

**Meeting Date:** August 30, 2006

**Subject:** Procurement Authorization - 39 New Subway Trains – Proposal No. P31PD05761

## **Recommendation**

It is recommended that, subject to City of Toronto Council, Province of Ontario and Government of Canada funding approval, the Commission:

- i. authorize the acceptance of the proposal submitted by Bombardier Inc., Bombardier Transportation for:-
  - a. 39 trainsets and all associated work in the amount of \$499,382,403, plus applicable taxes;
  - b. associated contract items in the amount of \$26,919,780, plus applicable taxes; and
  - c. three of the specified options, in the amount of \$21,564,135, plus applicable taxes;
  - d. a contingency allowance amount of \$50,220,000 including all applicable taxes for the estimated costs with respect to price adjustments for escalation and the estimated costs for the provision of the required contract security and will be paid out if required, only as incurred;resulting in a total contract price of \$674,787,603 including all applicable taxes;
- ii. forward this report to The City of Toronto for approval of this project and confirmation of funding by City of Toronto Council at its September, 2006 meeting;
- iii. forward this report to both the Province of Ontario and the Government of Canada for confirmation of funding approval as detailed in the Funding Section of this report; and
- iv. direct staff to explore the possibility of obtaining from the Province of Ontario and/or the Government of Canada 'Letters of Indemnity' in place of contract financial security as a means of further reducing the project budget.

## **Funding**

Project 4.12 Purchase of 234 Subway Cars/39 Trainsets (H4 & H5 Replacement and Growth), includes \$755 million as set out on pages 1003-1005 (Revenue Vehicles) of the 2006-2010 TTC Capital Program, which was approved by City Council on December 12, 2005. Budget and project commitment approval exist for the full Subway Train Project; however, procurement authorization is required from the Commission and TTC must report back to the Budget Advisory Committee prior to awarding any contract.

The purchase of the 234 subway cars is estimated to cost \$710 million inclusive of all contract costs, security, escalation, internal costs and taxes. In addition, in order to accommodate the new train sets, upgrades to existing maintenance facilities at our Wilson complex are required in the estimated amount of \$63 million.

### **Total Project Costs / \$Millions**

Subway Train Purchase / 710

Project Budget / (As per the 2006-2010 Capital Program approved by City of Toronto Council on December 12, 2005) 755

Variance / (45)

Wilson Facility Modifications / 63

## Capital Budget Variance / 18

(As per the 2006-2010 Capital Program approved by City of Toronto Council on December 12, 2005)

In addition, project costs of \$118.565 million are anticipated in 2006 which is \$7.500 million more than the approved 2006 budget of \$111.065 million.

It should be noted that the award amounts are exclusive of the financial security requirement and of escalation through the contract. Allowances for these items totalling \$50.2 million are included in the \$710 million estimated cost for the subway cars. The financial security requirements of the TTC terms and conditions require that 100% of the monies paid to a Contractor are secured through a combination of bonds, letters of credit, and title of materials. The cost of financial security for this contract is estimated to be \$23.9 million. A precedent was established as part of the 1992 award of the original T1 Contract where the Provincial government issued a financial assurance letter to avoid the need for such security or letter of credit. If the same situation occurred here, the variance noted above could be partially or perhaps fully ameliorated.

A request for additional funds (if necessary) will be made as part of the 2007-2011 Capital budget process.

### Funding Sources

In consideration and approval of the 2006-2010 Capital Program, funding for the new subway cars was to be provided through various funding programs and it was assumed to be one-third from each level of government on the total project cost of \$755 million. The assumptions on this one-third funding have been consistent since the time this project was included in the 2001-2005 capital program at a cost then estimated at \$774 million. The following table outlines the budgeted expenditures and the anticipated sources of funding:

(\$Millions)	1/3 Share of Funding	CSIF	Balance of funding	Anticipated Funding Sources		
				<u>Ontario</u> OTVP	<u>Canada</u> CSIF(2) or Gas Tax	<u>City</u> Debt
City	252	54	198			198
Province	252	80	172	172		
Canada	252	89	163		163	
Totals	755	223	533	172	163	198

As outlined in Appendix A, it was anticipated that funding of the TTC's Capital Program would approximate a 1/3 share from each level of government from various funding programs on capital requirements of \$3.3 billion over the years 2006-2010.

