to deliver the LRT Program in Toronto.

The Province's decision to deliver the LRT projects by AFP with the TTC operating results in two key roles for the TTC:

- TTC as the Future Operator - As TTC will operate the Eglinton Crosstown LRT, the TTC is providing requirements for the operating systems to ensure that the completed project can be safely and efficiently operated. The TTC will also require extensive commissioning and testing at the completion of the project, before accepting the responsibility to operate the new line; and
- TTC as Owner and Operator of the Existing Transit System - The TTC has a responsibility to ensure that the structural integrity of existing stations that become interchanges with the

Metrolinx ECLRT Project (Eglinton, Eglinton West and Kennedy) is maintained through the design and construction stages. The TTC also has a responsibility to ensure the safe and efficient operation of the existing system during construction of the LRT line. As the Operator, the TTC has an interest in ensuring that the interchange stations are designed to provide convenient and efficient transfers from one line to another for TTC and LRT customers.

The Province's decision for AFP delivery of the LRT Program has several major implications for the TTC. The first is that the traditional Design-Bid-Build (DBB) approach, used by TTC and most other major transit authorities, involving design of the project to TTC specifications and construction through a series of contracts, is not used. Instead, the AFP process requires that performance standards be developed and included in the Request for Proposal (RFP) for the entire project. This means that all of TTC's requirements must be identified now for inclusion in the Metrolinx RFP scheduled to be released in December of this year. The second implication is that the TTC is to operate a transit project, but does not have responsibility for managing the design, construction or maintenance of the line. The traditional approach of DBB provides certainty that the TTC's specifications are designed into the project, whereas the AFP process means that the TTC provides performance requirements that the successful company may implement in a number of ways.

DISCUSSION

As the Metrolinx ECLRT Project is being delivered by AFP process, the design, construction, maintenance and financing of this line will be the responsibility of the successful Proponent. Since late last year, TTC staff have been working with City of Toronto and Metrolinx staff on the review of the ECLRT Project requirements including design concepts for the three subway interchange stations, the Concept of Operation requirements, and the proposed layouts for future TTC bus facilities. The release of the RFP documents is scheduled for mid-December of this year.

This RFP will contain requirements for the design and construction of the Project. In keeping with TTC practice, conceptual design approvals are required for modifications to TTC's subway stations. The preliminary concept designs, also called reference concept designs, will be used as a design basis; however, the Proponents will have the opportunity to propose alternative designs. Should there be significant changes to the conceptual designs for the subway interchange stations, the revised designs will be brought back to the Board for approval.

In accordance with the Master Agreement, TTC staff will have the opportunity to review the interchange station designs at the 10%, 30%, 60%, 90%, 100% and construction staging Milestones. TTC's approval to proceed with construction will not occur until completion of these Milestone reviews. At this time, no formal Milestone reviews have been completed although there have been numerous reviews of design concepts and requirements by staff. Also, at the time of writing this report, TTC staff has scheduled meetings for early November with the local Councillors

for the interchange station locations.

The three locations that will become interchange stations for the new LRT line are: Eglinton West, Eglinton and Kennedy subway stations.

Preliminary Concept Design of Eglinton West Station

The concept design for Eglinton West station was previously developed under the direction of TTC staff to approximately 30% completion. The LRT station will be located under Eglinton Avenue West, one level below the existing subway structure.

To connect from the subway to the LRT, there is a proposed walkway from the southern ends of the subway platforms to a new LRT concourse level. From this concourse there are connecting stairs, elevators and escalators that connect to the LRT platform (see Appendix A). The proposed customer journey between the transit modes is direct, in keeping with TTC requirements. There is also an upper LRT concourse that connects to an unpaid underground walkway with two street entrances, located at the northwest and northeast corners of the intersection of Eglinton Avenue West and Allen Road.

The weekday peak hour transfers at this location are forecast to be 6,800 in the year 2051. TTC requires that the detailed design demonstrate an acceptable level-of-service for customer circulation.

As the new LRT structures will be constructed underneath the existing subway box structure, TTC staff expect that subway closures will be required during this construction. Any required closures would be scheduled to minimize the impact on TTC customers. As the construction method is not yet determined, there is no request for closures at this time. Any required subway closures will be brought forward to the Board for approval at a future meeting.

Metrolinx and the City of Toronto co-hosted a public consultation at Forest Hill Collegiate Institute, on February 28, 2013, that was attended by more than 163 people. The reference concept design for Eglinton West station was shown at this meeting and has been posted on line by Metrolinx.

Preliminary Concept Design of Yonge-Eglinton Station

The concept design for Yonge-Eglinton station has been developed by Metrolinx to approximately 5% completion. The LRT station will be located under Eglinton Avenue, two levels below the existing subway structure.

