# Committee of the Whole Report
**For the Meeting of June 18, 2020**

| | | | |
|---|---|---|---|
| **To:** | Committee of the Whole | **Date:** | June 4, 2020 |
| **From:** | Karen Hoese, Director, Sustainable Planning and Community Development | | |
| **Subject:** | **Electric Vehicle (EV) Ready Requirements for New Construction** | | |

## RECOMMENDATION

That Council:

1. Direct staff to forward Zoning Amendment Bylaw Nos. 20-001 and 20-075 to require that Electric Vehicle (EV) readiness be provided for all new residential development and five percent of new institutional, commercial and industrial development to the July 9th Council meeting for introductory readings.
2. Direct staff to monitor EV demand and the use of charging infrastructure in institutional, commercial and industrial land uses and bring forward recommended amendments to the requirement levels as deemed necessary.

## EXECUTIVE SUMMARY

The purpose of this report is to present Council with information, analysis and recommendations for requiring electric vehicle (EV) charging infrastructure in new development. In 2019, Council directed staff to undertake a legal review and prepare a bylaw to mandate 'EV-Ready' capability in new buildings that provide on-site parking.

On-road transportation accounts for approximately 40% of greenhouse gas emissions in Victoria and readying new buildings for EVs through charging infrastructure is a critical structural change in responding to the climate emergency. These amendments are being made to support the rapid adoption of EVs that is being seen in the community, with growth rates in excess of 50 percent a year based on local EV sales, as well as supporting the *Climate Leadership Plan* target stating that "by 2030, renewable energy powers 30 percent of passenger vehicles registered in Victoria, and 100 percent of passenger vehicles are renewably powered by 2050."

These bylaw amendments will ensure all new residential and a portion of institutional, commercial and industrial development will be built to be EV-ready. This will allow for the easy and cost-effective installation of EV chargers by residents and businesses in the future. The proposed approach was developed reviewing municipal best practices, market trends and research. The recommendations strike a balance between ensuring a minimized upfront cost for new construction and minimizing retrofit costs in the future.

These amendments are part of a larger City strategy to support EV adoption including on-street EV network expansion and participation in "topping up" grants for EV retrofits in multi-unit residential

buildings as part of the Clean BC Home and Workplace EV Charging Program. Victoria will be engaging further with industry regarding the development of a comprehensive EV strategy which includes on-street parking, that will be presented to Council in late 2020.

As directed by Council, staff considered the impacts of these zoning changes on housing affordability. In consultation with non-profit housing providers, it was determined that there was value requiring EV readiness in new affordable housing projects as it provides cost savings in future. The City's zoning regulations were also recently updated to provide reduced requirements for off-street parking in affordable housing developments.

The proposed amendments not only support the *Climate Leadership Plan*, they also address Council's strategic priority to "mandate electric vehicle charging capacity in all new developments" by ensuring that all new developments have energized stalls. They also align with both federal and provincial policies for EV adoption, where each level of government is targeting one hundred percent of vehicle sales to be EV's by 2040. Lastly, these amendments support *Go Victoria*'s vision for low carbon and clean mobility in Victoria.

## PURPOSE

The purpose of this report is to present a recommended approach for EV charging infrastructure ('EV-ready') requirements in new residential, institutional, commercial and industrial development and to bring forward zoning bylaw amendments for Council's consideration.

## BACKGROUND

At the meeting of January 31, 2019, Council passed a motion to undertake the necessary legal review and prepare a bylaw for first reading mandating 'EV-Ready' capability in new buildings that provide on-site parking, and that staff consider a possible exemption for affordable housing.

## ISSUES & ANALYSIS

### Proposed EV-Ready Requirements

Currently there are no requirements in the BC Building Code or any other municipal plan or by-law that require EV charging in new construction. While green building certifications, such as LEED, have contributed to the growth of voluntary EV charging infrastructure and some building owners are voluntarily building with energized stalls and even charging stations, this is yet to become a norm. However, there are many recent local government policy examples for EV regulations in new development (see Attachment E).

