

Advancing Eglinton East Light Rail Transit

Date: November 21, 2023

To: Executive Committee

From: Executive Director, Transit Expansion Division

Wards: All

REASON FOR CONFIDENTIAL INFORMATION

The attachments to this report contain commercial information, supplied in confidence to the City of Toronto, which, if disclosed, could reasonably be expected to prejudice significantly the competitive position or interfere significantly with the contractual or other negotiations of a person, group of persons, or organization and involves the security of the property belonging to the City of Toronto.

SUMMARY

The Eglinton East Light Rail Transit (EELRT) is a proposed 18.6-kilometre LRT in Scarborough, with a total of twenty-seven (27) stops. The alignment begins at Kennedy Station, continues east on Eglinton Avenue and Kingston Road, and proceeds north on Morningside Avenue, Ellesmere Road, New Military Trail, Sheppard Avenue East and Neilson Road. The EELRT terminates at two locations, one at Sheppard-McCowan Station, currently under construction by Metrolinx for the Scarborough Subway Extension (SSE), and the other at Malvern Town Centre. The EELRT will travel through, or adjacent to, seven Neighborhood Improvement Areas (NIAs), providing higher-order transit service to historically underserved communities in the city. By providing connections to the TTC and GO Transit networks, the EELRT will also offer more transportation options to residents in eastern Scarborough.

City staff last reported to City Council on the EELRT through [EX33.2 - Advancing City Priority Transit Expansion Projects - Eglinton East Light Rail Transit and Waterfront East Light Rail](#) with the outcomes of a constructability assessment related to interface conflicts between the EELRT and the SSE at Kennedy Station. Through this report, City Council adopted the staff recommendation to proceed with a distinct-service concept with an at-grade connection at Kennedy Station, which could deliver additional benefits including cost savings, shorter construction duration, reduced property impacts, and design flexibility by avoiding dependency on the Eglinton Crosstown LRT technology, operations, and maintenance requirements, thereby enabling vehicles to be

accommodated at the preferred Maintenance Storage Facility at the Conlins Yard over the long-term.

In response to City Council direction to advance the above noted distinct-service concept, this report seeks approval of the EELRT alignment, summarizes the updated initial business case, and provides a status of the preliminary studies in advance of the Transit Project Assessment Process. This report also seeks City Council authority for City staff to modify a portion of the EELRT alignment should there be an overlap with a confirmed Provincially-led extension of rapid transit along Sheppard Avenue, east of the existing TTC Line 4. Additionally, the report also seeks City Council approval to advance the required next steps to progress the EELRT project, including securing accommodation of the EELRT by adjacent projects to the extent possible.

RECOMMENDATIONS

The Executive Director, Transit Expansion Division recommends that:

1. City Council approve the Eglinton East Light Rail Transit (EELRT) alignment, as outlined in Attachment 1 to this report.
2. City Council authorize the Deputy City Manager, Infrastructure Services, to negotiate, enter into and execute the necessary agreements, including all amendments thereto, with Metrolinx to undertake the following work, at a cost of up to the maximum amount outlined in Confidential Attachment 1, and on such other terms and conditions satisfactory to the Deputy City Manager, Infrastructure Services, and in a form satisfactory to the City Solicitor:
 - a. Advance design on the Scarborough Subway Extension (SSE) tunnel box structure to protect for the EELRT Kennedy Station overbuild;
 - b. Design and construct a knockout panel at Sheppard-McCowan Station to accommodate the efficient flow of passengers in the future between the EELRT and SSE; and,
 - c. Design and construct utility relocations to allow for a future EELRT utility exclusion zone at and in the vicinity of Kennedy Station.
3. City Council direct the Executive Director, Transit Expansion, to identify an alternative site for the location of the EELRT Maintenance and Storage Facility (MSF), while continuing to work with Metrolinx to acquire permanent access to 8300 Sheppard Avenue East – Conlins Yard site, which is the preferred MSF location.
4. Should any portion of the Council-approved EELRT alignment overlap with a confirmed Provincially-led extension of rapid transit along Sheppard Avenue, east of the existing TTC Line 4, City Council authorize the Executive Director, Transit Expansion, to modify the EELRT alignment accordingly, including potentially removing the overlap from the EELRT project.

5. City Council increase the Transit Expansion Division's 2023-2032 Capital Budget and Plan by \$9.5 million in 2024, with \$5.0 million funded from the Transit Development Charge Reserve Fund (XR2109) and \$4.5 million funded from the Scarborough Transit Reserve Fund (XR1725).
6. City Council authorize the Executive Director, Transit Expansion, in consultation with the General Manager, Transportation Services and Chief Planner and Executive Director, City Planning and the Toronto Transit Commission to continue to advance the design refinement and coordination to be undertaken by the City with Metrolinx to support the Durham–Scarborough Bus Rapid Transit and EELRT interface in the vicinity of Morningside and Ellesmere.
7. City Council authorize the public release of Confidential Attachment 1 to this report upon completion of the work contemplated in Recommendation 2, if adopted by City Council.
8. City Council authorize the public release of Confidential Attachment 2 – Key Considerations and Guiding Principles for Light Rail Vehicles Procurement, to this report upon completion of the EELRT project.
9. City Council direct the Executive Director, Transit Expansion, to report back to City Council in 2024 with:
 - a. Revised cost estimates and an approach to advance the EELRT to 30% design;
 - b. An update on the Province's Sheppard Extension project, including any changes to the EELRT alignment contemplated in Recommendation 4;
 - c. Results of the Phase 2 public consultation process;
 - d. Metrolinx cost estimates to deliver the required protections for the EELRT at Kennedy Station; and
 - e. An update on the status of environmental approvals and access to Conlins Yard, including an alternative site for the EELRT MSF should Conlins Yard not be made available by the Province.

FINANCIAL IMPACT

This report recommends an increase of \$9.5 million of new capital funding to the Transit Expansion Division's 2023-2032 Capital Budget & Plan to:

- Advance enabling works for EELRT at Sheppard-McCowan and Kennedy Stations, as detailed in Confidential Attachment 1;
- Undertake required works outlined in Recommendation 9, including a procurement options analysis, environmental assessment associated with the Transit Project Assessment Process (TPAP) and exploration of alternative sites for the location of the EELRT MSF.

A total of 24.8 full-time equivalent (FTE) staff resources are required to support the activities noted above in 2024. Among these, 24.3 FTEs will be comprised of existing staff resources, while 0.5 FTEs will be new temporary capital positions.

