



STAFF REPORT ACTION REQUIRED

Overhaul of 30 Canadian Light Rail Vehicles (CLRV) and Maintaining non-Overhauled Streetcars in a State of Good Repair

Date:	March 23, 2016
To:	TTC Board
From:	Chief Executive Officer

Summary

The report is submitted to request that, due to the continued delays in new low floor streetcar delivery, and the need to maintain good streetcar customer service, approval be granted for a special program to overhaul and maintain the current fleet of Canadian Light Rail Vehicles (CLRV) and Articulated Light Rail Vehicles (ALRV) in a state of good repair until they can be declared surplus upon receipt of the new low floor streetcars.

Recommendations

It is recommended that the Board approve:

1. Overhaul of thirty (30) Canadian Light Rail Vehicles (CLRVs) as a Capital Project at an estimated final cost (EFC) of \$9.1 million;
2. Refurbishment of critical mechanical, pneumatic and electrical components to maintain the non-overhauled CLRVs in a state of good repair at an operating cost of \$17.5 million;
3. Refurbishment of critical mechanical, pneumatic and electrical components to maintain the non-overhauled ALRVs in a state of good repair at an operating cost of \$7.5 million;
4. Staff to proceed with the identified work in advance of Council approval in order to meet and maintain Streetcar service;
5. Staff to accrue costs and apply these costs to future claims allowed for in the Bombardier Transportation contract under liquidated damages; and
6. Submission of this report to City of Toronto Council for approval.

Financial Summary

No funds were provided in the 2016-2025 Capital Budget for these expenditures. Consequently, in accordance with the City of Toronto Financial Control By-Law, City Council approval is required.

Over the next four years, it is expected that operating costs will exceed the current budgeted level by approximately \$25 million.

The purpose of this report is to request approval for special funding of \$34.1 million as the total estimated cost for this work, of which \$11.4 million is required in 2016, with the remaining \$22.7 million to be submitted through the 2017-2026 Capital and Operating Budget process.

It is planned that the additional costs will be offset through various claims against Bombardier Transportation (Bombardier). The various claims against Bombardier will be the subject of a future board report.

The Chief Financial & Administration Officer has reviewed this report and agrees with the financial impact information.

Accessibility/Equity Matters

Failure to proceed with the CLRV overhaul and refurbishment of critical components on the non-overhauled CLRVs and ALRVs will result in these vehicles being removed from customer service as the equipment fails. This will reduce access to public transit by our customers.

Decision History

In April 2006 a Board decision was made to procure accessible streetcars to replace the streetcar fleet (ALRV and CLRV) that was approaching the end of its design life.

In January 2008 a Request for Proposal was posted on the TTC's Website. Nineteen companies were issued copies of the proposal document out of which two submissions were received. Based on the review of each submission, it was determined that neither proponent had provided a proposal that complied with the TTC requirements as set out in the Request for Proposal documents. This decision was supported by an independent fairness monitor retained to oversee the procurement process. As a result the TTC cancelled the Request for Proposal.

At the August 27, 2008 Board meeting staff were directed to proceed with a Structured Multi-Phase Bid Process (SMPBP) with three car builders that had demonstrated experience in producing 100% low floor light rail vehicles. These companies were Alstom Transportation Inc. (Alstom), Bombardier Transportation Canada Inc.

(Bombardier) and Siemens Canada Limited (Siemens). Refer to Board meeting highlight item 1 in the following link:

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2008/Aug 27 2008/Highlights/index.jsp](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2008/Aug%2027%202008/Highlights/index.jsp)

At its April 27, 2009 meeting, the TTC Board approved a staff recommendation to award to Bombardier the contract for the supply of streetcars to replace the aging fleet and accommodate marginal future growth. Toronto City Council's approval of the contract was, among other conditions, subject to a commitment of funding from the Province of Ontario. Refer to the Board meeting highlights item 1 in the following link:

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2009/Apr 27 2009/Highlights/index.jsp](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2009/Apr%2027%202009/Highlights/index.jsp)

On June 19, 2009, the Province of Ontario announced funding of up to \$416 million towards 1/3 of the eligible costs for the TTC's procurement of the new low floor streetcar fleet. Subsequently, in a special meeting on June 26, 2009, Toronto City Council approved the funds required to complete the purchase of 204 low floor streetcars. The TTC and Bombardier executed the contract on June 30, 2009 for a total contract price of \$993 million inclusive of taxes but before foreign exchange. The procurement documents were structured to reflect a minimum award of 204 vehicles. The procurement documents included an option to purchase up to 400 additional vehicles for use by the TTC for future growth requirements and in any approved Transit City projects (subsequently 300 option vehicles were assigned to Metrolinx based on a Board authority at the May 6, 2010 Board meeting.) Refer to Item 8 (a) in the following link:

[https://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2010/June 2 2010/Minutes/index.jsp](https://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2010/June%202%202010/Minutes/index.jsp)

On January 21, 2013, an agreement was established between the Province of Ontario, City of Toronto and the Toronto Transit Commission regarding Ontario's and Toronto's contribution toward the TTC's low floor streetcar fleet replacement project. City funding will be sourced through a combination of debt and the application of gas tax funding.

Issue Background

With the enactment of the Accessibility for Ontarians with Disability Act that mandates full accessibility of transit vehicles by January 1, 2025, the Commission decided to stop the CLRV Life Extension Program that was in prototyping phase in 2007 in favour of buying low floor streetcars.

As the low floor streetcar contract was awarded with a defined delivery schedule, the roof, body and truck overhaul program that was designed for 10 year life was scaled down to a 5-year life program in 2009 and 2010.

On August 31, 2014, two new accessible air-conditioned low floor streetcars were launched into service on 510 Spadina. In attendance were officials from the three levels of government, TTC Board, staff and union members.

