



STAFF REPORT ACTION REQUIRED

Procurement Authorization Amendment – Purchase 285 Forty Foot Low Floor Clean Diesel City Buses

Date:	November 30, 2016
To:	TTC Board
From:	Chief Executive Officer

Summary

This report recommends that the TTC Board approve a procurement authorization amendment to procure an additional 285 new forty-foot low-floor clean diesel city buses to be delivered in 2017 and 2018, subject to funding approval by the City of Toronto Council. Two hundred and forty five (245) will be delivered in 2017, and forty (40) will be delivered prior to March 31, 2018.

These additional buses to be procured will be partially funded through the Public Transit Infrastructure Fund (PTIF).

The TTC is currently in a contract with Nova Bus, a Division of Volvo Group Canada Inc. (Nova). To date a total of 310 forty-foot diesel buses have been approved by the Board for purchase and 97 are scheduled for delivery in 2017.

Recommendations

It is recommended that the Board:

Authorize the amendment to Contract C32PM13774 (Supply of Forty Foot Low Floor Clean Diesel City Buses) with Nova in the amount of \$185,602,800.97, as follows:

1. \$170,505,800.97 inclusive of all applicable taxes for the purchase of 285 additional 40 foot buses for delivery in 2017 and 2018, which includes options, alternatives, and changes already incorporated into the previous bus deliveries.
2. \$12,241,000.00 inclusive of all applicable taxes as an upset limit change allowance for potential contract amendments, escalation costs, special tools and maintenance spare parts pertaining to all buses to be delivered in 2017 including

the 97 buses previously ordered and the 245 additional buses for delivery in 2017 of which:

- i. \$8,200,000 has been included in the above upset limit amount as an allowance for escalation costs applicable for the 2017 bus deliveries. The escalation adjustment will be calculated in accordance with the formula set out in the Contract which is based on the percent change in the Bus and Truck Body Producer Price Index 1413 (as established by the United States Department of Labour).
3. \$2,676,000.00 inclusive of all applicable taxes as an upset limit change allowance for potential contract amendments, escalation costs, special tools and maintenance spare parts pertaining to the 40 additional buses for delivery in 2018 of which:
 - i. \$1,860,000.00 has been included in the above upset limit amount as an allowance for escalation costs applicable for the 2018 bus deliveries. The escalation adjustment will be calculated in accordance with the formula set out in the Contract which is based on the percent change in the Bus and Truck Body Producer Price Index 1413 (as established by the United States Department of Labour).
4. The procurement authorization amendment for the purchase of 285 forty foot low floor clean diesel city buses is subject to City Council approval.

Financial Summary

The 2016-2025 Capital Budget included sufficient budgetary dollars to allow for the replacement of the bus fleet over time. However, due to funding limitations, approximately \$515 million of bus purchases were included on the unfunded list pending the identification of additional funding sources. The recently announced Federal PTIF initiative provides the opportunity to fund the purchase of up to 783 buses (approximately \$515 million eligible costs to be funded by PTIF, funded 50% Federal, 50% City). This includes the proposed contract change (285 buses) outlined in the report. The PTIF projects, including buses, are subject City Council (project approval) and Federal approvals (including Treasury Board). Existing project approval provided by Council as part of the 2016-2025 Capital Budget is \$433.883 million of which approximately \$130.031 million has already been committed to and therefore sufficient project approval is available for this contract change.

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

Accessibility/Equity Matters

All buses to be procured are fully accessible and compliant with all Federal and Provincial regulations.

Decision History

A competitive bid process took place in 2013 for the supply of 55 buses for delivery in 2015 for which proposals were received from Nova and New Flyer Industries Canada (New Flyer). As a result of this competitive bid process, a contract was awarded to Nova on April 30, 2014 for the 55 buses which also included optional pricing for additional buses for delivery in 2016, 2017 and 2018 to be exercised at the TTC's sole discretion.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2014/April_30/Reports/40ft_Low_Floor_Clean_Diesel_Buses.pdf

At the Board Meeting of August 19, 2014, TTC staff submitted a report with recommendations to improve transit service in Toronto. These recommendations were supported by the Board.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2014/August_19/Supplementary_Reports/Opportunities_to_Improve_Transit_Service_in_Toronto.pdf

As part of the Mayor's initiative to commence improvements to transit in 2015, it was determined that fifty (50) buses would be required in addition to the previously approved fifty five (55) buses scheduled for delivery in 2015.

