

# TORONTO TRANSIT COMMISSION REPORT NO.

**MEETING DATE:** JANUARY 31, 2012

**SUBJECT:** EGLINTON SCARBOROUGH CROSSTOWN  
PROJECT UPDATE

## **ACTION ITEM**

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### **RECOMMENDATION**

It is recommended that the Commission:

1. support the ongoing discussions between TTC staff, Metrolinx and Infrastructure Ontario to resolve the issues of project delivery and governance as well as the project alignment and vehicle issues, and
2. direct the Chief General Manager to further report to the Commission in February 2012 on:
  - a. the Crosstown project delivery, project governance and the role of the Toronto Transit Commission (TTC) in design, construction, maintenance and operations; and
  - b. present an analysis of the Crosstown scope, alignment and vehicle technology, and
3. request the Minister of Transportation and Infrastructure to consider deferring any decisions on Eglinton Scarborough Crosstown project delivery, project governance, and project scope until TTC, Infrastructure Ontario and Metrolinx have resolved the outstanding issues related to these aspects of the project.

### **FUNDING**

The recommendations of this report do not have any direct funding implications for the TTC as the Eglinton Scarborough Crosstown project is fully funded by the Province of Ontario with a commitment of \$8.4 billion.

### **BACKGROUND**

The Eglinton Scarborough Crosstown transit project is funded entirely by the Province with a commitment of \$8.4 billion. Consistent with the *Metrolinx Act, 2009* and Province of Ontario directive, Metrolinx has responsibility to own, control and deliver the Crosstown

project.

In 2009, when Metrolinx adopted *The Big Move Regional Transportation Plan* and the Province announced funding for four new transit projects in Toronto, (the Sheppard East LRT, Finch West LRT, Eglinton Crosstown LRT and Scarborough RT), Metrolinx indicated that it would deliver the transit projects cooperatively with TTC and the City of Toronto. TTC and Metrolinx developed a governance structure (see attached) that would provide for Metrolinx to assert its role as owner and the TTC to assume the role of overall program manager to deliver the projects on behalf of Metrolinx based on TTC operating and maintaining the completed projects. The governance structure was presented to the Commission in October 2009.

In 2010, Metrolinx adopted the "*5 in 10 Plan*" that refined the scope, budget and schedule for the first phase of the 4 transit projects in Toronto.

In March 2011, the Mayor of Toronto, the Minister of Transportation and Metrolinx signed a Memorandum of Understanding (MOU) for a new transit plan for Toronto. The new plan includes the Eglinton Scarborough Crosstown transit project underground from Black Creek Drive to Kennedy Station continuing in the Scarborough RT (SRT) alignment to Scarborough City Centre as the responsibility of Metrolinx, and the Sheppard Subway Extensions, west to Downsview Station and east to Scarborough City Centre and enhanced bus service on Finch Avenue as the responsibility of the City of Toronto.

Following the MOU announcement, TTC continued project delivery of the new Eglinton Scarborough Crosstown on behalf of Metrolinx including planning, scoping environmental assessment (EA) amendments for the new underground sections, engineering, tunnel design, station design and the design of the light rail vehicle (LRV) while determining the change of the number of vehicles and delivery schedule based on the changes to the transit plan. Metrolinx notified the TTC that any further work on the Sheppard East LRT and Finch West LRT would not be funded and the City would be responsible for the costs incurred for these projects.

Although Metrolinx, TTC and Infrastructure Ontario had previously agreed on the project governance and the project delivery approach, in April 2011 Metrolinx initiated discussions with TTC to reconsider the Crosstown project delivery and project governance.

At its meeting in December 2011, the Commission directed "*the Chief General Manager to report to the Commission's January 2012 Meeting with an update on the status of planning and construction of the Eglinton Scarborough Crosstown transit project*". This report responds to the Commission's direction.

## **DISCUSSION**

The current plan for the Eglinton Scarborough Crosstown consists of:

- a largely underground alignment for 19 kilometres from Black Creek Drive to Kennedy Station;
- 6 kilometres in the SRT separated right of way;
- up to 26 stations; and
- using light rail vehicle technology.

As owner of the Crosstown, Metrolinx is responsible for all decisions regarding project scope, schedule, budget, and delivery. TTC has been responsible for managing all aspects of the project and to deliver the project on time and on budget.

