

# TORONTO TRANSIT COMMISSION REPORT NO.

**MEETING DATE:** September 27, 2012

**SUBJECT:** PROCUREMENT AUTHORIZATION - DESIGN AND SUPPLY  
UPDATE FOR SPEED CONTROL SYSTEM ON YUS LINE

## **ACTION ITEM**

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### **RECOMMENDATION**

It is recommended that the Commission authorize the award of contract C31PA12738 to Thales Canada, Transportation Solutions, in the amount of \$7,859,150.00, including taxes for the design and supply of an updated Speed Control System (SCS) for the Yonge-University-Spadina (YUS) Subway Line.

### **FUNDING**

Sufficient funds for the Base Proposal (YUS Main Line Resignaling - \$5,842,100.00) and Option 1 (Blue Light Functionality - \$310,750.00) expenditures are included in Project 2.4 – YUS ATC Resignalling, in the TTC 2012-2016 Capital Program approved by the Commission on December 14, 2011 and by Council on January 17, 2012. This project is referenced on pages 399-403 under the State of Good Repair/Safety Category of the 2011-2015 Capital Program project documentation.

Sufficient funds for the Option 2 (Toronto-York Spadina Subway Extension Signaling - \$1,706,300.00) expenditure are included in the Toronto-York Spadina Subway Extension (TYSSE) project in the TTC 2012-2016 Capital Program approved by the Commission on December 14, 2011 and by Council on January 17, 2012. This project is referenced on pages 1447-1449R under the Expansion Category of the 2011-2015 Capital Program project documentation.

### **BACKGROUND**

At its meeting on November 28, 2001, the Commission approved the award of Contract C31D01836, in the amount of \$25,892,430.13, to Alcatel (presently called Thales), for the design and supply of a SCS. The SCS will provide continuous on-board enforcement of train operating speed limits, as recommended by the Russell Hill Coroner's Inquest, and will provide enforcement of all signals. The SCS provides for a violation warning to the train operator when a speed limit is exceeded. If this warning is not complied with by slowing the train, emergency braking will occur. The SCS provides other important safety benefits

in the subway, such as enforcement of a speed limit when a train is traveling in the reverse direction.

Since the award of the Speed Control Contract in 2001, the design and supply of the on-board train and track wayside controls and equipment is complete. The on-board and wayside equipment has been installed by Commission forces. Speed control is operating on the Shepard and YUS lines, and is under test on the Bloor-Danforth line.

The SCS was designed based on the existing signal system on the YUS, and this design and corresponding equipment installation has been complete for many years. Speed control was not implemented in the South Yonge area as this area has been scheduled for re-signalling for a number of years. Unfortunately, the speed control project suffered numerous delays primarily due to software development and system reliability problems. These problems have been successfully resolved.

As part of the Commission's State-of-Good Repair / Safety Signalling projects, Project 2.4 – YUS ATC Resignalling replaces the existing YUS signal controls with new, state-of-the-art equipment. Coupled with the equipment replacement, the signal block design will change in order to optimize train separation and improve headway. Except for the South Yonge area, this re-signalling project was initiated after the speed control design and installation was substantially completed. The new block designs will change the number of signals and their locations, which in turn, will require an update to the existing design of the SCS, as it relies on the signal location to determine its safe operating speed limits. Given that the problems with the SCS have been satisfactorily addressed, work to upgrade the system to match the new YUS block designs and to equip the TYSSE is now recommended.

## **DISCUSSION**

On March 23, 2012, Thales was invited to submit a Proposal on the basis of single source, as they are the original designer of the SCS. In conjunction with the base requirement for the YUS update and since the signal block design is progressing well on the TYSSE project, it was decided to request a proposal from Thales to add the SCS design and supply on TYSSE as an option in the proposal.

Similarly, the Blue Light Functionality option was added as it requires new Thales design work, and must be compatible with the present system. Blue Light Functionality enforces automatic train speed restriction through the SCS by its recognition of special transponder tags placed on the track adjacent to the blue lights that identify a speed restricted zone ahead. Upon entering the zone, the system alerts the train operator with an audible warning tone and the permitted train speed indicator automatically reduces to the enforced level at a controlled rate. Train emergency brakes are automatically applied should the enforced speed be exceeded. Ultimately, the Blue Light Functionality will be deployable by Commission forces at any location along the guideway, and will automatically impose speed restrictions along a station to station segment of the subway, resulting in automatically enforced speed

limits for enhanced safety of employees working at track level.

Although in future, Automatic Train Control will be operational, the SCS will be retained as the operational fallback control to ensure safe operating speeds are sustained should the automatic controls fail.

Thales's initial proposal of April 27, 2012 was evaluated by staff and following discussions and negotiation meetings, an updated proposal was submitted on September 4, 2012. As the scope of work for this contract is system design, an evaluation of the total cost based on labour hours was conducted and the overall pricing provided was considered fair and reasonable for the work involved. The proposal submission from Thales's on September 4, 2012 is considered acceptable and is recommended for award.

**JUSTIFICATION**

The award of a contract to Thales will allow for the design and supply of an updated YUS Speed Control, and the TYSSE implementation which is essential for the operation of the Speed Control System. Without the automatic Blue Light Functionality for speed restrictions, reduced speed restrictions for workers at track level can only be enforced procedurally by manual means.

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September 7, 2012  
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