On February 2, 2015 as part of the 2015 Capital and Operating budget deliberations, City Council approved \$95 million in transit service enhancements beginning in 2015.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2015/February_2/Reports/2015_TTC_AND_WHEEL_TRANS_OPERATING_BUDGETS.pdf

A procurement authorization amendment report was approved at the February 25, 2015 Board meeting to exercise the option for the supply of an additional 50 buses for delivery in 2015 and early 2016 to improve bus express routes as identified in the August 19, 2014 Board Report.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2015/February_25/Supplementary_Reports/Procurement_Authorization_Amen_dment_Purchase_50_Buses.pdf

A procurement authorization amendment report was approved at the July 29, 2015 Board meeting to exercise the option for the supply of an additional 108 buses for delivery in

2015 and early 2016 for ridership growth, service reliability and to increase the bus fleet spare ratio from 12% to 18%.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2015/July_29/Reports/Purchase-108_Fourty_Foot_Low_Floor%20Clean_Diesel-Buses.pdf

A presentation entitled: 2016-2025 Bus Fleet and Facility Plan was received by the Board on October 28, 2015. The Board received the presentation for information, and approved several motions which will be the subject of a future board report.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2015/October_28/Reports/2016-2025_Bus_Fleet-Facility_Plan.pdf

A procurement authorization amendment report was approved at the May 31, 2016 Board meeting to exercise the option for the supply of an additional 97 buses for delivery in 2017.

http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2016/May_31/Reports/19_PAA_Purchase_97_Forty_Foot_Low_Floor_Clean_Diesel_City_Bu.pdf

The table below summarizes the decision history and approvals to date by the Board for this Contract:

Date of Approval by the Board	Description	Authorized to Nova	Upset Limit Allowance	Total Authorization by the Board
April 30, 2014	55 Buses (2015 delivery)	\$32,638,072	\$660,000	\$33,298,072
February 25, 2015	Contract Amendment 1 - 50 Buses (2015 delivery)	\$29,670,975	\$340,000	\$30,010,975
July 29, 2015	Contract Amendment 2 - 108 Buses (2016 delivery)	\$63,447,995	\$3,768,000	\$67,215,995
Design Changes, Alternatives, and Options – as offered by Nova in original proposal (credits 2015 base bus price not deducted from allowance)		(\$1,066,970)		
May 31, 2016	97 Buses (2017 delivery)	\$58,010,228	\$6,643,830	\$64,654,058
	Increase to allowance - 2015 delivery spares and manuals (pricing provided with original proposal)	-	\$286,000	\$286,000
	Increase to allowance – 2016 delivery – route annunciation system for 78 buses	-	\$263,010	\$263,010
Total to Date		\$182,700,300	\$11,960,840	\$194,661,140
November 30, 2016	245 Buses (2017 delivery)	\$146,575,162	\$12,421,000	\$158,996,162
	40 Buses (2018 Delivery)	\$23,930,639	\$2,676,000	\$26,606,639
	Total Current Amendment	\$170,505,801	\$15,097,000	\$184,602,801
Total including Current Amendment		\$353,206,101	\$27,057,840	\$379,263,941

Issue Background

Public Transit Infrastructure Fund (PTIF)

On March 22, 2016, the 2016 Federal Budget was announced. The announcement included a plan to invest more than \$120 billion in infrastructure over the next 10 years.

The plan focuses on infrastructure investments that will modernize and rehabilitate public transit, water and wastewater systems, provide affordable housing, and protect existing infrastructure from the effects of climate change. Funds for public transit improvements have been termed ‘Public Transit Infrastructure Funds’ (PTIF).

Under PTIF, the Federal Government announced that they will fund up to 50 per cent of eligible costs for capital projects commenced and completed between April 1, 2016 and March 31, 2018. The remaining 50 per cent of the costs requires approval by City of

Toronto Council. This time period may potentially be extended to March 31, 2019. Funding under the PTIF program will be allocated to municipalities based on ridership. Capital projects must meet a set of criteria to be eligible for this program. The purchase of new buses meets the required criteria and is therefore eligible for PTIF.

