

# Item 2



**For Action**

## **TTC 15-Year Capital Investment Plan & 2020 – 2029 Capital Budget & Plan**

Date: December 16, 2019  
To: TTC Board  
From: Interim Chief Financial Officer

### **Summary**

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The purpose of this report is to:

1. Provide the Board with an update on the Toronto Transit Commission's Capital Investment Plan as it relates to the recommended 10-year Capital Budget and Plan (2020-2029) and 15-year Outlook (2020-2034); and
2. Seek approval for the staff-recommended 2020-2029 TTC Capital Budget and Plan to provide funding for the acquisition, renewal and improvements of TTC's assets that supports Toronto's transit service delivery.

Last year, the TTC introduced a 15-year Capital Investment Plan (CIP), entitled "Making Headway - Capital Investments to Keep Transit Moving 2019-2033". This report provided a comprehensive review of all state-of good repair needs and capital requirements to support the Commission's asset lifecycle replacement and ridership growth. The outcome of this review resulted in a base capital investment requirement totalling \$33.5 billion over a 15-year period (2019 to 2033 inclusively) of which \$23.7 billion was unfunded due to limited sources of funding. The report acknowledged that further work is to be undertaken to refine estimates, schedule and assess critical needs within the framework of the Capital Investment Model.

As directed by the Board and City Council, the CIP has been updated and further refined and now totals \$36.1 billion (between 2020 and 2034), of which, approximately \$27 billion is required between 2020-2029. For the 2020 Budget process, additional work has been undertaken to provide new information regarding the asset age, condition and potential implications of deferred funding. An overview by mode is detailed in the Comments section of this report and summarized in Appendix C.

The recommended 2020 - 2029 Capital Budget and Plan of \$7.4 billion reflects the critical capital needs identified and cash flowed in the first 10 years of the Capital Investment Plan based on available funding sources.

The 2020-2029 Capital Budget and Plan will:

- Fund critical base capital requirements needed to ensure a steady state of good repair maintenance program for the Commission's ageing infrastructure;
- Ensure in-flight projects are fully funded;
- Maximize funding for the vehicle overhaul program due to insufficient funding for purchases;
- Add the Yonge-Bloor Capacity Improvements Project as a priority project;
- Provide funds to establish Enterprise Asset Management in preparation for legislative requirements;
- Provide planning and study funding to help advance capital initiatives that are currently unfunded

In addition to the base capital program, the 10-year Capital Budget & Plan includes \$287.1 million for transit expansion projects.

As of September 1, 2019, TTC staff halted all work on the Line 2 East Extension (with the exception of the SRT Life Extension Overhaul Program), Relief Line South and Yonge Subway Extension projects as a result of provincial legislation, which has transferred the projects' responsibility and delivery to the Province.

The following transit expansion projects continue to be included in the TTC's Capital Works Program:

- SRT Life Extension Overhaul – \$18.2 million in 2020 and \$47.2 million between 2021 and 2026 will provide the required funding to extend the life of the SRT fleet based on the original planned operations for the Line 2 East Extension;
- Waterfront Transit – Completion of the preliminary design for the Exhibition to Dufferin Gate Loop as well as the East Bayfront with funding of \$53.9 million from 2020 to 2022 included in the 10-Year Capital Plan.
- Toronto-York Spadina Subway Extension\_(TYSSE) – Following the successful opening on December 17, 2017, \$63.2 million will be spent in 2020 and an additional \$104.6 million between 2021 and 2023 is required to support the project closeout commitments. This funding is consistent with prior budget approval and does not reflect any additional project funding.

The TTC 2020-2029 Capital Budget Summary is contained in Appendix A. The full Project Detail Listing Request for 2020-2029 provides the project funding status (commonly known as the "Blue Pages") and is included in the supplementary link.

The cost of maintaining and operating new infrastructure, rehabilitated or expanded facilities as well as the cost to sustain new technology are some key drivers that impact the TTC's Operating Budget. These cost drivers have been identified over the 10-year period and 2020 operating impacts have been incorporated in the staff recommended 2020 Operating Budget for consideration when evaluating capital projects to determine the costs and benefits of capital projects.

## Recommendations

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It is recommended that the TTC Board:

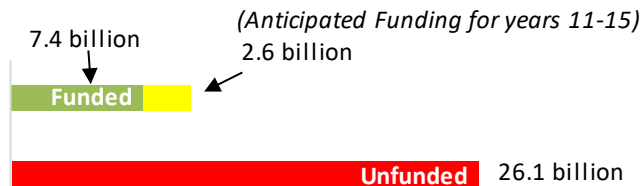
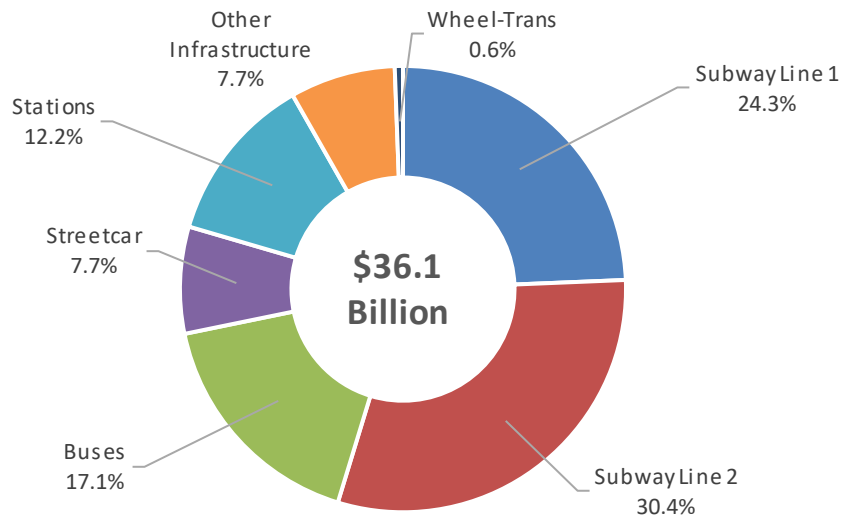
- Approve the staff recommended TTC 2020-2029 Base Capital Budget & Plan of \$7.4 billion as outlined in Appendix A of this report;
- Approve the staff recommended TTC 2020-2029 Capital Budget & Plan of \$287.1 million for Transit Expansion Projects including the completion of the remaining scope for the Toronto-York Spadina Subway Extension, SRT Life Extension Overhaul for Line 2 Subway Extension (formerly Scarborough Subway Extension) and Waterfront Transit as outlined in Appendix A of this report;
- Direct the CEO to update the Capital Investment Plan on an annual basis based on refined cost and schedule estimates as projects progress through stage gates and to prioritize critical base capital needs in advance of the Board's consideration of the 2021 budget process;
- Direct the CEO to engage the City Manager to pursue a tri-party partnership between the Federal government, Provincial government and the City of Toronto for a dedicated, long-term, stable and predictable funding plan to address the TTC's rolling stock, state-of-good-repair, capacity building, service improvements and growth needs;
- Forward this report to the City Budget Committee and the City Manager as the official 2020 - 2029 Capital Budget and Plan submission for the Toronto Transit Commission.

## Financial Summary

The 2020-2034 Capital Investment Plan (CIP) totals \$36.1 billion in base capital needs over a 15-year period. The following table summarizes the capital investment requirements by mode.

### 2020 – 2034 Capital Investment Plan

#### By Mode



2020-2034 Recommended Capital Investment Plan			
Description (\$ Billions)	2020-2034		
	Years 1-10	Years 11-15	15-Year Total
Funded	7,409	2,627	<b>10,036</b>
Unfunded	19,657	6,433	<b>26,090</b>
<b>Base Program Requirement</b>	<b>27,066</b>	<b>9,060</b>	<b>36,126</b>

*\* Funding sources in years 11-15 are based on current levels of city, provincial and federal funding included in the 10 year capital budget and plan*

The 2020-2034 Capital Investment Plan (CIP) is approximately \$2.6 billion higher than the \$33.5 billion presented in the 2019-2033 CIP. The Capital Investment Plan has been updated to:

- Reflect new or revised project estimates for critical subway capacity enhancements and the Yonge-Bloor Capacity Improvement project based on the

stage gate methodology as well as remaining close out costs for fleet procurements;

- Revised cashflow requirements for years 11 to 15

Through the 2020 Budget process, traditional funding sources plus a new commitment for PTIF 2 funding has enabled the TTC to fund \$7.4 billion of which \$5.9 billion will support the TTC’s base capital program and \$1.5 billion will advance the Yonge Bloor Capacity Improvements project. This last addition has allowed TTC to move the Yonge Bloor Capacity Improvements project from an unfunded project in the TTC’s CIP to a funded capital project in the 10-year Capital Plan.

## 2020-2029 Capital Budget and Plan

The staff recommended 2020-2029 Capital Budget and Plan totals 7.408 billion.

2020 - 2029 Recommended Capital Budget and Plan by Category

\$ Million	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	%
Health & Safety	3.9	6.1	12.3	18.3	12.1	7.0	0.2	0.2	0.2	0.4	60.7	0.8%
Legislative	92.7	116.0	122.0	123.9	109.6	77.4	60.4	6.9	5.1	4.6	718.7	9.7%
SOGR	744.0	793.6	753.9	651.2	414.7	301.7	272.4	287.4	290.8	285.6	4,795.4	64.7%
Service Improvements	61.9	90.9	89.0	91.4	162.8	303.0	303.1	248.1	218.1	103.2	1,671.6	22.6%
Growth	93.7	42.6	0.7	0.1	25.1						162.2	2.2%
<b>Total</b>	<b>996.2</b>	<b>1,049.3</b>	<b>977.9</b>	<b>884.9</b>	<b>724.4</b>	<b>689.1</b>	<b>636.2</b>	<b>542.7</b>	<b>514.3</b>	<b>393.8</b>	<b>7,408.7</b>	<b>100%</b>

Over \$5.6 billion or about 75.5% of the base capital plan for the ten-year period is committed to Health & Safety, Legislated and State of Good Repair (SOGR) projects. The staff-recommended 2020-2029 Capital Budget & Plan allocates \$4.8 billion or 65.0% of the proposed funding to SOGR. This represents what is needed to keep the Commission’s capital assets in good repair while also providing a safe and reliable transit service with existing funding sources.

The remaining 24.5% or \$1.8 billion of the staff-recommended 2020-2029 Capital Budget & Plan is allocated to service improvement and growth related capital projects.

### 2020 Capital Budget

The 2020 staff-recommended Capital Budget totals \$996.2 million, comprising of \$777.5 million for Infrastructure projects and \$218.7 million in Vehicle projects. Consistent with the 10-year Capital Plan, almost 75% is dedicated to state of good repair funding while the balance enables the TTC to begin or continue work on critical service improvement projects and complete vehicle related procurements.

### 2020-2029 TTC Expansion Capital Plan

In addition to the base Capital Budget & Plan, staff are recommending a 10-year Capital Plan for the initial design of Waterfront Transit, SRT Life Extension Overhaul (Line 2 East Extension) and close-out costs associated with the Toronto York Spadina Subway Extension (TYSSE), funding of \$287.1 million is required between 2020 and 2029.

The following table summarizes the cash flow funding estimates for Transit Expansion projects over the next 10 years.

#### 2020-2029 TTC Expansion Capital Plan

Project \$Millions	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Toronto York Spadina Subway Extension	63,172	56,656	47,492	500	-	-	-	-	-	-	167,820
SRT LE Total (Line 2 East Extension)	18,176	19,644	13,248	4,050	4,062	3,347	2,837	-	-	-	65,364
Waterfront Transit Reset	100	2,637	24,200	-	-	-	-	-	-	-	26,937
Waterfront East Area 1 Concept Design	5,000	10,000	12,000	-	-	-	-	-	-	-	27,000
<b>Total</b>	<b>86,448</b>	<b>88,937</b>	<b>96,940</b>	<b>4,550</b>	<b>4,062</b>	<b>3,347</b>	<b>2,837</b>				<b>287,121</b>

#### Capital Funding Sources

Traditional sources will fund approximately \$5.9 billion in capital expenditures over the 10-year capital planning period for TTC's capital works and vehicle program. Tripartite funding of \$1.5 billion is also expected to fund the Yonge-Bloor Capacity Improvements Project under the ICIP PTIF2 program. This increases the total available funding sources to a total of \$7.4 billion.