On October 12, 2014, construction of Route 509 (Harbourfront) by Waterfront Toronto was substantially completed. The Spadina low floor vehicles and the complement of CLRVs continued into Union Station, as was Route 509 Harbourfront between CNE and Union Station.

The new streetcars have attained a very high level of reliability and availability, and receive a high level of acceptance and satisfaction from customers. However, the vehicle delivery schedule for the new streetcar project has continued to slip from the contractual commitment for a number of reasons.

Comments

Due to the delay in receiving the new low floor streetcars, the fleet plans that were in place for 2014 and 2015 could not be kept in step with availability of the new streetcars. The TTC's 2015 approved budget was based on the delivery forecast by Bombardier in its April 2014 submittal, adjusted for agreed-to extensions for ACAT modification etc.

The April 2014 schedule indicated 55 new low floor streetcars available for service by 2015 year end.

Bombardier subsequently revised their schedule on January 23, 2015 to 27 new low floor streetcars available for service by year end 2015 and again on January 30, 2016 to 14 new low floor streetcars by year end 2015.

Bombardier's Proposed Delivery Schedules		2013	2014	2015	2016	2017	2018	2019
Contractual (Adjusted) Baseline Approved February 2012	FAC'd per year	7	30	36	36	39	36	20
	Cummulative Total	7	37	73	109	148	184	204
April 14, 2014 Proposal	FAC'd per year	0	18	37	39	38	39	33
	Cummulative Total	0	18	55	94	132	171	204
January 23, 2015 Proposal	FAC'd per year	0	3	24	50	48	49	30
	Cummulative Total	0	3	27	77	125	174	204
January 30, 2016 Proposal	FAC'd per year	0	3	11	40	45	50	55
	Cummulative Total	0	3	14	54	99	149	204

To maintain the legacy fleet in a safe and good state of repair, and to maintain fleet passenger carrying capacity, thirty (30) ALRVs were budgeted in 2014 for a major life extension overhaul commencing in 2015. As the new car delivery continues to slip, and the cars continue to age, the mechanical body and the roof conditions of the non-overhauled CLRVs and ALRVs continue to deteriorate to a point that they have started to be removed from service due to unsafe conditions. It has been determined that to ensure the CLRVs and ALRVs remain in service for our customers until they can be declared surplus upon arrival of new low floor streetcars from Bombardier, the following unplanned work must be completed:

1. Overhaul of thirty (30) Canadian Light Rail Vehicles as a Capital Project. The overhaul scope includes a major truck overhaul (wheel replacement, bearings, traction motor, gearbox, track brake) and roof repair for corrosion damage and leak;
2. Refurbishment of critical mechanical, pneumatic and electrical components to maintain the non-overhauled CLRVs in a state of good repair (compressor, air dryer, air valves, sander, contactors etc.); and,
3. Refurbishment of critical mechanical, pneumatic and electrical components to maintain the non-overhauled ALRVs in a state of good repair (similar to that performed on the non-overhauled CLRVs).

It is estimated that with the overhaul and refurbishment programs, customer service requirements will be met and the reliability of the legacy streetcars can be maintained at the 2016 target of 4,000 km mean kilometres (MKBD) between delays for ALRVs and 5,000 MKBD for CLRVs.

Cost

The overhaul and parts refurbishment work is jointly performed by Streetcar, Rail Cars and Shops, and Bus Maintenance & Shops departments in a coordinated manner. Carbody, truck and roof overhaul work is largely done by Harvey Shop of the Bus Maintenance & Shops Department, and pneumatic and brake system overhaul work by Greenwood Shop of the Rail Cars & Shops Department.

In summary, a total of \$34.1 million is requested for approval. It is important to note that the cost estimate is based on the incremental difference from the 2014 budgeted fleet requirements in accordance with Bombardier's April 2014 delivery schedule versus the latest Bombardier delivery schedule from January 2016. Additional workforce and budget are required in addition to the existing capital and operating budget. For further details, the following tables are a summary of the incremental cash flow and workforce requirements as well as the timing of capital vehicles to be overhauled.

Cash Flow

Description	2016	2017	2018	2019	EFC
Operating Non-Overhauled CLRVs	\$4.5 m	\$5.2 m	\$6.1 m	\$1.8 m	\$17.5 m
Operating SOGR Non-overhauled ALRVs	\$2.6 m	\$1.6 m	\$1.6 m	\$1.6 m	\$7.5 m
Capital Overhaul of 30 CLRVs	\$4.4m	\$2.9 m	\$1.8 m	\$0.0 m	\$9.1 m
Overhaul of 30 CLRVs + SOGR for Non-O/H'ed A & C	\$11.4 m	\$9.7 m	\$9.5 m	\$3.4 m	\$34.1 m

Number of Vehicles Overhauled at Harvey Shop

			2016	2017	2018	2019	TOTAL
No. of Vehicles	Capital	CLRVOverhaul - Mechanical	20	6	0	0	26
		CLRVOverhaul - Body	7	12	11	0	30

Workforce

		2016	2017	2018	2019
Workforce - Operating	Harvey Shop SOGR Non-Overhauled ALRV	16	10	10	10
	Harvey Shop SOGR Non-Overhauled CLRV	9	20	31	8
	Greenwood Shop SOGR Non-Overhauled CLRV	5	3	2	1
Workforce - Capital	Harvey Shop Overhaul 30 CLRVs	17	3	0	0
	Greenwood Shop Overhaul CLRV	2	0	0	0

Schedule

The schedule and workforce requirements have been designed to match shop space, and to meet the Bombardier's revised delivery schedule for new low floor streetcars. The plan stipulates completing the CLRV overhaul program in early 2018, and maintaining both the non-overhauled CLRV and ALRV fleets in a state of good repair.

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