# REPORT

## 2025 Budget Committee

## Meeting Date: October 22, 2024

**FROM:** Oakville Transit

**DATE:** October 15, 2024

**SUBJECT:** **Investing in Canada Infrastructure Program (ICIP) funding program update – Battery Electric Buses purchase update**

**LOCATION:** Town Wide

Town-wide



**RECOMMENDATION:**

That staff continue purchasing Oakville Transit buses based on the current 10-year capital forecast identified in the 2025 budget.

**KEY FACTS:**

The following are key points for consideration with respect to this report:

- Oakville Transit has been working to advance the Town's climate change policies and accelerating climate change action through its energy infrastructure and battery electric bus program.
- Town staff applied for multiple transit improvement projects from the Public Transit Stream of the Investing in Canada Infrastructure Program (ICIP).
- ICIP funding was not intended to completely fund Oakville Transit's transition to electrification.
- Electrification is well underway with electric buses currently in service.
- Electric buses cost significantly more than diesel buses and four electric buses are required to replace three diesel buses due to range limits. In addition, maintenance costs are higher for battery electric buses.
- Battery electric bus implementation continues to evolve and manufacturers are facing challenges.
- A financial forecast analysis was completed to identify the full costs associated with electrifying the entire transit fleet and facilities post ICIP funding, including scenarios for future electric bus purchases (replacement and growth)

- As a result of the increased costs associated with electrification, staff recommend that future electric bus purchases that are not offset by ICIP funding be paused.
- Staff will continue to seek federal and provincial funding to continue transit fleet electrification in the future.

## BACKGROUND:

### Oakville Transit has been working to advance the Town's climate change policies and accelerating climate change action through its energy infrastructure and battery electric bus program.

The town has been active in implementing climate change policies and programs since 2005 and has taken significant steps to reduce its impact on the environment. Given Council's strong commitment to reducing its impact on the environment, staff recommended using ICIP funding to begin greening its transit fleet at an accelerated rate while also leveraging new technology to generate further efficiencies in its operations. The ICIP funding for the Public Transit Stream was based on transit ridership, and the town was eligible for and recieved up to $48,626,084 in federal and provincial funding.

### The Town received funding from the Investing in Canada Infrastructure Program (ICIP) for multiple transit projects

The recommended plan for using ICIP funding primarily focused on the purchase of battery electric buses and the required infrastructure to charge them; however, several other projects were requested and approved to be implemented with ICIP funding. These projects included:

- An electric needs assessment
- Real-time On-Demand Scheduling Software
- Transit ITS Infrastructure Upgrades
- Facility and Onboard WiFi
- GTFS-RT Data Feed
- Bus Stop Accessibility Improvements
- Video Display Wall Conversion
- Integrated Conventional Scheduling Software
- Digital Bus Arrival Display Screens

While the majority of projects identified for ICIP funding have been implemented, funds from projects not implemented as part of the ICIP application were reallocated

to purchase an additional battery electric bus ensuring that grant funds were fully used.

### ICIP funding was not intended to completely fund Oakville Transit electrification

Staff identified that ICIP funding would not be sufficient to assist with transit fleet growth purchases beyond 2026 when applying for ICIP funding in 2019. Staff planned that between 2020 and 2026, a total of 73 buses were to be purchased with the assistance of ICIP funding. This represented approximately 50% of the 2019 fleet and assumed the Oakville Transit fleet would be fully electric by 2035, if the Town continued to purchase expansion and replacement buses after the term of ICIP funding.

### Electrification at Oakville Transit is underway

The first battery electric buses began arriving in the Town at the beginning of 2023. To support battery charging for the electric buses, 10 charging stations were installed at Oakville Transit's operations facility. Battery electric buses for conventional services are currently being delivered with nearly half the fleet (74 buses - reallocated funds allowed for one additional bus) planned to be converted to electric by 2026 with the help of ICIP funding.

The Town also executed three contracts to implement transit electrification. The three contracts are:

- **Energy Infrastructure Contract (EIC):** the procurement and installation of charging infrastructure, energy equipment, electrical and civil works (Oakville Transit garage and Uptown Terminal).
- **Energy Services Agreement (ESA):** the provision of energy services, associated operating costs, and energy infrastructure maintenance costs.
- **CCDC-5A Construction Management (Agent) Contract:** the design and construction management services for expanding the transit garage to include bus storage lanes and 33 bus charging points.

Oakville Transit is currently operating 15 of 74 ICIP funded electric buses. The transit garage facility is also being renovated to enable charging of the remaining ICIP funded buses and accommodate fleet growth to 2050.

## COMMENT/OPTIONS:

### Battery Electric Bus technology is evolving while manufacturers are facing challenges

Oakville Transit is an early adopter of fleet and facility electrification when compared to its peers in the GTHA. Many GTHA transit agencies are currently reviewing electrification pilots and are evaluating how to proceed with future electrification plans. With electrification pilots underway, transit agencies are learning and evaluating how electrification works and what will be required to implement a battery electric transit fleet and associated infrastructure and software.

As transit agencies are looking for ways to electrify their fleets, bus and infrastructure manufacturers are facing challenges in keeping up with electrification demand. The Canadian Urban Transit Research and Innovation Consortium (CUTRIC) identified challenges currently faced by manufacturers which include:

- High upfront capital costs – battery electric buses come with a higher upfront cost when compared to diesel buses.
- Limited funding options – grants are often insufficient to cover the entire cost of transitioning to electric fleet.
- Charging infrastructure – charging infrastructure is a roadblock for battery electric bus adoption and can slow electric bus deployment.
- Range anxiety – specifically in Canada, the distance electric buses can travel is a concern for many agencies.
- Competition and supply chains – manufacturers must constantly innovate to stay ahead of global competitors, while any supply change issues impact manufacturers and eventually transit agencies.
- Maintenance and training – special maintenance and training is required for operators and mechanics which is costly and time-consuming.