Capital funding of \$1.050 billion as announced under the Canada Strategic Infrastructure Fund (CSIF) represents about a 30% portion of funding of the projected capital expenditures of \$3.3 billion. The current draft CSIF agreement includes the funding of 70 subway cars which represents about 30% of the total order for 234 vehicles (funding is subject to finalization of a contribution agreement signed by all parties).

The balance of funding required for the subway cars was assumed to come from the following sources:

- **Provincial funding** of \$172 million was expected to be sourced from the Ontario Transit Vehicle Program (OTVP). Funding was anticipated for all replacement or expansion vehicles and rebuilds under the Ontario Transit Vehicle Program (OTVP), net of applicable vehicle funding received under CSIF. As a result of the cancellation of the OTVP (in the March 2006 Provincial budget), senior TTC and City staff have been meeting with Ministry officials to address this. Confirmation of funding has been requested from the Province as outlined in the recommendations of this report.

- **Federal funding** of \$163 million was expected to be sourced from the Federal Gas Tax and from CSIF successor programs. It is anticipated that a portion of the base Federal Gas Tax funding (of \$521 million available for 2006-2010) will be applied by the City of Toronto towards funding the remaining cars within the requirements of the funding agreements. Confirmation of funding has been requested from the Government of Canada as outlined in the recommendations of this report.
- **City funding** is sourced from debt with terms as determined by the City of Toronto, for the net capital expenditures after applying receipt of funding from other levels of government.

## **BACKGROUND**

### **Rationale for Replacing Old Trains:**

The oldest of the H4 and H5 cars are over 30 years old. In general, 30 years is the life expectancy of rail vehicles. The H4 cars remaining in regular service have received a life extension program to ensure they run safely until 2009/2010 when they can be replaced. The impact of age on a rail car occurs on many levels, including structural and technological; which further impacts on the passengers significantly, (for example the H4 cars do not have air conditioning and have reliability levels approximately 7% of the replacement cars).

TTC has had the H4 and H5 replacement project shown in the budget for many years, with the total budget of \$755 M based on escalated pricing from the initial procurement of the T1 cars awarded in 1992.

The number of 234 cars (39 six car trainsets) being procured is being driven by three factors, noting that numbers must represent six car trains:

- H4 replacement - 88 cars
- H5 replacement - 136 cars
- A further number of cars required for expansion of service until the next projected car procurement in 2018 – 10 cars.

### **Benefits of New Trains:**

The new train design is a six car trainset. This change in design from the married pair design enables many benefits for the public:

- Increased reliability of service – compared to the best trains running in Toronto today, the new trains are designed to be almost four times more reliable.

- Improved passenger safety – introducing technologies such as crash energy management, train end evacuation ramps that halve emergency evacuation time, reduced fire smoke and toxicity levels, with maximum fire load reduced by approximately 25% when compared to other cars in Toronto.
- Improved passenger accommodation – inter-car gangways enable free movement between cars, and contribute to the increase in interior space of approximately 8%, enhanced passenger information systems, improved ventilation and air conditioning, and increased accessibility levels.
- Reduced Cost – the savings realized on the car design total approximately \$45 M. These funds will be used to upgrade the maintenance facility to reduce maintenance and repair times, thereby ensuring better levels of service for this and future fleets. The upgrade to Wilson car house will also facilitate enhancements in the maintenance approach for the existing cars.
- Passenger Driven Design Features – following the survey conducted on the mock-up train throughout June and July 2006, all of the features are at this point planned to be incorporated into the new train design. The features include the next station electronic display sign and the active route map, which were identified by over 70% of respondents as being among the best features of the mock up.

## **DISCUSSION**

Sole Source procurement was directed by the Commission on September 21, 2005, in the Committee of the Whole Meeting.

The scope of the work generally comprises of the design, manufacture, supply, delivery, testing, commissioning and warranty of thirty-nine (39) Six Car Subway Trainsets, a Cab Simulator, and associated equipment necessary to facilitate operation and maintenance of the trainsets and cab simulator. This includes special tooling and test equipment, spare parts, computer based training and operation and maintenance manuals.

The Commission advised Bombardier Inc. of its intention to commence negotiations for the supply of New Subway Trains (NST) on a sole source basis and that any subsequent contract for this purchase would be conditional on Municipal, Provincial and Federal funding approval, and that negotiations with Bombardier Inc. not exceed six months after the submission of a Proposal from Bombardier. Further, that if negotiations are not successful to the satisfaction of the Commission, then negotiations will be discontinued and both parties will be responsible for their own costs relating to the entire negotiation process (including the Request For Proposal and Proposal Submission Process) and that the Toronto Transit Commission may then, at its sole discretion, subsequently issue a competitive Request For Proposal or enter into negotiations with another party. These terms and conditions were detailed in the July 19, 2006 report to the Commission.