The \$9.5 million increase in 2024 will be funded from Development Charges and the Scarborough Transit Reserve Fund as outlined in the table below:

| Funding Source (\$ millions) | 2024 |
|--|--------------|
| Transit Development Charge Reserve Fund (XR2109) | \$5.0 |
| Scarborough Transit Reserve Fund (XR1725) | \$4.5 |
| Total Funding | \$9.5 |

The updated construction cost estimate for the EELRT, based on 10% design, is \$4.65 billion, subject to the assumptions and exclusions noted in Table 1 of this report, and is currently unfunded and identified as a Capital Needs Constraint. Feasibility of the project along with an updated cost estimate will be considered through a capital prioritization framework along with other City priorities and funding availability. Should construction not proceed, the \$9.5 million of funding related to the works identified in this report would be sunk costs for the City, along with life to date expenditures of \$5.7 million. The table below outlines sunk costs should all budgeted expenditures be incurred:

| Total Expenditures (\$ millions) | |
|--|---------------|
| Life to Date Expenditures as of September 30, 2023 | \$5.7 |
| Existing Unspent Budget Authority | \$3.3 |
| Pending Budget Approval | \$9.5 |
| Total | \$18.5 |

The 24.8 FTE staff resources are estimated to cost \$3.5 million in 2024 and are detailed by program below:

| Division | 2024 |
|---------------------------------------|-------------|
| City Planning | \$337,298 |
| Corporate Real Estate Management | \$233,385 |
| Engineering and Construction Services | \$319,074 |
| Fire Services | \$20,929 |
| Legal Services | \$165,072 |

| Division | 2024 |
|--|--------------------|
| Parks, Forestry and Recreation | \$177,185 |
| Policy, Planning, Finance and Administration | \$206,008 |
| Toronto Building | \$18,526 |
| Toronto Paramedic Services | \$15,418 |
| Toronto Water | \$276,228 |
| Transit Expansion | \$620,502 |
| Transportation Services | \$354,580 |
| Toronto Transit Commission | \$755,592 |
| Total | \$3,499,797 |

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

In May 2018, City Council adopted *EX34.1 Eglinton East Light Rail Transit Project Update and Next Steps*, which provided an update on the Eglinton East Light Rail Transit (EELRT) project.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.EX34.1>

In April 2019, City Council adopted with amendments *EX4.1 Toronto's Transit Expansion Program - Update and Next Steps* to advance the EELRT and components of the Waterfront Transit Network, including the Union Station to Queens Quay and East Bayfront Light Rail Transit projects.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EX4.1>

In February 2020, City Council adopted with amendments *PH13.3 Official Plan Review: Transportation - Recommended Official Plan Amendment*, and approved changes to strengthen existing transit and transportation policies. The changes include the expansion and protection of higher-order transit and enhanced surface transit networks that include the EELRT, and the Waterfront Transit Network, captured on Map 4: Higher-Order Transit Corridors and Map 5: Enhanced Surface Transit Network.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.PH13.3>

In December 2020, City Council adopted with amendments *EX19.5 Update on the City's Transit Expansion Projects - Fourth Quarter 2020* and approved the updated design of the EELRT and directed staff to update the business case and advance the Transit

Project Assessment Process accordingly. Council also directed staff to report back on the updated business case analysis, recommended schedule, and phasing approach for the EELRT and Waterfront Transit priority segments, including Union Station to Queens Quay Link and the East Bayfront LRT.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.EX19.5>

In February 2021, City Council adopted with amendments *EX21.2 2021 Capital and Operating Budgets* and redirected \$1.2 billion in funding from the Scarborough Subway Extension towards the EELRT. Council also directed the City Manager and Chief Financial Officer to request financial support from Provincial and Federal Governments to fully fund the EELRT.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.EX21.2>

On July 14, 2021, City Council adopted *MM35.22 Mitigating Community Concerns: Refining the Metrolinx Durham-Scarborough Bus Rapid Transit Proposal* and directed staff to request Metrolinx to further engage the Highland Creek Community on the curbed centre median for the Durham-Scarborough Bus Rapid Transit project and consider design alternatives along Ellesmere Road from Kingston Road to Military Trail.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.MM35.22>

In February 2022, City Council adopted with amendments *MM39.8: Requesting Metrolinx to participate in a Joint Constructability Exercise with the City of Toronto to Advance Plans for the Eglinton East Light Rail Transit - by Councillor Jennifer McKelvie, seconded by Mayor John Tory* and requested that Metrolinx undertake a constructability exercise with the City for the EELRT to resolve alignment issues at Kennedy station, evaluate the potential to host the Maintenance and Storage Facility at the Metrolinx-owned Conlins Yard site, and to ensure that the new Sheppard-McCowan Station for the Scarborough Subway Extension does not prohibit future higher order transit connections along Sheppard.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2022.MM39.8>

In June 2022, City Council adopted with amendment *EX33.2 - Advancing City Priority Transit Expansion Projects - Eglinton East Light Rail Transit and Waterfront East Light Rail Transit*, directing staff to advance the Transit Project Assessment Process and 10% design for a distinct-service concept with an at-grade connection at Kennedy Station for the EELRT from Kennedy Station to Malvern Town Centre and the Sheppard Avenue segment from Neilson Road to McCowan Road, complete an assessment of light rail vehicle options for the EELRT distinct-service concept in consultation with TTC, and report back in Q3 2023 with a Class 4 Cost Estimate and 10% design for the EELRT, as a distinct-service concept, with an updated Business Case.

Link: <https://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2022.EX33.2>

COMMENTS

Project Overview

The Eglinton East Light Rail Transit (EELRT) is a proposed 18.6-kilometre LRT in Scarborough, with a total of twenty-seven (27) stops. The alignment begins at Kennedy

Station, continues east on Eglinton Avenue, Kingston Road, and proceeds north on Morningside Avenue, Ellesmere Road, New Military Trail, Sheppard Avenue East and Neilson Road. It terminates at two locations, one at Sheppard-McCowan, where Sheppard East Station is currently under construction by Metrolinx for the Scarborough Subway Extension (SSE), and the other at Malvern Town Centre.

