

TORONTO TRANSIT COMMISSION REPORT NO.

MEETING DATE: March 24, 2010

SUBJECT: PROCUREMENT AUTHORIZATION AMENDMENT
TORONTO-YORK SPADINA SUBWAY EXTENSION PROJECT
CONTRACT NO. A85-80 – TWIN TUNNELS
CONTRACT AMENDMENT NO. 1

ACTION ITEM

RECOMMENDATION

It is recommended that the Commission authorize Contract Amendment No. 1 to Hatch Mott MacDonald Ltd., in the amount of \$8,000,000.00 for the completion of detailed design and support during construction for the Twin Tunnels – Downsview Station to Vaughan Corporate Centre Station, increasing the total upset limit to \$20,000,000.00 from \$12,000,000.00.

FUNDING

Sufficient funds for this expenditure are included in the Toronto-York Spadina Subway Extension (TYSSE) Project, as set out on pages 1439 to 1442 of the TTC 2010-2014 Capital Program (Category - Expansion) which was approved by City Council on December 8, 2009.

BACKGROUND

The TTC is implementing the design and construction of an underground subway line from the existing Downsview Station on the Spadina line to the proposed Vaughan Corporate Centre Station located in the City of Vaughan, Region of York. The 8.6 km extension includes six new subway stations and 6.7 km of bored twin tunnels.

The Toronto-York Spadina Subway Extension (TYSSE) project is being funded by the Federal Government, the Province of Ontario, the Regional Municipality of York and the City of Toronto. The TTC is managing the design and construction of the YYSSE project and will own and operate the subway extension.

At the Commission Meeting of November 26, 2008, the Commission approved YYSSE's recommendation to award Contract A85-80 for the design of the Twin Tunnels to Hatch Mott MacDonald Ltd. (HMM), in the upset limit amount of \$12,000,000.00. The fee was intended to cover design services for the Twin Tunnels including preliminary design, detailed design, design support during construction and preparation of record drawings.

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Contract A85-80 details are as follows:

Original Contract Upset Limit Amount	\$12,000,000.00
This Contract Amendment	<u>8,000,000.00</u>
Total Revised Upset Limit Amount	\$20,000,000.00

No work has been done on this Contract Amendment.

DISCUSSION

The original upset limit was based on the conceptual design in the Environmental Assessment reports completed in 2006 with an estimated cost of \$330,000,000.00. Unanticipated field conditions, changes to station alignments, changes to City planning requirements and changes to the design criteria due to the original design being based on the Sheppard Subway Expansion designs which have now evolved necessitated several significant scope revisions. The current cost estimate for the tunnels, including the finishing contract, has now been estimated at \$447,000,000.00. Additional design activities required to address these revisions are as follows:

1. Addition of a double-ended pocket track structure north of Finch West Station. At the inception of the Project, operating criteria required that Steeles West Station be designed with a third track as a turnback facility. Following the preliminary design of the tunnels (30% submission) and based on an internal study, the turnback facility at Steeles West Station was replaced as a double-ended pocket track north of Finch West Station, valued at approximately \$69,000,000.00. Design of this structure has increased the design effort by HMM and was not within the original design assignment.
2. Addition of a compensation grouting program to protect the Schulich School of Business from damage due to ground settlement. During investigations it was determined that the Schulich School of Business facility on the York University campus was vulnerable to the effects of settlement due to tunnelling as well as excavation of the adjacent York University Station. This required considerable level of effort to develop a compensation grouting design to counter these settlement effects.
3. Addition of the design of two advance launch shafts for the tunnel boring machines. It was initially anticipated that the contractors responsible for station and tunnel sections would build the launch shafts. In order to meet the aggressive Project schedule for track and systems installation, two launch shafts are required for early launch of the tunnel boring machines. HMM was requested to prepare designs and tender documents for these advance launch shafts.

4. Other miscellaneous items include addition of the design of drop shafts for lowering track and other materials into the permanent structures at several locations along the alignment; reconfiguration of emergency exit buildings to address new TTC maintenance requirements; and numerous minor and major tunnel realignment designs to address field conditions and station alignment changes based on actual site conditions.

The total design cost will be \$20,000,000.00. While there is no Professional Engineers Ontario (PEO) guideline specific for this type of work, this cost is in line with what is found in industry standards and commensurate with previous TTC design costs for this type of design.

JUSTIFICATION

The Contract Amendment is required to cover the additional engineering costs associated with the increased design effort for tunnelling.

March 2, 2010
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