Report to Council

Date: November 23, 2020

To: Council

From: City Manager

Subject: Update on Community Low-Carbon Mobility Strategy: Electric Vehicles and E-bikes

Department: Policy & Planning

Recommendation:
THAT Council receives, for information, the report from the Policy & Planning Department, dated November 23, 2020, with respect to an update on the development of a Community Low-Carbon Mobility Strategy: Electric Vehicles and E-bikes;

AND THAT Council direct staff to initiate the community engagement process, as outlined in this report dated November 23, 2020;

AND FURTHER THAT Council directs staff to pursue the recommended approach for the Community Low-Carbon Mobility Strategy: Electric Vehicles and E-bikes outlined in this report dated November 23, 2020.

Purpose:
To update Council on the development of a Community Low-Carbon Mobility Strategy: Electric Vehicles and E-bikes, and for Council to direct staff to move forward with community engagement and the recommended approach.

Background:
Transportation accounts for the majority (53%) of greenhouse gas (GHG) emissions in Kelowna, and a large portion of this can be attributed to tailpipe emissions from light-duty vehicles. Recognizing this, the most impactful actions in the City of Kelowna's (the City) Community Climate Action Plan (CCAP) are from the transportation sector.[1]

While the priority remains on getting people out of their automobiles through effective planning (i.e., trip distance reduction), mode shifting to active transportation (e.g., walking, biking), and public transit, Kelowna residents will continue to rely on the automobile in some capacity for the foreseeable future. With that, the challenge then is to de-carbonize kilometres travelled by automobiles in the

[1] City of Kelowna (COK). 2018. Our Kelowna as We Take Action: Kelowna's Community Climate Action Plan. Retrieved from: https://www.kelowna.ca/sites/files/1/docs/community/community_climate_action_plan_june_2018_final.pdf.

community by shifting away from fossil fuels (i.e., internal combustion engine) to those that emit zero or low amounts of GHG emissions. These systems include electric vehicles (EVs), hydrogen fuel-cell technology, and renewable fuels (e.g., biofuels).

Currently, EVs are the only low-carbon option at the point of market transformation that can make significant impact on GHG emissions reduction over the next decade. EVs also have other benefits relative to traditional gasoline and diesel vehicles that add to their value (e.g., lower operating/fuel costs, lower maintenance costs, reduced noise pollution, and improved air quality in urban centres). Therefore, the City needs to think strategically about how to support and expand the growing EV market. Doing so will deliver on two key Council priorities: transportation and mobility; and environmental protection.

Electric bicycles (e-bikes[2]) have also emerged as a popular low-carbon technology with multiple benefits: GHG emissions reduction, support active transportation and reduced road congestion, and promoting health and well-being. This option is also more affordable for people that want to switch to low-carbon transportation but cannot afford an EV. The City can, therefore, think strategically about how to support and expand the growing e-bike market as well.

EV and E-bike Growth Trends

The market growth and environmental benefits for EVs is particularly strong in BC where close to 97 per cent of the electricity is generated from renewable energy.[3] Data from 2019 indicates EVs represent 8-10 per cent of overall automobile sales, depending on the quarter (Figure 1)[4]. In Kelowna the EV growth trend has been similar. There were **370 registered EVs in the city in 2019, compared to only 180 in 2018, and 110 in 2017**. The number of registered hybrids, however, has seen significantly less growth with 1,400 in 2019, 1,200 in 2018, and 1,100 in 2017.[5]