The Eglinton Scarborough Crosstown will significantly expand the rapid transit network in Toronto. Although Metrolinx will own and control the line, it will function as part of the TTC system with 95% of all Crosstown customers taking a TTC bus or subway as part of their trip.

### **Eglinton Scarborough Crosstown Progress**

The Memorandum of Understanding and Metrolinx decision of 2011 which changed the Eglinton Scarborough Crosstown project scope to an underground alignment in the east required significant revision to the project implementation schedule. Despite this change, the TTC has made significant progress on the project because the central section of the project, the 10 kilometers from Black Creek Drive to Laird Drive, was largely unchanged from the earlier LRT plan.

The major TTC Crosstown project delivery achievements to date include:

- started construction on the West Launch Site at Eglinton Avenue West and Black Creek Drive;
- completed design of the West Tunnel from Black Creek Drive to Yonge Street;
- completed design of the Scarborough RT conversion to 30%;
- completed design for Kennedy Station to 10%;
- started design for 7 stations between Black Creek Drive and Yonge Street;
- held public consultations for Bathurst Station in 2011;
- opened the Crosstown community office at Dufferin Street and Eglinton Avenue West in June 2011;
- conducted extensive geotechnical testing and investigation work across the Eglinton corridor;
- ordered the tunnel boring machines; and
- ordered the light rail vehicles.

The 2012 TTC plans include:

- tender of the Eglinton West Tunnel from Black Creek Drive Street to Yonge Street construction contract in early 2012;
- receive and assemble the first 2 tunnel boring machines at the West Launch site in Summer 2012;
- start tunneling east from Black Creek Drive toward Allen Road in Fall 2012;
- initiate station headwall construction at 5 stations in late 2012;
- construct the tunnel extraction shaft at Eglinton Avenue West and Allen Road in late 2012;
- complete design of the Eglinton East Tunnel from Yonge Street to Kennedy Station;
- complete design of the 7 westerly stations to 30% by mid/late 2012;
- complete design of fourteen stations to 30% by the end of 2012/early 2013;
- initiate the preliminary planning and EA for the Eglinton Yard on the former Kodak site at Black Creek Drive and Eglinton Avenue and McCowan Yard; and
- prepare the amendment of the environmental assessment for the new underground Eglinton Avenue East from Laird Drive to Kennedy Station.

TTC has completed the Eglinton Scarborough Crosstown Project Implementation Plan that provides a comprehensive breakdown of all components of the project with recommended contract packaging and scheduling.

### **Crosstown Project Implementation Plan**

The Crosstown Project Implementation Plan reflects the project delivery approach previously agreed to by TTC, Metrolinx and Infrastructure Ontario consisting of TTC as overall project manager and implementation of a hybrid contracting strategy using the following approaches:

- Design Bid Build (DBB) - The traditional approach by TTC in which TTC consultants complete 100% of design and the construction is tendered to a construction firm. This approach is to be used on the tunnels and 3 interchange stations, Eglinton West, Yonge and Kennedy as they require the maximum control by TTC because of complex technical requirements and community impacts.
- Design Build (DB) - This approach involves TTC completing design to 30% and a private sector contractor completing design and construction. This approach provides less control for TTC and is appropriate for project components that are not high risk such as in-line stations. The approach includes a single contract for groups of approximately 3 stations to ensure a competitive environment and to minimize community impact and the construction foot print.
- Design Build Finance Maintain (DBFM) - In this approach TTC completes the design to 30%, and Infrastructure Ontario conducts an alternative financing and procurement process for a private sector contractor to complete the design,

partially finance the work, construct and maintain the component for an extended period after completion. This is more appropriate for project components that have very little community and business impact such as the maintenance and storage facilities and the Scarborough RT structure and stations.