To connect from the subway to the LRT, there are proposed stairs, escalators and an elevator from the subway platform to an LRT concourse below. From this LRT concourse there are stairs, escalators and an elevator that connect to the LRT platform (see Appendix B). The proposed customer journey between the transit modes is direct, in keeping with TTC requirements. There

will be two LRT upper concourses, one on each side of the subway structure that will allow a direct connection from the LRT platform to the southwest and northeast corners of Yonge Street and Eglinton Avenue. There is also a daily use exit proposed from the subway platform to the northwest corner of Yonge Street and Eglinton Avenue.

Currently customers using Eglinton Station experience crowding and congestion at the north end of the platform. With the construction of the LRT interchange station, the morning weekday peak hour customers transferring at this location are forecast to be very high, approximately 10,000 customers in the year 2051. This large volume requires a design to mitigate the increased congestion and crowding on the subway platform. Excessive crowding on the platform is a concern for safety as well as for operations. The design prepared by Metrolinx proposes to shift the Eglinton subway platform approximately 70 metres to the north. This configuration will allow the connecting stairs and escalators between the transit platforms to be located both north and south of the LRT line to distribute the customers for better circulation (see Appendix C). This design is superior to an earlier concept that left the Eglinton subway platform in its current location which would result in excessive crowding and congestion concentrated at the north end of the platform.

The shift of the subway platform requires elimination of the pocket track located to the north of the station and relocation of some subway service rooms. TTC staff has determined that there are acceptable operational alternatives available.

The design of the new LRT station requires an upgrade to the fire ventilation system for the existing Eglinton subway station to meet current codes, as there will be no separation between the two stations in the final design. This improvement is included in the long term Fire Ventilation Upgrade Project scope but is currently unfunded. Funds will be included in future TTC Capital Budget submissions, as appropriate, once detailed design and estimates have been developed for these TTC system improvements. Metrolinx currently estimates this amount to be \$50 Million.

As the new LRT structures will be constructed underneath the existing subway station structure and the subway station will be extended to the north, Metrolinx has requested 50 weekend subway closures for the construction of the new interchange station. This construction is anticipated to occur over several years. Any required closures would be scheduled to minimize the impact on TTC customers. As the concept is still preliminary and the construction method is not yet determined, TTC staff are not able to confirm the requested number or timing of the requested closures. Any required subway closures will be brought forward to the Board for approval at a future meeting.

A Public Information Centre for the Yonge-Eglinton reference concept design was scheduled to be held on November 7, 2013 at the time of writing this report.

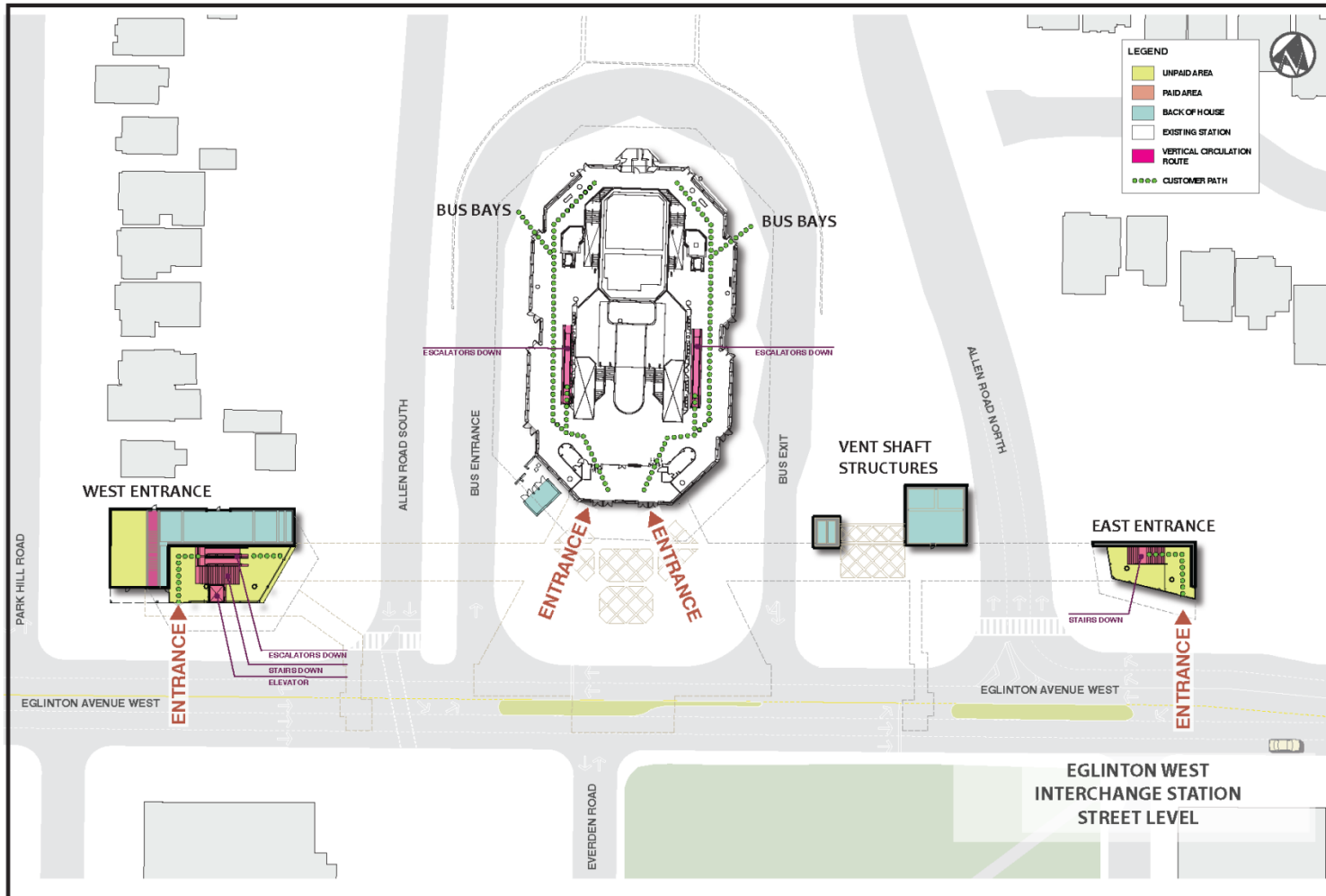
Preliminary Concept Design of Kennedy Station