Bus Service

Bus service requirements continue to increase. In 2015, the total number of passenger boardings on TTC buses was 435.5 million customers. In 2016, the total number of passenger boardings on TTC buses is expected to surpass 463.4 million passenger boardings. Some of this increase is due to additional bus service being provided to address:

- Weekend subway closures – supplemented by buses
- Late deliveries of new Low Floor Light Rail Vehicles (LFLRV) – supplemented by buses
- Increased number of City construction projects – supplemented by buses

As a result, TTC has struggled to maintain and to improve bus availability and reliability. The timing of the PTIF program therefore is opportunistic. Bus procurements under this program will help to refresh TTC's aging bus fleet and to meet growing service requirements.

In addition to growing service demands, TTC's bus fleet faces various challenges. These include but are not limited to:

- Orion VII Diesel Series 1201 Fleet – concerns regarding emissions recently identified by the Ministry of Environment & Climate Change (MOECC)
- Orion VII Diesel-Electric Hybrid Fleet – high cost of ownership and supply chain issues
- 18 Year Bus Life policy
- Tightening capital funding constraints

Bus Procurement Strategy

The procurement of buses using the PTIF program is being proposed to address the challenges identified above. Buses procured under this program will be used for a one-one replacement of problematic fleets such as the Orion VII Diesel Series 1201 and the Orion VII Diesel-Electric Hybrids and for fleets that have a high cost of operation. See attached table in Appendix A which includes the number of buses being retired early and their age.

Federal funding Agreements include terms and conditions related to the recapture of funding in the event an asset is disposed of prior to the end of its anticipated useful life. Both the Canada Strategic Infrastructure Fund (CSIF) and Federal Gas Tax (FGT) agreements, under which federal funding for buses was received, include such provisions.

The clawback only applies if the asset is disposed of prior to 10 years of age. The buses to be replaced as set out in this report are more than 10 years old. Therefore, the clawback of funding is not applicable, however, appropriate notice to the federal government may be required.

The replacement of these fleets through early retirements will also help to position the Bus Fleet Plan for future transition from an 18 year to a 12 to 15 year bus life, to improve bus availability/reliability and to reduce operating maintenance costs.

The design life of city buses is 12 years of age. Buses maintained beyond the age of 15 years reduces overall fleet availability/reliability and increases operating costs. Industry best practice which is supported by the US Federal Transportation Association (FTA) recommends the replacement of buses between 12 and 15 years of age.

The graph in Appendix B illustrates the reliability of a fleet of buses at 15-17 years of age vs the reliability of a one year old bus fleet.

The reliability of the one year old bus fleet is 26,900 Mean Kilometers between Defects (MKBD) while the reliability of the 15-17 year old bus fleet is only 5,000 MKBD. Therefore the influx of new buses in 2017 and 2018 will not only transition the bus fleet plan to a 12 to 15 year bus life cycle but will also greatly improve vehicle availability/reliability.

In addition to improving bus availability and bus reliability as described above, the advancement of bus procurements from the outer years will also:

- Accelerate the modernization of the bus fleet
- Result in a cost avoidance through the de-escalation of the unit price in future years

To take advantage of PTIF and to meet the timing requirements of this program, TTC recommends exercising the procurement options available in its existing contract with Nova Bus. This will guarantee manufacture and delivery of buses in the time frame identified by the PTIF program.

To address City capital funding constraints, TTC proposes to accelerate bus procurements (qty. 285) from years 2020-2026 to 2017-2018. Reference Appendix C for the Proposed 2017-2026 Bus Fleet Plan. The advancement of bus procurements will result in cost avoidance through the de-escalation of the unit price in future years. Therefore, there will be no increases to the overall approved project costs in the 2017-2026 Budget submission.

The table presented in Appendix D identifies bus procurement quantities originally approved in the 2016-2025 Bus Fleet Plan and the additional bus procurements accelerated from future years based on the potential PTIF support.

Summary of Procurement Strategy

2017

In 2017, the TTC is contracted to procure 97 buses. It is recommended that the Board approve a contract change to procure an additional 245 buses from Nova Bus for a total of 342 buses to be delivered in 2017. All 342 buses delivered in 2017 will be eligible for the PTIF program.