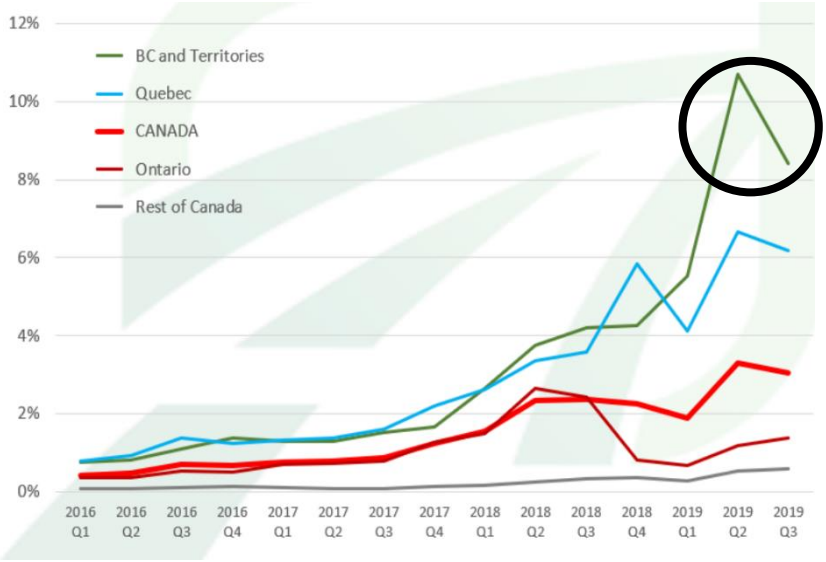

Figure 1: Market-share of zero-emission vehicles (ZEVs) across Canada

While sales of new vehicles overall were down 45 per cent in the second quarter of 2020 compared to 2019 as a result of COVID-19, sales of new EVs relative to total vehicle sales remains strong. It is

[2] An e-bike is defined as an electric bicycle with an electric motor of 500 watts or less and functioning pedals that are limited to a top speed of 32 km/h without pedaling.
[3] BC Hydro. 2020. Why BC is such a great place to drive an electric vehicle. Retrieved from: https://electricvehicles.bchydro.com/about/what-does-97-clean-mean.
[4] Electric Mobility Canada. 2019. Electric vehicle sales in Canada – Q3 2019. Retrieved from: https://emc-mec.ca/wp-content/uploads/EMC-Sales-Report-2019-Q3_EN_v2.pdf.
[5] Insurance Corporation of BC (ICBC). 2020. Active BC driver's licenses. Retrieved from: https://public.tableau.com/profile/icbc#!/vizhome/QuickStatistics-ActiveDrivers/ActiveBCDriversLicencesbyRegion.

projected that sales of EVs will outpace sales of diesel and gasoline powered vehicles by the mid-2030s, a trend that will be even more noticeable in BC as the provincial government scales up requirements to ensure all new vehicles sold in the province will be fully electric by 2040.[6]

The growing popularity of EVs can be attributed to a number of factors: the falling cost of EVs and EV battery packs; a growing number of EV models; a growing network of supportive charging infrastructure; supportive government policies and incentives; and more consumer confidence because of familiarity with EV technology.

While local, provincial, and national e-bike sales data is not readily available, bicycle distributors are struggling to match supply with growing demand. In the United States, e-bike sales increased by 85 per cent in March 2020 compared to 2019.[7] Locally, observations from the City's Integrated Transportation department indicate 8-10 per cent of current bike traffic across Kelowna's bike network is occurring on e-bikes.

Despite the multitude of benefits of EVs and e-bikes, many consumers continue to buy diesel or gasoline vehicles. Some of the most common barriers to EV and e-bike adoption, real or perceived, include:

- EVs:
    - Higher purchase cost than a traditional ICE vehicle
    - Lack of charging options ("range anxiety")
    - Limited availability of desired vehicles class
    - Limited availability of desired make and model
    - Lack of familiarity with EVs
- E-bikes:
    - Higher purchase cost than a regular bike
    - Lack of secure parking
    - Safety concerns
    - Limited availability

Scope of the Strategy

In general, local governments main role with EVs is to expand charging infrastructure; thus, the Community Low-Carbon Mobility Strategy will focus on supporting adoption of plug-in EVs only. Plug-in EVs include **battery electric vehicles (BEVs), extended-range electric vehicles (EREVs), and plug-in hybrid electric vehicles (PHEVs).** Appendix A describes the various types of vehicles and which are in/out of scope of the strategy. Appendix B describes the different types of EV chargers.

Due to the growing popularity of **e-bikes** and their potential to address several of the City's transportation priorities (i.e., reduce GHG emissions and promote active transportation), e-bikes are also in-scope of the strategy. The scope of the Community Low-Carbon Mobility Strategy is summarized in Table 1.

[6] Province of BC, Zero-Emission Vehicles Act, https://www2.gov.bc.ca/gov/content/industry/electricity-alternative-energy/transportation-energies/clean-transportation-policies-programs/zero-emission-vehicles-act.
[7] Goldbaum, C. 2020. Thinking of Buying a Bike? Get ready for a very long wait. NY Times. Retrieved from: https://www.nytimes.com/2020/05/18/nyregion/bike-shortage-coronavirus.html.