#### 2020-2029 Capital Funding Sources

Funding Sources \$Billions	2020	2021	2022	2023	2024	5 Year Total	10 Year Total
Provincial Funding	0.2	0.1	0.1	0.1	0.1	0.7	1.6
Federal Funding	0.2	0.2	0.2	0.2	0.2	1.0	2.3
City Funding (Including TTC Internal Funding)	0.5	0.6	0.6	0.5	0.3	2.6	3.2
Development Charges	0.1	0.1	0.1	0.0	0.0	0.3	0.3
<b>Total Funding</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>0.8</b>	<b>0.6</b>	<b>4.6</b>	<b>7.4</b>

#### Operating Impacts of Completed Capital Projects

The cost of maintaining and operating new infrastructure, rehabilitated or expanded facilities as well as the cost to sustain new technology are some key drivers that impact the TTC's Operating Budget. These cost drivers are identified for consideration when evaluating capital projects to determine the costs and benefits of capital projects. The completion of capital projects included in the 2020-2029 Capital Plan will require a cumulative net savings of \$10 million over the next 10 years and approximately \$4.8 million in net savings in 2020 which has been reflected in the staff-recommended 2020 Operating Budget.

## Equity/Accessibility Matters

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The TTC has a strong organizational commitment to making Toronto's transit system barrier-free and accessible to all. We believe all customers should enjoy the freedom, independence and flexibility to travel anywhere on the public transit system, regardless of ability.

One of the cornerstones of the Capital Investment Plan is accessibility, ensuring the customer journey is easy and barrier-free, regardless of accessibility needs.

The 2020-2029 Capital Budget and Plan includes the TTC's Easier Access Program, which is on track to make all subway stations accessible by 2025 with elevators, wide fare-gates and automatic sliding doors. It also includes several improvements elsewhere across the transit system, including accessible low-floor streetcars, accessible buses, new Wheel-Trans buses, a growing number of accessible bus and streetcar stops.

## DECISION HISTORY

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At its meeting on January 24, 2019, the Board approved the TTC 15-Year Capital Investment Plan. The following link contains the full document entitled: Making Headway: Capital Investments to Keep Transit Moving:

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2019/January 24/Reports/10 TTC Capital Investment Plan Supplementary.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2019/January%2024/Reports/10%20TTC%20Capital%20Investment%20Plan%20Supplementary.pdf)

Further details including the Board Report and the TTC's Board decision are included in the following links:

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2019/January 24/Reports/10 TTC 15 Year CIP 2019 2028 Capital Budget.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2019/January%2024/Reports/10%20TTC%2015%20Year%20CIP%202019%202028%20Capital%20Budget.pdf)

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2019/January 24/Reports/10 CIP 2019 2028 Capital Budget Decision.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2019/January%2024/Reports/10%20CIP%202019%202028%20Capital%20Budget%20Decision.pdf)

At its meeting on March 7, 2019, City Council adopted the TTC 15-Year Capital Investment Plan & 2019 to 2028 Capital Budget and Plan. Details of the approved 10-year Capital Budget & Plan and 15-year outlook can be found in the following link (EX2.5) and specifically noted in items 282 to 294 inclusively.

In summary, TTC was requested to work with City staff to undertake an assessment of the Toronto Transit Commission's 15-year Capital Investment Plan to determine the incremental needs, timing, prioritization, dependencies and stage gating of projects for consideration and integration into the City's 2020 Capital Planning and Budget Process and Long Term Fiscal Plan.

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

At its October 2019 meeting, City Council adopted with amendments the report *EX9.1 Toronto-Ontario Transit Update*, and directed the City Manager to report back to City Council on funding and financing options for “the reallocation of funds previously approved, identified, or contemplated for the provincial priority projects, for the purposes of state of good repair of the TTC subway network, and other expansion projects.”

It is expected that the City will make an investment of approximately \$5.1 billion to TTC SOGR or other Council directed expansion projects as part of the new Toronto-Ontario partnership on transit. As outlined in the report, and attached terms for the agreement between the parties, the Province and the City will advance the Bloor-Yonge Capacity Improvement project for tri-partite funding under the Investing in Canada Infrastructure Program.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EX9.1>

At its meeting of December 12, 2019, the Board adopted the information contained in the 5-Year Service Plan & 10-Year Outlook. The 2020-2029 CIP includes the capital investments (unfunded) required to complement the service improvements contained in the Service Plan.

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2019/December 12/Reports/16 5 Year Service Plan and 10 Year Outlook.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2019/December%2012/Reports/16%205%20Year%20Service%20Plan%20and%2010%20Year%20Outlook.pdf)

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2019/December 12/Reports/Attachment%201%20TTC 5 year SP web accessible R3.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2019/December%2012/Reports/Attachment%201%20TTC%205%20year%20SP%20web%20accessible%20R3.pdf)



## Comments

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### 2020-2034 Capital Investment Plan

Capital investments are critical to preserving Toronto's transit system. In principal, the goal is to strengthen and grow our transit system to provide service that is safe, efficient, reliable, affordable and equitable. The following is a chronology of the opening dates of Toronto's transit system.

Line 1 (Eglinton to Union)	March 30, 1954
University Subway (Union to St. George)	February 28, 1963
Bloor Danforth Subway (Keele to Woodbine)	February 25, 1966
Bloor Danforth Subway Extensions to Islington and Warden	May 10, 1968
Yonge Subway Extension to York Mills	March 30, 1973
Yonge Subway to Finch	March 29, 1974
Spadina Subway – St. George to Wilson	January 27, 1978
Bloor Danforth Subway Extension to Kipling and Kennedy	November 21, 1980
Scarborough RT	March 22, 1985
North York Centre Subway Station	June 18, 1987
Harbourfront LRT	June 22, 1990
Spadina Subway Extension to Downsview	March 31, 1996
Spadina Streetcar	July 27, 1997
Harbourfront Extension	July 21, 2000
Sheppard Subway – Sheppard-Yonge to Don Mills	November 22, 2002
York University Busway	November 20, 2009
Toronto York Spadina Subway Extension	December 17, 2017

As evidenced above, the Commission's assets are old, and in many cases, are operating beyond their useful service life. Ongoing condition assessments are undertaken each year to ensure that the system is safe and reliable. Unfortunately, additional funding is needed to mitigate service disruptions and reduce the state of good repair backlog the TTC is challenged with.

With the increasing service demand and ridership as a result of Toronto's growing population, there is a need to expand the transit network. Awareness of the need for additional fleet requirements is a priority to ensure less crowding on key routes and improve service and reliability. While the City has successfully leveraged funding from the Federal and Provincial orders of government over the years, this level of investment has not kept pace with TTC's capital needs and requirements.

The 2019 Budget process introduced a supplemental report entitled Making Headway: Capital Investments to Keep Transit Moving. This report outlined the results of a comprehensive review of all state of good repair needs and capital requirements to support ridership growth while also raise awareness about longer term state of good repair programs.

The Capital Investment Plan is intended to:

- Provide a clear overview of the state-of-good-repair and growth investments that the TTC needs to make over the next 15 years;
- Increase focus on the base state of good repair and growth;
- A distinction between how much of the Commission's 10-year capital requirements are funded vs. unfunded;
- Understand the magnitude of the Commission's available sources of funding in relation to other transit agencies; and
- Demonstrate the value of investing and the risks of failing to invest.

Seeking long term, predictable and sustainable funding from all orders of government is a key element to ensure a successful outcome in maintaining our ageing transit system and increase our capacity to accommodate our growing population.

For the 2020 Budget process, all groups within the organization reviewed their long-term base capital needs and considered the following:

- Health & safety, accessibility and legislative requirements;
- Current state of existing assets;
- Fleet replacement, maintenance and storage requirements; and
- Projected existing-system capacity requirements.

As recommended by the TTC Board and as directed by City Council, the CIP has been updated for the 2020 Budget process. As a rolling plan, the CIP will continue to be updated annually to reflect refined estimates, changes to the plan as well as provide an update on the progress being made on addressing the Commission's SOGR backlog and unmet capital needs.

The following table summarizes key changes to the Capital Investment Plan, totalling \$2.6 billion. All other changes to TTC capital projects equals \$0.5 billion.

<b>Key Changes to Capital Investment Plan</b>			
<b>Description \$Billions</b>	<b>Years 1 - 10</b>	<b>Years 11 - 15</b>	<b>15-Year Total</b>
<b>2019-2028 Capital Budget Process</b>			
2019 - 2028 Funded 10-Year Plan (Base Program)	6.4	3.3	9.7
Unfunded Projects	17.5		17.5
Deferred Consideration (Post 10 Year Envelope)		6.3	6.3
<b>2019 Capital Budget Process (sub-total)</b>	<b>23.9</b>	<b>9.6</b>	<b>33.5</b>
<b>Capital Investment Plan Changes</b>			
Yonge-Bloor Capacity Improvements	0.5		0.5
SAP - ERP Implementation	0.2		0.2
ATC Resignalling	0.9		0.9
Lighting in Open Cut	0.7		0.7
Subway Signal System Alterations	0.3		0.3
Added Years 11 - 15 and Other Changes	0.5	(0.5)	0.0
<b>Capital Investment Plan Changes (sub-total)</b>	<b>3.1</b>	<b>(0.5)</b>	<b>2.6</b>
<b>2020 - 2034 Capital Investment Plan Total</b>	<b>27.0</b>	<b>9.1</b>	<b>36.1</b>

In many cases, CIP capital cost estimates are preliminary rough order of magnitude projections intended for planning purposes only.

The planning and design of large capital projects proceeds through a series of “stage gates”, which increase certainty and accountability and reduce risk. At each gate, estimates are further refined. As a result of this practice, estimates will inevitably be subject to change. The updated CIP for 2020 reflects the further refinement of estimates, particularly for Line 1 and Line 2 Capacity Improvements and the Yonge-Bloor Capacity Improvements projects.

Further details on the Capital Investment Plan can be referenced in Appendix C.

As a result of the 2020 budget process, \$7.409 billion of the \$36.126 billion CIP will be funded in the first 10 years. Based on extending current funding levels to the outer five years, another \$2.627 billion of this CIP can be funded. This leaves a total of \$26.1 billion unfunded.

**2020-2034 Recommended Capital Investment Plan**

Description (\$ Billions)	2020-2034		
	Years 1-10	Years 11-15	15-Year Total
Funded	7,409	2,627	<b>10,036</b>
Unfunded	19,657	6,433	<b>26,090</b>
<b>Base Program Requirement</b>	<b>27,066</b>	<b>9,060</b>	<b>36,126</b>
<i>* Funding sources in years 11-15 are based on current levels of city, provincial and federal funding included in the 10 year capital budget and plan</i>			

**2020-2029 Capital Budget and Plan**

The Capital Budget & Plan establishes a steady state investment to ensure all assets are maintained in a state of good repair to preserve system safety and reliability to meet service objectives. To achieve an optimal outcome, it was important to:

- Recalibrate the 10-Year Capital Plan based on capacity to spend and project readiness and smooth annual cash flow estimates to more realistically match cash flow spending to project activities;
- Implement a stage gating process for major projects;
- Align with City capital planning and budgeting policies and practices.

This has resulted in a revised cashflow profiling of base capital needs through the 10-year capital planning period and allocating available funding to critical capital works.

