

TORONTO TRANSIT COMMISSION REPORT NO.

MEETING DATE: May 1, 2012

SUBJECT: YONGE SUBWAY EXTENSION POST TRANSIT PROJECT
ASSESSMENT PROCESS TECHNICAL AMENDMENT

ACTION ITEM

RECOMMENDATION

It is recommended that the Commission authorize staff to proceed with an amendment to the Transit Project Assessment Process (TPAP) for the following design changes proposed in the Yonge Subway Extension Conceptual Design Study:

- The addition of an electrical substation at the Cummer Station and a 20m increase in length of the station box;
- The reduction in size of the Steeles Station underground bus terminal and the removal of the bus portal on Yonge Street which accesses the terminal north of Steeles Avenue;
- Introduction of a bus loop at Clark Station to reduce bus volumes at Steeles Station;
- Removal of Royal Orchard Station from the project; and
- The addition of an underground train storage and maintenance facility north of Richmond Hill Station.

FUNDING

The Yonge North Subway Extension project is included in the TTC 2012-2016 Capital Program budget on page 873 with a total budget of \$5.772 million for the Conceptual Design Study. The funding for the Conceptual Design Study was based on a cost sharing agreement; 25% City of Toronto and 75% York Region. The work to amend the current TPAP will be completed within the remaining budget of \$1.5 million under the current cost sharing agreement with York Region.

BACKGROUND

The YSE project is 7.42km in length with 1.6km located in the city of Toronto (south of Steeles Avenue) and 5.81km in York Region (north of Steeles Avenue). The project comprises a total of 5.08km of twin bored tunnel, five stations, two major bus terminals, two bus loops, five substations, eight emergency exit buildings (EEBs), one bridge, six cross passages, 513m of twin or triple box structure and an 831m below grade triple track train

storage facility north of the Richmond Hill Centre Station. There are three sections of special trackwork; the extension of Finch Tail Tracks, the crossover south of Steeles Station, and the crossover south of Richmond Hill Station.

On June 15, 2007, the Province of Ontario announced \$17.5 billion in funding for transit projects for the Greater Toronto Area and Hamilton. Named "MoveOntario 2020," the provincial plan included funding for an extension of the Yonge Subway from its current terminus at Finch Station in the city of Toronto to Richmond Hill Centre at Highway 7 in the Town of Richmond Hill.

On June 21, 2007, York Region Council authorized a functional planning study in coordination with the TTC and the City of Toronto for the extension of the subway. The Functional Planning Study was completed on October 3, 2008 at which time York Region initiated the TPAP for the YSE project.

On January 27, 2009 Toronto City Council adopted the following:

- Submission of the TPAP as a co-proponent with York Region and the TTC;
- Confirmed the major components of the project;
- Directed the City Manager and Chief General Manager of the TTC to commence discussions with Metrolinx, the Province of Ontario, York Region and Government of Canada for the purposes of securing funding and service agreements on the basis of the following requirements:
 - The City expects the Province will be responsible for all capital costs;
 - No additional operating costs to the City of Toronto;
 - TTC will be responsible for project management and delivery;
 - TTC will operate and maintain the subway infrastructure;
 - TTC will own the property, assets and subway facilities within York Region.
 - Design and build using TTC design standards and practices;
 - Rail Yard Needs Study may identify options in York Region and may require further funding needs;
 - The Spadina Subway Extension and Automatic Train Operation/Control on the YUS must be in place prior to the opening of the Yonge Subway Extension;
 - Costs to address capacity of Bloor-Yonge Station and the North York Service Road are to be included as project costs;
 - Proposed new subway stations and related properties optimize development potential;
 - The EA process identify development sites along the route and protect for direct links into the proposed subway stations;

- Metrolinx be requested to prioritize the Downtown Relief Line within its 15 year plan; and
- Metrolinx be requested to prioritize the Downtown Relief Line in advance of the Yonge Subway Extension.
- TTC confirm that the SRT project as recommended in the Regional Transportation Plan includes the extension of the SRT to Malvern Town Centre in the first 15 years.
- TTC develop a more inspiring name for the Downtown Rapid Transit Line.
- TTC consider the following motions:
 - Commence proper studies including Environmental Assessments to evaluate the Downtown Rapid Transit Line and Don Mills LRT to move up on the priority list of Metrolinx;
 - Steeles Avenue Station be designed such that all new lands required (not currently on the road allowance) be on the north side of Steeles Avenue;
 - The Sheppard Subway Line be extended from Yonge Street to Downsview to provide an alternate route to the Yonge Subway Line into downtown Toronto and access to the Downsview subway maintenance facility;
 - No capital cost to the city of Toronto for the construction of the Yonge Street Extension and the Sheppard Subway Extension;
 - TTC be requested to proceed with the studies necessary to construct the Downtown Relief Line.

The TTC and the City of Toronto became co-proponents of the transit project which received final approval from the Ontario Ministry of the Environment on April 7, 2009.