2018

The TTC also has an option to procure buses from Nova Bus in 2018 under the current contract. Under a 2 year PTIF scenario, Nova can guarantee delivery of 40 buses before March 31, 2018. These 40 buses would be eligible for the PTIF program under the 2 year scenario. Therefore, it is recommended that the Board approve a contract change to procure an additional 40 buses from Nova in 2018 to take advantage of PTIF.

2018-2020

To solicit future competition amongst bus manufacturers, the TTC will be issuing an RFP for future bus procurements. This RFP is scheduled to be released in Q1 of 2017. Eligibility of bus deliveries for the remainder of 2018 and up to March 31, 2019 using this RFP is dependent upon the Federal Government's decision to extend the program to 3 years (to March 31, 2019). The procurement of these buses will be the subject of a future Board report. The schedule for the RFP is shown in the table below:

Activity	Milestone
• Post Request For Information (RFI)	Oct. 2016 – Completed
• Meet With Proponents/Spec Development	Nov. 2016
• Post Request For Proposal (RFP)	Jan. 2017
• Close Tender	Mar. 2017
• Approval of Board Report	Jun. 2017
• Award Contract	Aug. 2017
• Commence Bus Delivery	2018 – Schedule TBD

Comments

The contract awarded to Nova in 2014, included optional pricing for the purchase of buses in 2016, 2017, and 2018, to be exercised at the TTC's discretion. Nova offered firm pricing for each of the optional years subject to an escalation adjustment. The escalation adjustment is calculated in accordance with a formula set out in the contract which is based on the percent change in the Bus and Truck Body Producer Price Index 1413 (as established by the United States Department of Labour) to allow escalation to the bus base price in the option years. For 2016, the bus base price increased by 3.9%

from the start of the contract in 2014 as a result of the escalation factor. A factor of 5.5% and 7.7% has been estimated for the 2017 and 2018 bus purchases respectively.

At the request of the proponents in 2014, the above escalation adjustment was included as part of the terms and conditions in the contract. The buses supplied under this contract are not subject to foreign exchange adjustments, this has resulted in significant cost avoidance to the TTC as a result of the decline in the Canadian dollar.

Upon approval of this amendment, a delivery schedule will be developed by Nova to establish the delivery dates for the additional 285 buses in 2017 and 2018. Deliveries will be subject to the assessment of liquidated damages by TTC.

The advancement of bus procurements from the outer years will impact steady state procurement initiatives that were previously approved by the Board. Adjustments to the Bus Fleet Plan, however, will be made in future budgets to re-establish steady state procurement and to complete the transition from an 18 year to a 12 to 15 year bus life.

In addition to exercising procurement options with Nova Bus, TTC is also in the process of developing a new Request for Proposals (RFP) for the procurement of buses to be delivered in 2018 and onwards. Staff is currently working with the bus manufacturing industry to obtain feedback on the current TTC's commercial terms and conditions and technical specifications with the objective of obtaining competitive proposals for the future RFP.

The option to purchase additional buses for delivery in 2018 beyond the 40 buses currently being ordered under this contract will remain valid beyond this proposed amendment, subject to confirmation from Nova that there is capacity to manufacture additional buses.

Due to a current bus overcapacity issue at TTC's existing seven city bus garages, the buses being accelerated from future years will be used strictly for one-one replacements to address fleet challenges identified in this report. The opening of McNicoll Bus Garage in year 2020 will address this bus overcapacity issue. TTC staff continues to investigate interim solutions to bridge service requirements from 2017 to 2020.

