Report to Council

Date: October 25, 2021

To: Council

From: City Manager

Subject: **Green Fleet Strategy**

Department: Infrastructure Operations

Recommendation:

THAT Council receive for information the October 25, 2021 report of the Infrastructure Operations Manager regarding a new Green Fleet strategy;

AND THAT Council endorses the recommendations of the Green Fleet Strategy as outlined in the report of the Infrastructure Operations Manager and directs staff to implement the Strategy.

Purpose:

To update Council on a new Green Fleet Strategy, to help reduce Greenhouse Gas Emissions (GHGs) from the corporate Fleet.

Background:

At the February 22, 2021 Council meeting, Council endorsed a pledge to convert 10 per cent of the City's light duty fleet to Zero Emission Vehicles (ZEVs) by 2023, and directed staff to apply for funding to help develop a new Green Fleet Strategy and towards the installation of ZEV infrastructure.

The City subsequently received two grants, valued at $8,000, from the province's CleanBC Go Electric Fleets program: to help develop a fleet electrification (Green Fleet) strategy, and to assess the necessary electrical infrastructure to support the strategy.

Prism Engineering was engaged for the Green Fleet Strategy (Attachment 1), outlining a roadmap for fleet electrification over the next ten years. Struthers Technical also completed a more detailed electrical infrastructure assessment for City facilities where most of the City's fleet is parked (Table 1). The scope of these investigations was limited to on-road vehicles at this time, as very few ZEV options exist for off-road equipment.

Key summarized findings of these reports include the following:

- The current City fleet is comprised of 267 on-road vehicles, producing approximately 1,648 metric tonnes of carbon dioxide per year.
- In the next 10 years, the City anticipates a 2 per cent annual growth in fleet size. Without a fleet electrification strategy, a 20% increase in fleet emissions could be expected by 2031.
- If the City were to prioritize and maximize the replacement of fleet vehicles with ZEVs (based on current ZEV availability) over the next ten years, a 49 per cent reduction in fleet emissions (on-road vehicles) could be achieved through electrification alone. This translates to approximately 24 per cent reduction in overall fleet emissions and does not include GHG reductions due to other strategies such as the use of R100, renewable diesel fuel.
- There are currently very limited ZEV replacement options available for the existing fleet.
- Heavy Duty vehicles make up only 19 per cent of the City on-road fleet but contribute to approximately 54 per cent of GHGs. Improvements in ZEV availability for larger vehicles have the potential to significantly reduce GHG emissions.
- ZEVs are currently more costly to acquire (sometimes 25-50 per cent more[1]), but total fleet life cycle costs are expected to decrease by 2 per cent by 2031, due to reduced operating costs. ZEVs are expected to achieve cost parity with internal combustion vehicles in Canada by 2025[1].
- Approximately 137 Level 2 charging ports will be required by 2031 to support the Strategy. Up to four vehicles may be able to share a single charger, using energy management software. A Level 3 (fast) fleet charger is not required at this time.
- Electrical and charging infrastructure upgrades will be needed at City facilities, to support an expanded ZEV fleet. Significant upgrades would be required at the Parks Yard and Windsor Road locations (Table 1) due to lack of electrical capacity. Chargers and upgrades are estimated to cost $1.8-$1.83 million (grants can help offset these costs).
- The estimates in the Strategy are expected to improve over time, due to anticipated:
    - Reductions in ZEV capital costs;
    - Increased fuel costs / carbon tax, making internal combustion vehicles more expensive to operate;
    - and additional ZEV replacement options, particularly for larger vehicles.

Recommendations:

Based upon the results of these two reports, staff recommend the following:

1. **All new fleet/fleet replacement vehicles will be ZEVs as much as practical**, based on current and future ZEV availability. Our light duty fleet is currently seven per cent ZEVs[2].
2. **Annual updates of ZEV targets and the 10-year capital plan.** Capital plans should be updated annually to account for ZEV pricing as well as necessary electrical infrastructure investments. The Fleet reserve would be used to pay for capital replacement (plus electrical upgrades), funded through equipment rates.
3. **As ZEV options improve, expand the plan to include off-road equipment**. Currently there are few options.

[1] Jim Pattison Lease, "Best Practices for Commercial Fleets Webinar - Electric Vehicles", September 28, 2021.
[2] Light Duty is defined as per Canadian Association of Municipal Fleet Managers (on-road, up to 4,500 kg).