*Category A: Residential Design Standard*

With the proposed bylaw amendments, all new residential development (including both single family and multi-unit residential buildings) will have energized parking stalls, facilitating easy and cost-effective access to electric vehicle charging at home. EV chargers (charging stations) would not be required at the time of development, but may be easily installed post-occupancy by the building or EV owner. Staff recommend that these amendments come into effect October 1, 2020 to allow the development industry time to adjust their design and financial assessments.

At-home charging is a crucial factor in household EV adoption, and therefore the measures outlined in this report are targeted primarily at residential uses. It is also the most convenient and lowest cost option to implement. Establishing EV readiness associated with institutional, commercial and industrial uses is only meant to augment this critical residential option.

Table 1: Proposed Residential Requirements

| Use or Class of Use | Minimum Number of Energized Electric Vehicle Outlets |
|---|---|
| Single Family Dwelling | 1 per required vehicle parking space |
| Two Family Dwelling | 1 per required vehicle parking space |
| Semi-attached Dwelling | 1 per required vehicle parking space |
| Secondary Suite or Garden Suite | N/A |
| All other residential uses not specifically identified in this table | 1 per vehicle parking space |

*Category B: Institutional, Commercial, and Industrial Design Standard*

With the proposed bylaw amendments, Victoria will increase the available public and workplace charging for EV owners on the go or without access to charging at home. The design standard will ensure that five percent of stalls in these types of buildings with stall requirements over 15 will be equipped with electrical infrastructure. This targets commercial uses such as shopping malls or offices where cars are parked for longer durations or where employees are present. As with residential, EV chargers would not be required at the time of development but may be easily installed post-occupancy by the building owner.

At present, there are conflicting views on the appropriate percentage of EV readiness in the commercial sector from consultants and EV advocacy groups, and best practices in this area are still being developed. While some local governments have set blanket requirements of 10% or 20% of stalls for commercial and/or institutional land uses, there have been some critiques from both industry and EV advocates that these percentages may exceed demand, or that the requirements are not specific enough to the actual land uses and may lead to the overbuilding of infrastructure in some locations. Consequently, Victoria and a team of other BC municipalities are conducting further research with funding from BC Hydro to determine the appropriate percentage of EV readiness requirements for different institutional, commercial and industrial building use classes, with the aim to increase the requirement over time and to determine which use classes are most appropriate for mandating the actual charging station as well. Staff will review the bylaw to increase commercial requirements for different use classes in the future. This will be done in conjunction with the District of Saanich and the Capital Regional District.

Table 2: Proposed Industrial, Commercial and Institutional Requirements

| Number of Vehicle Parking Spaces Provided | Minimum Number of Energized Electric Vehicle Outlets |
|---|---|
| <10 | N/A |
| 10-14 | 1 |
| >15 | 2 energized electric vehicle outlets or 5% of the total number of required vehicle parking spaces, whichever is greater |

Both of the City's zoning bylaws will need amendments to incorporate the above standards, including Zoning Bylaw 18-072, which applies to the Downtown Core Area, and Zoning Regulation Bylaw 80-159, which applies to the remainder of the City. The amendment bylaws are included as Attachments A and B to this report.

**Financial Considerations**

*Cost of EV-Ready Infrastructure*

The estimated costs across various development typologies and charging infrastructure types are listed in Table 3 below. These are provided for guidance only, as the cost estimates provided were prepared for the City of Richmond and are specific to the building types, driving distances and terrain in that region. The single family, townhouse and mid-rise building typologies used in Richmond's residential costing study are considered to be similar to construction commonly seen in the Capital Region.

Level 2 with EV Energy Management System is the policy/standard proposed. EV energy management systems (EVEMS) ensure that not all vehicles are charged directly at once. As such, it is lower cost because it requires less electrical capacity to the building.

