

The Sustainable City of Toronto Fleets Plan (2023 Update and Status Report)

Date: April 26, 2023

To: Infrastructure & Environment Committee

From: General Manager, Fleet Services

Wards: All

SUMMARY

This document provides an update to the Sustainable City of Toronto Fleets Plan (henceforth referred to as the "Plan") goal and objectives in addressing climate mitigation and adaptation with strategies for transitioning City Fleets to sustainable, climate resilient, net-zero operations. It also provides a progress report on City Fleets' prior and current strategies and initiatives, changes in environmental circumstances, and external drivers and barriers.

The scope of the Plan includes more than 10,000 vehicles and equipment managed and operated by Fleet Services Division, Toronto Transit Commission (TTC), Toronto Police Service, Toronto Fire Services, Toronto Paramedic Services, Toronto Community Housing⁽¹⁾, Exhibition Place, Toronto Zoo, Toronto Parking Authority, and Toronto Public Library⁽¹⁾.

(1) Managed by Fleet Services Division

The Plan is a critical component of the TransformTO - Critical Steps for Net Zero by 2040 targets and actions, and it continues to build on strong engagement and collaboration, and shared expertise and experience of City Fleets and its key partners and stakeholders.

RECOMMENDATIONS

The General Manager, Fleet Services recommends that:

1. City Council adopt The Sustainable City of Toronto Fleets Plan in Attachment 1, which supersedes all previous Plans, as the framework to achieve the following goal and objectives:

a. Transition City Fleets to sustainable, resilient, net zero operations by 2040, including 45% emissions reduction by 2025, and 65% by 2030.

- b. Transition 20% of City-owned fleet to zero-emission vehicles by 2025, and 50% by 2030.
 - c. Achieve resilient fleet assets and operations by 2040.
 - d. Achieve net zero procurement by 2040.
2. City Council direct the General Manager, Fleet Services to:
- a. Coordinate the implementation of The Sustainable City of Toronto Fleets Plan, in consultation with Management staff of other City of Toronto fleets, including Toronto Transit Commission, Toronto Police Services, Toronto Fire Services, Toronto Paramedic Services, Toronto Community Housing, Exhibition Place, Toronto Zoo, Toronto Parking Authority, and Toronto Public Library.
 - b. Track the progress made in achieving the established goal and objectives and report regularly as part of TransformTO City-wide progress reports and updates; and
 - c. Continue to provide a comprehensive report on The Plan's progress and a Plan update every four years, with the next one to be delivered in the first quarter of 2027.
3. City Council delegate to the General Manager, Fleet Services, authority to negotiate, execute and to amend as and when necessary, any agreements necessary to give effect to the implementation of The Sustainable City of Toronto Fleets Plan, on terms and conditions satisfactory to the General Manager, Fleet Services, and the City Solicitor.
4. City Council request the Toronto Transit Commission Board, the Toronto Police Services Board, the Toronto Community Housing Board of Directors, the Exhibition Place Board of Governors, the Toronto Zoo Board of Management, the Toronto Parking Authority Board of Directors, and the Toronto Public Library Board to adopt and implement The Sustainable City of Toronto Fleets Plan.

FINANCIAL IMPACT

There are no financial impacts resulting from the adoption of the recommendations in this report. Funding required to implement this plan are either included in the current approved budgets or will be included in future budget submissions of participating divisions.

The following outlines current estimates for the capital funding required to implement this Plan for its key stakeholders, as identified in respective Agency/Corporation/Division 2023 Budget Notes and supporting plans.

Fleet Services Division

The estimated 10-year capital funding required to implement this Plan for Fleet Services is \$213.2 million as outlined in the Fleet Services 2023 Budget Notes, Appendix 6 and 9, and in Table 1 below. This is over and above the current 10-year Fleet Replacement Program budget of \$1.088 billion.