The 2020-2029 Capital Budget and Plan will:

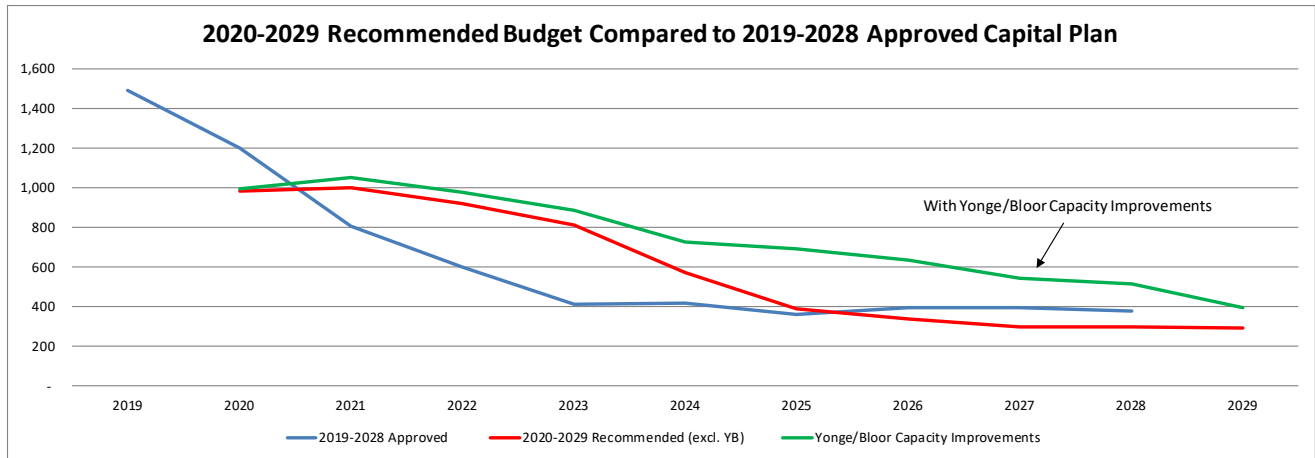
- Fund critical base capital requirements needed to establish a steady state of good repair maintenance program for the Commission’s ageing infrastructure;
- Ensure in-flight projects are fully funded;
- Maximize funding for the vehicle overhaul program due to insufficient funding for purchases;
- Add the Yonge-Bloor Capacity Improvements Project as a priority project;
- Provide funds to establish Enterprise Asset Management in preparation for legislative requirements;
- Provide planning and study funding to help advance capital initiatives that are currently unfunded.

Funding is recommended for the planning stages of key major projects included on the unfunded list, which are critical to ensure progress is made in preparing for future capital requirements. Funding for the planning stages of the following projects has been included in the recommended Capital Budget and Plan.

<b>Capital Project</b>	<b>Planning Cost (\$millions)</b>
Line 1 Capacity Enhancement	<b>6.9</b>
Line 2 Capacity Enhancement	<b>14.6</b>
Line 2 / 4 ATC Resignalling	<b>11.7</b>
Platform Edge Doors Study	<b>0.7</b>
Platform Edge Tile Replacement	<b>3.8</b>
New Subway Maintenance & Storage Facility Study	<b>4.6</b>
Ninth Bus Garage - Preliminary Concept	<b>0.5</b>
Hillcrest Track Replacement Expansion	<b>2.0</b>
New Transit Control-ITS Centre	<b>20.4</b>
Easier Access Phase 4 Study	<b>0.7</b>
<b>Total</b>	<b>65.9</b>

The TTC’s recommended 2020-2029 Capital Budget & Plan totalling \$7.4 billion is based on the actions outlined above. The following table compares the staff recommended 10 year Capital Budget & Plan to last year’s Council approved 10 year Capital Budget & Plan.

## 2020-2029 CAPITAL BUDGET & PLAN



2020 - 2029 Capital Budget and Plan												
(\$ Millions)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
2019-2028 Approved	1,490	1,199	805	599	411	416	360	397	396	380		6,453
2020-2029 Recommended (excl. YB)		980	999	921	810	574	389	336	298	299	294	5,901
Yonge/Bloor Capacity Improvements		16	50	57	75	150	300	300	245	215	100	1,508
Total Base 2020-2029 Recommended		996	1,049	978	885	724	689	636	543	514	394	7,409
Change	(1,490)	(203)	244	379	473	308	330	239	147	134	394	955

As noted in the chart and table above, the recommended 2020-2029 Capital Budget & Plan reflects cashflow funding estimates that are smoother than the 2019 Capital Plan, due to the reforecasting of the Capital Plan based on project readiness, activities and timelines.

The following table and chart outlines the recommended 10-year Capital Budget & Plan by project category.

### Base Capital Plan By Project Category (\$ millions)

	2020	2021	2022	2023	2024	5 Year Total	10 Year Total	Total 10 Year %
Health and Safety	3.4	5.6	11.8	17.8	11.6	50.2	60.2	1%
Legislated	92.7	116.0	122.0	123.9	109.6	564.2	718.7	10%
SOGR	744.0	793.6	753.9	651.2	414.7	3,357.5	4,795.4	65%
Service Improvement	61.9	90.9	89.0	91.4	162.8	496.0	1,671.6	23%
Growth Related	93.7	42.6	0.7	0.1	25.1	162.2	162.2	2%
Total Funded Recommendation	995.7	1,048.8	977.4	884.4	723.9	4,630.1	7,408.2	100%

\* Note: the 10 year Gross Base Capital Recommendation is \$27 billion

As outlined above, over \$5.6 billion or a little over 75% of the recommended 10-Year Capital Budget and Plan is committed to State-of-Good-Repair (65%), Legislated (10%), and Health and Safety (1%) projects. As a result, the recommended 10-year Capital Budget and Plan allocates the majority of available funding to establishing a predictable, steady state 10-year program for ongoing SOGR capital work. Priority has been given

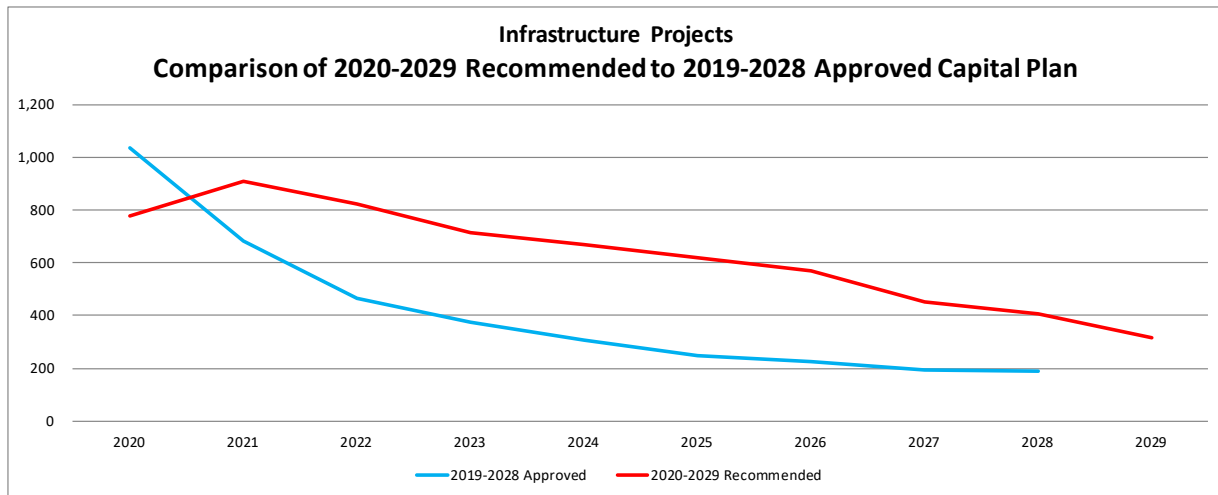
to funding SOGR projects to ensure the Commission can keep pace with the SOGR needs that must be addressed for assets that have come to the end of their useful life. Due to funding constraints, much of the previously approved growth related projects were moved below the line.

The TTC’s capital works program can be categorized into 2 project groups:

- Infrastructure
- Vehicles

The staff recommended 10-Year Capital Plan allocates \$6.3 billion to Infrastructure Projects and \$1.153 billion to Vehicle Projects. The following chart compares the 2020 recommended 10-Year Capital Plan to the 2019 approved 10-Year Capital Plan for Infrastructure Projects.

*Infrastructure Projects:*



2019-2028 vs. 2020-2029 Infrastructure Capital Recommended Budget												
(\$ Millions)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
2019-2028 Approved	775	1,036	684	464	376	306	247	225	196	191		4,499
2020-2029 Recommended		777	909	824	714	668	618	568	451	409	317	6,256
<b>Change</b>	<b>(775)</b>	<b>(258)</b>	<b>225</b>	<b>360</b>	<b>337</b>	<b>363</b>	<b>371</b>	<b>344</b>	<b>256</b>	<b>218</b>	<b>317</b>	<b>1,757</b>

As noted in the table above, funding for Infrastructure Projects has increased by \$1.757 billion and the 10-year Capital Plan provides funding for the following projects:

*Transit Infrastructure Projects (\$1.9 billion)*

- Track replacement (\$582 million)
- Installation of automatic train control and resignalling on Line 1 (YUS subway line) (\$236 million)
- Traction Power (\$172 million)
- Power Distribution/Electrical Systems (\$156 million)
- Communications (\$119 million)
- Signal Systems (\$97 million)
- Streetcar overhead system rebuild (\$65 million)
- Streetcar network upgrades for new Streetcars (\$13 million)
- Initial work on the installation of automatic train control and resignalling on

- Line 2 (BD subway line) (\$12 million)
- Various bridges and tunnels infrastructure rehabilitation (\$426 million)

*Transit Station and Related Projects (\$2.4 billion)*

- Yonge and Bloor Capacity Improvements (\$1.5 billion)
- Easier Access Phase III (\$528 million)
- Upgrading of fire ventilation equipment and second exits in the subway (\$217 million)
- Subway Escalator Overhaul and Replacement Programs (\$105 million)
- Subway Facility Renewal (\$42 million)
- Stations Transformation (\$31 million)

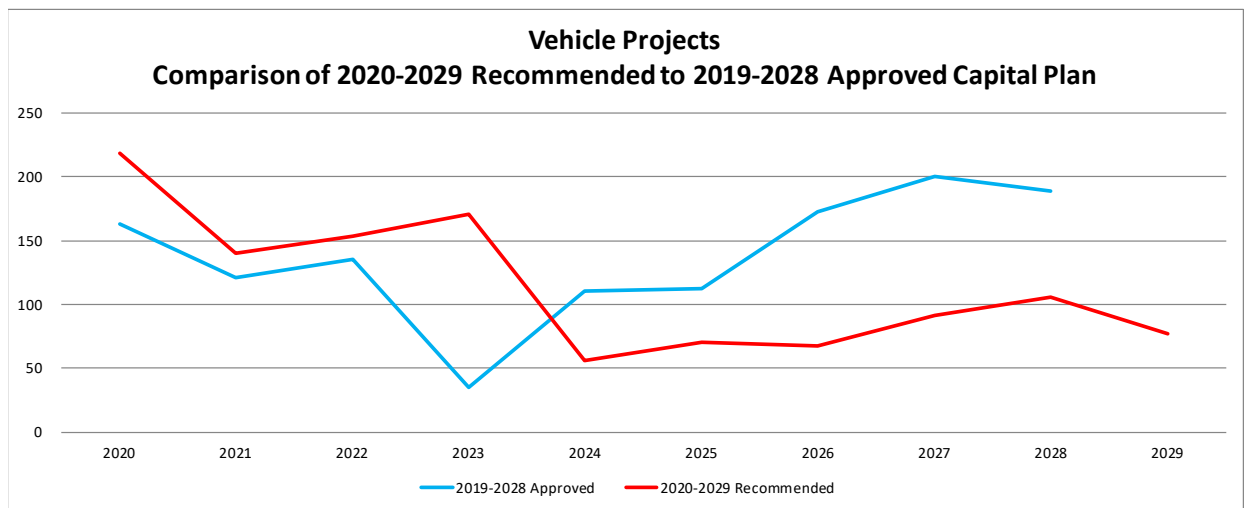
*Transit Garages/Yards and Related Projects (\$584 million)*

- TR/T1 (Subway car) Rail Yard Accommodation (Subway Vehicle Facilities) (\$209 million)
- Roofing rehabilitation and paving programs (\$182 million)
- McNicoll Bus Garage (\$65 million)
- Bus Hoists (\$38 million)
- Wilson Garage Ventilation Upgrade (\$33 million)
- Streetcar Carhouse Facility (\$32 million)
- Land Acquisition for the New Subway Maintenance & Storage Facility (\$25 million)

*Other Transit Infrastructure Projects (\$1.4 billion)*

- Investments in information technology assets (\$417 million) such as SAP, VISION, Maximo
- TTC Presto and fare and revenue collection and infrastructure needs (\$44 million)
- Service Planning (\$96 million)
- Environmental Programs (\$55 million)
- Wheel Trans Transformation (\$30 million)
- Backflow Preventers (\$21 million)
- Other (\$701 million)

Vehicle Projects:



2019-2028 vs. 2020-2029 Vehicle Capital Recommended Budget												
(\$ Millions)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
2019-2028 Approved	715	163	121	135	35	110	112	172	200	189		1,954
2020-2029 Recommended		219	140	154	171	56	71	68	92	106	77	1,153
<b>Change</b>	<b>(715)</b>	<b>55</b>	<b>19</b>	<b>19</b>	<b>136</b>	<b>(54)</b>	<b>(42)</b>	<b>(105)</b>	<b>(109)</b>	<b>(83)</b>	<b>77</b>	<b>(801)</b>

As noted above, funding for Vehicle Projects has decreased by \$801 million and the 10-year Capital Plan provides funding for the following projects.