Draft specifications and drawings had been prepared for the contract and Commission staff met with Bombardier staff and reviewed them during December 2005 and January and February 2006 and the formal Request For Proposal was issued on March 10, 2006, with a closing date of May 31, 2006. The Proposal documents also requested pricing for sixteen “Specified Options”.

Bombardier Inc. submitted their initial Proposal on May 31, 2006, with a ‘Base’ Total Proposal Price which was higher than anticipated and included numerous technical and commercial exceptions and qualifications. Subsequently, negotiations occurred between Bombardier and Commission staff to try and develop mutually acceptable revised technical specifications and General Conditions and lower pricing. Bombardier subsequently submitted a final revised Proposal on August 10, 2006, based on the mutually acceptable revised technical specifications and revised General Conditions. The revised Proposal pricing for its base Proposal was lower for all price schedule items and all “Specified Options”. Whilst the overall costs were reduced through negotiation, the technical performance requirements of the train were not reduced, and will still be achieved. Details of the options specified and those recommended for acceptance in this report are attached (Appendix: B).

In relation to the financial position negotiated, details are shown in the Project Budget Table attached (Appendix: C). The core work to meet the Request For Proposal requirements includes the 39 trains and other contract items, with the specified options planned to be accepted also shown. The TTC receives a full GST rebate on its purchases, and therefore GST is removed from the budget requirement as shown in the Project Budget Table. Furthermore, this table also shows the need for a \$63 M separate project for carhouse upgrades, \$45 M of which is provided by the budget reduction associated with the revised train design.

The average base cost per car is \$2.13 M. The comparable escalated price for T1 car is \$2.49 M.

### **Evaluation of Pricing:**

In addition to TTC staff’s internal evaluation, the pricing received from Bombardier has been subject to price analysis scrutiny by two independent consultant firms. In order to achieve the highest level of independence and integrity of assessment, the processes and methods used were determined individually by the consultants. Data was gathered independently by each consultant, with TTC providing data for the original T1 procurement in 1992. The Request for Proposal documents and proposal submissions by Bombardier, with updates following negotiations, were also provided by TTC staff to the consultants.

### **TTC Evaluation:**

The recommended price per car compares favourably to the contract price of the T1 car, at approximately 14.4% lower when the T1 car price is escalated to September 2006.

The technical requirements included in the specification for the New Subway Train (NST) are of significantly higher standard than the original T1 specification upon which the budget was originally developed, incorporating:

- Emergency evacuation ramps halving evacuation time
- 25% reduction in fire load
- enhanced crashworthiness
- almost four times increase in train reliability
- 8% increase in total passenger carrying capacity

### **Independent Third Party Review:**

#### **Booz Allen Hamilton Evaluation:**

Booz Allen Hamilton Inc. is one of the major rail consultants in North America, with extensive work history involving many major subway properties, including Toronto and New York. This consultant conducted evaluations based on 3 approaches:

- Industry Comparative Analysis
- Federal Transit Administration Transit Economics Requirements Model (TERM)
- Ground Up Analysis

All analysis methods resulted in the assessment that the price received from Bombardier for the new trains, adjusting prices for differences in complexity and size, passed the test of reasonableness.

The Summary and Conclusions of the Booz Allen Hamilton report is attached as Appendix E.

#### **Interfleet Technology:**

Interfleet Technology Inc. is one of the leaders in the international rail consultant market, with offices located in the US, UK, and Australia. This consultant used data from the US, Asia, and Europe to develop their costing model. Interfleet also extensively analysed the commercial terms and conditions of the original RFP and proposal documents.

Using the methods developed, Interfleet Technology conclude that “the price is very much in line with comparable procurements in North America.”

The Executive Summary of the Interfleet Technology report is attached as Appendix D.

The full reports from both consultant firms are posted on the TTC website at [ttc.ca](http://ttc.ca). Copies are also available upon request from the General Secretary’s Office of the TTC.

### **JUSTIFICATION**

Based on the independent third party price analyses by two separate consultant firms, the price negotiated under the sole source procedure with Bombardier passes the test for reasonableness.

Therefore as the negotiated price is determined to be reasonable, it is recommended that the Commission authorize the acceptance of the proposal.

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August 18, 2006  
6-204-35

Attachment: Appendix A to E