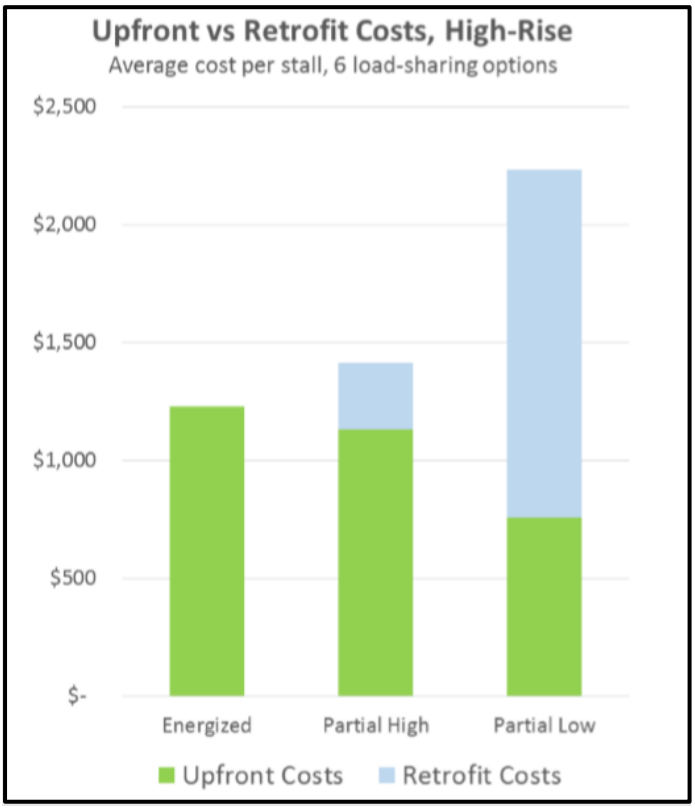
Table 3: Estimated EV-Ready Infrastructure Costs

| Building Type | Charging Scenario | Cost Per Stall |
|---|---|---|
| Single family / Two family semi-detached dwelling | Level 2 | $350 |
| Townhouse | Level 2 | $2655 |
| | Level 2 with EVEMS* | $307 |
| Mid-Rise | Dedicated Level 2 | $2381 |
| | Level 2 with EVEMS* | $569 |
| High-Rise | Dedicated Level 2 | $3023 |
| | Level 2 with EVEMS* | $760 |

Installing charging infrastructure at the time of construction is far more cost effective than retrofitting buildings with charging at a later date. The graph below illustrates the upfront and retrofit costs associated with:

- fully energizing all stalls at time of construction
- partially energizing stalls to a high level of adoption at the time of construction and then the associated retrofit costs with a lower number of stalls in the future
- partially energizing stalls at a low level of adoption during construction and having to significantly retrofit a high number of stalls in the future.

The graph below illustrates the importance of building fully energizing stalls at the time of construction to avoid high retrofit costs in the future by individuals, non-profits and strata councils.




*Affordable Housing Cost Considerations*

"Affordable Dwelling Units" have their own parking designation in Schedule C of the *Zoning Regulation Bylaw,* where considerably less parking is required for an affordable housing building as compared to a similar residential building, as indicated in Attachment C.

City staff, in consultation with BC Housing, considered the possibility of exempting affordable housing from these requirements. It was agreed that as the usable life of a building can span over 100 years, wiring affordable housing buildings in the present insulates residents and building owners/operators against costly retrofits in a future, and reduces demand on subsidies and grants from taxpayers in a future where EVs will be the only engine type available for purchase as of 2040. The financial implications would result in an added cost of around $569-$760 space; however, this is significantly less than retrofitting projects in the future.

*Provincial Incentive: CleanBC EV Charger Rebate Offers*

At present, Provincial rebates are available to support individuals, organizations, buildings, and companies with the cost of purchasing Level 2 chargers. This rebate program, together with City policy, further supports residents in full implementation of residential EV charging. Earlier this year, Victoria City Council approved a top-up to these rebates.

The level of rebates available from CleanBC differs in regard to whether a building was built before or after a municipal EV readiness bylaw was put into place. For buildings constructed after municipal bylaws, the program will cover up to 50% of purchase and installation costs of eligible, new, Level

2 (208-volt or 240-volt) charging stations to a maximum of $5,000 (no more than $350 per station). The City is offering $2,000 per charger or up to 75% of cost for multi-unit residential buildings.