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Appendices

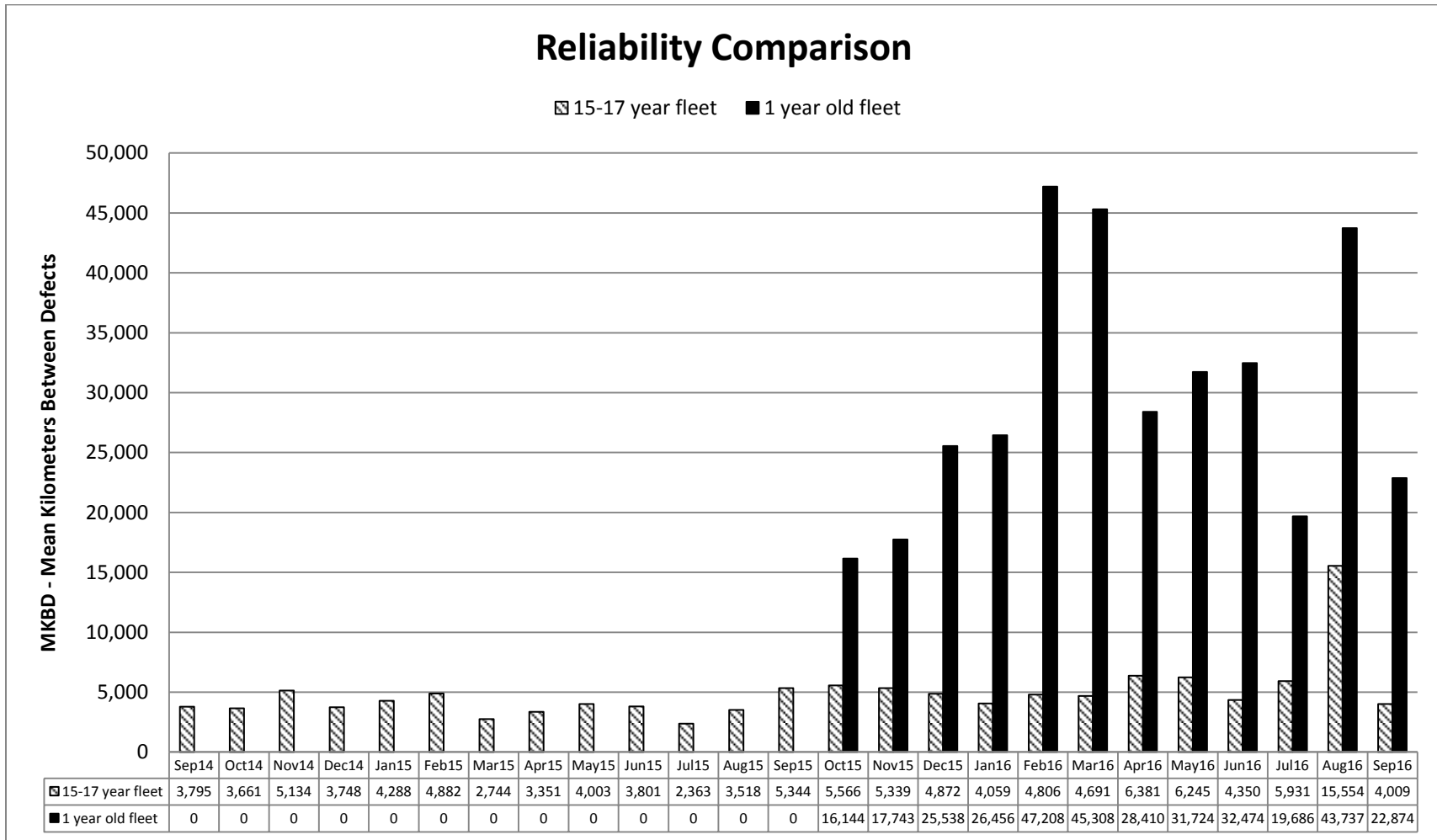
Appendix A - Early Retirement Quantities and Age
Appendix B – Vehicle Reliability
Appendix C – Proposed 2017-2026 Bus Fleet Plan
Appendix D – PTIF Support

Appendix A- Early Retirement Quantities and Age

Fleet	Fleet Total	AGE										Total Retired Earlier than 18 years
		9	10	11	12	13	14	15	16	17	18	
Orion VII LF DIESEL (1201 A/B/C/D)	482					354	128					482
Orion VII LF CLN DIESEL (1274 C/D)	180						104	55	21			180
Orion VII LF Hybrids (1274 A/B)	150					36	28	86				150
Orion VII LF Hybrids 1308 A	223		2*									2
Orion VII LF Hybrids 1308 B/C	188	1*	138	49								188
Orion VII LF Hybrids 1329 A/B	130		64									64

