

Bus Electrification Strategy

RECOMMENDATION(S):

The Executive Committee recommends that Council:

1. Approve the Bus Electrification Project as represented in the Calgary Transit Fleet Transition Plan, specifically the Bus Electrification Strategy (Attachment 4),
2. Direct Administration to negotiate and execute any definitive agreements required to implement the Project as represented in the strategy, and with terms acceptable to the General Manager Operational Services and Chief Financial Officer,
3. Approve the purpose, terms and conditions, and restrictions for the Canada Infrastructure Bank Zero Emission Bus Lifecycle Reserve as outlined in the Reserve Template - Request to Create a New Reserve (Attachment 6)
4. Upon execution by the Government of Canada of a contribution agreement for the Zero Emission Transit Fund with terms acceptable to the General Manager Operational Services and Chief Financial Officer, direct Administration to appropriate \$80 million in previously approved capital funding as part of the 2023-2026 Service Plans and Budgets and \$20 million from the Centralized Climate Fund to support the Bus Electrification Strategy, and
5. Direct that Attachment 5 of Report EC2022-1338 remain confidential pursuant to Sections 24 (Advice from officials) and 25 (Disclosure harmful to economic and other interests of a public body) of the *Freedom of Information and Protection of Privacy Act*, to be reviewed by 2023 December 15.

HIGHLIGHTS

- In support of the Calgary Climate Strategy and Council's strategic direction, The City of Calgary (The City) has developed a Bus Electrification Strategy within the overall Fleet Transition Plan to replace up to 259 diesel buses at the end of their lifecycle with zero and low-emission vehicles in the 2023-2026 business cycle. This strategy forms the basis for the technical and financing due diligence to secure the funding to implement (the "Project").
- Administration has been working to complete the necessary steps to begin the transition to a zero emission bus fleet, and in accordance with Council's direction (EC2022-1159), is reporting back to Executive Committee with an update on the Project and seeking the necessary remaining approvals prior to signing definitive agreements with the Canada Infrastructure Bank (CIB).
- To implement the Project, The City requires significant financial support. An agreement with the CIB is the first step in leveraging federal grant and loan funding from Infrastructure Canada's Zero Emission Transit Fund (ZETF) for the majority of the costs of incorporating battery electric buses into Calgary Transit's existing fleet and the supporting charging infrastructure.
- The CIB and The City have substantially agreed on the key technical and financial variables and assumptions that feed into the cost savings regime. The cost savings

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regime is what determines the amount of financing that The City can support from transitioning to zero emission buses (Attachment 5).

- Repayments to the credit facility are sourced from the actual savings generated by the lower cost of operating battery electric buses as compared to the higher cost of operating diesel buses.
- The overall cost of the project is estimated at \$491 million. Administration anticipates signing definitive agreements with the CIB no later than January 2023 for a credit facility up to \$168 million. The Project is continuing to pursue funding with the potential of \$223 million in grants from the ZETF, with The City funding the residual amount of \$100 million.
- The City is currently in Stage II of the ZETF application process and is expected to receive approval by Infrastructure Canada in Q2 2023. The Project's implementation will be contingent on signing definitive agreements with Infrastructure Canada following its approval of the Project.
- This Project is projected to reduce greenhouse gas (GHG) emissions by over 13,000 tons of CO₂ emissions a year (tCO₂e/year) by 2027, which will allow for cleaner commutes and improve the quality of life for Calgarians.
- Background and Previous Council Direction is included as Attachment 1.

DISCUSSION

Calgary has a long history of electrified transit including the CTrain system which has been powered by wind energy since 2001. The City has been working to complete the necessary steps to begin the transition to a zero emission bus fleet. Several reports over the years have been developed to aid Calgary Transit in transitioning to a zero emission bus fleet. These past reports can be viewed as phases of a roadmap to help Calgary Transit determine the technical feasibility and analyze the impacts to transit costs and service, before transitioning to a zero-emission fleet. Attachment 1 provides an overview of these studies.

The City has also continued to participate in industry standards, forums, and working groups dealing specifically with lessons learned and best practices from other municipalities in Canada that have deployed zero emission buses. Attachment 3 provides a jurisdictional scan of zero emission bus projects in other municipalities. Administration will continuously re-evaluate technology, costs, funding sources, and best practices.

Fleet Electrification Planning Study

In 2021, WSP Canada was contracted to undertake a comprehensive Fleet Electrification Planning Study for Calgary Transit (The Study). The Study's objectives included planning for The City's bus fleet as part of its Fleet Replacement Plan starting in 2023. In September 2022, The Study's Final Report was received and was used to finalize the applications to the ZETF and CIB.

The study provides an analysis comparing the capital and operating costs between maintaining a diesel fleet and transitioning to a zero emission fleet by 2040 and serves to demonstrate a technically feasible plan allowing for bus electrification. Attachment 4 provides a high-level summary of the technical implementation details.