Table 1 - Annual Capital Cash Flow Requirements by Initiative (2023 - 2032) (in \$ millions)

Capital Funding Requirements	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
Funded	2.3	2.6	1.2	0.7	0.6	0.6	0.5	0.5	0.5	0.0	9.5
Unfunded	2.6	9.6	14.4	24.3	32.0	31.2	25.5	26.4	23.2	14.6	203.8
TOTAL	4.9	12.2	15.6	25.0	32.6	31.8	26.0	26.9	23.7	14.6	213.3

\$9.5 million of the total 10-year capital requirements is funded (accounts CFL067, CFL068, and CFL069), while \$203.8 million is unfunded. This includes \$66.5 million for zero emission vehicle (ZEV) premiums and \$135.5 million for ZEV charging infrastructure that will support all City-owned ZEV other than TTC revenue vehicles. Vehicle premiums are to cover additional cost of zero emission vehicles over and above the current 10-year budget of \$1.088 billion under the vehicle replacement program.

Toronto Transit Commission (TTC)

The TTC’s Green Bus Program includes the procurement of only eBuses starting in 2024, one year ahead of the 2025 target. The current program schedule will ensure full-fleet conversion to zero-emissions by 2037, which is three years ahead of the City of Toronto’s TransformTO Net Zero Strategy target of 2040.

The 10-year Capital Budget and Plan includes \$688.6 million in approved funding, for the procurement of approximately (based on vehicle pricing estimates at the time) 600 new buses, including 300 hybrid-electric buses and 300 eBuses for delivery between the years 2023 and 2025. With the recent contract awards for 336 hybrid-electric buses, where vehicle pricing is finalized, the remaining available funds allow us to procure approx. 240 eBuses.

The 10-year Capital Budget and Plan also includes \$8.4 million for electric Wheel-Trans Bus purchases.

Following are identified programs with unmet needs over the 10-year planning horizon:

- Purchase of Electric Buses: \$1.9 billion
- eBus Charging systems - \$575 million

Toronto Fire Services

Toronto Fire Services (TFS) continues to develop multi-year contracts for TFS heavy fleet procurement, to streamline purchasing through various vendors and to ensure delivery of vehicles in as timely a manner as possible, based on manufacturers’ capabilities.

The current 10-year estimated capital cost of transitioning TFS fleet to zero emission vehicles is \$75.1 million. This is based on the planned electric pumper truck pilot proving successful and viable application for TFS emergency response requirements

and will be included in future budget submissions for Toronto Fire Services for consideration.

Toronto Police Service

Toronto Police is continuing with conversion to hybrid vehicles while testing operational viability of fully electric vehicle models. Toronto Police's approved 10-year capital budget and plan includes additional \$9.1 million for vehicle conversion to hybrid models as outlined in the Toronto Police 2023 Budget Notes.

Toronto Paramedic Services

The current 10-year estimated capital cost of transitioning Toronto Paramedic fleet to zero emission vehicles is \$24.9 million. This is based on the planned ambulance pilot proving successful and viable application for Paramedic emergency response requirements and will be included in future budget submissions for Toronto Paramedic Services for consideration.

Toronto Parking Authority

Toronto Parking Authority's approved 10-year capital budget and plan includes \$1.193 million for the transition to zero emission vehicles, as outlined in the Toronto Parking Authority 2023 Budget Notes.

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

DECISION HISTORY

On October 2, 2019 City Council declared the Climate Emergency and Accelerating Toronto's Climate Action Plan.

<https://www.toronto.ca/legdocs/mmis/2019/mm/bgrd/backgroundfile-138112.pdf>

On October 29, 2019 City Council approved The Pathway to Sustainable City of Toronto Fleets.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.GL8.16>

On December 15, 2021, City Council endorsed the TransformTO - Critical Steps for Net Zero by 2040 targets and actions.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.IE26.16>

COMMENTS

As Canada's largest city, Toronto has a responsibility to rise to the challenges created by climate change while providing leadership in climate mitigation and adaptation. To achieve the City's Vision, "Toronto is a clean, green and sustainable city", we must invest in and accelerate high priority emission reduction areas identified in the TransformTO - Critical Steps for Net Zero by 2040 targets and actions. This means significantly reducing and ultimately eliminating our consumption of fossil fuels by transitioning City Fleets to zero-emission vehicles. The City's climate mitigation and adaptation initiatives must continue to expand to meet the needs of a growing population, while contributing to environmental, economic, and social objectives, and equitable outcomes for our residents.