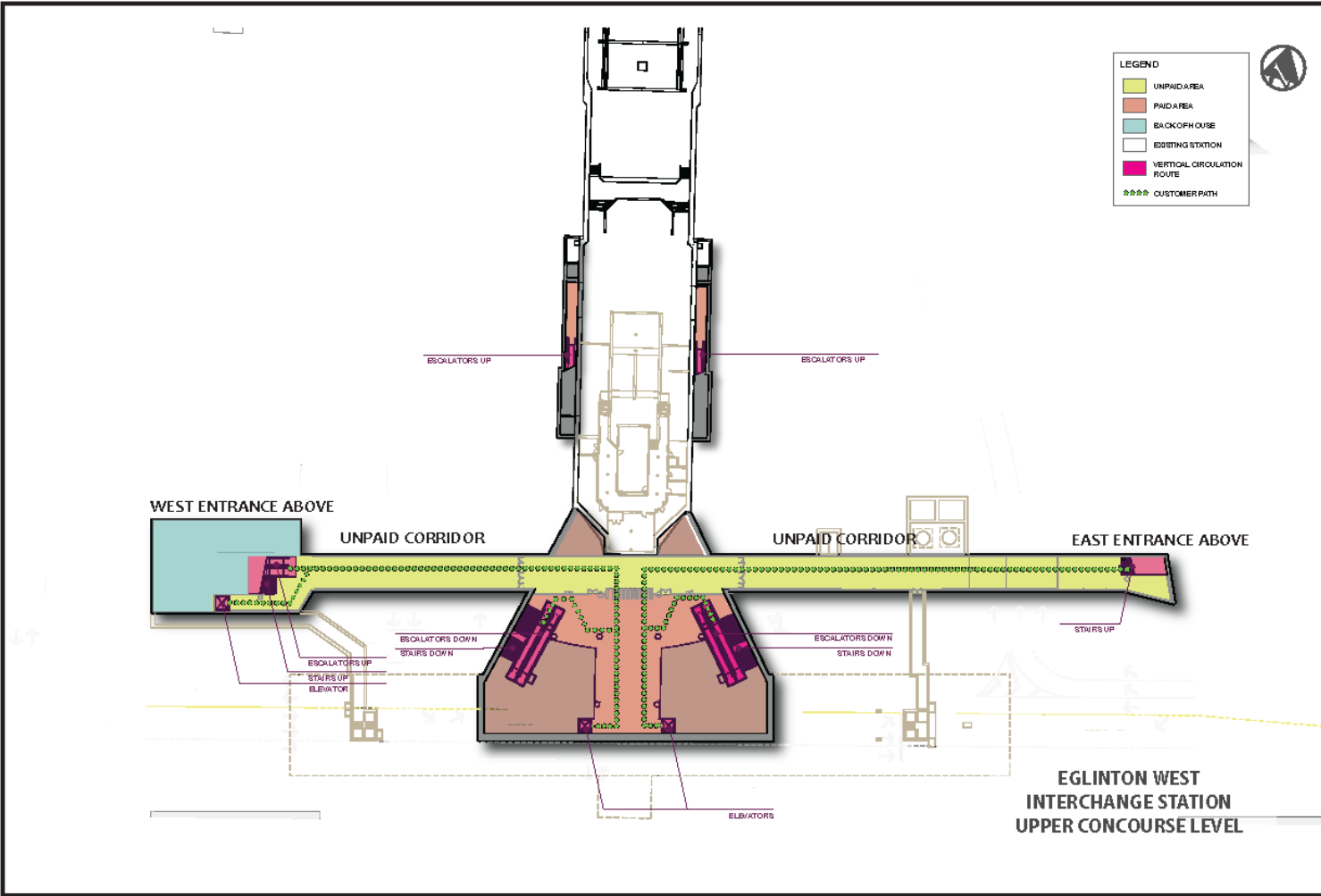
Metrolinx is currently engaged in dialogue with City of Toronto and TTC staff regarding the reference concept design for the recently realigned Kennedy Station. A Public Information Centre has been tentatively scheduled by Metrolinx for the last week of November or first week of December.