Funding and Financing Project Update

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To implement the Bus Electrification Strategy, The City requires significant financial support. Currently, the federal government is providing innovative funding and financing solutions in support of transitioning to low carbon infrastructure and transit. These opportunities include:

- **Infrastructure Canada: Zero Emission Transit Fund Grant** – provides a direct grant to cover the capital cost of building charging infrastructure, as well purchasing zero emission buses. The ZETF application process takes into consideration any financing The City may have secured from the CIB.
- **Canada Infrastructure Bank: Zero-Emission Buses Financing** – Infrastructure Canada and the CIB work in collaboration to support the transition to zero emission buses. The CIB provides flexible, below market interest rate financing to support zero emission bus purchases. Repayment of the loan is sourced from cost savings generated from lower operating costs of zero emission buses compared to diesel buses.

The immediate step in the financial strategy for the Project is securing financing from the CIB. If definitive agreements are not signed on or around January 1, 2023, the CIB reserves the right to adjust the below-market interest rate currently being offered to reflect prevailing Government of Canada interest rates, impacting the Project economics. Administration initiated the Bylaw Approval Process for Bylaw 8B2022 on 2022 November 1 to permit The City to incur indebtedness from the CIB and align the timeline to sign definitive agreements in January 2023.

Technical and financial due diligence for the Project is in progress and will continue into 2023. To support The City's due diligence efforts, Administration will be engaging a third-party financial consultant, anticipated to be onboarded no later than December 2023.

Administration and Infrastructure Canada are working collaboratively to finalize the ZETF grant application details and timelines. Meetings are set up periodically, on an as needed basis with collaboration continuing to date and into 2023. If approval for the ZETF is received, The City can start incurring eligible costs related to the Project.

Alignment with City Strategic Direction

The Project and Bus Electrification Strategy support Council's strategic direction of a climate resilient Calgary, with a goal of reducing GHG emissions. The Project is in alignment with Council's key focus area to convert 300 buses to electric. The Calgary Climate Strategy – Pathways to 2050 establishes corporate emission reduction targets of 60 per cent below 2005 levels by 2030, and to be net-zero by 2050. The Project is in alignment with the Corporate Greenhouse Emissions and Energy Plan's action to deploy zero emission transit buses. Annual emissions reductions have been estimated when replacing up to 259 diesel buses with battery electric buses, which is provided in Attachment 2.

EXTERNAL ENGAGEMENT AND COMMUNICATION

- | | |
|--|---|
| <input type="checkbox"/> Public engagement was undertaken | <input type="checkbox"/> Dialogue with interested parties was undertaken |
| <input type="checkbox"/> Public/interested parties were informed | <input checked="" type="checkbox"/> Public communication or engagement was not required |

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Public communication and engagement were not required as part of this committee report.

IMPLICATIONS

Social

A sustainable transit system is one that is safe, affordable, accessible, efficient, and contributes minimal GHG emissions. The transition to zero electric buses will reduce emissions, improve quality of urban life through less pollution and noise, improve the health of residents, and provide more equitable and affordable transit choices.

Environmental

Riding public transit instead of driving a personal vehicle is one of the most effective actions individuals can take to conserve energy. The Project contributes to The City of Calgary's Climate Resilience Strategy by enabling sustainable transportation and land use. Incorporating zero emission buses in Calgary Transit's fleet will protect air quality by reducing GHG emissions.

Economic

The Project supports Calgary's transition to a low-carbon economy promoting industry growth, and green job creation.

Service and Financial Implications

Existing capital funding -

The Canadian Infrastructure Bank credit facility of up to \$168 million acts as a non-revolving line of credit that is only used as amounts are drawn over time. The financing is intended to cover the higher upfront capital cost of battery electric buses versus traditional diesel buses. Repayments to the credit facility are sourced from the actual savings generated by the lower cost of operating battery electric buses as compared to the higher cost of operating diesel buses, thus anticipating no net financial impact to The City.

The credit facility associated with the proposed borrowing bylaw 8B2022 as indicated in report EC2022-1159, if drawn upon, will impact The City's total debt amount.

The approved 2023-2026 One Calgary Service Plans and Budgets includes \$80 million to support the purchase of battery electric buses and associated charging infrastructure. The remaining \$20 million of The City's portion will come from the Centralized Climate Fund which was established to support integrating climate considerations into new infrastructure projects.

RISK

If The City is unable to secure funding from Infrastructure Canada, The City may not be able to purchase electric buses and corresponding infrastructure, impacting its ability to achieve its climate objectives. The City is actively pursuing each form of funding and financing throughout the due diligence process to support the Project. Risks associated with the bus electrification, and financial aspects are expanded on in Attachment 4 and Attachment 5, respectively.

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ATTACHMENT(S)

1. Previous Council Direction, Background
2. Projected Bus Fleet Greenhouse Gas Emissions
3. Jurisdictional Scan
4. Bus Electrification Strategy (Technical Details)
5. Canada Infrastructure Bank Financing Update (Confidential)
6. Reserve Template - Request to Create a New Reserve

Department Circulation

General Manager/Director	Department	Approve/Consult/Inform
David Duckworth	City Manager	Approve
Doug Morgan	Operational Services	Approve
Michael Thompson	Infrastructure Services	Approve
Carla Male	Chief Financial Officer and General Manager of Corporate Planning and Financial Services	Approve
Sharon Fleming	Operational Services—Calgary Transit	Approve
Les Tochor	City Treasurer, Director of Finance	Consult
Carolyn Bowen	Planning and Development Services—Climate and Environment	Consult