- Vehicle Overhaul Programs (\$919 million comprising of: Bus \$223 million; Streetcar \$36 million; Subway Car \$659 million)
- Balance of e-bus procurement order (\$8 million)
- Wheel Trans Bus replacement (\$29 million)
- Balance of the 420 Toronto Rocket Subway car order (\$9 million)
- Balance of the 204 Streetcar order (\$97 million)
- Other (\$91 million)

The recommended 2020-2029 Capital Budget & Plan does not include any additional funding for the procurement of new buses (conventional and wheel-trans), streetcars and subway trains. The remaining cashflows are based on the final contractual obligations to close out the existing funded fleet orders.

In the absence of new funding to accommodate ridership growth the inability to exercise any new fleet procurements over the next 10 years resulted in the need to accelerate funding for the vehicle overhaul program included in the 2019 Capital Plan to ensure the viability of the preventative maintenance program as well as ensure safety and reliability issues are addressed based on the condition of the Commission’s fleet.

Funding for the bus overhaul program provides the needed mid-life overhaul for approximately 160 buses per year (including Orion VII diesel and Nova Artic Buses). The Streetcar overhaul program allows sufficient funding to overhaul the new LFLRVs based on the existing preventative maintenance program of 4, 8, 16 and 24 years. The T1 fleet currently in revenue service on Line 2 is reaching the end of its useful life. As a



result of insufficient funding to replace the ageing T1 fleet, the T1 Life Extension Overhaul will be required to extend the useful life of the fleet by an additional 10 years beyond their 30-year service life. However, this too remains partially unfunded.

## Capital Funding Sources

\$ Million	2020 - 2029 Recommended Capital Budget and Plan by Funding Source										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Recommended Debt	268.5	584.1	568.8	491.2	269.9	94.4	48.9	11.4	11.8	6.8	<b>2,355.8</b>
Reserves/Reserve Funds	37.6										<b>37.6</b>
Development Charges	115.3	101.6	58.8	17.6	12.8	5.0	3.5	2.8	3.0	2.2	<b>322.6</b>
Provincial/Federal	388.2	268.4	267.5	275.1	275.1	275.1	275.1	275.1	275.1	275.1	<b>2,849.8</b>
Recoverable Debt											
Others	170.6	45.2	25.8	26.0	16.6	14.6	8.6	8.5	9.4	9.7	<b>335.0</b>
<b>Total (Excl. Yonge Bloor)</b>	<b>980.2</b>	<b>999.3</b>	<b>920.9</b>	<b>809.9</b>	<b>574.4</b>	<b>389.1</b>	<b>336.2</b>	<b>297.7</b>	<b>299.3</b>	<b>293.8</b>	<b>5,900.7</b>
Development Charges	0.7	0.5									<b>1.2</b>
Recoverable Debt	15.3	16.2	19.0	25.0	50.0	100.0	100.0	81.7	71.7	28.0	<b>506.8</b>
Provincial/Federal		33.3	38.0	50.0	100.0	200.0	200.0	163.3	143.3	72.0	<b>1,000.0</b>
<b>Total (Yonge-Bloor)</b>	<b>16.0</b>	<b>50.0</b>	<b>57.0</b>	<b>75.0</b>	<b>150.0</b>	<b>300.0</b>	<b>300.0</b>	<b>245.0</b>	<b>215.0</b>	<b>100.0</b>	<b>1,508.0</b>
<b>Total (TTC Base)</b>	<b>996.2</b>	<b>1,049.3</b>	<b>977.9</b>	<b>884.9</b>	<b>724.4</b>	<b>689.1</b>	<b>636.2</b>	<b>542.7</b>	<b>514.3</b>	<b>393.8</b>	<b>7,408.7</b>

The 2020-2029 Capital Budget & Plan reflects the following key assumptions:

- Assumed approved level of debt in the 2019-2028 Capital Plan in the absence of debt targets over the 10-year period;
- Assumed replacement of Provincial Gas Tax (PGT) lost funding due to provincial cancellation of the extra 2 cents of PGT;
- Federal PTIF Phase 1, which is expected to end in 2020;
- Federal PTIF Phase 2 funding and equal cost sharing from the Province and the City (through recoverable debt) for the Yonge-Bloor Capacity Improvements Project.

As a result, funding for TTC's 2020-2029 Capital Budget and Plan will require:

- \$2.356 billion in debt funding, representing 31.8% of total funding; when adding recoverable debt, City debt funding totals \$2,862.6 billion or 38.6%;
- \$2.850 billion plus an additional \$1 billion in Provincial and Federal funding for a total of \$3.850 billion or 52%;
- Reserves and reserve funds plus development charges will provide \$361.4 million or 5%;
- Other funding will provide \$335 million to complete the funding required for this 10-Year Capital Plan.

## Operating Impacts of Completed Capital Projects

The cost of maintaining and operating new infrastructure, rehabilitated or expanded facilities as well as the cost to sustain new technology are some key drivers that impact the TTC's Operating Budget. These cost drivers must be identified for consideration when evaluating capital projects to determine the costs and benefits of capital projects. Approval of the 2020-2029 Capital Plan will result in the following costs and/or savings arising from the completed capital projects.

The \$4.829 million in net savings is reflected in the TTC's 2020 Operating Budget.

### Operating Impacts of Completed Capital Projects

Projects	2020 Budget		2021 Plan		2022 Plan		2023 Plan	
	\$000s	Positions	\$000s	Positions	\$000s	Positions	\$000s	Positions
<b>Previously Approved</b>								
Fare System	(2,808.0)	(15.0)	1,985.0		620.0			
Information Technology System-Infrastructure	1,921.0	(7.0)	1,830.0	34.0	1,251.0			
McNicoll Bus Garage Facility	3,587.0	59.0	5,605.0					
Master Signup			(1,216.0)	(15.0)	(502.0)			
Purchases of Buses	(7,529.0)	(29.0)	1,602.0	23.0	2,943.0	35.0	(2,879.9)	
Purchase of Rail Non-Revenue Vehicle							(416.3)	(1.0)
Signal Systems - Various					(11,100.0)	(177.0)	129.0	
Other Various OBIs			747		(2,488.0)			
<b>Total (Net)</b>	<b>(4,829.0)</b>	<b>8.0</b>	<b>10,553.0</b>	<b>42.0</b>	<b>(9,276.0)</b>	<b>(142.0)</b>	<b>(3,167.2)</b>	<b>(1.0)</b>

Projects	2024 Plan		5-Year Total		10-Year Total	
	\$000s	Positions	\$000s	Positions	\$000s	Positions
<b>Previously Approved</b>						
Fare System			(203.0)	(15.0)	6,500.0	20.0
Information Technology System-Infrastructure			5,002.0	27.0	11,363.6	41.0
McNicoll Bus Garage Facility			9,192.0	59.0	9,192.0	59.0
Master Signup			(1,718.0)	(15.0)	(1,718.0)	(15.0)
Purchases of Buses	(3,970.2)		(9,834.1)	29.0	(34,848.5)	0.0
Purchase of Rail Non-Revenue Vehicle	(6.4)		(422.7)	(1.0)	(355.7)	0.0
Signal Systems - Various	33.0		(10,938.0)	(177.0)	1,570.0	10.0
Other Various OBIs			(1,741.0)		(1,741.0)	
<b>Total (Net)</b>	<b>(3,943.6)</b>	<b>-</b>	<b>(10,662.8)</b>	<b>(93.0)</b>	<b>(10,037.6)</b>	<b>115.0</b>

## 2020 Capital Budget

The recommended 10-year Base Capital Plan of \$7.4 billion includes almost \$1.0 billion in project funding required for 2020. The following chart outlines the projects funded for 2020.

**TTC 2020 CAPITAL BUDGET**

		(\$Millions)
<b>Infrastructure Projects:</b>		
Track Programs	70.9	
Electrical Systems	48.7	
Signal Systems (Incl. Line 1 (YUS \$ 65M) and Line 2 (BD \$ 0.2M))	78.5	
Finishes	17.8	
Equipment	33.4	
Yards & Roads	13.0	
Bridges & Tunnels	34.9	
Other Buildings & Structures		
- Yonge Bloor Capacity Improvements	16.0	
- New Subway Maintenance & Storage Facility	28.0	
- Fire Ventilation Upgrade	16.8	
- Easier Access Phase III	59.4	
- TR/T1 (Subway Car) Rail Yard Accommodation (Subway Vehicle Facilities)	45.1	
- McNicoll Bus Garage (\$37.8 M) & Operational Readiness (\$0.8 M)	38.6	
- LRV Carhouse facility Renewal	12.2	
- Wilson Garage Ventilation Upgrade	14.9	
- Duncon Shop Ventilation Upgrade	2.9	
- Stations Transformation	8.6	
- Wheel-Trans 10 Yr Transformation Program	8.8	
- Enterprise Asset Management	6.8	
- Other Building & Structure Projects	<u>56.8</u>	
Fare System	16.0	
Information Technology	1.7	
Other Projects	147.7	
		} <b>\$777.5 78%</b>
<b>Vehicle Projects:</b>		
Purchase of Buses	7.1	
Purchase of Future Wheel Trans Buses	17.5	
Purchase of Subway Cars	5.4	
Purchase of Streetcar (204)	71.5	
Vehicle Overhaul Programs (Bus, Subway, Streetcar)	98.2	
Other (Non-Revenue Vehicle Purchase & Overhaul)	19.0	
<b>Total Program</b>	<u><u>996.2</u></u>	
		} <b>\$218.7 22%</b>

### Infrastructure Projects

In 2020, work will continue to maintain TTC infrastructure assets in a state of good repair, including subway and surface track, signal systems, yards/roads and bridges/tunnels. Planning work will continue on Yonge Bloor Capacity Improvements and Line 1 Capacity Enhancements and it will begin on Line 2 Capacity Enhancements.

Projects scheduled for completion in 2020 include: Duncan Shop Ventilation Upgrade, YUS Resignalling – Installation of Crossovers, Union Station New Platform, POP

Legacy Fare Collection, and the substantial completion of the McNicoll Bus Garage. *Vehicle Program*

The recommended 2020-2029 Capital Plan does not include any additional funding for new procurements. The recommended cashflows fund the final delivery of the first 60 e-bus order that was included in the Federal PTIF Agreement. This program will be ending on March 31, 2020. It is expected that the remaining 204 LRVs will be delivered by the end of 2019 and no new procurements have been committed. While all Toronto Rockets have been delivered and are in revenue service, capital funding addresses the contractual commitments remaining from this order.