*denotes major collision

Appendix B – Vehicle Reliability



Appendix C – Proposed 2017-2026 Bus Fleet Plan

MODEL	<2005	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
RETIRED FLEETS																							
ORION V LE DSL (1996/97)	1423	242	233	213	111	68	58	42															
NOVA RTS LE DSL (1998)	185										185												
FLYER LF DSL (1999)	52											52											
ORION VII LF DSL (1201 A/B/C/D)	51								1					50									
ORION VII LF CLN DSL (1274 C/D)	220	262												354	128								
ORION VII LF HYB (1274 A/B)			80	100																			
ORION VII LF HYB NG 1308 A - 224 buses 1308 B/C - 190 buses 1329 A/B - 130 buses			150																				
ORION VII LF CLN DSL NG (1336, 1358 & 1359)				224	190	130			1	2													
NOVA LFS ARTICULATED																							
NOVA LFS 40 Ft.																							
REQUIRED (STANDARD LENGTH)																							
PROCURE (APPROVED/PROPOSED)																							
PROCURE (ADDITONAL)																							
AVAILABLE (40' Equivalents)	1475	1495	1492	1603	1682	1744	1806	1797	1857	1868	1825	1852	1986	1921	1980	1986	2078	2008	2052	2091	2111	2111	2123
Peak Service with Construction, Ridership Growth and Service Reliability								1489	1540	1559	1565	1514	1591	1560	1610	1610	1691	1635	1681	1716	1733	1725	1742
Operating Maintenance Spares (17% in 2017, 18% from 2018)								179	185	187	188	263	293	265	291	290	304	294	303	308	312	310	313
Training Buses														0	4	8	8	8	8	8	8	8	8
Capital Spares (Rebuild/Warranty/Retrofit/Programs)								46	40	54	77	77	102	96	75	79	75	71	61	59	58	60	60
REQUIRED								1714	1765	1800	1830	1855	1986	1921	1980	1987	2078	2008	2053	2091	2111	2103	2123
SURPLUS / (DEFICIT)								83	92	68	(5)	(2)	0	0	0	0	0	0	0	0	0	8	0

Procurement
 Mech/Body Overhaul
 6 Yr Overhaul Mech/Body
 9 Yr Overhaul Mech/Body
 Retirement
 Unplanned Retirement

Appendix D – PTIF Support

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total 2017-2026	EFC	Comments
Purchase of Buses <i>(3 year PTIF Scenario)</i>														
108 LF Buses Non-PTIF: 2016-32 PTIF: 2016-66; 2017-10 (will be delivered in 2016)	32	76	0									0 0	32 76	Approved by the Board on July 29/15
272 LF Buses Non-PTIF: 2019-90 PTIF: 2017-97; 2018-85		97	85	90								90 182	90 182	97 buses approved by the Board on May 31/16 175 buses (85 in 2018 and 90 in 2019) will be subject to a future RFP
496 LF Buses Non-PTIF: N/A PTIF: 2017-241; 2018-215; 2019-40		241	215	40								0 496	0 496	Nov 30/16 BR - contract change 241 buses in 2017 40 buses in 2018 215 buses (175 in 2018 and 40 in 2019) will be subject to a future RFP
309 LF Buses Non-PTIF: 2020 - 90; 2021 - 105; 2022 - 99; 2023 - 15 PTIF - N/A					90	105	99	15				309 0	309 0	TBD - future RFP
77 LF Buses Non-PTIF: 2023-45; 2024-20; 2025-0; 2026-12 PTIF: N/A								45	20	0	12	77 0	77 0	TBD - future RFP
99 LF Buses Customer Service Initiatives ⁽¹⁾ Non-PTIF: 2019-25; 2020-30; 2021-15 PTIF: 2017-4; 2018-25		4	25	25	30	15						70 29	70 29	Nov 30/16 BR - contract change request is for 4 buses in 2017 Remaining 95 buses will be subject to a future RFP
Total														
Non-PTIF	32	0	0	115	120	120	99	60	20	0	12	546	578	
PTIF ⁽²⁾	76	342	325	40	0	0	0	0	0	0	0	707	783	
Total - PTIF and Non PTIF ⁽²⁾	108	342	325	155	120	120	99	60	20	0	12	1,253	1,361	

Notes:

- 1) 99 buses were included in the 2016-2025 CB submission but due to funding limitations were deemed Unfunded
- 2) Estimated total number of buses to be purchased between 2016 and 2026 is 1,361 of which 783 will be funded under the Federal PTIF program.
- 3) Existing project approval provided by Council as part of the 2016-2025 Capital Budget is \$433.883 million of which approx \$130.031 million has already been committed to and therefore sufficient project approval is available for this contract change