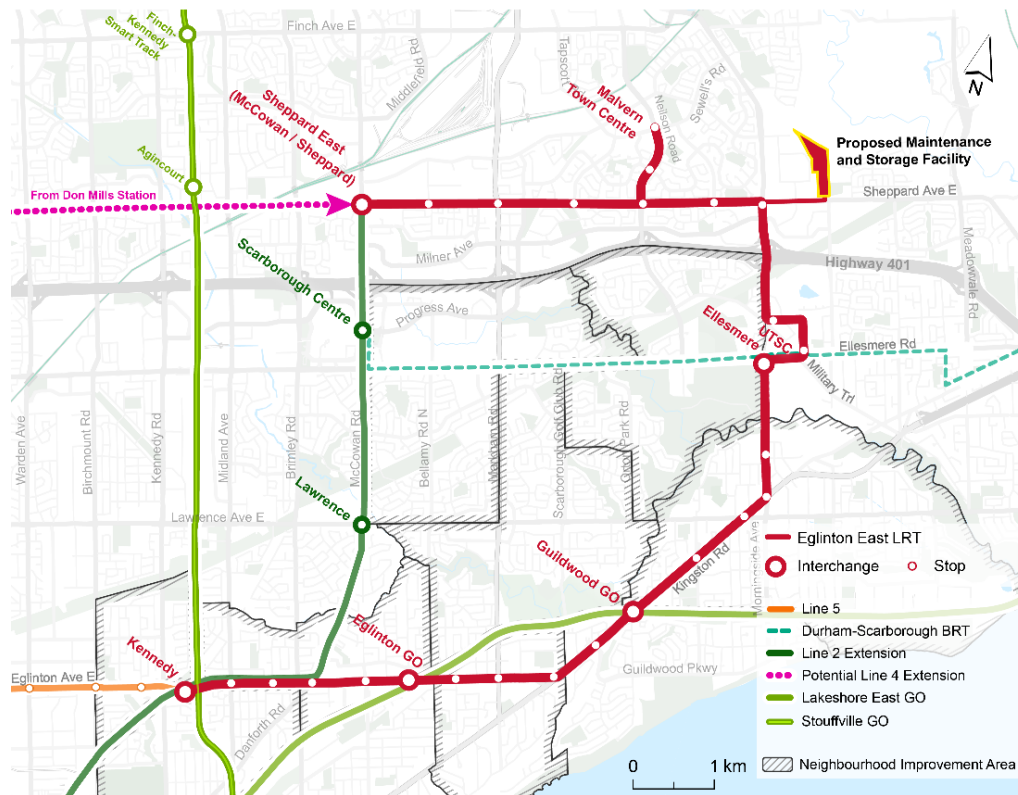


Figure 1. EELRT Project

The EELRT would provide transit to historically underserved communities in the city, travel through or be adjacent to seven Neighbourhood Improvement Areas (NIAs) and bring higher-order transit service within walking distance of an estimated additional 71,000 people. By providing convenient connections to other transit services, such as the TTC system and GO Transit, the EELRT would also offer more transportation options to residents in eastern Scarborough.

Key features of the EELRT project include:

- Proposed service frequency of 4-5 minutes during peak periods;
- Connection to Line 2 (Bloor-Danforth) and Line 5 (Eglinton Crosstown LRT) at Kennedy Station;
- Connection to the SSE and Line 2 through the future station at Sheppard-McCowan, which may also connect to the Sheppard (Line 4) Extension being explored by the Province;
- Three connections to GO regional rail at Kennedy, Eglinton, and Guildwood stations;
- Three stops near and on the University of Toronto Scarborough Campus (UTSC) to align with UTSC Master Plan, including two connections to the proposed Durham-Scarborough Bus Rapid Transit (DSBRT);

- Preferred Maintenance and Storage Facility (MSF) at Conlins Road and Sheppard Avenue;
- Incorporation of public realm improvements throughout the corridor, primarily through the implementation of ‘Complete Streets’ enhancing multi-modal transportation options by providing dedicated and safe bicycle and pedestrian infrastructure; and
- Supports other key City priorities, including TransformTO Net Zero Strategy and Vision Zero Plan.

Since the 2022 City Council update, City staff have updated the EELRT Initial Business Case (IBC), completed the 10% design, updated the cost estimate and worked with Metrolinx to accommodate and protect for the connection of the EELRT project in the design and delivery of the SSE project, to the extent possible, at Kennedy and Sheppard-McCowan Station interfaces. Furthermore, staff have advanced work with the Ministry of Transportation to accommodate the EELRT project requirements in the rehabilitation work on the Morningside-401 overpass and have continued to work with Metrolinx towards confirming access to the Conlins Yard, as the preferred EELRT MSF location. The details of these updates, as well as the findings from an initial assessment of light rail vehicle options are outlined in this report.

Distinct-Service Concept – Updated Initial Business Case (IBC)

The distinct-service concept updated IBC evaluated the strategic, economic, financial and deliverability cases for the EELRT (Option 1) compared to a Base Case or Business-as-Usual (BAU) scenario. The options that were evaluated in the updated IBC are as follows:

- **Base Case – 2041 BAU:** The Base Case is the BAU scenario set in the horizon year of 2041. It assumes the current bus service using the RapidTO curbside bus lanes along Eglinton Avenue East, Kingston Road, and Morningside Avenue to Ellesmere Road. North of UTSC, in the rest of the study area, transit service is provided by local and express buses running in mixed traffic.
- **Option 1 – EELRT:** Option 1 is the EELRT alignment with 27 surface stops as a distinct-service concept separate from Line 5 with an MSF at Conlins Yard. The EELRT alignment for this option is shown in Figure 1.

A summary of the updated IBC findings are included below, full details are available in Attachment 2.

- **Strategic Case:** Option 1: EELRT is preferred over the Base Case as the projected demand in 2041, along the study corridor, far exceeds the capacity that can be practically provided by the Base Case. Option 1 would better address the Rapid Transit Evaluation Framework (RTEF) criteria used to determine if a project achieves wider policy objectives. Option 1 provides new and additional higher-order transit in reach of seven of the City’s NIAs, supporting sustainable mobility in historically underserved communities.

Option 1 is designed to support further improvements in the surrounding transit network by accommodating increased ridership and changing travel patterns.

A peak point ridership of over 3,700 passengers per hour would require buses every one minute or less. While it is theoretically possible to serve this ridership with buses, large expansions to the Kennedy Station bus terminal and bus maintenance and storage facilities would be required. Operating costs would increase proportionally and would make the Base Case impractical. Operations of this terminal and the buses along the corridor would be a challenge, and reliability and comfort would be low. Higher-order transit is required to serve the study area reliably, comfortably, and sustainably. Option 1 offers improved experiences due to greater reliability, smoother rides, and reduced crowding for transit riders.

- **Economic Case:** Option 1: EELRT is expected to deliver just over \$1.4 billion in discounted benefits with an expected Net Present Value (NPV) of -\$4.4 billion and a Benefit-Cost Ratio (BCR) of 0.2 at a 3.5% discount rate.
- **Financial Case:** Option 1: EELRT is estimated to cost \$4.4 billion at a 5.5% discount rate inclusive of capital costs, incremental rehabilitation costs, incremental fleet replacement costs, operations and maintenance costs, and incremental fare revenue.
- **Deliverability & Operations Case:** Option 1: EELRT introduces deliverability challenges as it involves the construction of a new transit line. However, the significant operational challenges of the Base Case outweigh the deliverability challenges of Option 1. As a result, Option 1 is preferred over the Base Case for the Deliverability and Operations Case.

In conclusion, the updated IBC found that higher-order transit investment is required to serve this corridor. Despite performing poorly in the Economic and Financial Cases, Option 1 – EELRT is the preferred option over the Base Case due to operational concerns. There is evidence that implementation of an LRT can provide an uplift in property values, investment, and associated economic activity, particularly if it is coordinated with other policy initiatives, such as the Toronto Strong Neighbourhoods Strategy, the TransformTO Net Zero Strategy and the Vision Zero Plan. Consequently, development of an appropriate funding and financing strategy, including exploration of ways to reduce cost and optimize benefits, should be considered for future phases of project development.

Environmental Assessment Process Overview

In accordance with regulatory requirements, City staff intend to proceed with a Transit Project Assessment Process (TPAP) for the EELRT project based on the 10% design. The TPAP is a streamlined environmental assessment process pursuant to the Ontario Environmental Assessment Act and includes a minimum 120-day public review period that incorporates the completion of public, stakeholder, and Indigenous consultation.