City vehicles are an essential component of the delivery of City programs and the provision of public services. City vehicle are also the second highest source of the City's corporate emissions at 40%, following buildings at 46%. Accelerated transition of City Fleets to sustainable, resilient, net-zero operations is a critical part of the City's plan to reach net zero emissions by 2040, and it directly contributes to the corporate and strategic priorities.

Accomplishments

City Fleets' climate mitigation and adaptation strategies and actions have been recognized for its successes and as an example of effective local leadership on climate action. Initiatives undertaken by City Fleets made a significant contribution to overall City emissions reductions. To-date, we have eliminated approximately 180 metric kilotons of greenhouse gas emissions, a 40% reduction from 1990 levels. The City of Toronto has been established as a Canadian leader in testing and adopting zero-emission vehicle technologies, alternative fuels, and efficient fleet management practices:

- Toronto Transit Commission (TTC) has gained valuable experience from its last procurement of 255 hybrid electric buses and 60 fully electric buses. The TTC has applied the lessons learned from these procurements and from the head-to-head evaluation of the 60 fully electric eBuses to refine the bus technical and commercial specifications. In February 2022, the TTC awarded a procurement of 336 hybrid electric buses for delivery in 2023. In addition, an RFP was issued in April 2022 for the supply and delivery of 240 electric buses for delivery in 2024 and 2025. This procurement is planned to be awarded in Q1 2023.
- The TTC worked in partnership with Toronto Hydro on the installation of the required charging infrastructure for the existing fleet of 60 electric buses. As the TTC continues its path to full electrification of the bus, Wheel-Trans, and non-revenue vehicle fleets, this infrastructure must be expanded accordingly. The TTC is working with PowerON Energy Solutions LP and Toronto Hydro to ensure the on-time upgrade of the local grid distribution system and implementation of required electrification infrastructure at TTC sites.

- Fleet Services is undertaking a major expansion of City's corporate electric vehicle (EV) charging infrastructure to enable and support accelerated transition of City Fleets to zero-emission vehicles (ZEV) and help with broader promotion and adoption of EVs in Toronto, and the Greater Toronto and Hamilton region. The primary user group of the corporate charging network will be City-owned vehicles (excluding TTC revenue vehicles). The network will also enable the expansion of the City's existing workplace charging program and will be made accessible to public where feasible. The expanded City of Toronto corporate EV charging station network is expected to have 850 charge ports available by 2025 at more than 100 City locations.
- As part of the interim steps in transitioning City's medium and heavy-duty vehicles to zero emission vehicles, the City Fleets will continue to focus on the use of renewable and sustainable fuels:
 - Starting in 2020, City Fleets have implemented seasonal use of biodiesel blends B5, B10, and B20;
 - Heavy duty waste collection diesel trucks continue to be replaced with compressed natural gas (CNG) trucks;
 - Hybrid vehicles and equipment have been adopted in areas with high operational utilization;
 - Auxiliary batteries, anti-idling devices, inverters, and other technologies for vehicles and equipment that reduce fuel consumption and emissions have been installed on many vehicles and equipment.
- Starting in 2022, any light duty vehicle being purchased by the City will be an electric version, where operationally feasible.
- Toronto Fire Services has designed and ordered two fully electric fire pumper trucks. When delivered, Toronto Fire Services will evaluate the opportunity to expand the deployment of electric pumper trucks within the Fire Services heavy fleet. These trucks represent the latest in green, energy-efficient technology for the daily use of fire services.
- Toronto Fire Services has already implemented idle reduction technology on 35 heavy fire trucks. Idle reduction technology is included in all current and future truck order specifications, with another 27 heavy trucks currently on order that include this technology. All new and replacement heavy fire trucks moving forward will include idle reduction technology as a specification requirement.
- Toronto Fire Services is also transitioning to hybrid vehicle technology for all District Chief emergency response vehicles and will continue to transition to hybrid and/or electric vehicles, across the small vehicle fleet, wherever feasible and possible.
- Toronto Paramedic Services has a fleet of 115 hybrid ambulances and employs anti-idle technology in all 332 ambulances. In addition, solar panels are installed on 215 vehicles which alleviate load on electrical systems and reduces demand and fuel consumption. Many of these innovations in green technology have been partially funded by provincial and federal grants.
- Toronto Paramedic Services has also been evaluating the availability of an all-electric ambulance that can be certified by the Ministry of Health to operate in Ontario.
- Toronto Police is continuing with conversion to hybrid vehicles while testing operational viability of fully electric vehicle models.