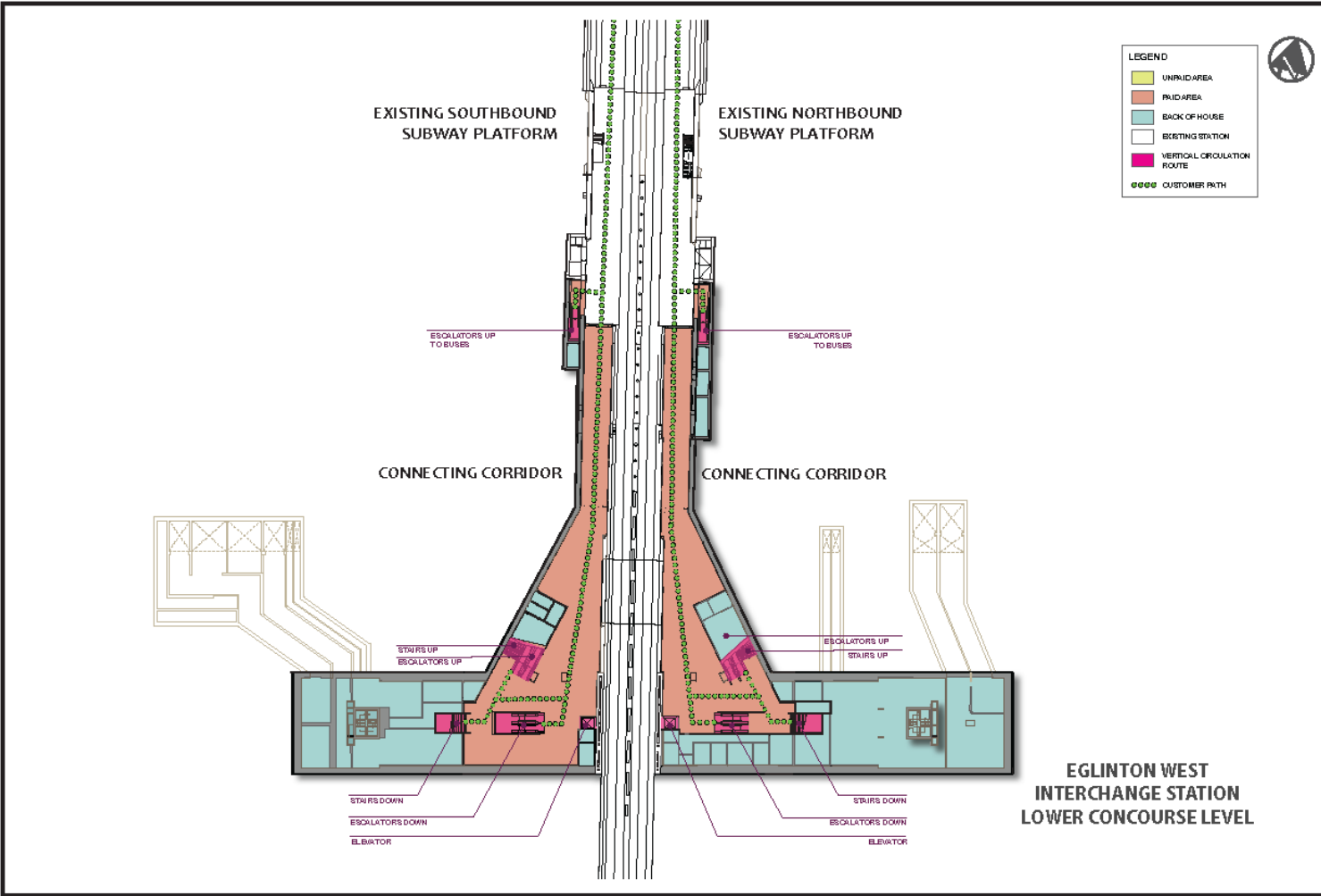
The preliminary concept design for Kennedy interchange station is scheduled to be complete by the end of November and will be brought forward to the Board for approval at a future meeting.

