

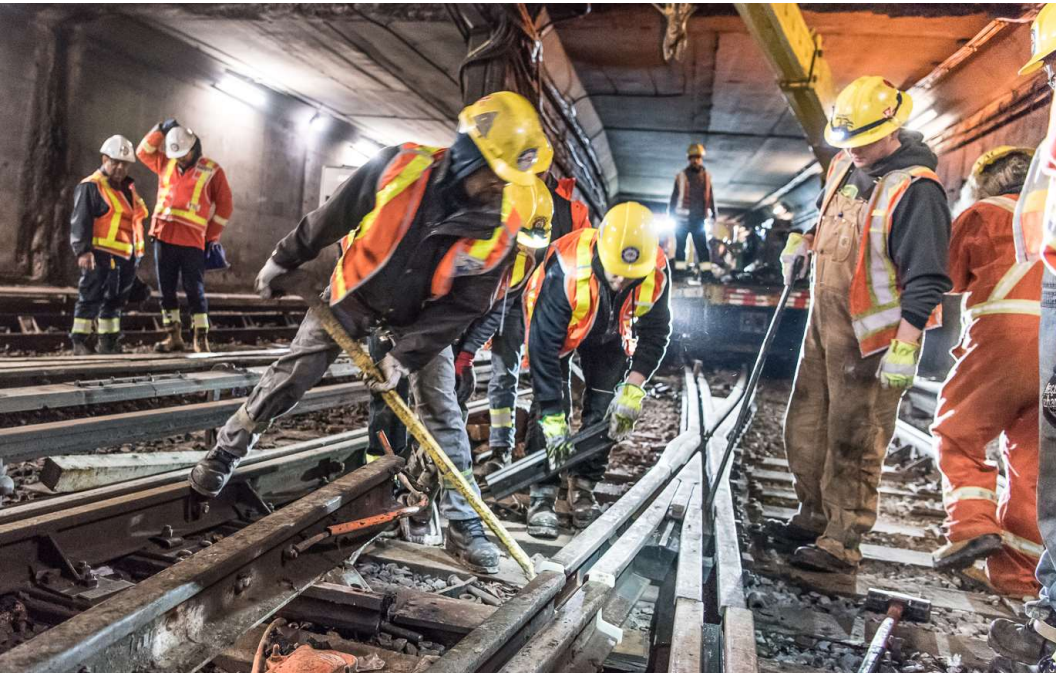


2020-2029

Key Capital Investment Priorities

Subway Infrastructure and Accelerated Vehicle Procurements

TTC Board Meeting
January 27, 2020



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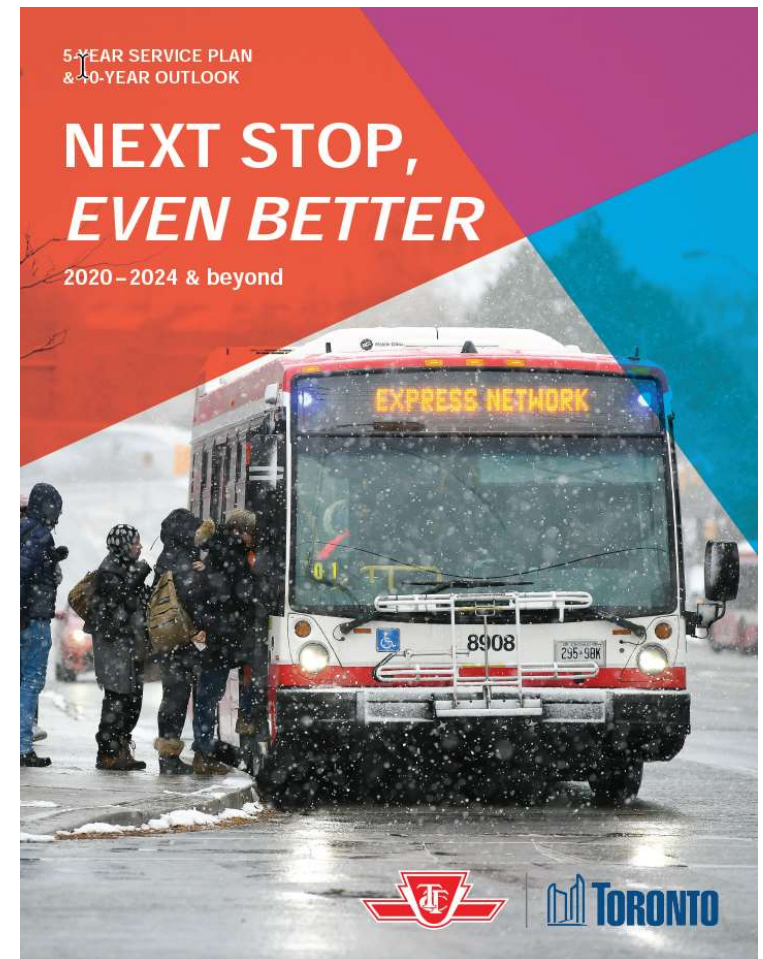
Overview: Background