- Toronto Police also continues to utilize more than 400 bicycles for neighbourhood patrols, avoiding the use of up to 100 police patrol vehicles as a result.
- As part of its vision to become the world's best provider of sustainable parking, bike share and last mile mobility experiences, Toronto Parking Authority is executing an ambitious rollout plan for Electric Vehicle charging across the City of Toronto. The plan includes the installation of over 500 Electric Vehicle charging stations at Toronto Parking Authority off-street parking locations by the end of 2024 and a minimum of 50 additional on-street public Electric Vehicle charging stations before the end of 2023. The provision of Electric Vehicle charging services is a key component of Toronto Parking Authority's transformation to a mobility services provider, supports the City of Toronto's Net Zero Strategy and will support Toronto Parking Authority's growth and financial returns over the long-term.
- Work has been completed to install 117 Electric Vehicle chargers across eleven Toronto Parking Authority off-street parking facilities. A further 175 Electric Vehicle chargers are planned for installation across 18 off-street facilities in 2023, which will bring the total of off-street chargers in operation at Toronto Parking Authority facilities by the end of 2023 to nearly 300.
- Beginning in 2023, Toronto Parking Authority will assume responsibility for all on-street Electric Vehicle charging, which includes the transfer of 47 chargers from Toronto Hydro-Electric Systems Limited to Toronto Parking Authority. As directed by City Council, Toronto Parking Authority will also be responsible for delivering a further 50 on-street chargers by the end of 2023 bringing the total number of on-street chargers to nearly 100 by the end of 2023.
- Continued implementation and utilization of telematics technology on City vehicles contributed to improved vehicle utilization, better fuel efficiency, reduced idling, lower emissions, improved safety, and operational cost savings.

The Sustainable City of Toronto Fleets

This City-wide Plan's goal is to transition City Fleets to sustainable, resilient, net zero operations by 2040, including 45% emissions reduction by 2025, and 65% by 2030. The scope of the Plan includes more than 10,000 vehicles and equipment managed and operated by Fleet Services Division, Toronto Transit Commission (TTC), Toronto Police Service, Toronto Fire Services, Toronto Paramedic Services, Toronto Community Housing⁽¹⁾, Exhibition Place, Toronto Zoo, Toronto Parking Authority, and Toronto Public Library⁽¹⁾. It does not include Toronto Transit Commission streetcar and subway vehicles, or vehicles owned and operated by private companies who contract with the City.

(1) Managed by Fleet Services Division

The Plan continues to build on the achievements of the City Fleets' previous and current strategies, enabled and sustained by strong engagement and collaboration, and shared expertise and experience of City Fleets and its key partners and stakeholders.