The TPAP culminates in an Environmental Project Report (EPR) that is required to be submitted to the Ministry of Environment, Conservation, and Parks within 120 days of issuing a Notice of Commencement of the TPAP. The EPR will document the project vision, background, preferred design description, existing environmental conditions within the study area, the potential environmental impacts through construction and operation, and recommended mitigation and monitoring measures. Consultation and future commitments are also documented.

Public Consultation

There are two major phases of public consultation for the project's 10% design development and TPAP. In Phase 1, the public had an opportunity to learn about and provide feedback on the developing 10% design elements. A report summarizing public consultation in the first major phase can be found on the project website¹.

Consultations took place in May and June 2023 and included one stakeholder meeting, three virtual meetings and one online survey. Key themes of feedback included:

- Concerns were raised about connectivity between transit options, with pedestrian accommodations, weather-protected transit stops and distance between the lines raised as priorities;
- Several questions were asked about changes to existing bus service once the EELRT is operational with concerns raised about travel times when compared to the current express bus services;
- Requests were made for Transit Signal Prioritization as a way to ensure fast and reliable service;
- A request was made to include a stop at Morningside Park;
- Concern was raised about the potential impact of the EELRT on vehicle traffic flow on already congested roads;
- There was general support for the project's complete streets design, with a preference for truly separated cycle tracks and improved safety for people cycling and pedestrians, particularly at intersections;
- Requests were made to establish a community benefits plan in future phases and renaming the project, to better reflect the area it will serve; and
- Ensuring lessons learned from the Eglinton Crosstown would be applied to EELRT implementation.

Phase 2 of the public consultation process is anticipated in the first half of 2024 and will focus on sharing the findings of the draft EPR associated with the TPAP. Specific public consultation events and activities are yet to be finalized, but it is anticipated that there will be at least one stakeholder advisory group meeting, location-specific in-person public meetings and an online survey. City staff will report back to City Council in 2024 on the results of the Phase 2 public consultation process.

¹ <https://www.toronto.ca/community-people/get-involved/public-consultations/infrastructure-projects/eglington-east-light-rail-transit/eglington-east-lrt-public-consultation/>

EELRT 10% Design Findings

Technology and Vehicles

Light Rail Transit (LRT) was recommended in earlier phases of the EELRT project as the preferred transit solution over subway and bus rapid transit alternatives, due mainly to its passenger carrying capacity and community feedback. Ridership projections for the EELRT have been developed using the City's travel demand model, based on the best information and data available at this time. Based on the modelling results, peak point ridership in the year 2041 is projected to be approximately 3,000-4,000 passengers per hour going in the peak direction. 50-metre-long trains operating about every 4-5 minutes at the busiest times and locations can accommodate this projected EELRT ridership. If needed, the infrastructure would be able to support more frequent service to accommodate growth beyond 2041.

Beyond fulfilling passenger requirements, LRT integrates with the physical environment and adjacent communities, and provides flexibility for future growth. Additionally, it can support the City's vision of a better integrated transit system serving Scarborough, reduced car dependency (thereby lowering greenhouse gas emissions), and increased ridership along the EELRT corridor. The ridership projections will continue to be updated as needed should new information about future conditions become available. The LRT system infrastructure will consist of comprehensive communications capabilities including transit signal priority.

The Light Rail Vehicle (LRV) type and supplier will be determined through a competitive bidding process prior to the construction of the EELRT. An initial assessment of LRV options has been completed informing key considerations and guiding principles for the future LRV procurement, as outlined in Confidential Attachment 2.

Stops

The 10% design for the EELRT advances the Council-approved alignment with refinements to the total number of stops. The original proposal consisted of 31 stops (inclusive of major terminal interchange stations), with an average stop spacing of 560 metres, and with stop spacing of less than 400 metres along Sheppard Avenue, which matched the local bus stop spacing. In coordination with TTC, City staff have assessed stop configuration alternatives with the goal of increasing the average speed of the LRT and improving its performance. As a result of this assessment, 5 stops were removed along Sheppard Avenue as it aligns Sheppard more closely with the average LRT stop spacing for the overall project. The stops removed along Sheppard Avenue will be served by planned parallel local bus service to Meadowvale.

Ongoing revisions to the EELRT Base Case design at Kingston-Lawrence-Morningside (KLM) created the opportunity for an additional stop on Kingston Road to better serve planned development in the area. As a result, the EELRT 10% design includes 27 stop locations (inclusive of major terminal interchange stations) throughout Scarborough, with an average stop spacing of 670 metres. The stop location assessment is further described in Attachment 1.

Major Terminal Interchange Stations

Kennedy Station

Kennedy Station is a key transportation node connecting the EELRT with the Eglinton Crosstown LRT (ECLRT, Line 5), Line 2 (Bloor-Danforth) and Kennedy GO Station. The SSE will also connect at Kennedy Station and is currently under construction.

The EELRT terminus at Kennedy Station will be located on the parking lot of the Don Montgomery Community Recreation Centre. This location was chosen as it provides the opportunity for the most convenient overall customer experience for a surface LRT alignment when transferring to and from Kennedy Station. The EELRT station is proposed to be enclosed and positioned directly south of the GO station and the ECLRT concourse. The EELRT station building will facilitate transfers with ECLRT both at-grade and underground.

The existing TTC Line 2 box structure and SSE cut-and-cover box abut the EELRT Kennedy Station concourse to the south. The EELRT building overlays the SSE box along the site. Further coordination with Metrolinx’s SSE project to accommodate the EELRT design is provided later in this report. Figure 2 below shows a section of the current Kennedy Station design interface with the other major transit lines.

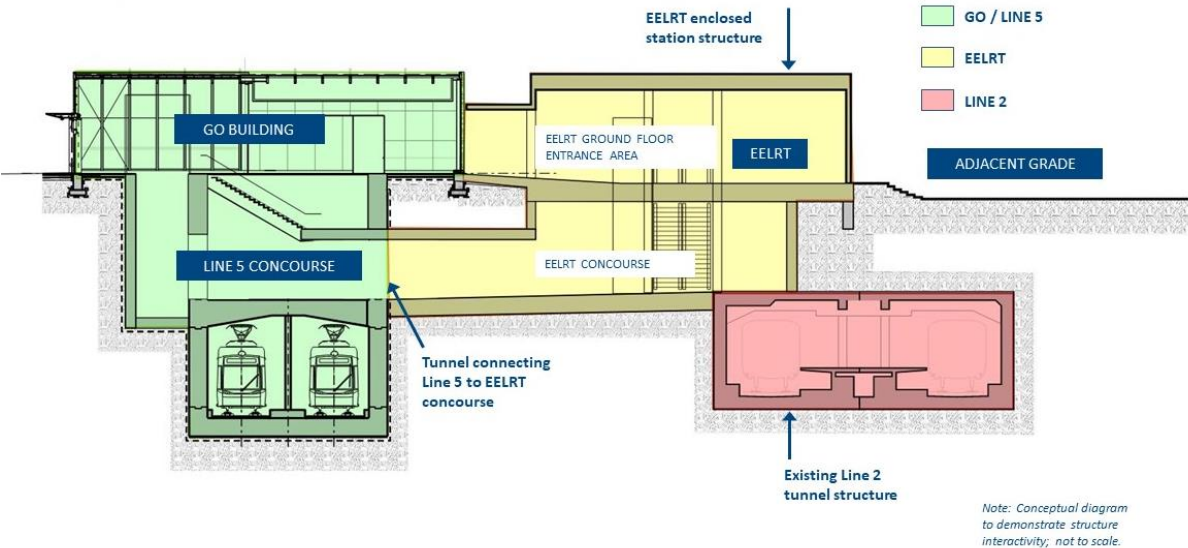


Figure 2. Kennedy Station EELRT Cross-Section (showing below grade, east of GO corridor and west of future SSE box tunnel)