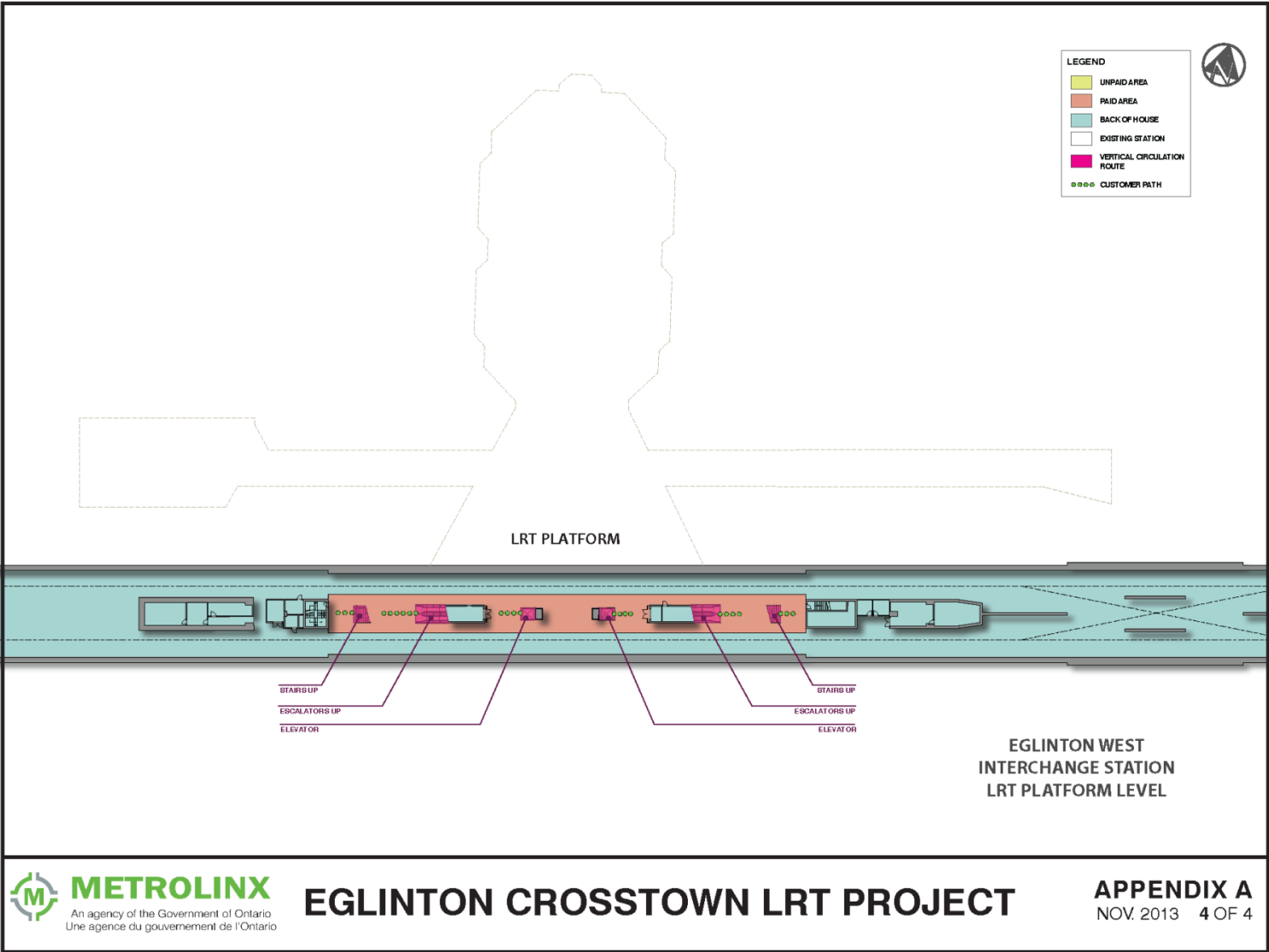
JUSTIFICATION

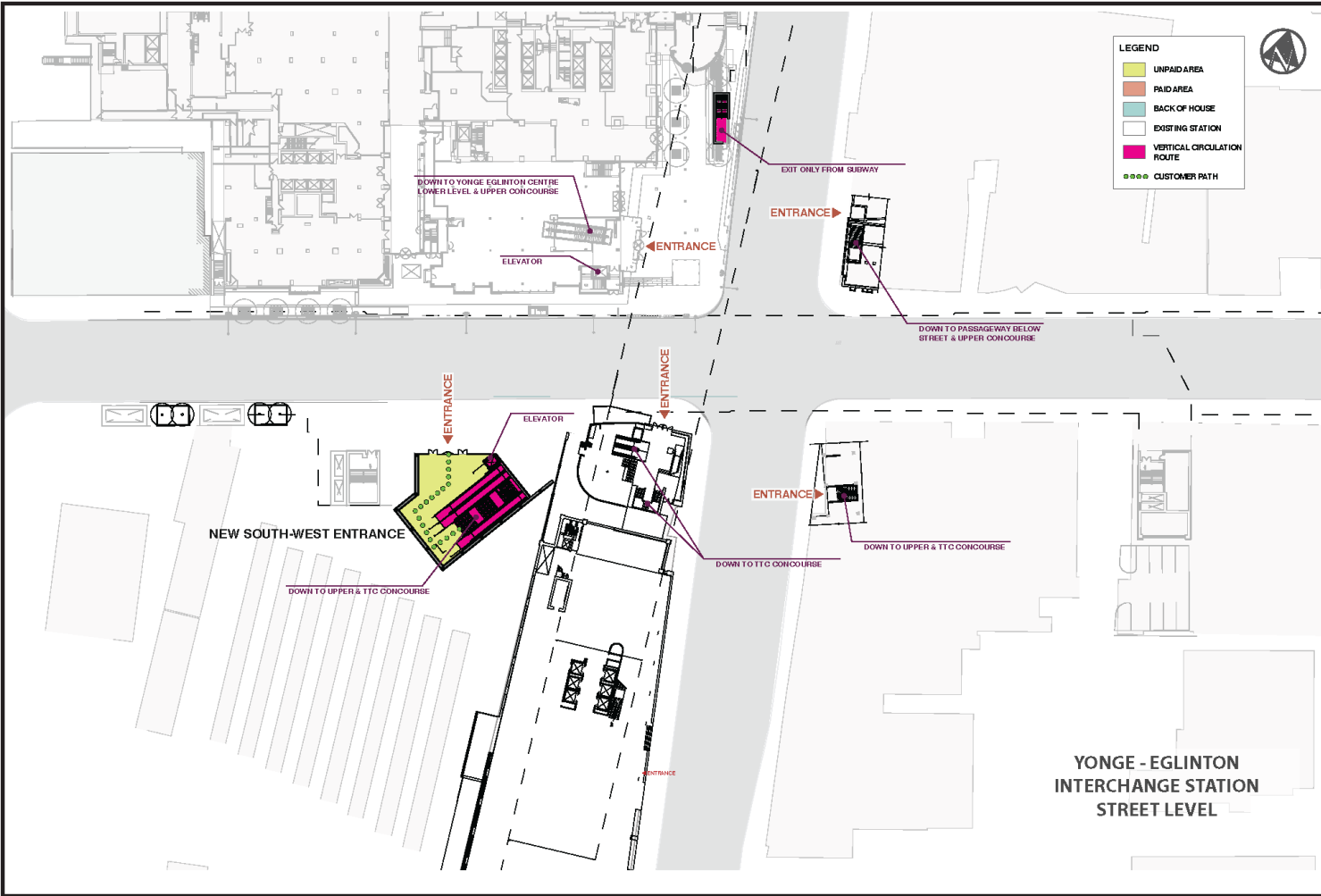
Approval of the Metrolinx preliminary concepts for the Yonge-Eglinton and Eglinton West Interchange Stations will allow the design delivery to progress for these locations in a manner that provides direct and seamless customer transfers without negatively affecting the TTC's system operation.