The TTC Crosstown Project Implementation Plan is based on the following approach:

- Eglinton Tunnels - DBB
  - TTC designs to 100% and construction is tendered with detailed specifications.
- Interchange Stations (Eglinton West, Yonge Eglinton and Kennedy) - DBB
  - TTC designs to 100% and construction is tendered with detailed specifications.
  - These stations will have a high level of complexity to work with the structure of the existing stations and to maintain transit operations throughout construction.
- Eglinton In-line Stations - DB
  - TTC provides performance outputs at 30% of design with TTC procurement of a private sector contractor for final design and construction of groups of 3 to 4 stations.
- Systems - DB
  - TTC's usual practice is to procure systems (signalling, communications, etc.) to include design and construction.
- Yards - DBFM
  - TTC designs to 30% and Infrastructure Ontario procures a contractor to complete design, provide partial financing, construct the facility and maintain elements for a period of up to 30 years.
  - As yards are stand-alone facilities with limited utility and community impacts, they are good candidates for DBFM.
- Scarborough RT Conversion to LRT - Structure and Stations - DBFM
  - As with the yards, the SRT conversion will have limited community and business impact.

### **TTC - Metrolinx Partnership**

The Eglinton Crosstown LRT and Scarborough RT conversion to LRT were initiated by the TTC as part of a network of projects to significantly improve and enhance transit access and service across Toronto. These new transit projects, to be designed and operated as part of the TTC network, were consistent with Metrolinx's mandate to provide leadership and coordination of an integrated regional transit system and were included in the Metrolinx Regional Transportation Plan – *The Big Move*.

The Provincial funding commitment for the Toronto transit projects in 2009 broke new ground as it gave Metrolinx responsibility for ownership and control as a means to finance the project. As a new agency that had focused on planning and developing *The Big Move Regional Transportation Plan*, Metrolinx was interested in maximizing the utilization of TTC resources and expertise in building transit projects and relied on TTC's extensive expertise to program manage the complex planning, design, engineering, and construction to ensure that the integration with the TTC systems and the overarching safety requirements of underground construction and operation were met. As the transit operator, TTC would ensure that the operating requirements were built into the design of the new project.

As referenced earlier, Metrolinx, Infrastructure Ontario and TTC agreed on a transit project implementation delivery that consisted of:

- A Project Implementation Executive consisting of:
  - o The Chief General Manager of the TTC
  - o The Toronto City Manager
  - o The CEO - Metrolinx
  - o The CEO - Infrastructure Ontario
- Metrolinx - responsible for decisions regarding scope, schedule, budget and delivery; and
- TTC - responsible for program management including planning, design, engineering and construction based on TTC operating and maintaining the project upon completion.

As Program Manager TTC established a dedicated team of about 200 (TTC staff and consultants) with expertise in all areas of transit design, transit vehicle engineering, construction and operation, and, through its private sector consultants, also has access to an international network of prominent transit experts and services.

The TTC's approach to project delivery of major transit projects such as the Sheppard Subway, the Spadina Subway Extension, and the Union Station Second Platform, is to provide the overall project management and the interface with TTC operations, to ensure the projects are integrated into the TTC system, and to contract out to the private sector most of the design and all construction. The Crosstown project has been program managed in the same way ensuring the incorporation of innovation and international best practices while meeting TTC requirements for safety and operational efficiency.

### **Role of Infrastructure Ontario**

The Province of Ontario has used the Infrastructure Ontario's Alternative Financing and Procurement (AFP) process extensively to build hospitals, prisons, courthouses, highways and other infrastructure throughout the Province. Infrastructure Ontario uses a form of AFP whereby a private sector contractor has responsibility for most design, all the

construction, partial financing and, depending on the model, long term maintenance and operation.

The Infrastructure Ontario AFP process is a very different approach for the TTC and is not widely used by most large transit operators that have extensive in-house transit expertise and experience with expansion projects. However, TTC, Metrolinx and Infrastructure Ontario assessed the components of the Crosstown project to determine the most appropriate contracting approach and where AFP could be used.

TTC concluded that the best applications for AFP are components of the project that are technically straightforward and do not involve impacts on existing transit operations, extensive utility work or significant impacts on communities and businesses.

As noted earlier in this report, Metrolinx, Infrastructure Ontario and TTC agreed that the maintenance and storage facilities and the SRT conversion were considered good candidates for AFP contracts. In fact, Infrastructure Ontario was well advanced on the Request for Proposal for the DBFM contract for an LRT Maintenance and Storage Facility.

