



## **Automatic Train Control Contract Amendment**

Date: December 7, 2023  
To: TTC Board  
From: Chief Capital Officer

### **Summary**

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The purpose of this report is to request the Board to approve a contract amendment for an extended warranty period for the Line 1 Automatic Train Control (ATC) project.

ATC has been successfully implemented on Line 1 Yonge-University, from Vaughan Metropolitan Centre to Finch Station, including Wilson Yard and Davisville Yard. The design, supply, testing and commissioning of the Line 1 ATC System is provided by Alstom Transport Canada Inc. (Alstom).

The ATC warranty extension is required to align the warranty periods for the entire ATC Line 1 System, including the ATC onboard train components to ensure all ATC components are under warranty. This will ensure the TTC that the entire Line 1 ATC System is under warranty, regardless of when each phase was commissioned.

The TTC has received Alstom's quotation for the ATC Line 1 warranty extension, and negotiated lower pricing that has been deemed acceptable. To cover the extended warranty costs, an increase in the contract value is required.

### **Recommendations**

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It is recommended that the TTC Board:

1. Authorize an amendment to contract C31PV08752 to increase the contract amount by \$5,282,625.62 from \$298,613,613.97 to \$303,896,239.59 in Canadian funds, inclusive of HST, to provide an extended warranty for the Line 1 ATC system from 2023 to 2027.
2. Extend the contract expiry date from March 31, 2024 to September 30, 2027, which will cover both the closeout of the final project documentation and the extended warranty period.

## Financial Summary

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Funds for this expenditure are included in the TTC's 2023-2032 Capital Budget and Plan, as approved by the TTC Board on January 9, 2023 and City Council on February 15, 2023 under Program 2.4 Signal Systems – YUS ATC Resignalling.

The total project budget for the YUS ATC Resignalling Project is \$710 million, comprising costs to the end of 2022 of \$640 million and approved funding in the 2023-2032 Capital Budget and Plan of \$70 million. Of the approved funding in the 2023-2032 Capital Budget and Plan, approximately \$25 million has been committed to date.

The expected contract authority requested for the issuance of this change, including the rebatable HST is \$4.8 million to be cashflowed from 2023 to 2027. The 2023 Capital Budget impact and future year cashflows, net of the HST rebate, is summarized in the Table 1 below:

**Table 1 – Alstom's Warranty Payment Milestones**

	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	Total Contract Amount
Contract Expenditure (without HST)	2,804,934	467,489	467,489	467,489	467,489	4,674,890
Non-Rebatable HST (1.76%)	49,367	8,228	8,228	8,228	8,228	82,278
<b>Sub-Total - Contract Payments</b>	<b>2,854,301</b>	<b>475,717</b>	<b>475,717</b>	<b>475,717</b>	<b>475,717</b>	<b>4,757,168</b>
Rebatable HST	315,275	52,546	52,546	52,546	52,546	525,458
<b>Total Authority - Including HST</b>	<b>3,169,575</b>	<b>528,263</b>	<b>528,263</b>	<b>528,263</b>	<b>528,263</b>	<b>5,282,626</b>

The expenditures in Table 1 above takes into account payment terms agreed with Alstom, which includes an upfront 60% payment at the time of the contract award with the balance split equally over the warranty term.

The Chief Financial Officer has reviewed this report and agrees with the Financial Summary information.

## Equity/Accessibility Matters

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A cornerstone of the TTC's current Corporate Plan is accessibility and as a proud leader in providing accessible public transit to the residents in the city of Toronto and surrounding municipalities, the TTC is committed to ensuring reliable, safe, accessible and inclusive transit services for all its customers. This is supported through the continued work of the ATC project, which will allow increased capacity and reliability on TTC's Line 1 subway.

Implementation of the new ATC System required numerous scheduled subway closures to safely install and test new signalling equipment. Frequent accessible shuttle buses were provided during these subway closures to accommodate all customers as well as

ensure Wheel-Trans service is available. Communications about the closures were made in numerous formats, including audible announcements, posters in subway stations, media releases, TTC website and social media postings, and onsite Customer Service Ambassadors who were available throughout the closure zone to assist.

## **Decision History**

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At its meeting on September 18, 2008, the TTC Board approved the award of a contract (C31PV07834) for the design, supply and installation of a Computer Based Interlocking (CBI) signal system on the south Yonge portion of Line 1 (St Patrick to Eglinton stations) to Ansaldo STS USA Inc. This was initiated through a pre-qualified competitive procurement process.