Sheppard-McCowan Station

Sheppard-McCowan Station is planned to be another key transportation node connecting the EELRT with the SSE and a new bus terminal. This EELRT terminal station is a weather-protected centre platform station in the median of Sheppard Avenue East, east of McCowan Road. It is planned to connect to the SSE station box and bus terminal below grade and allow passengers to connect to the potential future extension of Line 4 (Sheppard) being explored by the Province. This will maximize the opportunity

to provide the most convenient customer transfer experience between 3 major transit lines as well as a major bus terminal. To reach the SSE and bus terminal, passengers could travel down two levels from the EELRT centre median platform to the concourse level and walk north along the proposed underground connection.

The Sheppard Avenue East right-of-way will need to be widened to 45.5 metres between McCowan Road and the bridge over Highland Creek to accommodate the EELRT design requirements. Figure 3 below provides a section view of EELRT Sheppard-McCowan Station east of McCowan Road and the SSE box, showing potential below grade passenger flow between EELRT, SSE, and the future bus terminal.

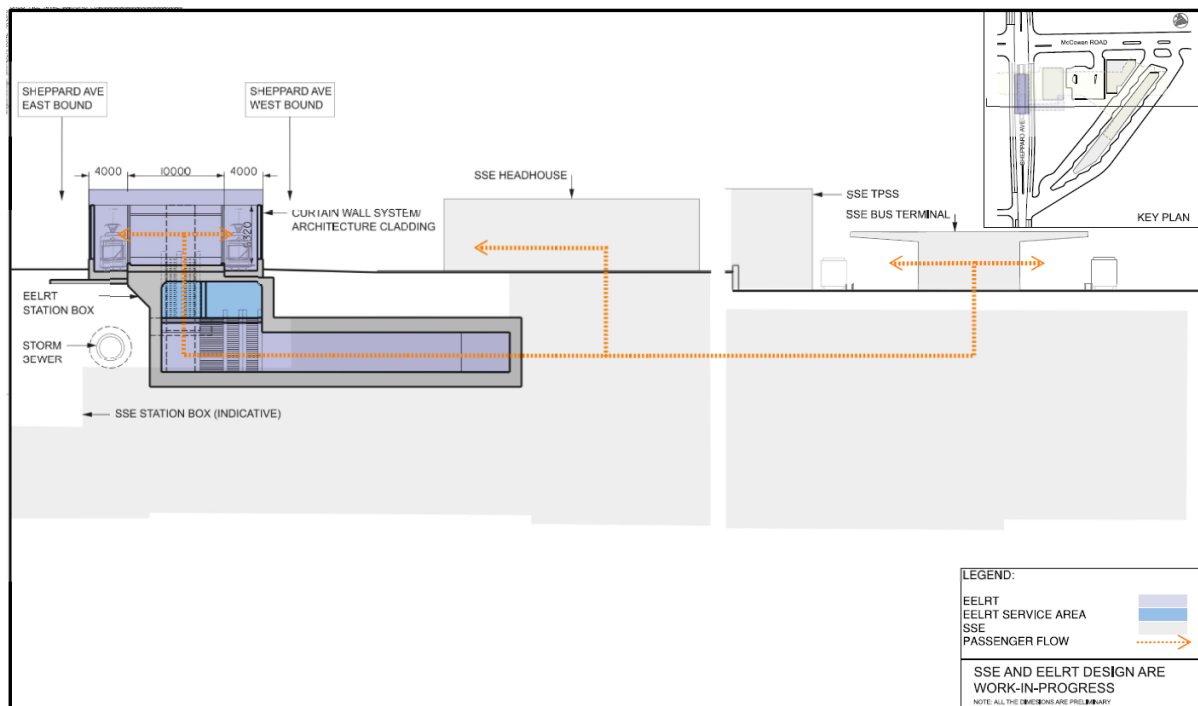


Figure 3. Section View, Sheppard-McCowan EELRT Station and potential below grade passenger flow (at Sheppard Avenue East, east of McCowan Road)

Sheppard Extension Study

In October 2023, Metrolinx launched a study of options for extending rapid transit along Sheppard Avenue (Sheppard Extension), both east and west of the existing TTC Line 4, with a study area extending as far east as Meadowvale Road and overlapping with the EELRT alignment along Sheppard Avenue, east of McCowan Road, as shown in Figure 4 below.

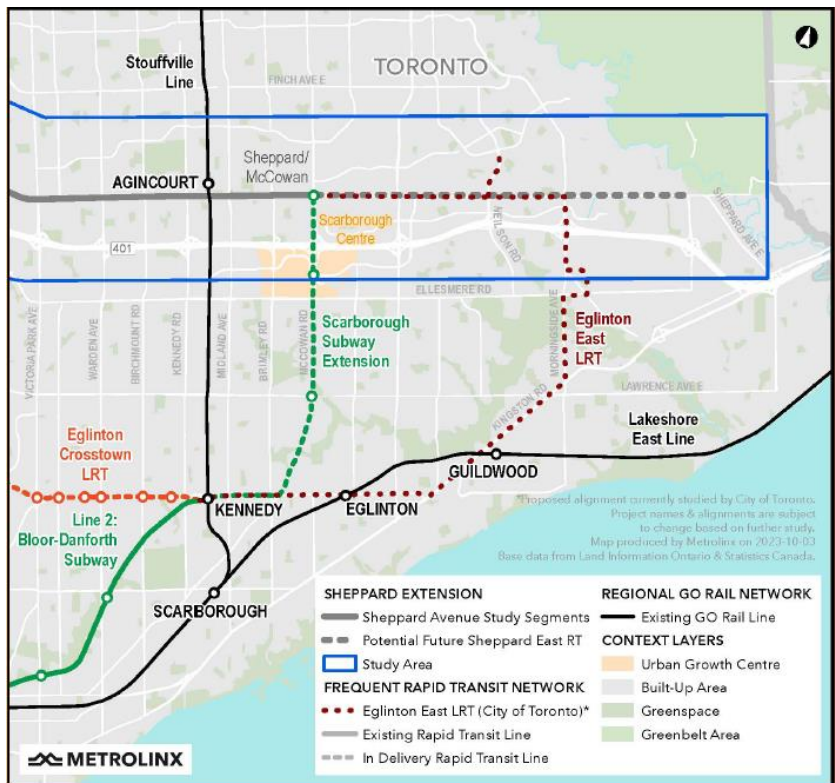


Figure 4. Potential EELRT alignment and Sheppard Extension overlap

The first phase of consultation on Metrolinx’s study for the Sheppard Extension was launched in November 2023, to be followed by a second phase in early 2024. Metrolinx is seeking to develop and recommend a preferred rapid transit concept for further design, including but not limited to analyzing different options on technology, alignment, stop locations and terminus, with consideration to strengthening connections to the existing and future rapid transit network, including with the EELRT.