In July 2009 Metrolinx completed the initial Benefits Case Analysis (BCA) for the YSE based on the findings of the TPAP. The Metrolinx Board directed their staff to undertake additional analysis of the YSE project and examine the following areas:

1. Possible adjustments in timing or phasing of the subway extension;
2. Review of the need for some stations in order to reduce capital costs;
3. Consideration of the parallel GO Richmond Hill rail corridor to off-load some of the demand on Yonge Street;
4. The costs impacts of the various options on the subway yards strategy, Bloor-Yonge Subway station improvements, and a future Downtown Relief Line to bypass the Bloor-Yonge congestion "pinch point."

In October 2009, the City of Toronto and the Regional Municipality of York authorized the TTC and York Region Rapid Transit Corporation (YRRTC) to proceed with the Conceptual Design Study for the Yonge Subway Extension. The joint venture of McCormick Rankin

Corporation and Hatch Mott MacDonald was retained to carry out this work. The purpose of the study was to undertake the additional analysis resulting from the July 2009 Metrolinx BCA, including an update of the projected ridership and estimated capital costs. The conceptual design also continued to advance the design of the YSE project to maintain a state of readiness for implementation.

DISCUSSION

The purpose of the Yonge Subway Conceptual Design Study is to enhance definition of preliminary engineering, in order to produce a solid project definition based on reliable estimates of costs, benefits, impacts and risks. The study resulted in the development of a specific project with definitive scope elements, alignment and design features which provide reasonable assurance that the project will meet the objectives and identify the amount of funding required to complete the project. The study results produced changes to the initial TPAP which will require an amendment.

The major changes to the Yonge Subway Extension project since the TPAP was approved are as follows:

- The addition of an electrical substation at the Cummer Station and a shift of the station platform;
- The reduction in size of the Steeles Station underground bus terminal and the removal of the bus portal on Yonge Street which accessed the terminal north of Steeles Avenue;
- Introduction of a bus loop at the Clark Station to reduce bus volumes at Steeles Station;
- Removal of the Royal Orchard Station; and
- The addition of an underground train storage facility with some maintenance capabilities north of the Richmond Hill Station.

Substation - Cummer Station

The design of the Yonge Subway Extension which was submitted for the TPAP did not include an electrical substation at Cummer Station. It was initially assumed that the current substation at Finch Station had sufficient capacity and could be utilized to provide sufficient traction power along with the substation at Steeles Station. The analysis carried out during the Conceptual Design Study has shown that there is insufficient capacity at the Finch Station substation and one is now required at Cummer Station. It is proposed that the new substation be located above the main entrance building in the northeast corner of the Yonge Cummer intersection.

The conceptual layout for Cummer Station remains relatively unchanged from the TPAP, however the length of the station box has been increased by approximately 20m as a result of conflicts with an underground storm sewer. This conflict necessitates a modification to the station's ventilation configuration which results in a lengthening of the station box.

Bus Terminal - Steeles Station

The design of Steeles Station includes an underground bus terminal located within the Steeles Avenue right-of-way; however, the design has evolved. The total number of bus bays required has been reduced from 25 to 16 by relocating some of the York Region Transit (YRT) routes to Clark Station. As a result of relocating some of the YRT routes, there is no longer a requirement to provide a portal on Yonge Street to access the bus terminal from the north. The request to consider shifting the portal access on the east side of Steeles Avenue to the north was investigated, however it was found not to be possible. The design team has met with the land owner on the south west corner of the Yonge/Steeles intersection to discuss opportunities to relocate the bus terminal on that property and this has potential to be explored at a later date.

Bus Loop - Clark Station

The conceptual layout for Clark Station has evolved since the TPAP to include a bus loop which is incorporated into the already planned combined entrance and electrical substation building. This small bus loop will consist of three bus bays which will allow YRT customers access to the subway sooner rather than travelling to Steeles Station. This reduces the number of bus bays required at Steeles Station and eliminates the need for a portal on Yonge Street.

Royal Orchard Station

Based on limited redevelopment opportunities and low ridership projections, the Conceptual Design Study recommends that Royal Orchard Station be removed from the YSE project. Future redevelopment potential in the area of the proposed station is limited as a result of its location within the Vaughan Thornhill Heritage Conservation District and the established high and low density residential property which inhibit intensification on the Markham side. The limited redevelopment and land growth opportunities result in the projected subway ridership volume being too low to justify the capital and operating costs associated with a subway station.

Train Storage Facility

The need for a train storage facility was identified in the TTC Subway Rail Yard Needs Study completed subsequent to TPAP approval for the Yonge Subway Extension. Options which can accommodate 14 train sets and minor maintenance were developed, reviewed and

analyzed. Considerations were given to not preclude a future extension of the Yonge Subway north from Richmond Hill Centre. Three short-listed options were evaluated in terms of: a future 16th Avenue station, property and building impacts, constructability, future extension, capital and operating costs, noise and vibration, and operational issues. The preferred option for the train storage facility is an 831m long triple track underground structure along the west side of the CN Rail corridor. The train storage facility will require parking and a staff building. The implementation of a train storage facility for the YSE requires a separate TPAP which costs can be accommodated within the budget of existing Conceptual Design Study.

JUSTIFICATION

The Yonge Subway Extension project is an important project for the TTC, City of Toronto, York Region and Metrolinx. The completion of the amendment to the TPAP will ensure all elements required for the project have the appropriate approvals and property protection in addition to advancing the state of readiness of the project.

April 19, 2012
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