### [Procurement Authorization – Design, Supply & Install Signal System for South Yonge Subway](#)

At its meeting on April 27, 2009, the TTC Board approved a contract award (C31PV08752) to Alstom for the design, supply and installation of an Urbalis 400 ATC/CBTC (Automatic Train Control/Communication Based Train Control) System on the entire Line 1, and supply of ATC equipment for installation on 39 Toronto Rocket subway trains through a publicly advertised competitive procurement process.

### [Procurement Authorization - Design & Supply Radio Based Automatic Train Control for YUS Subway](#)

At its meeting on April 6, 2011, the TTC Board approved a contract change (issued in June 2011) to Alstom to increase the supply of ATC/CBTC equipment for Toronto Rocket subway trains to 60 trains from 39 trains (21 sets of equipment).

### [Procurement Authorization Amendment: Automatic Train Control Project Contract No. C31PV08752, Design & Supply Radio Based ATC/CBTC For YUS Subway Change Directive No. 7](#)

At its meeting on March 30, 2012, the TTC Board approved contract awards for the design, supply and installation of a Computer Based Interlocking (CBI) signal system for the remainder of Line 1 in four phases, including a CBI signal system for a test track in Wilson Yard (C31PV11825) and for the addition of a new CBI-based signal system for the TYSSE line (Contract A70-9) to Ansaldo STS USA Inc. through a pre-qualified competitive procurement process.

### [Procurement Authorization – Design, Supply and Install Signal System For YUS Line Phases 2, 3, and 4 and TYSSE](#)

A contract change was issued in January 2013 to Alstom to increase the supply of ATC/CBTC equipment for Toronto Rocket subway trains to 70 trains from 60 trains. Approval for this contract change was within TTC staff's signing authority under the Authorization for Expenditures and Other Commitments Policy.

At its meeting on April 30, 2014, the TTC Board approved changes to the contract scope and schedule with Alstom for the design, supply and installation of ATC/CBTC on the entire Line 1, and supply of ATC/CBTC equipment for an additional 10 Toronto Rocket subway trains.

[Procurement Authorization Amendment Toronto-York Spadina Subway Extension Project Contract No. A85-70 – Project Controls Services Additional Contract Authority](#)

At its meeting on March 26, 2015, the TTC Board approved the changes to the TTC's resignalling contract transferring the previously contracted work from Ansaldo STS USA Inc. to Alstom. This change had no impact on the existing approved budget of \$563 million and the scheduled completion date of 2020.

[Changes to the TTC Resignalling Contract](#)

At its meeting on January 24, 2019, the TTC Board received the Financial Update for the period ended September 29, 2018, including the update on the ATC/CBTC project identifying the requirement for an additional \$98 million as a result of the longer project duration, additional required subway closures, and additional scope for Automatic Train Protection for work cars.

[Financial Update for the Period Ended September 29, 2018](#)

At its meeting on January 24, 2019, the TTC Board approved the TTC's 15-Year Capital Investment Plan and 2019-2028 Capital Budget and Plan, including the increase of \$98 million identified in the January Board Report for the ATC/CBTC project.

[TTC 15-Year Capital Investment Plan & 2019 – 2028 Capital Budget and Plan](#)

At the Special City Council Meeting on March 7, 2019, the City Council approved the TTC's 2019-2028 Capital Budget, including the increase of \$98 million identified in the January Board Report for the ATC/CBTC project.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EX2.5>

At its meeting on April 11, 2019, the TTC Board endorsed the re-baselining of the ATC/CBTC project. This baseline included a revised project completion date of September 2022.

[Automatic Train Control Re-Baselining and Transit Systems Engineering Review](#)

At its meeting on January 27, 2020, the TTC Board approved the Confidential Attachment associated with the re-baselining of the ATC/CBTC project identified in the April 11, 2019 meeting. As part of the decision, the ATC program was asked to conduct an extensive Lessons Learned on Line 1 implementation prior to Line 2.