The above noted manufacturer challenges impact transit agencies in the following ways:

- Higher capital costs translate to increased vehicle costs.
- Funding options limit how fast transit agencies can transition battery electric fleet and at what cost.
- Charging infrastructure is required which can entail lengthy full garage renovations and on-street capital requirements
- Range anxiety may require additional resources to be implemented to ensure current service levels are maintained (additional fleet required to maintain the existing levels of service).
- Competition and supply chain delays create uncertainty in the market for vehicles and infrastructure thereby decreasing the ability to plan for the future.
- Maintenance and training require time and additional resources such as tools, high voltage training, and increased staffing levels to continue daily service operations.

In addition to the above concerns, the cost to purchase battery electric buses have increased significantly since 2019 (approximately 60% increase since the original ICIP grant application).

## A financial analysis was completed identifying the cost to complete the diesel conversion to electric post ICIP funding

Staff completed a financial analysis identifying future operating and capital costs to complete the transition of buses from diesel to electric beyond ICIP funding. Staff compared the three scenarios as it relates to future impacts to capital and operating budgets:

- Scenario 1 – Once ICIP funding is completely depleted, purchase replacement and expansion diesel buses while replacing existing electric buses with electric buses (100% fleet electrification will not be achieved)

- Scenario 2 – Budget and purchase all future replacement and growth buses at a 50% diesel and 50% electric rate (100% fleet electrification will occur beyond 2050)

- Scenario 3 – Electrify the entire fleet (100% fleet electrification planned to be achieved by 2036)

Table 1 below identifies the long-term capital and tax levy impacts of the three scenarios above:

**Table 1: Long-term battery electric bus purchase capital tax levy impact scenarios**

| 2025 – 2050 Estimated Costs (millions) | | | |
|---|---|---|---|
| Scenarios | Total Capital Cost | Average Annual Tax Levy Impact ($) | Average Annual Tax Levy Impact (%) |
| Scenario 1 – Diesel | $500 | $1.8 | 0.70% |
| Scenario 2 – 50% diesel / 50% electric | $731 | $2.2 | 0.84% |
| Scenario 3 – 100% electric | $963 | $2.4 | 0.94% |

The incremental capital cost (difference between Scenario 1 and Scenario 3) to replace the remaining diesel buses beyond the approved ICIP funding would put additional pressures of up to $463 million on the town’s funding sources (capital reserve, equipment reserve, and DCs).

The incremental annual operating cost of one electric conventional bus instead of a diesel bus is approximately $30,000. The incremental capital cost of one electric conventional bus instead of a diesel bus is approximately $600,000.

The current 10-year forecast in the 2025 budget is based on Option 1, continuing to purchase diesel bus after ICIP funding is depleted.

The funding for future transit buses, without funding support from other levels of government through programs such as ICIP, is primarily from the transit equipment reserve and the capital reserve. Development charges are also used for growth-related buses (23% of the cost of a growth bus), along with a portion of the annual allocations from the Ontario Gas Tax and Canada Community-Building Fund programs.

## CONCLUSION:

### No additional electric bus will be purchased after completion of ICIP funding

The current 10-year capital forecast in the 2025 budget is based on Scenario 1, purchasing diesel buses once ICIP funding is depleted. Staff recommend the continuation of this approach to allow for the battery electric bus industry to evolve thereby providing more options regarding fleet options and associated infrastructure/software.

### Staff will continue pursuing grant funding to decrease the Town's portion for electrifying the transit fleet

Grant funding opportunities such as the Zero Emission Transit Fund (ZETF), Green Municipal Fund (GMF) and Canadian Public Transit Fund (CPTF) are being pursued to help transition the transit fleet to 100% electric.

Should funding for battery electric buses become available, and the Town is successful in its application for funding, staff will provide council an update and recommend a plan to continue the transition of transit buses from diesel to electric.

## CONSIDERATIONS:

**(A) PUBLIC**

Oakville residents and transit customers will benefit from the environmental benefits of electric buses and infrastructure. The transit customer travel experience will also be improved as a result of technology upgrades and service improvements.

**(B) FINANCIAL**

This report identifies the incremental capital and operating costs of purchasing future transit fleet based on three scenarios.

## (C) IMPACT ON OTHER DEPARTMENTS & USERS

Transit staff worked with Finance staff for this report.

## (D) COUNCIL STRATEGIC PRIORITIES

This report addresses the corporate strategic goal(s) to:

- Ensure environmental sustainability to meet future needs related to greenspaces and natural areas, and act on climate change mitigation and adaptation
- Manage growth for a vibrant local economy, meeting infrastructure needs and ensuring we have complete communities and efficient mobility across the town
- To be a vibrant and livable community for all

## (E) CLIMATE CHANGE/ACTION

Energy use and carbon emissions reductions have a direct effect on our climate, as they are the main drivers for climate change mitigation. By electrifying transit vehicles and facilities, the Town would be addressing climate change mitigation through its corporate activities.

The Community Energy Strategy (CES), unanimously endorsed by Council in 2020, provides the pathway to achieving an ambitious greenhouse gas reduction goal that supports a livable, sustainable and resilient energy future for Oakville. Progress on the priority projects outlined in the CES is fundamental to mitigating our community's impact to climate change. Transportation accounts for almost half of community-wide GHG emissions and total dollars spent on energy in Oakville which was the driver to include priority project 12: "Pursue opportunities to electrify local transit and corporate fleets" under strategic objective 4: "Transportation Efficiency" in the 2020-2025 priority projects identified by the CES.

## APPENDICES:

None

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