## 10 Year Recommended Capital Budget and Plan: Implications for TTC's Unmet Capital Needs

Due to limited funding in the 10 year planning period, over \$19.6 billion is currently unfunded as noted in the table below.

**TTC Capital Needs Constraints  
(In \$ Millions)**

Project Description	Cash Flow (In \$ Millions)						10 Year Total
	2020	2021	2022	2023	2024	5 Year Total	
<b>NOT INCLUDED</b>							
NEW SUBWAY MAINTENANCE & STORAGE FACILITY PROPERTY	225.0					225.0	225.0
PROPERTY 9TH BUS GARAGE & WILSON YARD EXPANSION		200.0				200.0	200.0
BUS OVERHAULS	1.4	1.4	0.9		83.1	86.8	393.6
T1 LIFE EXTENSION OVERHAUL					70.0	70.0	240.0
STREETCAR OVERHAUL							32.5
SUBWAY CAR OVERHAUL					84.0	84.0	361.4
SUBWAY TRACK							99.6
SIGNAL SYSTEMS	1.2	0.3	0.1	10.7	13.7	26.1	299.1
LINE 2 / 4 ATC RESIGNALING				10.7	13.7	24.5	297.5
POWER DISTRIBUTION/ELECTRICAL SYSTEMS				0.4	0.3	0.7	1.9
COMMUNICATIONS	3.0	3.1	3.5	4.1	5.1	18.7	57.5
HEALTH & SAFETY	20.0	20.0	3.0	2.4	2.5	47.9	63.3
LEGISLATIVE	0.2	5.4	9.2	14.1	3.3	32.1	138.5
SERVICE IMPROVEMENTS	11.6	518.2	504.9	1,303.5	1,310.3	3,648.5	8,600.2
STATE OF GOOD REPAIR	64.7	135.1	644.9	517.5	988.5	2,350.7	6,359.1
GROWTH	5.3	74.9	224.4	212.8	303.4	820.7	2,288.2
<b>Total Unmet Needs (Not Included)</b>	<b>332.4</b>	<b>958.3</b>	<b>1,390.8</b>	<b>2,076.2</b>	<b>2,877.9</b>	<b>7,635.5</b>	<b>19,657.4</b>

Property \$425  
 Vehicle Overhaul \$1,027.5  
 Subway Infrastructure \$755.6  
 By Category \$17,449.3

As a result, TTC's capital needs have been constrained, as noted below:

- \$425 million for property purchases necessary for new facilities to accommodate growth projects;
- \$1.028 billion to complete vehicle overhauls;
- \$755.6 million for subway infrastructure;
- \$63.3 million for health and safety projects
- \$138.5 million for legislative projects
- \$8.6 billion for state of good repair projects
- \$6.4 billion for service improvement projects
- \$2.3 billion for growth projects

The following table outlines by project category, the unfunded capital needs over the 15-year timeframe.

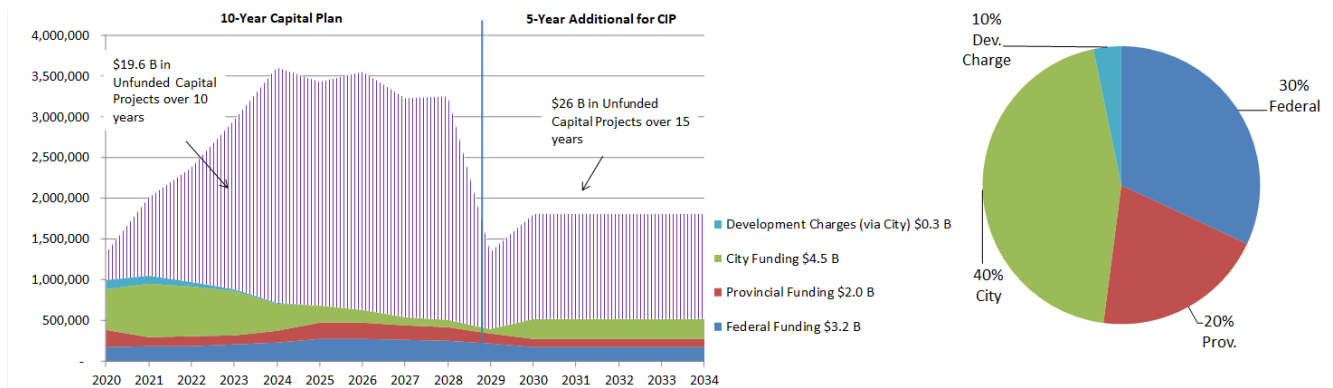
Ten Year Capital Constraints By Project Category (\$ millions)									
	2020	2021	2022	2023	2024	5 Year Total	10 Year Total	15 Year Total	Total 15 Year %
Health and Safety	19.5	19.5	2.5	1.9	2.0	45.4	62.8	653.7	3%
Legislated	0.2	5.4	9.2	14.1	3.3	32.1	138.5	378.0	1%
SOGR	70.3	139.9	649.3	543.4	1,258.4	2,661.3	8,142.3	13,676.7	52%
Service Improvement	11.6	518.2	504.9	1,303.5	1,310.3	3,648.5	8,600.2	8,639.7	33%
Growth Related	230.3	274.9	224.4	212.8	303.4	1,245.7	2,713.2	2,742.2	11%
<b>Total Unfunded Recommendation</b>	<b>331.9</b>	<b>957.8</b>	<b>1,390.3</b>	<b>2,075.7</b>	<b>2,877.4</b>	<b>7,633.0</b>	<b>19,656.9</b>	<b>26,090.2</b>	<b>100%</b>

*\* Note: the 10 year Gross Base Capital Recommendation is \$27 billion*

As noted, nearly \$14.05 billion or about 54% of unfunded projects in the 15-Year Capital Investment Plan relates to State-of-Good-Repair (SOGR – 52.4%) and Legislated (1.4%) of unaddressed requirements.

As noted above, a total of \$19.6 billion remains unfunded in the first 10 years of the CIP. Planned funding is extended to the last five years of the CIP period, another \$6.4 billion for a total of \$26.1 will not be funded. The total CIP over the 15-year period is presented in the chart below.

### 2020-2034 Recommended Capital Investment Plan



\* Funding sources in years 11-15 are based on current levels of city, provincial and federal funding included in the 10-year capital budget and plan

## Next Steps

The Capital Investment Plan will be reviewed and updated on an annual basis. The next step is to undertake an initial prioritization process that will take into consideration the interdependencies between various projects and programs in order to manage risk and achieve desired benefits. The three values that form the cornerstone for capital investments at the TTC will be taken into consideration – safety and security; accessibility; and sustainability. Recommendations on key priority investments will be reported to the TTC Board in advance of the 2021 budget process and will form the basis of the TTC’s advice to City Council on key priorities for TTC base capital investment.

The City Manager in consultation with the Chief Executive Officer, TTC was directed as part of the October 2019 report *EX9.1 Toronto-Ontario Transit Update* to report back to City Council on funding and financing options for “*the reallocation of funds previously approved, identified, or contemplated for the provincial priority projects, for the purposes of state- of- good-repair of the TTC subway network, and other expansion projects.*” The next CIP update will be a key input to the City to support ongoing intergovernmental discussions and securing new partnership funding in the TTC system, recognizing several components of the CIP are necessary pre-requisites to achieving the benefits of further expansion of the transit network.

## Contact

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## Signature

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Josie La Vita  
Interim Chief Financial Officer

## Attachments

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Appendix A – 2020 – 2029 Capital Budget and Plan Summary  
Appendix B – 2020 – 2029 Capital Budget and Plan Funding Summary  
Appendix C – 2020 – 2034 Capital Investment Plan