### **Reconsideration of the Crosstown Project Governance and Delivery**

Recently, Metrolinx has indicated that it is considering a different project delivery and governance arrangement for the Crosstown Project which could involve project management by another entity, rather than the TTC, a more extensive role for Infrastructure Ontario and one large alternative financing and procurement contract including final design and construction of all stations, the SRT, yards, and systems.

The Province of Ontario has agreed that TTC should operate the Crosstown line once it is completed. However, there is an intention to include as much maintenance as possible in the private sector contract and to have a separate agency or subsidiary responsible for project delivery with TTC, as operator, having a stakeholder role. TTC is continuing to discuss with Metrolinx and Infrastructure Ontario their proposal for project delivery including allocation of maintenance responsibility.

TTC has indicated to Metrolinx that there are a number of concerns with this approach. Separating maintenance from operations and defining the respective interface between TTC and a private-sector entity is very complex. TTC is concerned that it cannot be responsible for safety and system performance if track, signal and vehicle maintenance, are for example the responsibility of a private sector entity. Safety and system performance are paramount concerns. Development of an approach to maintenance by the private sector that satisfies TTC safety and service performance will be challenging.

Similarly, if a private sector contractor, not the TTC, manages the delivery of the

Crosstown project, both the duration of the procurement process and the hand over and commissioning of the project could take longer as TTC will need to ensure that safety and operational standards are met, particularly where the new line interfaces with the existing system at interchange stations. The AFP process for one large contract including maintenance could delay the project. Utility coordination, property acquisition and community relations during construction could be the responsibility of the private sector contractor or a new governance entity.

TTC accepts that Metrolinx as owner has control over decisions regarding project delivery and governance. However, TTC believes that continuing the Crosstown delivery with TTC project managing the overall design and construction with some components delivered by Infrastructure Ontario's AFP approach is the most efficient and the most likely to meet the schedule targets and the lowest cost. Given the complexity and size of the Crosstown project, the assistance of an expert third party to provide an objective assessment of the project delivery would be beneficial and could help resolve some of the issues between TTC, Metrolinx and Infrastructure Ontario. Staff believe that serious consideration should be given to convening a panel of experts from large North American transit agencies, with experience in major underground transit construction, to review and critique the TTC Crosstown Implementation Plan with respect to feasibility, cost, schedule and project delivery.

Metrolinx and Infrastructure Ontario expect that the Value for Money analysis proposed for the Eglinton Scarborough Crosstown AFP will be submitted to Treasury Board in March 2012. TTC has presented its concerns to Metrolinx and Infrastructure Ontario and the parties continue to meet to work out the issues.

TTC has requested that Metrolinx and Infrastructure Ontario provide information about their project delivery proposal including the Program Implementation schedule, project cost breakdown, Value for Money analysis and the TTC role.

Staff recommend that the Commission request the Minister of Transportation and Infrastructure consider deferring any decisions on Eglinton Scarborough Crosstown project delivery, project governance and project scope until TTC, Infrastructure Ontario and Metrolinx have resolved the outstanding issue related to these aspects of the project.

Staff will report to the Commission at its February 2012 meeting on the progress of the Crosstown Project delivery and governance discussions.

### **Eglinton Scarborough Crosstown Scope**

The earlier Metrolinx "*5 in 10 Plan*" consisted of 52 kilometers of light rail lines with only 15 kilometers in an exclusive right-of-way underground (as in the central part of Eglinton



Avenue) or separated (as with the SRT). As part of this plan Metrolinx awarded a contract to Bombardier for 182 low-floor light rail vehicles (LRV) in 2010. The low floor LRV was the appropriate vehicle for the at-grade, centre of the road light rail transit operation.

The MOU between the Mayor, Province and Metrolinx resulted in a change to the Eglinton Scarborough Crosstown plan, consisting of 25 kilometers of largely underground and grade separated with no at-grade, centre of the road transit operation.

As part of the referred February Commission Report, TTC staff will be discussing the vehicle selection and project alignment.

**CONCLUSION**

The Eglinton Scarborough Crosstown is one of the most important transit infrastructure initiatives in Toronto in generations. TTC is progressing on the delivery of the Crosstown on behalf of the owner, Metrolinx. Staff are continuing to work with Metrolinx and Infrastructure Ontario to resolve the outstanding issues of project delivery and governance. As stated above, staff will report to the Commission in February 2012 on the progress of the project delivery and governance discussions as well as the vehicle selection and project alignment.