Goal and Objectives

Goal	Sustainable, climate resilient, net-zero City fleet operations by 2040, including 45% emissions reduction by 2025, and 65% by 2030
Objective 1	Transition 20% of City-owned fleet to zero emission vehicles by 2025, and 50% by 2030
Objective 2	Resilient fleet assets and operations by 2040
Objective 3	Net zero procurement by 2040

Meeting these objectives requires significant capital investments, innovative improvement strategies for operational and management practices, and continued engagement and cooperation of City divisions, agencies, and corporations who operate City vehicles and equipment. It's also dependent upon building existing partnerships with federal and provincial governments, community groups, businesses, and foundations, in addition to forging new partnerships. Accountability and continued engagement will be crucial in the implementation, further development, and success of this Plan.

As the largest municipal fleet in Canada, and one of the largest and most diverse fleets in North America, City of Toronto Fleets play an important leadership role in advancing technologies that aim to significantly reduce environmental impacts, improve vehicle efficiency, reliability, and safety, while reducing life-cycle costs and associated impacts. By modeling how to electrify a corporate vehicle fleet, City Fleets could play an important role in the market transition to zero emission vehicles (ZEV), including lowering barriers to ZEV adoption.

Contributing Strategies and Actions

- Accelerate transition to zero emission vehicles (ZEV) through planning, coordination, and collaboration, informed by divisional and agency mission, ZEV model availability, and funding.
- Expand vehicle charging infrastructure - Installing sufficient charging infrastructure to support rapid vehicle deployment to meet the ZEV targets will be a significant challenge that requires an integrated, City-wide strategy, and long-term view that includes:
 - Continued engagement with all City divisions, agencies and corporations managing and operating City vehicles, and Toronto Hydro, and conducting a comprehensive assessment of City sites and fleet locations to plan for efficient deployment of necessary charging infrastructure, energy storage technologies, and required supporting services; and
 - Continued fleet, building, facility, and site energy managers collaboration to plan for future charging infrastructure requirements, for new developments and upgrades of existing City facilities.
- Optimize fleet management and improve efficiencies:
 - Determining an optimum fleet inventory for the delivery of City programs and the provision of public services, emphasizing elimination of underutilized, old, or

redundant vehicles from the City's fleet inventory and increasing the proportion of ZEV.

- Expanding use of vehicle telematics and using fleet operational data to inform fleet planning and vehicle acquisition strategies; and
- Improving collection, analysis, reporting, and application of asset-level fleet data.
- Build, promote, and sustain the culture of climate action and sustainability:
 - Build internal capacity through engagement, education, and training on corporate sustainability, climate adaptation, and environmental stewardship.
 - Promote and expand cooperation and shared learnings based on successful ZEV deployment in City Fleets; and
 - Encourage and recognize outstanding performance, including incorporation of sustainability objectives in the performance plans, where appropriate.
- Identify staffing resource requirements for effective implementation of the Sustainable City Fleets Plan's goal and objectives.
- Engage with business, non-profit, and community organizations, and provincial and federal governments to share best practices for addressing more challenging or complex emissions reduction opportunities.
- Institutionalize resilience into the City's decision-making and take leadership on resilience.
- Continue to incorporate climate resilience into City Fleet management framework and plans:
 - Identify major mission critical facilities, infrastructure, and operational assets.
 - Identify and prioritize adaptation strategies that increase the climate resilience of mission critical facilities, infrastructure, and operational assets based on identified vulnerabilities.
 - Ensure City Fleet capital projects for new buildings and existing buildings undergoing major renovations are planned, designed, and constructed to be resilient to climate change impacts and to support City's zero emission Fleets.
 - Identify critical third-party services and supply chains and ensure their climate resiliency; and
 - Increase and improve climate change and resilience education of City employees, including use of new technologies.
- Fleet and facility managers will continue to collaborate to manage the increasing buildings electricity demands and loads, and implementation and expansion of integrated and coordinated operation and management of building systems and vehicles.
- Maximize the procurement of sustainable services, products, and materials.
- Enhance sustainable procurement - The City's purchasing power is one way that the City can make environmentally sustainable and equitable investments for today:
 - Align procurement policies with TransformTO Net Zero objectives;
 - Require major suppliers to publicly disclose emissions and set reduction targets.
- Strengthen City procurement process to minimize risks associated with climate change:
 - Strengthening lifecycle cost approaches, where feasible and applicable, to include the social cost of GHG (SC-GHG), the incremental future economic damages caused by each tonne of carbon pollution, can be a valuable tool in identifying investments that are compatible with the low-carbon economy of the future.