**TORONTO TRANSIT COMMISSION  
2020-2029 CAPITAL BUDGET & PLAN SUMMARY**

**Appendix A**

\$Millions

Programs	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029
<b>Infrastructure Related Programs:</b>											
<b>Tracks:</b>	<b>70.9</b>	<b>81.5</b>	<b>66.8</b>	<b>64.3</b>	<b>63.9</b>	<b>48.7</b>	<b>48.2</b>	<b>44.3</b>	<b>42.4</b>	<b>51.1</b>	<b>582.1</b>
1.1 Subway Track	27.8	28.2	28.1	28.4	28.9	29.3	29.3	29.3	29.3	37.8	296.4
1.2 Surface Track	43.1	53.4	38.7	36.0	35.0	19.4	18.9	15.0	13.1	13.3	285.7
<b>Signals, Electrical, Communications:</b>	<b>127.2</b>	<b>127.1</b>	<b>131.5</b>	<b>120.3</b>	<b>65.9</b>	<b>67.8</b>	<b>65.9</b>	<b>56.9</b>	<b>46.0</b>	<b>47.4</b>	<b>856.1</b>
2.1 Traction Power	23.8	25.8	19.8	20.9	22.4	23.5	24.8	24.8	24.8	27.1	236.6
2.2 Power Distribution	7.6	8.6	14.0	17.1	20.7	26.0	26.5	19.8	8.2	7.8	156.3
2.3 Communications	17.3	16.6	15.7	13.9	9.8	8.0	9.0	9.3	9.8	9.1	118.5
2.4 Signal Systems	13.5	14.2	14.4	15.1	13.1	10.3	6.6	3.0	3.2	3.3	96.6
2.4 YUS/BD Resignalling	65.0	62.0	67.7	53.4	-	-	-	-	-	-	248.1
<b>Buildings and Structures:</b>	<b>413.9</b>	<b>534.2</b>	<b>516.9</b>	<b>462.7</b>	<b>497.3</b>	<b>468.8</b>	<b>434.7</b>	<b>330.9</b>	<b>299.0</b>	<b>197.0</b>	<b>4,155.3</b>
3.1 Finishes	17.8	52.5	45.9	9.6	7.9	0.9	0.9	0.9	0.9	0.9	138.2
3.2 Equipment	33.4	44.5	33.8	16.7	17.7	17.5	15.7	17.7	17.3	17.3	231.6
3.3 Yards & Roads	13.0	20.9	28.6	12.3	11.9	10.4	10.6	10.7	10.9	13.7	142.9
3.4 Bridges & Tunnels	34.9	37.6	44.0	44.8	44.3	43.5	41.3	41.5	41.9	52.7	426.4
3.9 Fire Ventilation Upgrade	16.8	41.8	48.9	52.6	56.7	-	-	-	-	-	216.8
3.9 Easier Access Phase III	59.4	76.4	85.5	99.4	87.4	66.8	53.3	-	-	-	528.1
3.9 Leslie Barns	3.2	9.3	5.0	-	-	-	-	-	-	-	17.5
3.9 Toronto Rocket (Subway Car) Yard & Storage Track Accommodation	45.1	61.5	44.7	39.1	17.5	1.4	-	-	-	-	209.3
3.9 McNicoll Bus Garage	37.8	27.2	-	-	-	-	-	-	-	-	65.0
3.9 Line 1 Capacity Enhancement	5.2	1.7	-	-	-	-	-	-	-	-	6.9
3.9 Line 2 Capacity Enhancement	2.7	6.0	5.9	-	-	-	-	-	-	-	14.6
3.9 Corporate Initiatives	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	40.0
3.9 Yonge-Bloor Capacity Improvement	16.0	50.0	57.0	75.0	150.0	300.0	300.0	245.0	215.0	100.0	1,508.0
3.9 Other Buildings & Structures	124.6	100.9	113.7	109.3	100.0	24.4	8.9	11.1	8.9	8.4	610.0
<b>Tooling, Machinery and Equipment</b>	<b>32.5</b>	<b>17.7</b>	<b>6.9</b>	<b>5.9</b>	<b>4.9</b>	<b>5.9</b>	<b>3.8</b>	<b>4.3</b>	<b>5.8</b>	<b>5.0</b>	<b>92.8</b>
5.1 Shop Equipment	8.0	4.6	2.5	2.5	1.9	3.5	2.1	2.7	3.2	3.4	34.2
5.2 Revenue & Fare Handling Equipment	5.5	3.8	3.3	2.3	1.8	1.2	0.4	0.4	1.3	0.3	20.1
5.3 Other Maintenance Equipment	3.1	1.5	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.4	14.7
5.4 Fare System	16.0	7.8	-	-	-	-	-	-	-	-	23.8
<b>Environmental Issues</b>	<b>7.0</b>	<b>9.9</b>	<b>7.4</b>	<b>4.8</b>	<b>4.0</b>	<b>4.1</b>	<b>4.2</b>	<b>4.3</b>	<b>4.6</b>	<b>4.6</b>	<b>54.9</b>
6.1 Environmental Program	7.0	9.9	7.4	4.8	4.0	4.1	4.2	4.3	4.6	4.6	54.9
<b>Computer Equipment &amp; Software</b>	<b>106.5</b>	<b>118.9</b>	<b>77.9</b>	<b>40.0</b>	<b>23.9</b>	<b>17.1</b>	<b>8.7</b>	<b>7.5</b>	<b>7.8</b>	<b>8.6</b>	<b>416.9</b>
7.1 IT Systems/Infrastructure	106.5	118.9	77.9	40.0	23.9	17.1	8.7	7.5	7.8	8.6	416.9
<b>Other:</b>	<b>19.6</b>	<b>19.6</b>	<b>16.9</b>	<b>15.8</b>	<b>8.3</b>	<b>5.9</b>	<b>3.0</b>	<b>2.9</b>	<b>3.1</b>	<b>2.8</b>	<b>98.0</b>
9.1 Furniture & Office Equipment	0.4	0.3	0.2	0.3	0.1	0.3	0.2	0.1	0.3	0.0	2.3
9.2 Service Planning	19.1	19.4	16.7	15.5	8.1	5.6	2.8	2.8	2.8	2.8	95.7
<b>Subtotal - Infrastructure Related Programs</b>	<b>777.5</b>	<b>909.1</b>	<b>824.3</b>	<b>713.9</b>	<b>668.2</b>	<b>618.4</b>	<b>568.3</b>	<b>451.2</b>	<b>408.5</b>	<b>316.5</b>	<b>6,256.0</b>
<b>Vehicle Related Programs:</b>											
4.11 Purchase of Buses	7.1	0.6	-	-	-	-	-	-	-	-	7.7
4.11 Purchase of Wheel Trans Buses	17.5	11.6	-	-	-	-	-	-	-	-	29.1
4.12 Purchase of Subway Cars	5.4	1.5	1.7	-	-	-	-	-	-	-	8.6
4.13 Bus Overhaul	51.2	37.0	51.6	83.0	-	-	-	-	-	-	222.9
4.15 Streetcar Overhaul	0.5	-	1.0	1.5	1.3	16.2	15.9	-	-	-	36.4
4.16 Subway Car Overhaul	46.5	47.4	74.8	66.2	50.0	50.0	50.0	91.5	105.7	77.2	659.4
4.18 Purchase of Streetcars	71.5	22.4	1.7	1.8	-	-	-	-	-	-	97.5
4.21 Purchase Non-Revenue Vehicles	5.9	10.7	6.3	6.3	-	-	-	-	-	-	29.2
4.22 Rail Non-Revenue Vehicle Overhauls	5.6	6.4	4.3	5.8	4.9	4.5	1.9	-	-	-	33.3
4.23 Purchase Rail Non-Revenue Vehicle	7.5	2.6	12.1	6.5	-	-	-	-	-	-	28.6
<b>Subtotal - Vehicle Related Programs</b>	<b>218.7</b>	<b>140.2</b>	<b>153.6</b>	<b>171.1</b>	<b>56.1</b>	<b>70.7</b>	<b>67.8</b>	<b>91.5</b>	<b>105.7</b>	<b>77.2</b>	<b>1,152.7</b>
<b>TOTAL - BASE PROGRAM</b>	<b>996.2</b>	<b>1,049.3</b>	<b>977.9</b>	<b>884.9</b>	<b>724.4</b>	<b>689.1</b>	<b>636.2</b>	<b>542.7</b>	<b>514.3</b>	<b>393.8</b>	<b>7,408.7</b>
<b>Transit Expansion Programs:</b>											
SRT Life Extension	18.2	19.6	13.2	4.1	4.1	3.3	2.8	-	-	-	65.4
Waterfront Transit	5.1	12.6	36.2	-	-	-	-	-	-	-	53.9
Toronto-York Spadina Subway Extension (TYSSE)	63.2	56.7	47.5	0.5	-	-	-	-	-	-	167.8
<b>TOTAL - TRANSIT EXPANSION PROGRAM</b>	<b>86.4</b>	<b>88.9</b>	<b>96.9</b>	<b>4.6</b>	<b>4.1</b>	<b>3.3</b>	<b>2.8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>287.1</b>
<b>TOTAL - BASE &amp; TRANSIT EXPANSION PROGRAMS</b>	<b>1,082.6</b>	<b>1,138.2</b>	<b>1,074.8</b>	<b>889.5</b>	<b>728.4</b>	<b>692.5</b>	<b>639.0</b>	<b>542.7</b>	<b>514.3</b>	<b>393.8</b>	<b>7,695.8</b>

## 2020-2029 Capital Budget Funding Summary

\$Millions

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
<b>2020 to 2029 Capital Budget &amp; Plan Recommendation</b>	<b>996</b>	<b>1,049</b>	<b>978</b>	<b>885</b>	<b>724</b>	<b>689</b>	<b>636</b>	<b>543</b>	<b>514</b>	<b>394</b>	<b>7,409</b>
<b>Funding Sources</b>											
Provincial Gas Tax - Base 2 cents	116	93	93	93	93	93	93	93	93	93	957
Canada Strategic Infrastructure Fund (CSIF) - Interest	16										16
PTIF 2: Yonge Bloor Capacity Improvements Matching Funds		17	19	25	50	100	100	82	72	36	500
Capital Reserve	58										58
204 LRV Funding	22										22
<b>Total Provincial Funding</b>	<b>211</b>	<b>110</b>	<b>112</b>	<b>118</b>	<b>143</b>	<b>193</b>	<b>193</b>	<b>175</b>	<b>165</b>	<b>129</b>	<b>1,552</b>
Base Federal Gas Tax - 5 cent (population)	167	174	174	182	182	182	182	182	182	182	1,787
PTIF 2: Yonge Bloor Capacity Improvements		17	19	25	50	100	100	82	72	36	500
NR Canada	2	1									3
Public Transit Infrastructure Fund (PTIF Phase 1)	9										9
<b>Total Federal Funding</b>	<b>177</b>	<b>192</b>	<b>193</b>	<b>207</b>	<b>232</b>	<b>282</b>	<b>282</b>	<b>263</b>	<b>253</b>	<b>218</b>	<b>2,298</b>
TTC Internal (depreciation)	24	26	26	26	17	15	9	8	9	10	169
Other Reserves / Funding Partners (Water; Roads DC - Transit Priorities)	2	2	2	2	2	2	2	2	2	2	17.60
Development Charges	114	100	57	16	11	3	2	1	1	0	306
Bombardier LD's	6	19									26
<b>Total Other Funding</b>	<b>147</b>	<b>147</b>	<b>85</b>	<b>44</b>	<b>29</b>	<b>20</b>	<b>12</b>	<b>11</b>	<b>12</b>	<b>12</b>	<b>519</b>
City Debt Recommendation (including PGT 2 cent replacement)	269	584	569	491	270	94	49	11	12	7	2,356
City Funding - Recoverable Debt (PTIF 2 Matching Funds)	15	16	19	25	50	100	100	82	72	28	507
City Funding - Reserve Funds (Capital Financing Strategy)	38										38
Total Carryforward	222										222
LRV	(22)										(22)
Development Charges	(58)										(58)
PTIF	(2)										(2)
Debt	140										140
<b>Total City / Other Funding</b>	<b>608</b>	<b>748</b>	<b>672</b>	<b>560</b>	<b>349</b>	<b>214</b>	<b>161</b>	<b>104</b>	<b>96</b>	<b>47</b>	<b>3,559</b>
<b>Total Funding</b>	<b>996</b>	<b>1,049</b>	<b>978</b>	<b>885</b>	<b>724</b>	<b>689</b>	<b>636</b>	<b>543</b>	<b>514</b>	<b>394</b>	<b>7,409</b>
<b>Funding Shortfall / (Surplus)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



## Appendix: 2020 - 2034 Capital Investment Plan Update

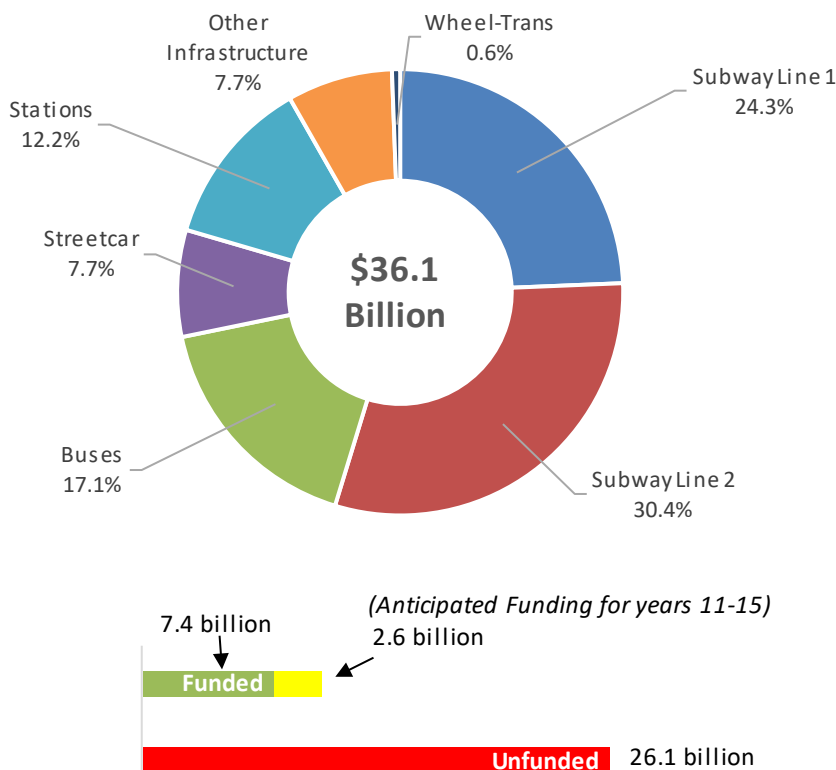
### 1. Background

In January 2019, the TTC introduced a 15 Year Capital Investment Plan (CIP) outlining the TTC’s comprehensive state of good repair needs, and capital requirements to support asset lifecycle replacement and ridership growth. The CIP outlines capital needs across all TTC asset type categories including streetcars, buses, stations, Wheel-Trans and subway infrastructure. Required capital investments of \$33.5 billion over a 15-year period (2019-2033) were identified based on order of magnitude cost estimates.

Through the 2020 budget process, the TTC’s 15-year outlook of base capital requirements has been updated for the period 2020 to 2034. The following provides an update on the refined cost estimates across each category of the CIP, and highlights areas across each mode requiring investment. It is important to note some capital cost estimates continue to be preliminary order of magnitude projections intended for planning purposes. Estimates will continue to be refined as projects mature through the project lifecycle.

### 2. Summary – 2020 – 2034 Base Capital Requirements

The total base capital requirements for the TTC over the next 15 years (2020 – 2034) is \$36.1 billion. Approximately \$26.1 billion is currently unfunded.