At the conclusion of the TTC's 2020 Capital Budget Process, the **TTC Board approved** the following:

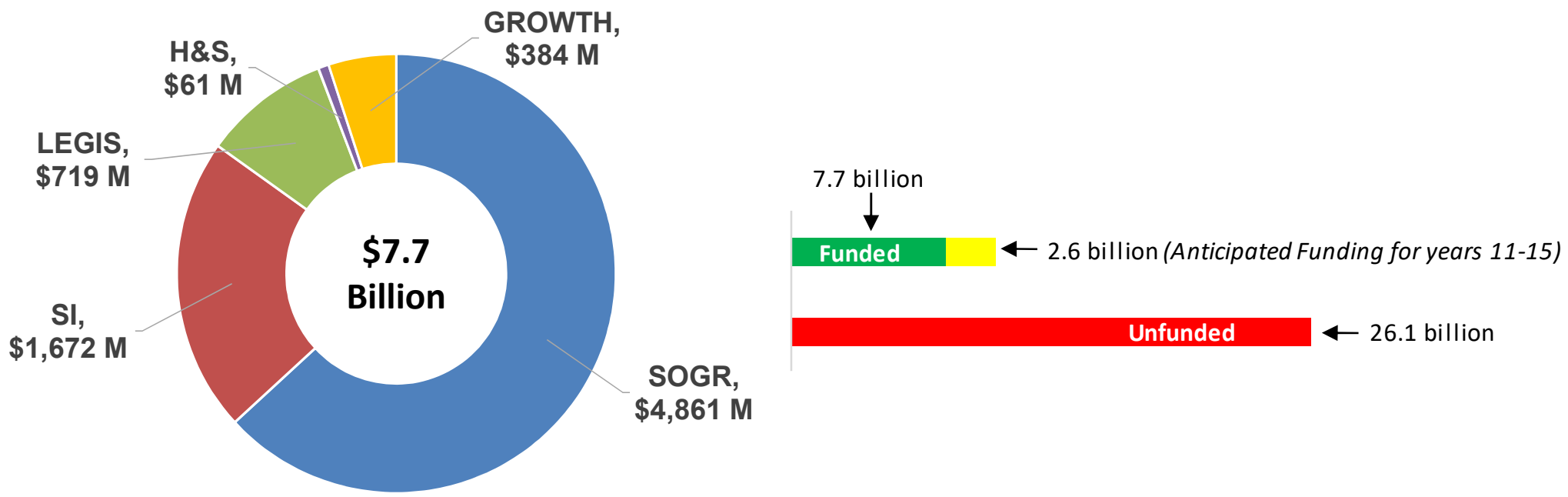
1. 5-Year Service Plan and 10-Year Outlook;
2. 15-Year Capital Investment Plan (CIP); and
3. 10-Year Capital Budget and Plan;

Board motions most relevant to this report included:

- **Prioritize critical base capital needs** for the Board's consideration in the 2021 budget; and
- **Report accelerated vehicle procurement plan** for subway, bus, and streetcar.