Metrolinx has engaged a Municipal Working Group comprised of City staff who are providing local insight, including from the perspective of the further advanced EELRT project, into the Sheppard Extension study. Moving forward, City staff will continue to engage with Metrolinx on the anticipated screening and evaluation of options. Metrolinx anticipates the study to conclude in late 2024. Additional information on the proposed Sheppard Extension can be found on Metrolinx’s website².

Based on the EELRT IBC findings, anticipated ridership in the Sheppard Corridor east of McCowan Road would be supported by up to one higher-order rapid transit line. Notably, the EELRT project is the only current high-order rapid transit project providing a direct connection to Malvern Centre.

It is important to note, that under the *Getting Ontario Moving Act, 2019*, should the Province designate the Sheppard Extension as a rapid transit project that is the sole responsibility of the Province or Metrolinx, the City and TTC would not be permitted to "design, develop, construct or work on, or cause design, development, construction or

² <https://www.metrolinx.com/en/projects-and-programs/sheppard-extension>

work on" such projects and on any projects that are "substantially similar or in close proximity" to it, unless authorized to do so by the Minister.

As a result, should any portion of the Council-approved EELRT project overlap with a confirmed Provincially-led extension of rapid transit along Sheppard Avenue, east of the existing TTC Line 4, this report seeks City Council approval to authorize City staff to modify that portion of the EELRT alignment accordingly, including potentially removing the overlap from the EELRT project.

8300 Sheppard Avenue East (Conlins Yard) – Preferred Maintenance and Storage Facility (MSF) Location

As directed by City Council, the preferred location for the EELRT MSF is 8300 Sheppard Avenue East (the "Conlins Yard"), a property owned by Metrolinx. Following this direction, City staff confirmed with Metrolinx that the lands were considered surplus and proceeded with the process of securing permanent access. Metrolinx suspended the property transaction in February 2023 in light of their direction to proceed with the Sheppard Extension IBC which included Conlins Yard in the Study Area. The 10% design of the planned EELRT has advanced with an MSF at Conlins Yard and is shown in Figure 5 below.

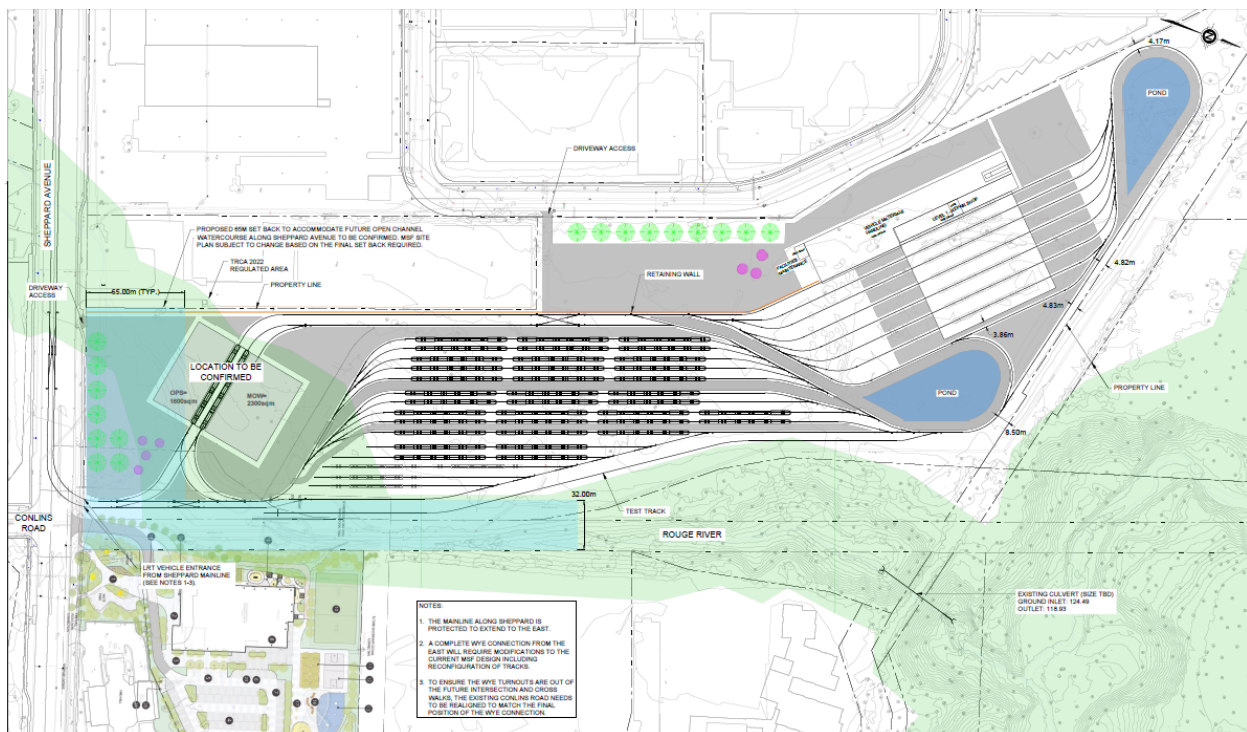


Figure 5. EELRT MSF 10% Design

It should be noted that an environmental assessment led by the City and TTC for an LRT MSF on the Conlins Yard property was previously approved in 2010. The MSF would provide maintenance and storage capacity for the EELRT's LRVs and support other operational requirements. The Conlins Yard property is limited at the northern boundary by the nearby Rouge River and is constrained by a Toronto and Region Conservation Authority (TRCA) Regulated Area.

Based on preliminary review, early enabling works appear to have been completed for this site to prepare it as an MSF, including the installation of an underground culvert across the south portion of the property to realign a tributary of the Rouge River. TRCA has advised that, according to 2022 mapping, a drainage feature through the southern portion of the property has been classified as a regulated watercourse and provision for a watercourse corridor along the southern limit has been incorporated into the MSF 10% design site plan to address TRCA's advice.

Additional detailed investigations and analyses are required to determine the scope and function of the constructed enabling works, applicable updated regulation limits, and final recommendations for watercourse management. In addition, public and other stakeholder consultation based on the 10% design may inform the proposed mitigation measures and future commitments for the site. Based on the findings of future detailed environmental analysis and consultation, the MSF site configuration will need to be updated to reflect the final recommendation for a regulated watercourse.

Given the early stages of the Sheppard Extension IBC study, Metrolinx is currently unable to confirm the City's permanent use of the Conlins Yard for the EELRT MSF. As a result, City staff are seeking authority from City Council to identify an alternative site for the location of the EELRT MSF as a contingency measure, in the event that permanent access to Conlins Yards is not granted by Metrolinx following completion of the Sheppard Extension IBC.