**Table. 2020-2034 Base Capital Requirements (\$B)**

<b>Project/ Program</b>	<b>Summary Description</b>	<b>Estimated Cost (15 Year)</b>	<b>Funded (15 Year)</b>	<b>Unfunded (15 Year)</b>
<b>Subway</b>				
Line 1 Capacity Enhancement	Increasing capacity through purchase of new trains, new northern yard and other station infrastructure enhancements	5.5 B	0.069 B	5.49 B
Automatic Train Control - Resignalling Line 1	Increasing capacity by reducing headway, providing more reliable service	0.24 B	0.24 B	0
Subway Track	Subway track and turnout rehabilitation, rail grinding, rail vehicle-based inspection system	0.66 B	0.37 B	0.29 B
Traction Power	Replacement of electrical systems that power the subway, including substation electrical and cable rebuilds	0.2 B	0.14 B	0.06 B
Subway Infrastructure	Maintenance of bridges and tunnels, communications, signal systems	1.34 B	0.86 B	0.487 B
Fire Ventilation Upgrade	Increasing the capacity of the subway fire ventilation system and constructing second exits	1.86 B	0.65 B	1.21 B
Toronto Rail/ T1 Rail Yard Accommodation (Line 1)	Increasing subway train storage capacity at Wilson and Davisville Yards	0.2 B	0.2 B	0
Purchase of Subway Trains- Ridership Growth on Line 1 in 2026	Purchase of new subway trains to meet ATC requirements and ridership growth forecasts	0.5 B	0.01 B	0.49 B
Subway Train Overhaul	Overhaul of the subway fleet to maintain state-of-good-repair	0.48 B	0.24 B	0.24 B

<b>Project/ Program</b>	<b>Summary Description</b>	<b>Estimated Cost (15 Year)</b>	<b>Funded (15 Year)</b>	<b>Unfunded (15 Year)</b>
Other Subway- State of Good Repair	Work car purchase and overhaul, subway asbestos removal, pump and lighting replacement	0.36 B	0.29 B	0.07 B
Line 2 Capacity Enhancement	Increasing capacity through purchase of new trains, traction power upgrades and other station infrastructure enhancements	2.5 B	0.01 B	2.49 B
Automatic Train Control (ATC) Resignalling - Line 2	Increasing capacity by reducing headway, providing more reliable service	0.44 B	0.05 B	0.39 B
T1 Life Extension Overhaul	Overhaul of T1 subway trains starting in 2022 and ending in 2027 to extend their useful life by 10 years	0.71 B	0.47 B	0.24 B
Purchase of 372 Subway Cars (T1 replacement)	End-of-life replacement of existing T1 subway train fleet. This project will continue beyond the 15-year horizon	2.27 B	0.66 B	1.61 B
Western Yard	Purchase of land, construction of maintenance and storage facility and connection to the main line to meet growth	2.49 B	0.03 B	2.46 B
<b>Subway Total</b>		<b>19.77 B</b>	<b>4.24 B</b>	<b>15.5 B</b>
<b>Bus</b>				
Bus Procurement Program	Purchase of low-floor low/zero emissions buses for state-of- good-repair replacement and ridership growth	3.68 B	0.42 B	3.26 B
Ninth Bus Garage	Construct a double garage that will allow for several years of growth	0.5305 B	0.0005 B	0.53 B

<b>Project/ Program</b>	<b>Summary Description</b>	<b>Estimated Cost (15 Year)</b>	<b>Funded (15 Year)</b>	<b>Unfunded (15 Year)</b>
Purchase of Automotive Non-Revenue Vehicles	Purchase of vehicles used by TTC staff for transit enforcement, plant maintenance, etc.	0.10 B	0.04 B	0.06 B
Bus Overhaul Program	Mid-life overhaul of the bus fleet to maintain state-of-good-repair	0.92 B	0.31 B	0.61 B
Bus Garages	McNicoll bus garage completion, construction of collision centre and heavy-overhaul bus facility, garage upgrades	0.65 B	0.12 B	0.53 B
Other Bus	Transit signal priority measures, bus stop improvements, autonomous vehicle program	0.269 B	0.097 B	0.17 B
<b>Bus Total</b>		<b>6.16 B</b>	<b>1.0 B</b>	<b>5.16 B</b>
<b>Stations</b>				
Bloor – Yonge Capacity Improvements	Construction of additional platforms, escalators and elevators to improve vertical circulation	1.5 B	1.5 B	0
Station Rehabilitation	Roofing rehabilitation on subway rapid transit stations and station finish renewal	0.37 B	0.17 B	0.2 B
Elevator and Escalator Overhaul and Replacement	Replacement, modification and upgrades to escalators and elevators to extend their useful life	0.24 B	0.15 B	0.09 B
Easier Access Phase III (AODA) and Enhanced Station Access	Installing elevators to make all stations accessible by 2025 and additional future elevator installations	0.88 B	0.60 B	0.28 B
Platform Edge Doors	Installation of doors on subway platforms to prevent passengers accessing subway tracks	1.28 B	0.27 B	1.01 B

<b>Project/ Program</b>	<b>Summary Description</b>	<b>Estimated Cost (15 Year)</b>	<b>Funded (15 Year)</b>	<b>Unfunded (15 Year)</b>
Other Stations	Station transformation, subway station fire alarms, bus platform ventilation	0.14 B	0.07 B	0.07 B
<b>Stations Total</b>		<b>4.42 B</b>	<b>2.77 B</b>	<b>1.65 B</b>
<b>Streetcar</b>				
Purchase of 204 Streetcars	Purchase of 204 accessible articulated low-floor streetcars	0.1 B	0.1 B	0
Purchase of 60 Streetcars for Ridership Growth	Purchase of 60 accessible articulated low-floor streetcars for growth	0.42 B	0	0.42 B
Streetcar Overhaul Program	Overhaul of the streetcar fleet to maintain state-of-good-repair	0.07 B	0.04 B	0.03 B
New Streetcar Maintenance and Storage Facility	Consideration of the conversion of the Hillcrest complex to streetcar-only with additional track; upgrading the Harvey Shop	0.9 B	0	0.9 B
Surface Track and Traction Power	Ongoing surface track replacement and traction power upgrades	0.93 B	0.5 B	0.43 B
Streetcar Facility Upgrades	Enhancements to streetcar facilities	0.32 B	0.02 B	0.30 B
LRV Carhouse Facility Renewal Program-	Includes Russell, Roncesvalles	0.05 B	0.03B	0.02 B
<b>Streetcar Total</b>		<b>2.8 B</b>	<b>0.7 B</b>	<b>2.1 B</b>
<b>Wheel-Trans</b>				

<b>Project/ Program</b>	<b>Summary Description</b>	<b>Estimated Cost (15 Year)</b>	<b>Funded (15 Year)</b>	<b>Unfunded (15 Year)</b>
Purchase of Future Wheel-Trans Buses/ Transformation	Replacement of "Friendly" bus fleet and additional facilities based on the Family of Service model	0.21 B	0.08 B	0.13 B
<b>Wheel-Trans Total</b>		<b>0.21 B</b>	<b>0.08 B</b>	<b>0.13 B</b>
<b>Other Infrastructure</b>				
Facilities	Renewal projects for facilities, furniture, office equipment, paving and new industrial space	1.3 B	0.54 B	0.76 B
Information Systems	New Transit Control and ITS Centre, implementation of SAP, VISION, Enterprise Asset Management	0.93 B	0.5 B	0.43 B
Office Consolidation	Start of consolidation of office space to increase efficiency and reduce occupancy costs	0.03 B	0	0.03 B
Health, Safety and Security Infrastructure	Storage tank replacement, backflow preventers, standby generator procurement	0.1 B	0.06 B	0.04 B
Other Infrastructure Total	Shop equipment, culvert rehabilitation, service planning and completing the implementation of the PRESTO farecard program	0.39 B	0.14 B	0.25 B
<b>Other Infrastructure Total</b>		<b>2.76 B</b>	<b>1.26 B</b>	<b>1.5 B</b>

<b>Total</b>	<b>36.1 B</b>	<b>10.0 B</b>	<b>26.1 B</b>
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*\* Funding in years 11-15 totaling \$2.6 billion is anticipated funding based on current levels of city, provincial and federal funding included in the 10- year capital budget and plan.*

### 3. Examples by Category

#### 3.1 Subway

The following are some examples of unfunded capital investments required in the subway system and the impacts of deferred investment.

##### Line 1 Capacity Enhancement

*Summary:* Increasing capacity through the purchase of new trains, a new northern yard and other station infrastructure enhancements.

- *Total Estimated Cost:* \$5.5 B
- *Funded:* \$6.9 M
- *Unfunded:* \$5.49B
- *Type:* Service Improvement

*Business Requirement:* By 2031, Line 1 will need to move more than 36,000 customers per hour per direction, up almost 30 percent from 28,000 today. Continued growth, along with planned transit expansion (Yonge North Subway Extension), is driving forecasted future ridership demand higher. Current plans will permit modest increases in capacity over the next few years, until approximately 2026. After that point, the continued increase in ridership demand will introduce concerns for the continued safe, reliable, and effective ability of Line 1 to serve transit customers.

As outlined in April 2019<sup>1</sup>, a detailed Line 1 requirements study is underway and will be reported to the TTC Board in Q3 2020. City Council has requested a proposed funding plan from the City Manager in Q3 2020 for the Line 1 Capacity Enhancement program.

##### Subway Track

*Summary:* Subway track and turnout rehabilitation, rail grinding, rail vehicle-based inspection system.

- *Total Estimated Cost (15 Year):* \$0.66 B
- *Funded:* \$0.37B
- *Unfunded:* \$0.29B
- *Type:* State of Good Repair – Ongoing Program

*Business Requirement:* Sections of subway track are approximately 50+ years old, and require ongoing investment. The Subway Track Program is comprised of the following state of good repair (SOGR) programs listed below:

- Subway/SRT Track Rehabilitation Program
- Subway/ SRT Turnout Rehabilitation Program
- Subway Rail Grinding

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<sup>1</sup>[http://ttc.ca/About\\_the\\_TTC/Commission\\_reports\\_and\\_information/Commission\\_meetings/2019/April\\_11/Reports/18\\_Line\\_1\\_Capacity\\_Requirement\\_and\\_Preliminary\\_Implementatio.pdf](http://ttc.ca/About_the_TTC/Commission_reports_and_information/Commission_meetings/2019/April_11/Reports/18_Line_1_Capacity_Requirement_and_Preliminary_Implementatio.pdf)

Investments are required in order to avoid potential delays to revenue service and the requirement to install restricted speed zones, and/or stopping of service. Track level drainage issues can lead to the degradation of track conditions impacting the reliability of the service overall. Deferred investment may also require more frequent rail replacement in the future.

### Traction Power

*Summary:* Replacement of electrical systems that power the subway, including substation electrical and cable rebuilds

- *Total Estimated Cost:* \$0.2 B
- *Funded:* \$0.14 B
- *Unfunded:* \$0.06 B
- *Type:* State of Good Repair – Ongoing Program

*Business Requirement:* The following ongoing programs require investment to maintain the subway electrical systems in a state of good repair:

- *Substation Rebuild*
- *Replacement of Transformers*
- *Replacement of LV Feeder Cables*
- *Etc.*

Deferral of required investments may lead to premature failure in traction power distribution which can lead to service disruptions. Additional funding will be required post 2030.

### Fire Ventilation Upgrade

*Summary:* The project consists of 3 components—increasing the capacity of the subway fire ventilation system; constructing second exits; and end of life replacement of existing equipment.

- *Total Estimated Cost:* \$1.86 B
- *Funded:* \$0.65 B
- *Unfunded:* \$1.21 B
- *Type:* State of Good Repair

*Business Requirement:* The existing assets in some locations have reached or are about to reach the end of useful service life. Fire Ventilation Upgrade is an ongoing state of good repair program, which is fully funded over the next two years, and at present partially funded thereafter. Deferred investment would increase potential safety risk, and impact the availability of emergency tunnel ventilation equipment.

### Other Subway State of Good Repair



*Summary:* Work car purchase and overhaul, subway asbestos removal, pump and lighting replacement.