Overview: Board Approved Capital Budget & Plan



Overview: Key Changes

1. On December 16, 2019, Board Approved the 2020-2029 Capital Budget & Plan - \$7.7 billion
2. On December 17, 2019, City Council increased the City Building Fund levy to fund priority housing and transit projects;
 - Directed City Manager and CFO to include in the 2020-2029 Capital Budget & Plan for the January 10, 2020 Public Launch.
3. TTC's Recommended Capital Budget & Plan has increased to \$11.9 billion.
4. CIP has now decreased to \$35.2B
 - Unfunded capital needs have decreased to \$21B



Overview: \$4.2 Billion in New Funding for TTC

- With City Council's approval there is \$4.6 billion in CBF funding directed towards the TTC's capital needs
 - \$500 million directed to fund the City's 1/3 share of the Yonge Bloor Capacity Improvement Project
- \$4.1 billion in CBF funding, plus the one-time \$167 million top up of Federal Gas Tax funding provides \$4.2 billion in new capital funding
- \$4.2 billion allocated to the following key capital investment priorities
 - \$3.1 billion for subway infrastructure and capacity improvement projects;
 - \$1.1 billion for the refurbishment and procurement of additional vehicles.



Overview: Assigning Priorities

Criteria



1. Safety/Legislative: Projects that ensure our infrastructure are in a state-of-good-repair for safety and legislative compliance.



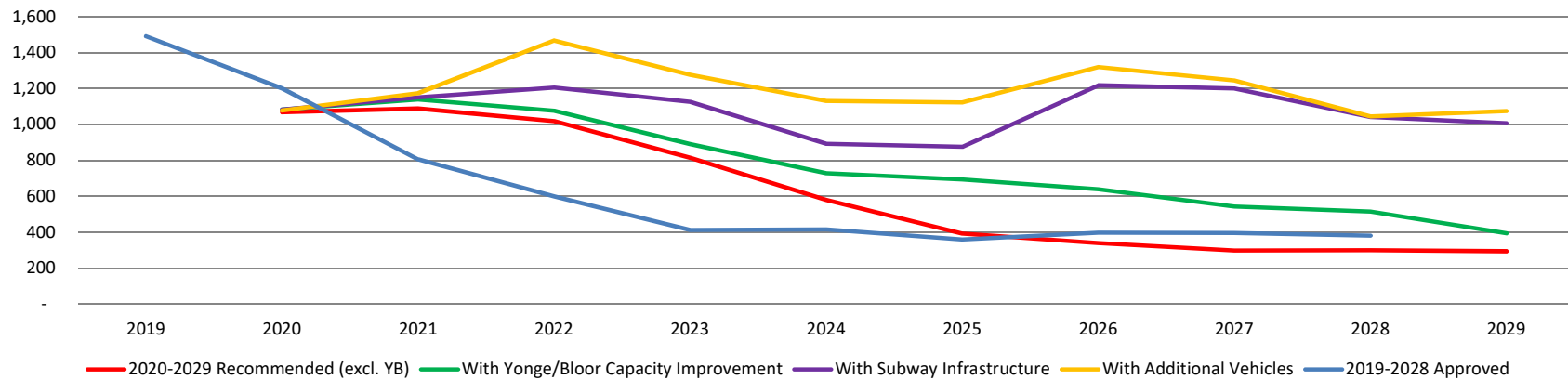
2. State-of-Good-Repair (SOGR): Projects that maximize capital assets' capability to operate at full performance levels.