Table 1: Scope of the Community Low-Carbon Mobility Strategy: Electric Vehicles and E-bikes

In-Scope for Community Low-Carbon Mobility Strategy	Out-of-Scope of Community Low-Carbon Mobility Strategy		
	COK Fleet Low-Carbon Mobility Strategy	Provincial or Federal Government	Technology/Sector not Within Scope

• Plug-in EVs: BEVs, EREVs, and PHEVs
• E-bikes
• Charging Infrastructure
  • At home
  • At work
  • Public
• EV charger incentive top-ups
• Parking pricing
• Education and awareness
	• Charging Infrastructure for City Fleet
	• EV and e-bike purchasing for City Fleet
		• New EV purchase incentives
		• EV charger incentives
		• Fuel pricing
		• Fuel standards
		• Utility pricing and regulation
		• EV supply
			• Electrification of public transit or heavy-duty vehicles
			• Hydrogen fuel cell
			• Biofuels
			• Conventional Hybrid electric vehicles (HEVs)

The Community Low-Carbon Mobility Strategy is expected to be an evolving document. Therefore, as technology demonstrates strong local demand (e.g. hydrogen fuel-cell) and/or there is an increased role for local government, staff will consider updating the strategy as required.

Recommended Approach:

Local governments have six tools for action to support the transition to EVs: policy & regulation, infrastructure, collaboration & partnerships, incentives, education & awareness, and advocacy to other levels of government. In consideration of these tools, it is recommended that the strategy incorporate the recommended EV and e-bike initiatives presented in Table 2 below. See Appendix C for a more detailed description of each proposed initiative. Community engagement with stakeholders, scheduled for this Fall, will provide further guidance on action in the draft strategy.

Table 2: Recommended EV and E-bike actions

Category	Item	Timeframe*
Electric Vehicles (i.e., light-duty passenger vehicles)		
 Policy & Regulation	EV-Readiness requirements for new residential developments. See Appendix D for a description of readiness options.	Short
	EV-Readiness requirements for new commercial developments.	Short
	Continue to offer and investigate option for the Eco-Pass parking permit program.	Ongoing
	Investigate a fee structure for City-owned public chargers.	Medium
Infrastructure 	Expand the off-street public level 2 charging network.	Ongoing

	Explore on-street charging.	Ongoing
 Collaboration & Partnerships	Partner with FortisBC on an EV streetlamp charging pilot.	Short
	Partner with FortisBC to expand the Level 3 charging network.	Ongoing
	Work with Modo carshare to advance electrification of shared mobility.	Short-medium
	Establish a Regional Local Government EV Peer Network.	Short
 Incentives	Municipal top-up to provincial residential charging incentives.	Short
 Education & Awareness	Community engagement on strategy development (i.e., survey and focus groups).	Short
	Educate owners and managers of existing apartments and workplaces.	Short
	Create an EV Readiness best practices guide for new residential buildings.	Medium
	Use City channels to create awareness of EV benefits and programs.	Ongoing
 Advocacy	Advocate for "Right to Charge" legislation.	Short-Medium
E-bikes		
 Policy & Regulation	Assess the feasibility of e-bike charging requirements for new residential developments	Short
	Update local regulations to be more permissive of e-bikes	Short
 Infrastructure	Expedite the build-out of cycling infrastructure	Ongoing
	Pilot e-bike public chargers at strategic locations	Ongoing
	Explore secure public storage options for e-bikes	Short-Medium
 Incentives	Consider e-bike incentives for certain demographics	Short
	Implement an e-bike Purchase Loan Program for City of Kelowna employees	Short
	Community engagement on strategy development	Short
	Use City channels to create awareness of e-bike benefits and programs	Ongoing

Education & Awareness		

* Short = 0-2 years; Medium = 3-5 years; Ongoing = start time may vary but will continue on an annual basis for the foreseeable future.

Conclusion and Next Steps:

If Kelowna is to reduce GHG emissions, de-carbonizing the transportation sector is paramount. While the priority is getting people out of their automobiles, passenger vehicles will remain a dominant transportation mode for at least the next several decades. Electric vehicles can significantly reduce GHG emissions from the passenger vehicle sector in BC while providing many other benefits when compared to their gasoline and diesel-powered counterparts. Similarly, e-bikes have grown in popularity and have the additional benefit of promoting active transportation. These benefits along with a supportive policy landscape in BC have resulted in exponential growth in the EV sales market; a trend that is expected to continue. Thus, the City needs to think strategically about EV/e-bike expansion to help meet GHG emissions reduction targets, but also to support an already growing consumer base.