**Engagement**

The Council motion directed staff to prepare a bylaw without additional public engagement and for the public hearing process to serve as the public engagement process. However, before the motion was tabled, in conjunction with the CRD and Saanich, Victoria participated in various sessions with developers and builders on the topic of EV regulations in new construction. During these events, a 100% standard for residential and 5% standard for commercial charging was proposed and was generally well received by the development community.

Engagement Events

| Project | Engagement Summary | # Participants |
|---|---|---|
| **Capital Region EV and E-Bike Infrastructure Planning Project** | Public Survey | 702 |
| | Development Industry Survey | 63 |
| | Development Industry Workshop, in collaboration with UDI | 60 |
| **Plugging the Gaps** | Presentations and workshop about EV charging retrofits for condo and apartment dwellers, in collaboration with CRD, City of Victoria, and Drive Electric Victoria | 24 |

**Regional Consistency**

In order provide consistency to builders and developers across the region, Victoria and Saanich have attempted to align their approaches to EV ready implementation. As a result, the consultation around bylaw development was in partnership, the percentage requirements for residential and commercial buildings are similar, and the definitions used in the bylaws are similar.

**OPTIONS & IMPACTS**

**Option 1 (Recommended)**

Proceed with zoning bylaw amendments to require Electric Vehicle (EV) readiness for all new residential development, including non-market housing, and five percent of new commercial development effective Oct 1, 2020.

This option is recommended because it will contribute to reduce transportation emissions in Victoria through the electrification of passenger vehicles. It is a critical component towards achieving market transformation of EVs within the municipality and supports the targets established by the Provincial and Federal Governments and is aligned with other BC local governments.

**Option 2**

Do not proceed with the zoning amendments.

This option is not recommended as it pushes the market transformation process into the future and adds considerable costs to EV readiness by having it occur as a retrofit to buildings instead of integrating it into new construction. It would also slow down emissions reductions in the transportation sector.

*Accessibility Impact Statement*

This bylaw amendment will apply to residential parking stalls evenly across Victoria, meaning that all accessible parking stalls will also be EV ready. In a commercial context, the City will not require all accessible parking stalls to be EV ready as only five percent of these stalls over a certain threshold will be EV ready.

*2019 – 2022 Strategic Plan*

This work supports *Strategic Objective 6 – Climate Leadership and Environmental Stewardship # 17 (2021): "Mandate electric vehicle charging capacity in all new developments."* While the proposed amendment does not mandate EV chargers in all new developments, it does mandate EV readiness through energized stalls. As described above, EV readiness creates the conditions for the easy and affordable installation of EV charging stations in 100% of residential parking spots and 5% of commercial parking spots.

*Impacts to Financial Plan*

No additional resources are needed for the bylaw amendments.

*Official Community Plan Consistency Statement*

This bylaw amendment aligns with OCP Section 7: "Transportation and Mobility and specifically GOAL 7 (A) Transportation options reduce fossil fuel dependence, help conserve energy and produce low greenhouse gas emissions and other air contaminants" (page 55).

**CONCLUSIONS**

This report outlines a recommended approach for requiring EV ready charging infrastructure in new building developments, with consideration of the impacts of these changes to non-market housing developments. EV readiness will contribute to reducing transportation emissions in Victoria through the electrification of passenger vehicles and supports the goals in the *Climate Leadership Plan* and *Go Victoria*. It is a critical component towards achieving market transformation of EVs within the municipality and supports the targets established by the Provincial and Federal Governments.

Respectfully submitted,

Robyn Webb
Community Energy Specialist
Community Planning Division

Karen Hoese, Director
Sustainable Planning and Community
Development Department

Report accepted and recommended by the City Manager: 

Date: June 10, 2020

**List of Attachments**

- Attachment A: Zoning Amendment Bylaw No. 20-001
- Attachment B: Zoning Amendment Bylaw No. 20-075
- Attachment C: Zoning Regulation Bylaw Schedule C: Off-Street Parking Regulations for Affordable Housing
- Attachment D: EV Infrastructure Types
- Attachment E: Local Government Examples
- Attachment F: Electric Vehicle Charging Infrastructure Technical Bulletin (2020).