3. Growth: Projects that address the current and projected requirement for growth.

Overview: 2020-2029 Capital Budget & Plan: Comparison to 2019

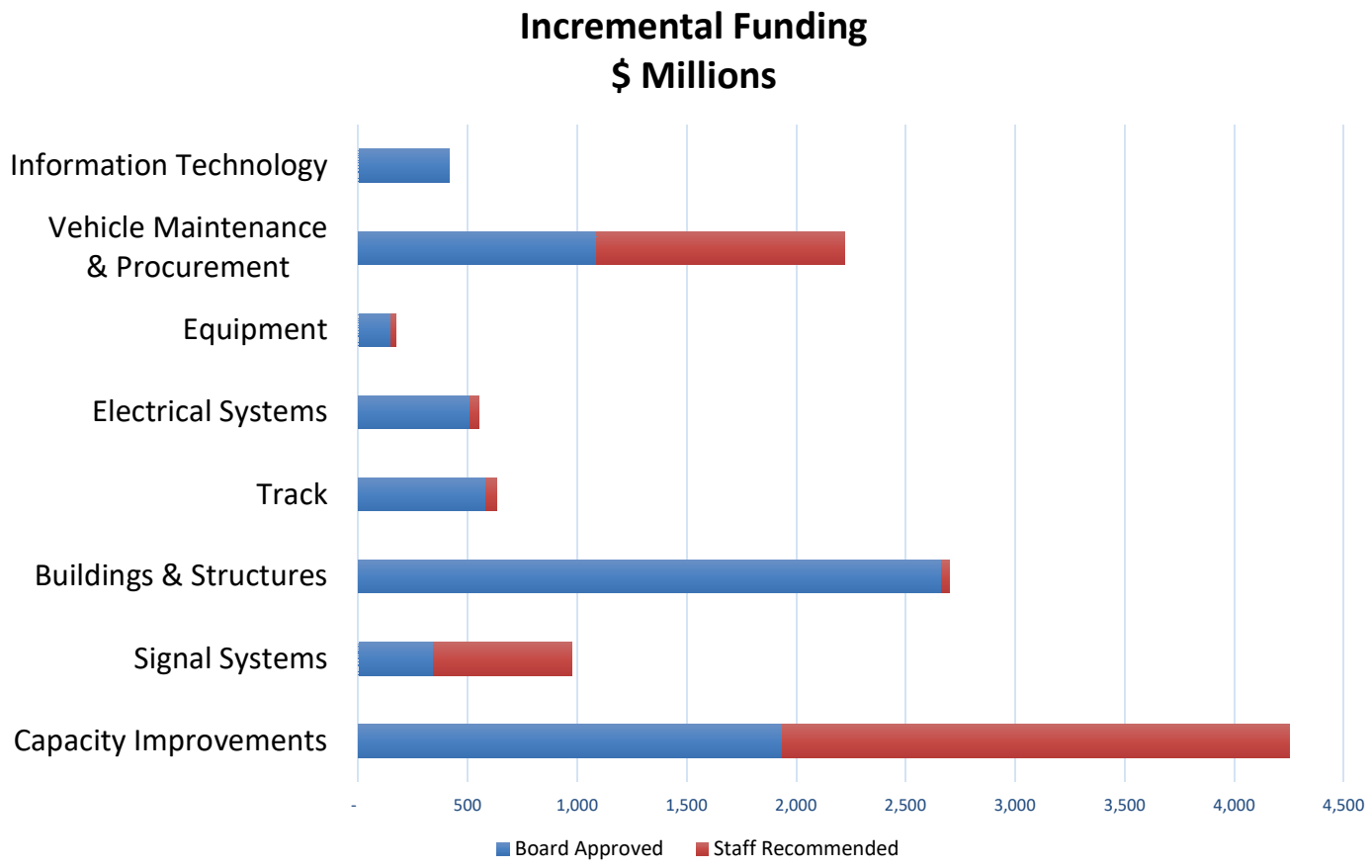
2020-2029 Recommended Capital Plan Compared to 2019-2028 Approved Capital Plan



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
2020-2029 Expansion Projects		86	89	97	5	4	3	3	-	-	-	287
Yonge/Bloor Capacity Improvement		16	50	57	75	150	300	300	245	215	100	1,508
Total 2020-2029 Recommended		1,083	1,138	1,075	889	728	692	639	543	514	394	7,696
Additional CBF Funding:												
Subway Infrastructure		-	11	129	235	163	183	578	656	526	612	3,094
Additional Vehicles		(6)	23	263	152	238	247	101	44	4	69	1,135
Total		1,077	1,173	1,467	1,276	1,129	1,122	1,318	1,243	1,044	1,074	11,924
Change from 2019-2028 Approved		(122)	368	868	865	713	762	921	848	664	1,074	5,471



Overview: \$4.2 B Incremental Funding by Capital Program



Overview: \$11.9B 2020 – 2029 Capital Program Breakdown



Buildings & Structures

\$2,698.4 M
22.63%

Fire Ventilation Upgrade
Easier Access Phase III
Toronto Rocket/T1 Rail
Yard Accommodation
McNicoll Bus Garage
Bridges & Tunnels