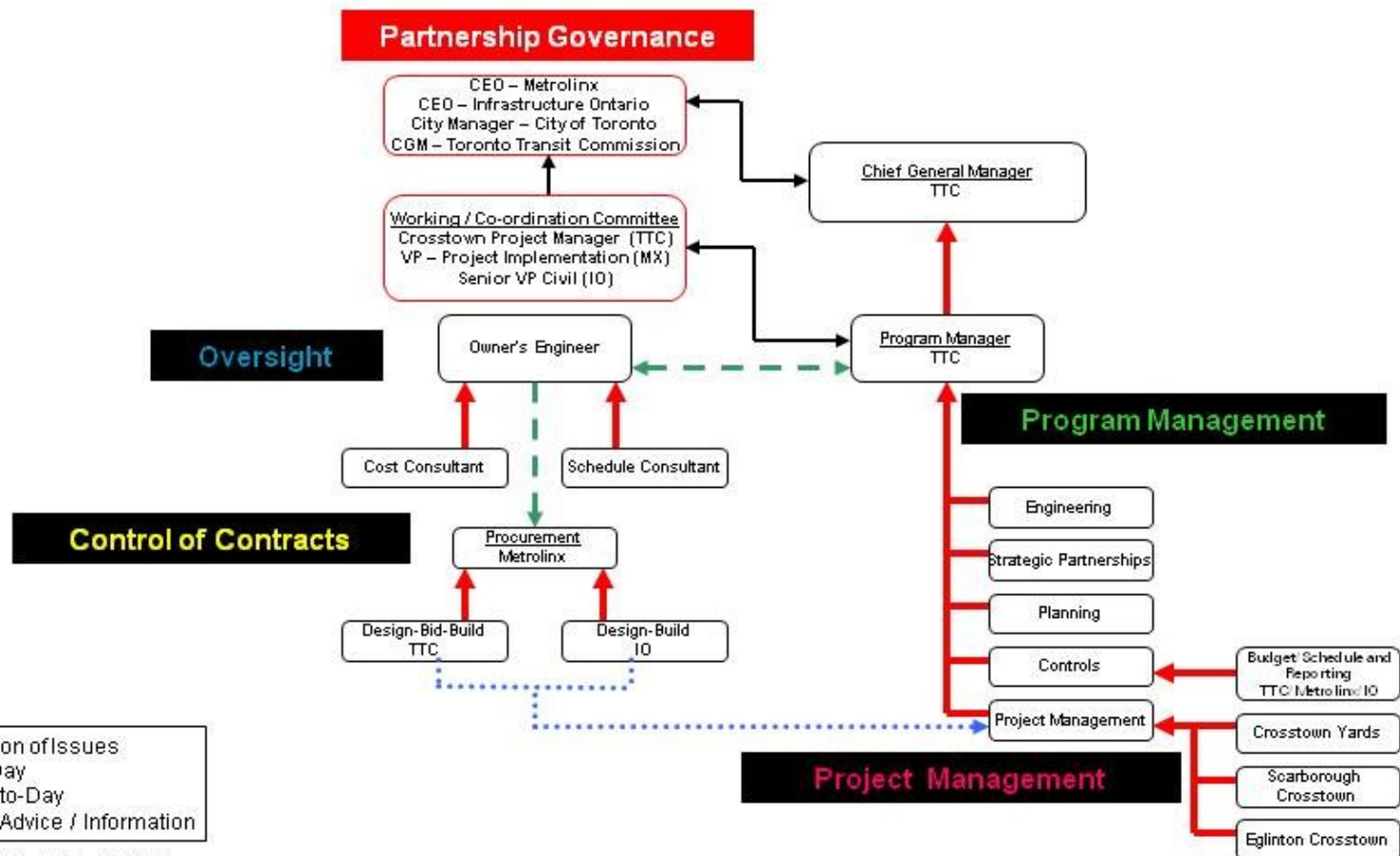
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January 24, 2012  
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Attachment: Appendix A



# METROLINX – TTC TRANSIT PROJECT IMPLEMENTATION



•Presented to Toronto Transit Commission October 29, 2009  
 •Updated January 2012

Metrolinx to approve project scope, budget and major RFPs.