- *Total Estimated Cost:* \$0.36 B
- *Funded:* \$0.29 B
- *Unfunded:* \$0.07 B
- *Type:* Legislated, State of Good Repair

*Business Requirement:* This category addresses a range of projects and programs including but not limited to:

- Subway Asbestos Removal Program – Total estimated cost of approximately \$65 million over 15 years, with \$23 million currently unfunded. A review is currently underway to determine options to accelerate removal, which will likely result in additional funding required to advance work.
- Subway Pump Replacement Program – Total estimated cost of \$79 million over 15 years, with approximately \$34 million currently unfunded. There are 434 sewage and storm pumps across the subway system and approximately 45% are 20 + years old. The risk of deferred investment includes increased pump failures, increased risk of flooding and service disruption in the subway.

#### Purchase of Subway Trains- Ridership Growth

*Summary:* Purchase of new subway trains to meet ridership growth forecasts on Line 1 beginning in 2026.

- *Total Estimated Cost:* \$0.5 B
- *Funded:* \$0.01 B
- *Unfunded:* \$0.49B
- *Type:* Growth

*Business Requirement:* Deferral of new subway train procurement for Line 1 growth will result in an inability to support ridership demand. As a result, there will be increased crowding of trains and stations impacting customer experience. Reduced operational efficiency due to higher dwell times will also occur.

Deferral of new subway train procurements starting in 2026 would also put at risk joint procurement options to supply trains for Line 1 and Line 2 expansion projects.

#### T1 Life Extension Overhaul

*Summary:* Overhaul of T1 subway trains starting in 2022 and ending in 2027 to extend their useful life by 10 years.

- *Total Estimated Cost:* \$0.71 B
- *Funded:* \$0.47 B
- *Unfunded:* \$0.24 B
- *Type:* State of Good Repair

*Business Requirement:* The current T1 subway cars are approximately 19-25 years old, with a design life of 30 years. In order to reach a 40-year service life, the T1 subway fleet requires an overhaul to extend the useful life by 10 years.

Currently this program is partially funded. If not fully funded, replacement of the T1 fleet will need to be accelerated (see below Purchase of 372 Subway Cars).

In the absence of investment in the T1 overhaul program or replacement of the T1 fleet, the existing T1 fleet would have to move to a “Fix on Fail” maintenance practice resulting in decreased reliability, fleet availability, and eventual decommissioning with impacts to Line 2 subway service.

### Purchase of 372 Subway Cars (T1 Replacement)

*Summary:* End-of-life replacement of existing T1 subway train fleet. This project will continue beyond the 15-year horizon.

- *Total Estimated Cost:* \$2.27 B
- *Funded:* \$0.66 B
- *Unfunded:* \$1.61 B
- *Type:* State of Good Repair

*Business Requirement:* The current T1 subway cars are approximately 19-25 years old, with a design life of 30 years. Funding will be required to replace the fleet at end of life after 40 years of service, assuming 10-year life extension overhaul (LEO) has been undertaken (see above T1 Life Extension Overhaul).

Once the T1 Fleet is over 40 years old, decommissioning will be required, as additional investment in LEO is not recommended. Delay in the procurement of new subway cars (T1 replacement) would impact the ability to provide Line 2 subway service in the future. Current planning requires funding to be in place by 2030 to 2034 and beyond.

## **3.2 Bus**

The following are some examples of unfunded capital investments required in the TTC bus network, and the impacts of deferred investment.

### Bus Procurement Program

*Summary:* Purchase of low-floor low/zero emissions buses for state-of-good-repair replacement and ridership growth.

- *Total Estimated Cost:* \$3.68 B
- *Funded:* \$0.42 B
- *Unfunded:* \$3.26 B
- *Type:* State of Good Repair

*Business Requirement:* The existing bus fleet ranges in age from under 1-year old to over 14 years old. The design life of a bus is 12 years. Deferral of procurements/deliveries beyond 2022 will result in reduction of the bus fleet as buses are retired without replacement and an inability to accommodate ridership growth.

To provide existing bus service levels, there will be a need to extend the life of the bus fleet past industry best practices, and/or accommodating growth by Life Extension Overhaul (LEO) programs or move to a "Fix On Fail" maintenance practice. LEO programs will add additional capital costs while "Fix On Fail" maintenance practices will result in decreased fleet reliability and availability.

Deferral of procurements/deliveries beyond 2022 will also result in delay to achievement of targets set by City Council through the TransformTO action plan and the TTC Board's targets for steady state procurement of zero-emissions buses starting in 2025 and a fully zero-emissions fleet by 2040.

### Bus Overhaul Program

*Summary:* Mid-life overhaul of the bus fleet to maintain state-of-good-repair

- *Total Estimated Cost:* \$0.9 B
- *Funded:* \$0.3 B
- *Unfunded:* \$0.6 B
- *Type:* State of Good Repair

*Business Requirements:* Bus rebuild programs require additional funding over the next 15 years in order to undertake preventative maintenance on buses to maintain in a state of good repair. Currently, the fleet has a design life of approximately 12 years and is at various ages and conditions. Deferral of the bus overhaul program will result in implementing 'Fix on Fail' maintenance practices, reduced fleet reliability and availability; degradation of service; inability to backfill for subway and streetcar disruptions; and eventual condemnation of vehicles that have exceeded their design life.

### Purchase of Automotive Non-Revenue Vehicles

*Summary:* Purchase of vehicles used by TTC staff for transit enforcement, plant maintenance, etc.

- *Total Estimated Cost:* \$0.10 B
- *Funded:* \$0.04 B
- *Unfunded:* \$0.06 B
- *Type:* State of Good Repair

*Business Requirements:* The existing fleet is at various ages and asset condition. The deferral of Non-Revenue Vehicle (NRV) procurements will impact numerous internal TTC business units that support day-to-day operations. These include but are not limited to Bus, Subway and Streetcar Transportation (route supervision and emergency

response); Transit Enforcement (security and emergency response); Bus, Subway and Streetcar Maintenance (in-service maintenance support and emergency response); etc.

### 3.3 Stations

The following is an example of unfunded capital investments required in TTC stations, and the related impacts of deferred investment.

#### Station Rehabilitation- Finishes

*Summary:* Roofing rehabilitation on subway rapid transit stations and station finish renewal.

- *Total Estimated Cost:* \$0.37 B
- *Funded:* \$0.17 B
- *Unfunded:* \$0.20 B
- *Type:* State of Good Repair

#### *Business Requirements:*

- *Roofing Rehabilitation Program* – This is an ongoing state of good repair program that is partially funded. Approximately 50% of roofs will reach end of life within the next 15 years. Risks associated with deferral include potential for roof leaks, mould, equipment damage and safety hazards.
- *Platform Edge Tile Replacement* – This is an ongoing state of good repair program to address health and safety requirements, that is currently partially funded. Risks associated with deferred investment include the TTC not meeting legislative (AODA) requirements, and impacting customer safety and mobility.

### 3.4 Streetcar

The following are some examples of unfunded capital investments required in the TTC streetcar network, and the related impacts of deferred investment.

#### Purchase of 60 Streetcars for Ridership Growth

*Summary:* Purchase of 60 Streetcars for Ridership Growth.

- *Total Estimated Cost:* \$0.42B
- *Funded:* \$0B
- *Unfunded:* \$0.42B
- *Type:* Growth

*Business Requirement:* The procurement of an additional 60 streetcars to address latent demand starting in 2021 in order to accommodate growth through to 2026.

Currently this program is unfunded. Beyond 2026 additional streetcar fleet requirements may be minimized through use of dedicated rights of way or/and use of busses on streetcar routes. This will continue to be assessed.

The impact of deferral of procuring an additional 60 LFLRV streetcars will result in an inability to match capacity for ridership growth, and a requirement to continue to rely on bus backfill on streetcar routes (502, 503, 511). A total of 170 buses would be required to replace streetcars on these routes, which would have a significant impact on bus operations and the ability to meet bus system requirements and ridership growth in the bus network.

### Streetcar Overhaul Program

*Summary:* Overhaul of the streetcar fleet to maintain state-of-good-repair

- *Total Estimated Cost:* \$0.07 B
- *Funded:* \$0.04 B
- *Unfunded:* \$0.03 B
- *Type:* State of Good Repair

*Business Requirement:* Preventative maintenance on the new LFLRVs is fully funded up until 2026. Additional funding will be required in future years (2027-2028).

Deferral of the new streetcar overhaul program will result in moving towards "Fix On Fail" maintenance practices; reduced fleet reliability and availability, and degradation of service with in-service breakdowns.

### Surface Track and Traction Power

*Summary:* Ongoing surface track replacement and traction power upgrades

- *Total Estimated Cost:* \$0.93 B
- *Funded:* \$0.5 B
- *Unfunded:* \$0.43 B
- *Type:* State of Good Repair

*Business Requirements:*

Some examples of State of Good Repair programs in this category include:

- *Tangent Surface Track and Special Surface Track Replacement programs* are partially funded. Existing average asset age is currently 10 years for special track and 13 years for tangent track. Deferred investment will result in deterioration of the roadway within the track allowance, increasing the potential number of slow orders, and/or can lead to future route closures if required, impacting the service.
- *Reconstruction of Streetcar Overhead* – In areas where there is 15+ year old overhead, there is a need to move to panto mode in order to allow for the new

LFLRV to operate on these routes, and to prevent service disruption impacts from streetcars operating with overhead trolley poles

- *Streetcar Trackswitch & Controllers Rehabilitation* is partially unfunded. The existing age is approximately 25 years. Deferred investments can result in increased service delays due to switch failures.
- Other SOGR programs include Replacement of Surface Traction Power Distribution, etc.

The Hillcrest Track Replacement Expansion is a service improvement project; approximately \$79 million is unfunded. Investment is required to provide storage for the incoming LFLRV streetcar fleet. Deferral of this project will increase the burden on Leslie Barns, Russell Carhouse, and Exhibition Loop Storage areas.

### **3.5 Wheel-Trans**

The following is an example of unfunded base capital investments required in Wheel-Trans.

#### Purchase of Future Wheel-Trans Buses/Transformation

*Summary:* Replacement of “Friendly” bus fleet and additional facilities based on the Family of Service model

- *Total Estimated Cost: \$0.21 B*
- *Funded: \$0.08B*
- *Unfunded: \$0.13B*
- *Type: State of Good Repair*

*Business Requirements:* The “Friendly” Bus Fleet has a design life of 7 years; however, the fleet ranges in age from 8 to 11 years old. Deferral of the Wheel-Trans procurement program will result in reduction of the bus fleet as buses are retired and an inability to accommodate ridership growth. Maintaining the existing service levels will need to be achieved by implementing Life Extension Overhaul (LEO) programs, or moving to a Fix On Fail maintenance practice. An overhaul program will require additional capital funds while a Fix On Fail maintenance practice will result in decreased vehicle reliability and availability with eventual condemnation of vehicles that exceed their design life and are no longer fit for service.

### **4. Next Steps**

The Capital Investment Plan will be reviewed and updated on an annual basis. The next step is to undertake an initial prioritization process that will take into consideration the interdependencies between various projects and programs in order to manage risk and achieve desired benefits. The three values that form the cornerstone

for capital investments at the TTC will be taken into consideration – safety and security; accessibility; and sustainability. Recommendations on key priority investments will be reported to the TTC Board in advance of the 2021 budget process and will form the basis of the TTC’s advice to City Council on key priorities for TTC base capital investment.

The City Manager in consultation with the Chief Executive Officer, TTC was directed as part of the October 2019 report *EX9.1 Toronto-Ontario Transit Update* to report back to City Council on funding and financing options for “*the reallocation of funds previously approved, identified, or contemplated for the provincial priority projects, for the purposes of state- of- good-repair of the TTC subway network, and other expansion projects.*” The next CIP update will be a key input to the City to support ongoing intergovernmental discussions and securing new partnership funding in the TTC system, recognizing several components of the CIP are necessary pre-requisites to achieving the benefits of further expansion of the transit network.