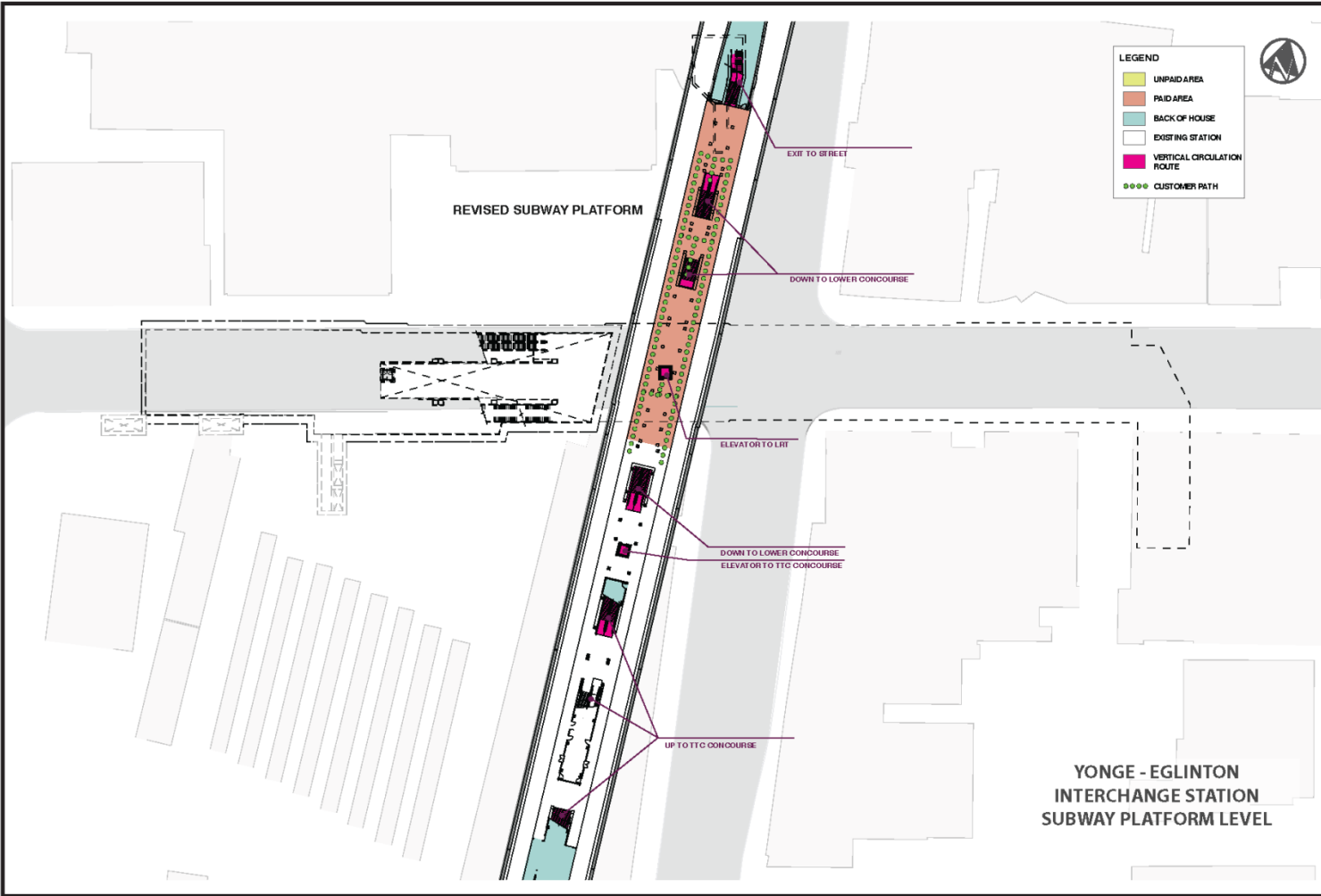




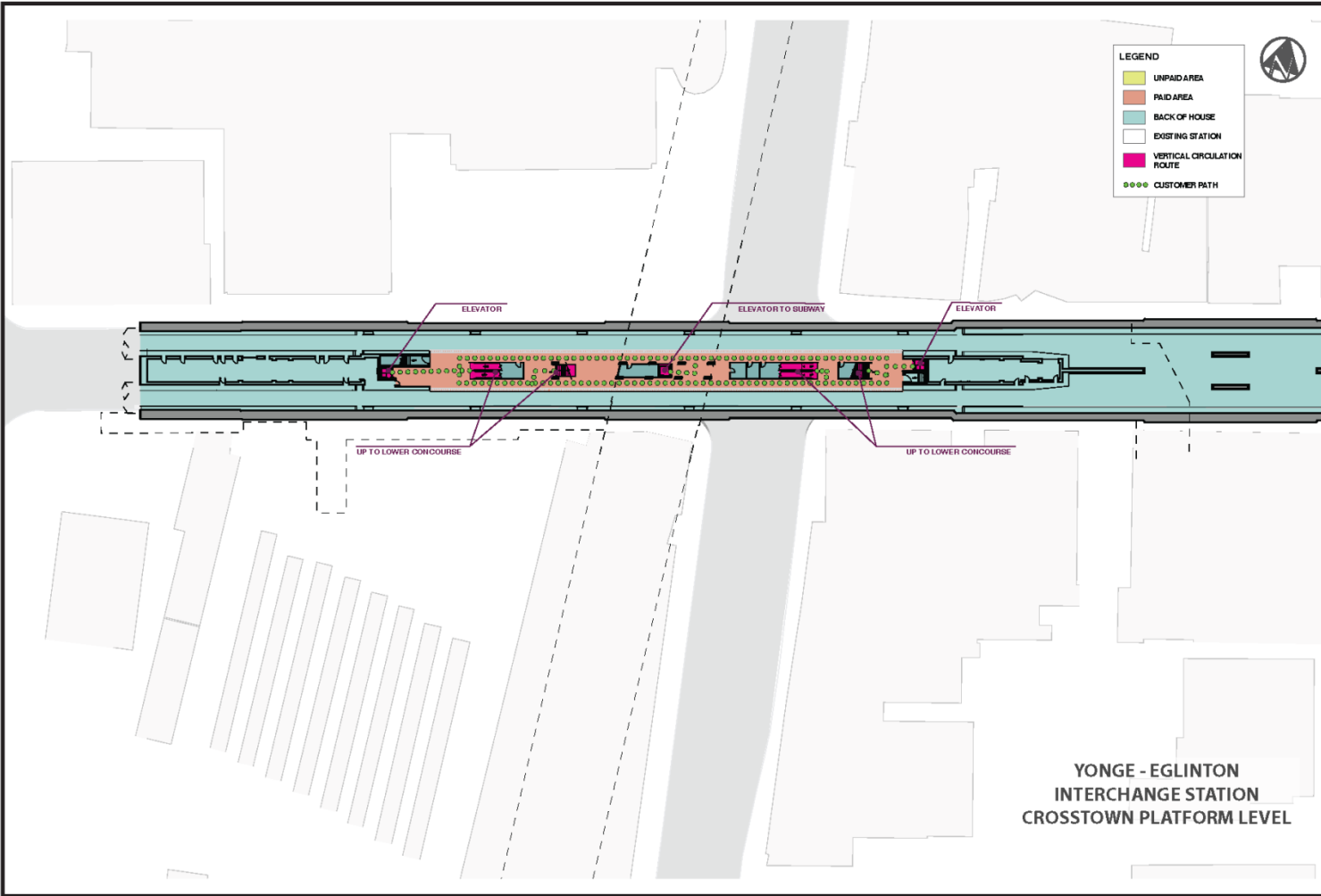