Signal systems

\$975.8 M
8.18%

Signal Systems
Line 1 and 2 Automatic
Train Control
Resignalling



Track work

\$634.1 M
5.32%

Subway Track
Surface Track
Subway Rail Grinding



Electrical systems

\$552.0 M
4.63%

Traction Power
Power Distribution /
Electric Systems
Communications

Overview: \$11.9B 2020 – 2029 Capital Program Breakdown



Capacity Improvements

\$4,250.0 M
35.64%

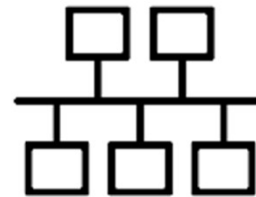
Yonge-Bloor Capacity Improvements
Line 1 & 2 Capacity Enhancements
Service & Transit Expansion Planning



Vehicles

\$2,223.2 M
18.64%

T1 25-Year Overhaul Bus Overhaul
Streetcar Overhaul
Purchase of additional vehicles



Information Technology

\$416.9 M
3.50%

SAP ERP Implementation
VISION – Computer Aided Dispatch / Auto. Vehicle Location System
MAXIMO – Asset management system



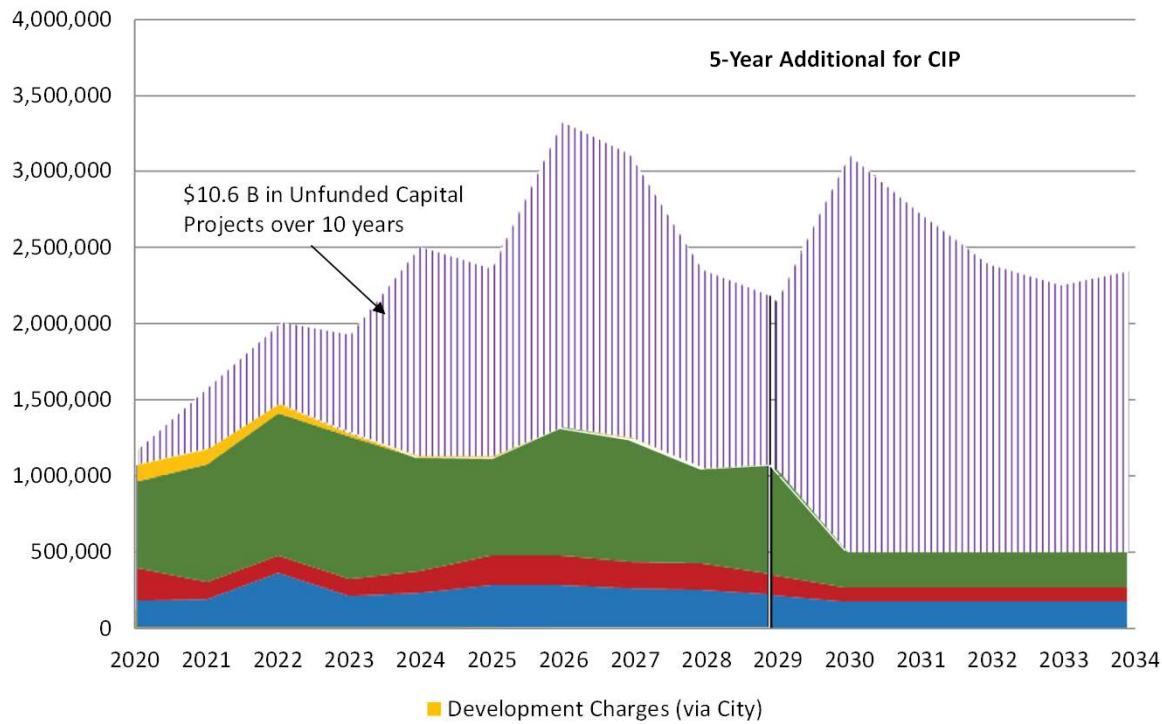
Equipment

\$173.9 M
1.46%

Shop & Maintenance Equipment
Revenue & Fare Handling Equipment
Fare System



Overview: 2020-2034 CIP – Funded vs Unfunded



Subway Infrastructure Investments

| \$3.09 billion in Net New Subway Infrastructure Investments

	10-Year Need
Subway Infrastructure State-of-Good-Repair	\$741 million
Automatic Train Control Re-signalling (ATC)	\$635 million
<u>Line 1 and Line 2 Capacity Enhancement Programs</u>	<u>\$2.36 billion</u>
Total 10-Year Need for Subway Infrastructure:	\$3.74 billion