4. **Review and update the Corporate Fleet Sustainability Policy (to be renamed as the Green Fleet Policy)**. The consultant noted that about half of fleet vehicles currently meet the utilization targets in the policy. Targets need to be reviewed and updated to better reflect actual/expected usage of the vehicle and to determine whether more lower utilization vehicles could be eliminated (or replaced with more efficient vehicles).
5. **Adopt a fleet-specific GHG reduction target that matches the Provincial Transportation target of 27-32 per cent below 2007 emissions by 2030[3].** The Prism report focused on on-road vehicles. Staff recommend setting a fleet-wide target, using 2007 as the benchmark year to be consistent with corporate and provincial GHG targets. This target would provide an ambitious, but tangible goal and help show leadership in the community towards GHG reduction. Fuel data shows that fleet GHGs were 1% lower in 2019 compared to 2007, in spite of significant fleet growth over that period.
6. **Apply for grants** to help cover the capital costs of ZEVs and electrical infrastructure. Staff recently applied for a federal grant (ZEVIP) of $120,000 towards the cost of installing another 24 Level 2 chargers at the public works yard (results are pending).
7. **Continue other initiatives to reduce GHGs,** such as the use of renewable diesel (R100) or hybrid equipment. Hydrogen fuel may also become a viable alternative within a few years.
8. **Report progress towards fleet GHG reduction goals annually**. Staff will report progress on reducing fleet GHGs as part of the Corporate GHG annual reporting program.
9. **Include ZEV charging infrastructure as part of any future City facility upgrades**. Electrical and charging infrastructure is more cost effective if planned as part of facility and site construction projects.
10. **Explore options for city employee usage of ZEV chargers during the day, when they are not being used by fleet.** EV chargers that will be installed at the library parkade downtown later this year will be shared, with public usage during the day and fleet charging at night. The same model could be explored to encourage employees to purchase ZEVs and utilize fleet chargers (for a fee) while at work.

One recommendation from the Prism report regarding **carbon pricing** is not recommended at this time for fleet (although it may be useful for other corporate initiatives). Some cities are using internal carbon pricing to help justify the business case for electrification of the fleet. This is not required since the City's Purchasing policy allows the use of sustainability criteria as well as the selection of 'best value' products or services to meet Corporate goals.

Internal Circulation:

Budget Supervisor, Financial Services
Champion of the Environment, Planning & Development Services
Communications Advisor, Community Communications
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Energy Manager, Building Services
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Grants and Special Projects Manager, Partnerships & Investments

[3] Province of BC, Sectoral Emission Targets. https://www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/climate-reporting#sectoral

Parking Services Manager, Parking Services
Parks & Buildings Planning Manager, Parks & Buildings Planning
Purchasing Manager, Purchasing
Utility Services Manager, Utility Services

Financial/Budgetary Considerations:

Capital plans and operating budgets will be submitted annually to support the Green Fleet Strategy.

Existing Policy:

The proposed strategy strongly aligns with the corporate goal of reducing overall GHG emissions 12 per cent below 2007 levels by 2022. It would also help to fulfill some of the commitments of the Community Climate Action Plan[4], and directly supports the Council priority: Greenhouse gas emissions are decreasing.

Considerations not applicable to this report:

Legal/Statutory Authority:
Legal/Statutory Procedural Requirements:
External Agency/Public Comments:
Communications Comments:

Submitted by:

I. Wilson, Infrastructure Operations Manager

Approved for inclusion: IW Ian Wilson Acting Divisional Director Civic Operations

Attachment 1: Green Fleet Strategy

[4] City of Kelowna Community Climate Action Plan.
https://www.kelowna.ca/sites/files/1/docs/community/community_climate_action_plan_june_2018_final.pdf

Table 2. High level estimates of capital costs to install BEV chargers (including chargers and electrical infrastructure) at ten facilities where City fleet is parked. From an assessment completed by Struthers Technical, 2021.

Facility	Max. EV chargers	Estimated capital cost
Public Works Yard	28	$274,000 to $299,000
Parks Yard	34	$517,000
Landfill	5	$90,000
Wastewater Treatment Facility	12	$157,000
Library Parkade	15	$89,000
Compost Facility	1	$16,000
Field Office	6	$89,000
Fire Hall No. 1	5	$97,000
Windsor Road	19	$351,000
City Hall	6	$125,000
Estimated Total:	**131**	**$1.8 - $1.83 million**