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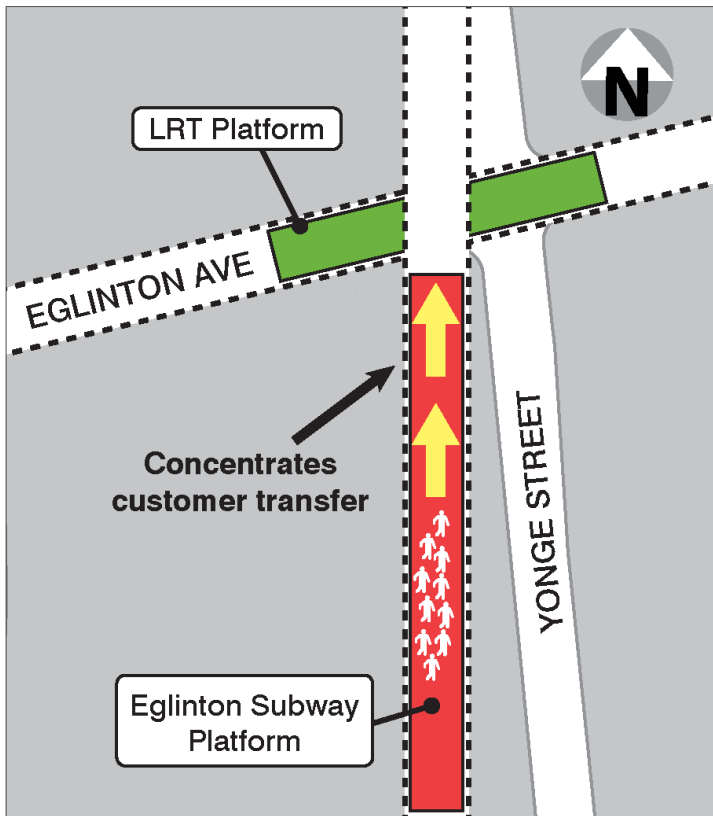
EGLINTON CROSSTOWN LRT PROJECT