Implementation

Achievement of the objectives outlined in this Plan will require the engagement and cooperation of City divisions, agencies, and corporations who operate City vehicles and equipment to ensure success. It is also dependent upon building existing partnerships with federal and provincial governments, community groups, businesses, and foundations, in addition to forging new partnerships. Accountability and continued engagement will be crucial in the implementation, further development, and success of this Plan.

Monitoring and Reporting

The Fleet Services Division General Manager will be responsible for coordinating and monitoring the implementation of the strategies and actions, reviewing progress, and making recommendations to the Fleet Management Steering Committee (FMSC) for the Plan updates, including directional changes as required, subject to review and approval by the FMSC.

The progress of established strategies and actions will be reported regularly as part of the TransformTO updates. Comprehensive reports on the Plan progress will continue to be provided at the time of the Plan updates. The reports will include recent developments and results of strategy implementation, the status, trends, and rates of progress. It will also include changes in environmental circumstances, external drivers and barriers, and any updates to the current goal and objectives.

Dependencies and Risk Assessment

Accelerated transition of City Fleets to sustainable, resilient, net zero operations is a critical part of the TransformTO - Critical Steps for Net Zero by 2040 targets and actions. Climate change inherent complexity has created strong and complex dependencies between government, business, organizational, and public responsibilities. It necessitates actions and accountabilities in parallel with risk management approaches to adverse climate mitigation and adaptation of sustainable choices.

Following are some of the identified internal and external key dependencies and risks:

- **Industry Readiness** - City's ability to procure zero emission vehicles (ZEV) is largely dependent on the auto industry readiness to produce and supply viable ZEV options and quantities, especially for medium and heavy-duty vehicles.
- **Funding** - Various types of economic pressures continuing to create a very challenging financial conditions for the City and other levels of government. Without required funding, City Fleets will not be in the position to timely and sufficiently transition to zero emission vehicles resulting in not meeting TransformTO goals and objectives.
- **User Adoption** - Addressing user adoption of ZEV and supporting technologies through education, and availability and access to the charging stations, are critical to the successful transition to ZEV and net zero operations.
- **Government Regulations** - Federal and provincial regulations and mandates regarding zero emission vehicle (ZEV) sales are critical part of a larger policy package to address both supply and demand barriers to ZEV uptake, especially for medium and heavy-duty vehicles.

- **Geopolitical situation** - With the degree of global economic connectivity and dependency, current geopolitical instability or additional major geopolitical developments have a potential for continued and profound disruption of resource availability and supply chains.
- **Energy and other natural resources availability and dependency** - Any significant energy and other key natural resources availability and dependency would significantly impact the availability of low and zero emission technologies and their implementation and sustainability.
- **Population growth** - Significant increase in the current city population growth would put additional pressure on the City infrastructure and resources.
- **Workforce** - Availability of skilled labour and aging workforce could significantly impact our essential knowledge transfer and ability to keep up with the pace of technological and business developments required to meet the established goals and objectives.

CONCLUSION

As Canada's largest city, Toronto has a responsibility to rise to the challenges created by climate change while providing leadership in climate mitigation and adaptation. This Plan will further highlight the leadership of the City of Toronto, increase public and stakeholder confidence, and provide a model for other municipalities and businesses in the Greater Toronto Area and beyond.

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ATTACHMENTS

Attachment 1: The Sustainable City of Toronto Fleets Plan