Complete Streets and Public Realm Design

To accommodate the EELRT infrastructure occupying the roadway median and improvements to the adjacent public realm to introduce complete streets, one general purpose vehicular travel lane per direction and dedicated right turn channels are included in the 10% design on the following roadways:

- Morningside Avenue from Kingston to Ellesmere Road (existing);
- New Military Trail through the UTSC campus; and,
- Neilson Road between Sheppard Avenue East and McLevin Avenue.

All other roadways along the project corridor will include two general purpose vehicular travel lanes per direction. Dedicated left turn lanes will be provided at major intersections and other intersections where space permits. Preliminary designs for public realm improvements, a key element of the project, have been developed and are included as part of the 10% design.

A key consideration for public realm improvements is the location of the landscape/amenity zone and provision of separated cycle track and sidewalk facilities wherever possible. Generally, in mixed-use areas expecting significant growth, the landscape/amenity zone is located between the sidewalk and the cycle track, increasing separation between modes and reducing the potential for conflict between cyclists and anticipated higher volumes of pedestrians.

Bridges and Structures

The EELRT will cross over or pass under six bridges, which are currently considered to be in good condition. Preliminary analysis has determined that the EELRT and associated 10% design roadway and active transportation infrastructure can be accommodated with little or no structural impact on the City-owned Kingston Road bridge over the Lake Shore East Rail Corridor and Morningside Avenue bridge over Highland Creek.

The existing Morningside Avenue bridge over Highway 401 is owned by MTO, and the provision of an LRT guideway, lane widths, and active transportation have been optimized for this bridge to avoid the need for future structural widening. Furthermore, an “urbanization” of the interchange ramps (i.e., removal of free flow ramps and creation of normalized right turn access from Morningside Avenue to Highway 401) is incorporated into the design to improve safety for all roadway users, in particular cyclists. Based on the 10% EELRT design supplied by the City, MTO has analyzed the current structural condition to verify the capacity for the proposed combined LRT and vehicular traffic loading. The analysis completed thus far indicates that the bridge would be able to accommodate the EELRT without triggering a major structural reconstruction. MTO is planning a rehabilitation of the bridge as a part of a broader contract in 2025, which would commence in advance of any potential EELRT construction period. The City will work with MTO to ensure the rehabilitation scope includes any requirements related to the EELRT crossing the bridge. The City will continue discussions with MTO to move the ramp urbanization forward as the EELRT project progresses.

Two City-owned bridges, one along Sheppard Avenue over the Malvern branch of the Highland Creek, and one along Sheppard Avenue over the Milliken branch of the Highland Creek would be widened and/or replaced in a phased approach to accommodate the LRT and complete streets infrastructure. A detailed widening/replacement strategy would be included in the 30% design stage for the EELRT.

The EELRT along Eglinton Avenue will pass below the Metrolinx-owned Lake Shore East Corridor bridge. To accommodate 3-metre-wide multi-use paths on either side of the roadway, the existing sidewalks below the bridge are proposed to be widened, which would require extending the bridge footings and structure. Confirmation of the proposed approach for this structure will require further design development in coordination with Metrolinx and will be completed in the 30% design stage. Furthermore, the requirements for potential deck replacement for bridge structures to accommodate the EELRT infrastructure will be identified in the 30% design stage.

Coordination of EELRT – Scarborough Subway Extension (SSE) Terminal Interfaces Update

The City worked closely with Metrolinx and other relevant stakeholders, to coordinate the EELRT-SSE terminal interface facility design at Kennedy and Sheppard-McCowan stations with the goal of maximizing connectivity and avoiding future constructability challenges. The following provides an update on the progress regarding coordination of the terminal facilities.

Kennedy Station Interface

The EELRT interface at Kennedy Station provides the opportunity for a direct and seamless connection with other higher-order transit lines (i.e., existing Line 2, Line 5, SSE, and GO Transit) and multiple bus routes. Kennedy Station will continue to be heavily used by commuters during construction hence careful coordination to minimize service disruption is a key consideration.

The EELRT terminal platform at Kennedy Station is situated to enable short and direct connection with Kennedy Station transit facilities. The SSE tunnel design in progress presents the opportunity to protect for the connection to the EELRT with minimal future changes to the SSE structure and disruption to the SSE service. To accommodate the future interface of the SSE and EELRT, the EELRT requires that the following constructability protections be included in the SSE tunnel box design modifications:

- Adjust the configuration of the SSE tunnel box ventilation and emergency exit stairs to maximize the space available to build the EELRT platform;
- Provide tunnel box structural capacity to support the load of the EELRT terminal building in the limited area where it overlaps with the SSE tunnel box; and
- Anticipate the EELRT below-grade connection to the Kennedy Station being built abutting a limited area of the SSE tunnel box in its exterior wall surface and shoring design.

To date, Metrolinx has only committed to provide the space required by the EELRT terminal station. However, the protections noted above need to be addressed through further design and analysis by Metrolinx that includes preparation of preliminary design drawings (30%) and the review of structural capacity and support of excavation for the SSE. Metrolinx will also need to develop a cost estimate to incorporate the required EELRT protections as part of SSE construction.

To support Metrolinx's design and analysis in the context of the SSE design timelines, the EELRT design at Kennedy requires some development beyond a typical 10%. As such, this report recommends City Council approve funds associated with the analysis described above to maintain the possibility to economically protect for the EELRT within the SSE design. This will allow Metrolinx to advance design on an SSE-EELRT protected solution at Kennedy Station and to produce a construction cost estimate for the protections by Q2 2024. City staff intend to seek City Council approval for required construction costs in 2024.

Failure to fund the analysis and to confirm protections for the future construction of EELRT into the SSE Kennedy Station box structure will result in the following:

- Future extended disruption to Line 2 operations for an indeterminate time since work for the EELRT may occur when the SSE-Kennedy Station is in operation.
- Mitigation measures to avoid disrupting the future Line 2 operations would result in an approximate increase of \$40 million (Class 5, \$2023) in construction costs to construct a straddle beam superstructure in order to support the station over the SSE box, and require additional property from the Don Montgomery Community Centre parking lot;

- Moving the station to other less preferred overall locations reviewed in EX33.2 that results in degraded transit customer experience, greater construction cost and impacts to other existing facilities and infrastructure.

The City has also requested Metrolinx and its SSE contractors, who are undertaking utility relocations, to adhere to a future below grade “utility exclusion zone” for EELRT, to the extent possible, at and in the vicinity of Kennedy Station to approximately Midland Avenue. This would require Metrolinx to avoid placement of utilities it is already relocating as part of the SSE scope in specific areas below the proposed EELRT infrastructure locations (i.e., track and stations), to reduce the need for the future EELRT project to relocate utilities once again in areas of SSE-EELRT overlap.

The EELRT utility exclusion zone should be consistent with the Metrolinx Design Criteria Manual for Light Rail Transit, as well as applicable City standards. While Metrolinx has indicated willingness to assist the City with utility relocations that respect the EELRT to an extent feasible, this work is scheduled to begin shortly in 2024 under the SSE advance works contract. As such, Metrolinx requires a commitment from the City at this time to fund the incremental costs associated with construction and adherence, to the extent possible, to the future EELRT utility exclusion zone at and in the vicinity of Kennedy Station. Accordingly, City staff are seeking City Council approval for funds, as further detailed in Confidential Attachment 1, and to enter into an agreement with Metrolinx to undertake these works.