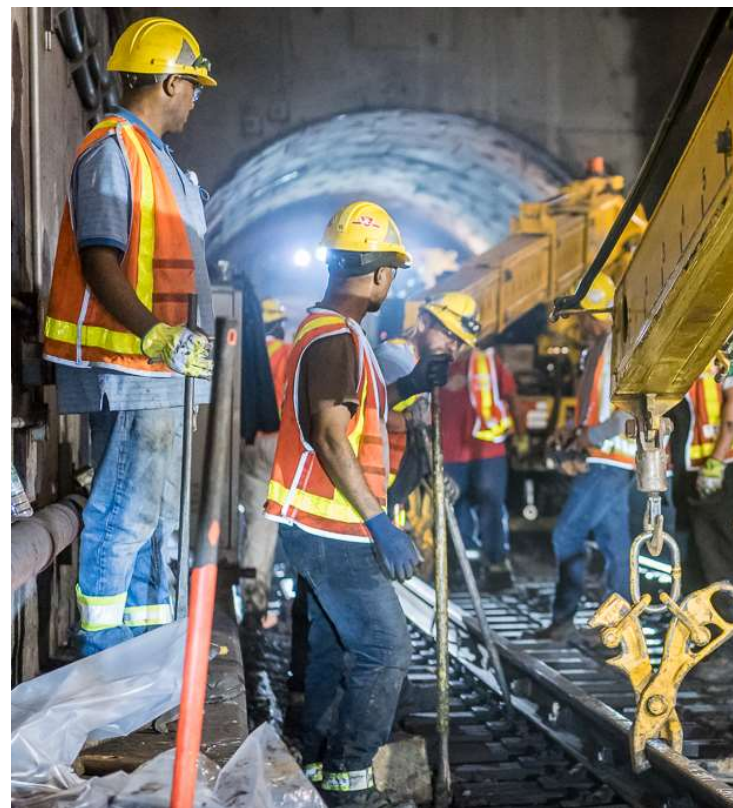
	10-Year Funding
Funding approved (17%)	\$641 million
<u>Allocation of Canadian Building Fund</u>	<u>\$3.09 billion</u>
Recommended Funding for Subway Infrastructure	\$3.74 billion



| \$3.09 billion in Net New Subway Infrastructure Investments

Investment of \$158 million to fully fund **Subway State-Of-Good-Repair (SOGR)** projects over next 10 years, ensuring safety / legislative compliance and SOGR of **the existing system** so it remains safe and to improve reliability and resiliency, including:

- Asbestos Removal
- Subway Track Rehabilitation
- Track Switches
- Traction Power and Wayside Communications
- Tunnel Liners



| **\$3.09 billion in Net New Subway Infrastructure Investments**

Additional investment of \$622 million to fund **Line 2 Automatic Train Control (ATC) Re-signalling project** over the next 10 years.

Subject to full funding of the remaining \$252 million for ATC (between 2030 and 2034) and full funding for 62 new subway trains, we will be **looking for opportunities to accelerate** both programs

ATC replaces aging signalling system and is a key interdependency for **maximizing the benefits of new trains on Line 2.**