As summarized in Figure 2, **the next steps in the development of the Community Low-Carbon Mobility Strategy for EVs and e-bikes is to first engage with the community to identify barriers and solutions to EV and e-bike adoption.** Staff are planning a series of engagement activities (survey and focus groups) with relevant stakeholders this Fall. Once priority areas are identified and agreed upon, the Strategy will be finalized which will help support the shift to EVs and e-bikes in Kelowna. The Strategy is expected to be completed by Spring 2021.

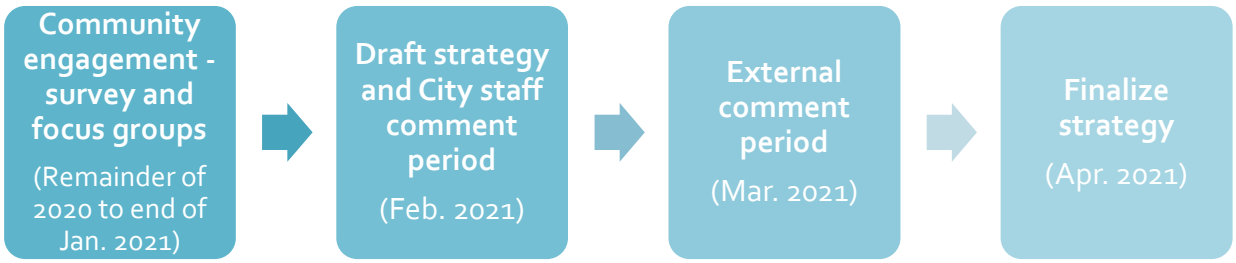

Figure 2: Next steps for completion of the Community Low-Carbon Mobility Strategy: Electric Vehicles and e-bikes

Internal Circulation:

Communications
Development Planning
Development Services
Infrastructure Operations
Integrated Transportation

Existing Policy:

- OCP 2030[8]
    - OCP Objective 6.2 - Improve energy efficiency and reduce community greenhouse gas emissions
    - OCP Policy 6.2.1 - *GHG Reduction Target and Actions*. The City of Kelowna will, in partnership with senior governments; local residents and businesses; NGOs; external agencies; and utility providers, work towards reducing absolute community greenhouse gas emissions by:
        - 4% below 2007 levels by 2023;
        - 25% below 2007 levels by 2033;
        - 80% below 2007 levels by 2050.
- Our Kelowna as We Take Action: Kelowna's Community Climate Action Plan[9]
    - Action T6: Develop an electric vehicle strategy
- Imagine Kelowna[10]
    - Take action in the face of climate change
- Council Priorities[11]
    - Greenhouse gas emissions are decreasing

Financial/Budgetary Considerations:

The community engagement scheduled for this Fall is being facilitated by a third party, the Community Energy Association. FortisBC has contributed $10,000, and the remainder is funded equally through the existing Policy & Planning's research budget ($6,250) and Fleet Services sustainability initiatives reserve ($6,250) for 2020.

Submitted by:

C. Ray, Community Energy Specialist

Approved for inclusion: D. Noble-Brandt, Dept. Manager, Policy & Planning

cc:
Divisional Director, Planning & Development Services
Development Services Director
Development Planning Department Manager
Planner Specialist
Strategic Transportation Planning Manager

[8] City of Kelowna. 2011. Kelowna 2030 – Official Community Plan: Chapter 6 – Environment. Retrieved from: https://apps.kelowna.ca/CityPage/Docs/PDFs/Bylaws/Official%20Community%20Plan%202030%20Bylaw%20No.%2010500/Chapter%2006%20-%20Environment.pdf.
[9] City of Kelowna. 2018. Our Kelowna as we take action: Kelowna's Community Climate Action Plan. Retrieved from: https://www.kelowna.ca/sites/files/1/docs/community/community_climate_action_plan_june_2018_final.pdf.
[10] City of Kelowna. 2018. Imagine Kelowna: the Visions to 2040. Retrieved from: https://www.kelowna.ca/sites/files/1/docs/related/imagine_kelowna_short_report_digital.pdf.
[11] City of Kelowna. 2019. Council Priorities 2019-2022. Retrieved from: https://www.kelowna.ca/sites/files/1/docs/council_priorities_2019-2022_summary.pdf.

Mobility Specialist
Infrastructure Operations Department Manager
Fleet Services Manager
Energy Program Manager
Sustainability Coordinator
Community Communications Manager