Failure to fund and enter into agreements immediately will result in a greater number and length of utilities in the vicinity of Kennedy Station needing to be relocated once again during construction of the EELRT. This is likely to exacerbate the negative impacts to future traffic, surface transit operations and the surrounding environments, including, notably, many bus routes serving Kennedy Station in the future. Additionally, undertaking utility relocations respecting the EELRT now, to the extent possible, could create efficiencies that may decrease the cost of delivering EELRT in the future.

Sheppard-McCowan Station Interface

The EELRT interface at Sheppard-McCowan provides the opportunity for a direct and seamless connection with potentially 2 higher-order transit lines (SSE/Line 2, Sheppard/Line 4 Extension) and multiple bus routes. The intent is to simplify, minimize construction and operation disruption, and minimize the cost of delivering the interface in the future as part of the EELRT project.

To date, the coordination with Metrolinx has led to the SSE Sheppard East Station headhouse being set back to allow space for the EELRT terminal in the median of a widened Sheppard Avenue right-of-way. In addition, the below grade portions of the stations (EELRT, SSE, and potentially Line 4 Extension) are being coordinated to ensure the most convenient passenger connections. Metrolinx undertook a study, at the City’s cost, which confirmed the feasibility of the EELRT interface requirements with no major concerns identified. Recently, Metrolinx has advised the City, that it will be able to accommodate a knockout panel in the SSE concourse construction to protect for a future efficient underground passenger connection between EELRT and SSE, subject to

the City agreeing to fund the costs. These costs are identified in Confidential Attachment 1.

Based on the above, this report seeks authority for funds in 2024 for Metrolinx to construct a knockout panel in the below grade level of SSE's Sheppard East Station to connect underground to the future EELRT Sheppard-McCowan Station (see Figure 3 above for illustration of path of below-grade passenger flow between the stations and bus terminal). Coordination between the City and Metrolinx at the two stations will continue as the SSE design is further advanced and confirmation of the scope of the potential Sheppard Extension is available.

Utilities at Sheppard-McCowan Station have been relocated or are further advanced in their assessment by Metrolinx as part of the SSE advance tunnel contract. In addition, a future potential Sheppard Extension may create the need for further utility relocations in the area. Accordingly, entering into negotiations and securing funding to have Metrolinx respect a future utility exclusion zone for EELRT at and in the vicinity of Sheppard-McCowan Station is not recommended at this time.

Coordination of EELRT and Durham Scarborough Bus Rapid Transit (DSBRT) Interface

The EELRT and DSBRT projects overlap along the portion of Ellesmere Road between Morningside Avenue and New Military Trail. A typical centre median guideway for EELRT is included in this location to avoid a major high pressure watermain on the south side of Ellesmere Road and impacts to the TRCA regulated area south of Ellesmere Road. It would not be possible for buses to use the centre median LRT guideway without a costly comprehensive communications system compatible with the EELRT. Additionally, allowing buses in the same guideway as the LRT would reduce operational flexibility for trains to run on either track in either direction.

Recognizing shared goals in promoting and ensuring transit becomes as fast and reliable as possible, the City and Metrolinx will further explore cost effective and efficient measures to improve the EELRT interface with local and regional bus operations through this segment, which may include the use of queue jump lanes, transit signal priority for buses, or curbside lane restrictions to prioritize high occupancy vehicles. As a result, this report seeks City Council approval for design refinement and coordination to continue between the City with Metrolinx to support the DSBRT and EELRT interface in the vicinity of Morningside Avenue and Ellesmere Road. The coordination would need to be completed in consideration of public feedback as well as input from UTSC.

Schedule and Construction Cost Estimate

The EELRT project cost estimates have been updated to align with the 10% design, and recent market experience with construction of comparable transit infrastructure projects in the city and Greater Toronto and Hamilton Area (GTHA). The potential construction period noted below is an initial high-level schedule based on a 10% level of design that will need to be further refined and notably, is highly dependent on funding availability and on the ability to commence work at the interfaces with the SSE. Updated project cost estimates are presented below in Table 1.

Table 1. EELRT Construction Cost Estimate

\$4.65B

Notes:

1. Construction cost estimates are consistent with Association for the Advancement of Cost Engineering (AACE) standards, prepared by Altus Group based on recent market experience in major transit construction in the GTHA.
2. Costs have been escalated to midpoint of a potential 2027-2034 construction period.
3. Estimates are considered accurate within a range of -20% to +30% (AACE Class 3/4).
4. Costs include the preferred MSF at Conlins Yard.
5. Excludes costs associated with property, procurement, vehicles, lifecycle maintenance, and future operations and maintenance.
6. Estimates do not reflect any future unknown potential market impacts and risks in addition to typical contingencies for this stage of estimate.

Community Benefits

City Council's adoption of the Community Benefits Framework in 2019 signaled the City of Toronto's commitment to maximizing the use of City levers to create inclusive economic impact through community benefits initiatives. All major transit expansion projects, including the EELRT, are potential community benefits initiatives that can be leveraged to address the City's poverty reduction and reconciliation strategies.

The Transit Expansion Division, in consultation with the Social Development, Finance and Administration Division, are working together to determine the appropriate community benefits clauses to be included in the procurement of the EELRT's future construction. Community benefits clauses are measurable targets that can be enforced through City agreements, to create equity-focused, inclusive economic development opportunities such as local and equity hiring, apprenticeships, as well as social procurement business opportunities for local and diverse suppliers. City staff will report back with a community benefits plan for the EELRT when City staff seek authority to advance the project to construction.

Next Steps

Subject to City Council's approval of the recommendations in this report, City staff will:

- Negotiate and execute the necessary agreements with Metrolinx to advance SSE protections for the EELRT at Sheppard-McCowan and Kennedy Stations;
- Complete preliminary analyses supporting the EELRT's refined design for the continued coordination with Metrolinx's SSE work, proposed Sheppard Extension, DSBRT and GO Transit to achieve appropriate rapid transit integration in Scarborough; and
- Report back to City Council in 2024 with:

- Revised cost estimates and approach to advancing the EELRT to 30% design;
- An update on the Province's Sheppard Extension project, including any changes to the EELRT alignment;
- Results of the Phase 2 public consultation process;
- Updated Metrolinx construction costs to deliver the required protections for the EELRT and to accommodate the utility exclusion zone at Kennedy Station; and
- An update on the status of environmental approvals and access to the Conlins Yard, including an alternative site for the EELRT MSF.

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ATTACHMENTS

Confidential Attachment 1 – Estimated Costs of Scarborough Subway Extension Interface Accommodations

Confidential Attachment 2 – Key Considerations and Guiding Principles for Light Rail Vehicles Procurement

Attachment 1 – Eglinton East Light Rail Transit Alignment and Stop Assessment

Attachment 2 – Eglinton East Light Rail Transit Distinct-Service Updated Business Case