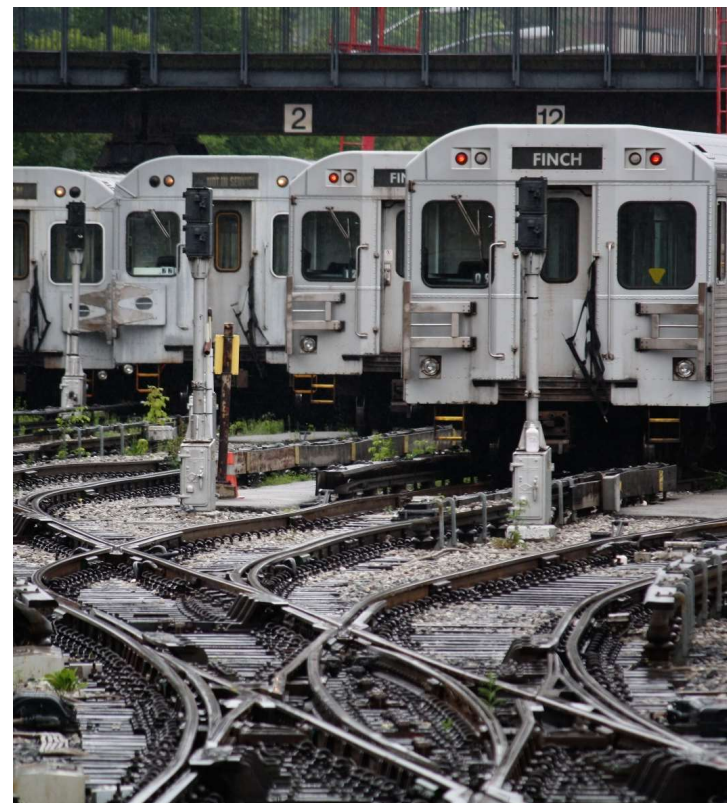


| \$3.09 billion in Net New Subway Infrastructure Investments

Investment in **Line 1 and Line 2 Subway Capacity Enhancement programs** to move more people, safely and reliably.

Additional investment of \$2.31 billion over the next 10 years:

- Fire Ventilation Upgrades
- Station Capacity Improvement Programs
- Traction Power Systems Upgrades
- New maintenance and storage facilities to accommodate growth



New Vehicle Investments

| \$1.14 billion Net New Vehicle Investments

	10-Year Need
Subway Trains	\$1.87 billion
Buses and Wheel-Trans Buses	\$2.38 billion
Streetcars	\$419 million
Total 10-Year Need for New Vehicles:	\$5.38 billion

	10-Year Funding
Funding approved for overhaul	\$515 million
Allocation of Canadian Building Fund	\$1.14 billion
Recommended funding for New Vehicles (33%)	\$1.65 billion



| \$1.14 billion Net New Vehicle Investments

Need for 80 new subway trains with total estimated cost of \$2.24 billion.

Investment of \$623 million to fund approximately 1/3rd of the estimated 10-year cost of 80 trains including:

Line 2: Replace 62 existing trains at end-of-life from 2026 to 2030; and

Line 1: Procure 18 new trains to maximize benefit of ATC on Line 1 and meet demand beyond 2026



\$1.14 billion Net New Vehicle Investments

Need for 1,575 buses and 498 Wheel-Trans buses with total estimated cost of \$2.38 billion over the next 10 years

Investment of \$772 million to fund approximately 1/3rd of buses required:

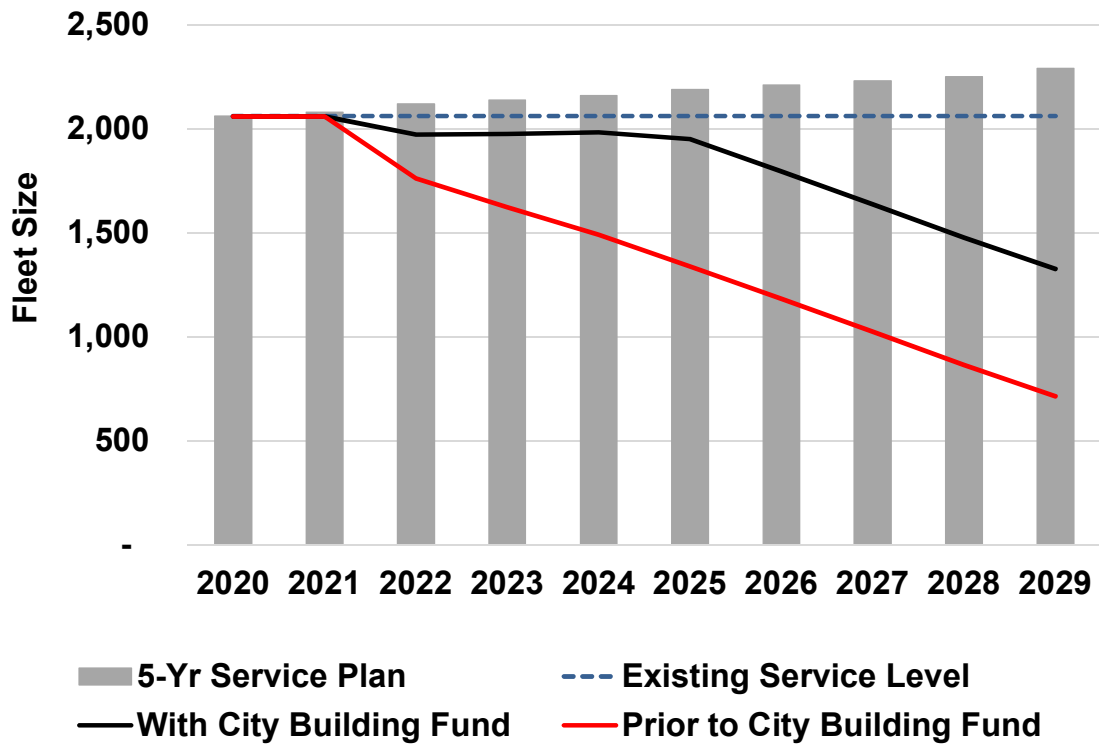
Buses: 614 of 1,575 required

Wheel-Trans: 232 of 498 required



\$1.14 billion Net New Vehicle Investments

Bus Fleet Size Requirement vs Projected



| \$1.14 billion Net New Vehicle Investments

Need for 60 new streetcars with EFC of \$418 million for growth.

Requires additional maintenance and storage capacity with EFC of \$85 million.

Investment of \$140 million to fund approximately 1/3rd of the 60 streetcar procurement.



Financial Impact and Recommendations

Financial Impact

Of the \$4.23 billion in net new funding, \$3.09 billion fully funds subway infrastructure projects over the next 10 years, and the remaining \$1.14 billion would be applied towards the procurement of new vehicles and related systems.

Revised 15-Year Capital Investment Plan (000's)

	Funded	Unfunded	Total
December 16, 2020 - Board Approved:			
2020-2029	7,408,681	19,657,410	27,066,091
2030-2034	2,627,425	6,432,826	9,060,251
Total	10,036,106	26,090,236	36,126,342
Revised with CBF Funding:			
2020-2029	11,637,129	10,623,098	22,260,227
2030-2034	2,627,425	10,345,211	12,972,636
Total	14,264,554	20,968,309	35,232,863
Variance:			
2020-2029	4,228,448	(9,034,312)	(4,805,864)
2030-2034	-	3,912,385	3,912,385
Total	4,228,448	(5,121,927)	(893,479)
* Excludes Expansion Projects			
** Funding sources in years 11-15 are based on current levels of city, provincial and federal funding included in the 10-Year Capital Budget & Plan			



Recommendations: \$4.23B Additional Funding

Recommended Capital Investment Priorities	2020	10-Year Plan	Estimated Future Requirements
Total Board Approved	1,082,632	7,695,802	-
Key Capital Investment Priorities:			
Infrastructure:			
Line 1 Capacity Enhancement	-	1,495,730	2,752,571
Line 2 Capacity Enhancement (incl. property)	-	817,000	3,038,000
Line 2 and Line 4 ATC Resignalling	-	622,918	177,082
Other Subway Infrastructure	-	158,239	-
Total Infrastructure	-	3,093,887	5,967,653
Vehicles:			
Purchase of Subway Trains	1,761	623,267	122,242
Delete: T1 Life Extension Overhaul (LEO)	(8,966)	(473,966)	-
Add: T1 Preventative Maintenance	-	74,000	-
Purchase of Buses and Wheel-Trans	-	771,689	-
Purchase of Streetcars	1,671	139,568	-
Total Vehicles	(5,534)	1,134,558	122,242
Additional Funding	(5,534)	4,228,445	6,089,895
Recommended Capital Budget & Plan	1,077,098	11,924,247	6,089,895



Final Note

All cost estimates for infrastructure, vehicles and related systems are at a concept screening level (Class 5).

With approval of this report, the scope, schedule, cost estimates and procurement contract strategies will be matured and presented for stage gate approval through planned reporting to the Board later in 2020.

In the event full funding is not forthcoming by late 2020 when vehicle procurement decisions are required, TTC staff will revisit its recommendations and report back on alternate strategies.