APPENDIX B
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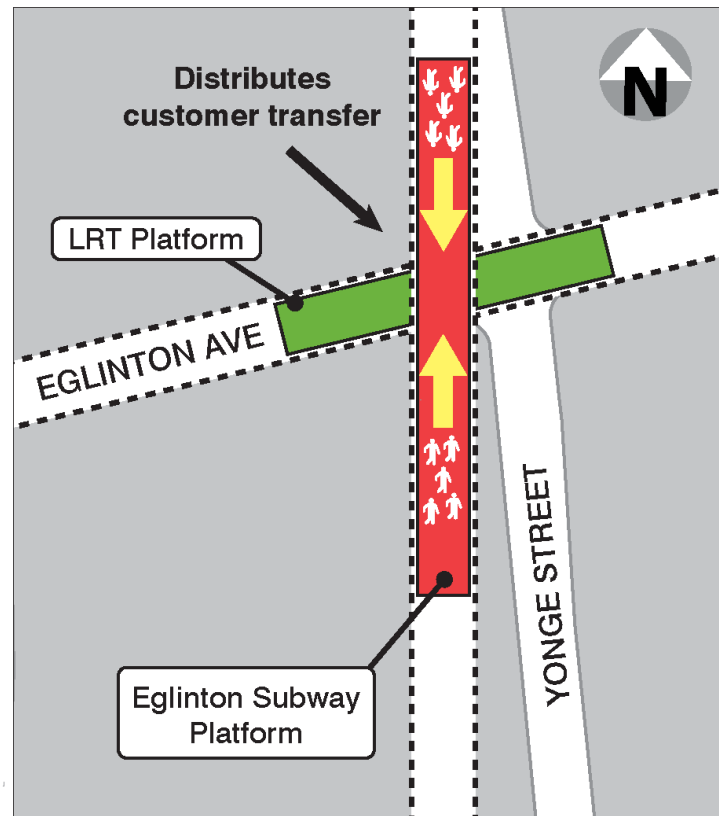


YONGE - EGLINTON
INTERCHANGE STATION
SUBWAY PLATFORM LEVEL





Existing Subway Platform



Proposed Subway Platform Shifted North