Report:

[Automatic Train Control Alstom Contract Amendment\(s\)](#)

Decision:

[Automatic Train Control Alstom Contract Amendment\(s\) TTC Board Decision](#)

At its meeting on December 8, 2021, the TTC Board approved receiving a report on Lessons Learned and Program update on the ATC program. This report identified a set of Lessons Learned and Updates, including the identification of a new Phase 6 to provide operational functional improvements after full system deployment.

[Automatic Train Control – Lessons Learned and Program Update](#)

[Automatic Train Control – Lessons Learned and Program Update TTC Board Decision](#)

At its meeting on July 14, 2022, the TTC Board approved the Confidential Attachment associated with a contract amendment for the implementation of Phase 6 and the relocation of the Eglinton Station stopping location.

[Automatic Train Control Contract Amendment](#)

[Automatic Train Control Contract Amendment TTC Board Decision](#)

## **Issue Background**

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The existing contractual warranty for the Line 1 ATC System is for a period of five years, commencing after each ATC phase was commissioned for revenue service. As the commissioning of the ATC phases occurred over multiple years from 2017 to 2022, the warranty periods are staggered and hence, expiring at different periods rather than one overall consistent date. This results in portions of Line 1 not being currently covered under warranty.

The warranty period for Phases 1 and 2 has expired, which includes the area from Vaughan Metropolitan Centre Station to Dupont Station as well as the ATC onboard equipment for all Line 1 revenue trains commenced in 2017. The warranty periods for Phases 3 to 5 commenced on each of their commissioning dates and will also expire five years after.

The extended warranty amendment will align the warranty end dates for all ATC phases such that all ATC components throughout the entire Line 1 subway system, including the ATC onboard train components will have valid warranty until five years after ATC was commissioned on all of Line 1.

Table 2 below illustrates the warranty start and existing end dates as well as the extended warranty end dates:

**Table 2 – Warranty Start and End Dates**

ATC Phases	In Service Date/Warranty Start Date	Existing Warranty End Date	Extended Warranty End Date
ATC Onboard Train Components	Q4 2017	Q4 2022	Q3 2027
Phase 1 (Yorkdale to Dupont)	Q4 2017	Q4 2022	Q3 2027
Phase 2 (VMC to Sheppard West)	Q4 2017	Q4 2022	Q3 2027
Phase 2B/2C (Wilson Yard Interface)	Q4 2018	Q4 2023	Q3 2027
Phase 3A (Dupont to St Patrick)	Q2 2019	Q2 2024	Q3 2027
Phase 3B (St Patrick to Queen)	Q1 2020	Q1 2025	Q3 2027
Phase 3C (Queen to Rosedale)	Q4 2020	Q4 2025	Q3 2027
Phase 4 (Rosedale to Eglinton)	Q3 2021	Q3 2026	Q3 2027
Phase 5 (Eglinton to Finch)	Q3 2022	Q3 2027	Q3 2027

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**Comment**

The Alstom ATC Line 1 System is currently under limited warranty coverage as it is only valid from Dupont to Finch. In other words, the entire line is not covered as the existing contract included a five-year warranty period that commences when each section or phase of ATC is commissioned. As ATC on Line 1 was commissioned in phases, the warranty period for each phase has a different end date. The warranty for the ATC Line 1 System will expire per phase rather than the entire line, making the logistics of ensuring spare parts are available difficult to manage.

The warranty extension will align the warranty period for the entire Line 1 System, including the ATC onboard train components to ensure that all warranties end on the same date in Q3 2027. This will provide assurance to the TTC that the entire Line 1 as a whole is under warranty, regardless of when each phase of the project was commissioned.

The quote submitted by Alstom detailing the costs associated with the extended warranty was reviewed by staff, and through negotiations a 20% cost reduction was achieved. The quote submitted by Alstom is valid for acceptance until January 29, 2024.

Alstom will continue to manage, supply and deliver proprietary Alstom ATC components, while ensuring that spare stock levels remain at or above recommended thresholds. Alstom will also provide obsolescence management to warrant compatible proprietary components as required to safeguard against unexpected supply chain issues. This will ensure the reliability and availability of the entire ATC Line 1 System is maintained until the warranty period for the last commissioned phase of ATC comes to an end in Q3 2027.

The TTC will continue to work with Alstom during the extended warranty period to determine strategies to source and maintain proprietary ATC components or develop an ongoing warranty agreement with Alstom for the life of the Line 1 ATC System.

## **Contact**

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## **Signature**

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Gary Downie  
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