

RR-1(c)



ADMINISTRATIVE REPORT

Report Date: June 13, 2017
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Meeting Date: June 27, 2017

TO: Vancouver City Council

FROM: General Manager of Planning, Urban Design and Sustainability, and
General Manager of Engineering Services

SUBJECT: Curbside Electric Vehicle Charging Pilot Program

RECOMMENDATION

- A. THAT Council approve the *Curbside Electric Vehicle Charging Pilot Program*, as summarized in Appendix A and direct staff to begin implementation of such program.
- B. THAT Council authorize, pursuant to Council's authority under subsection 289A(c) of the *Vancouver Charter*, the General Manager of Engineering Services, or his delegate, to enter into and execute license agreements, on such terms and conditions as may be acceptable to the Director of Legal Services, with each future applicant who is approved by the City in accordance with the *Curbside EV Charging Pilot Program*.
- C. THAT Council direct staff to report back in 2019 regarding the effectiveness of the program and proposed next steps.

REPORT SUMMARY

The purpose of this report is to seek approval of the *Curbside Electric Vehicle (EV) Charging Pilot Program*, as part of the broader *EV Ecosystem Strategy* that was adopted by Council in October 2016. Electric vehicle infrastructure is a critical component in shifting light-duty vehicles away from fossil fuels. While electric vehicle uptake continues to grow, one of the biggest barriers to widespread adoption is lack of access to convenient charging. Charging at, or near, home is particularly critical.

The City's preference for EV charging at home is that it be done on private property-- either on the driveway or in the garage. However, an estimated 2,000 one- and two-

family homes in Vancouver do not have access to off-street parking (referred to colloquially as “garage orphans”). Several “garage orphan” owners have installed EV charging outlets at the back of curb without the City’s approval, which had to be removed. Piloting a program to enable these residents to install a curbside EV charger will help to support the broader adoption of electric vehicles while ensuring the stations are installed according to safety standards.

In recent years, the City has also received requests from several businesses interested in installing curb-side EV charging stations in front of their properties, in the public realm, as a way of demonstrating corporate leadership. These stations would rely on power supplied by the business, but would be public and free to use.

The proposed *Curbside EV Charging Pilot Program* will help address the demand for both residential and non-residential curbside EV charging infrastructure, while supporting the adoption of electric vehicles through access to infrastructure. The *Curbside EV Charging Pilot Program* would consist of two streams:

1. Non-Residential - with a maximum of five installations for this pilot program.
2. Residential - with a maximum of fifteen installations for this pilot program.

The *Curbside EV Charging Pilot Program* would be open for applications for two years, with each installation permitted under a licensing agreement for a term of five years. Appendix A provides details of the pilot program requirements for the two streams. Appendix B provides the terms of the license agreement. Both pilot programs will be monitored throughout to measure the overall effectiveness of the program, as well as the support from surrounding homeowners and businesses, the result of which will be reported back to Council.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

Subsection 289A(c) of the *Vancouver Charter* authorizes the City to enter into license agreements with applicants approved by the City in accordance with the *Curbside EV Charging Pilot Program* to govern the construction, maintenance and use of EV chargers to be installed on City streets including the public boulevard alongside the curb.

In October 2016, Council adopted the *EV Ecosystem Strategy* which established 32 priority actions to be undertaken from 2016 to 2021 with the aim of achieving broader home, workplace and public charging opportunities for a growing EV market.

In November 2015, Council adopted the *Renewable City Strategy*, committing to derive 100 per cent of all energy used in Vancouver from renewable sources before 2050 and to reduce greenhouse gas emissions by 80 per cent from 2005 levels before 2050.

In August 2013, Council adopted new minimum requirements for all parking stalls in new one- and two-family homes, 20 per cent of parking stalls in multi-unit residential buildings, and ten per cent of parking stalls in new commercial buildings, such that they be equipped with a “Level 2” charging circuit under the *Vancouver Building Bylaw*.

In October 2012, Council adopted *Transportation 2040*, which includes actions to support electric vehicle deployment and the provision of charging infrastructure.

In July 2011, Council adopted the *Greenest City Action Plan*. Goal 9 (Clean Air) of the *Greenest City Action Plan* includes encouraging electric vehicle transport. Goal 2 of the *Greenest City Action Plan* included carbon reduction goals to reduce greenhouse gas emissions by 33 per cent by 2020 over 2007 levels.

In 2009, Council adopted requirements in the *Vancouver Building Bylaw* for electric vehicle charging circuits in new homes and multi-unit residential buildings. These were the first such requirements in North America.

CITY MANAGER'S/GENERAL MANAGER'S COMMENTS

Council approval of the *Curbside EV Charging Pilot Program* is an important step in implementing the *EV Ecosystem Strategy* and the *Greenest City Action Plan* by expanding the EV infrastructure network and enabling a broader market for electric vehicles. This effort, combined with other transportation efforts to promote and facilitate walking, bicycling and use of transit, will facilitate reducing our dependence on fossil fuels. Vancouver has learned from, and is building upon the efforts of other cities' use of electric vehicle networks. The City Manager supports the recommendations in this report.

REPORT

Background/Context

The *EV Ecosystem Strategy* builds on the *Greenest City Action Plan*, the *Renewable City Strategy*, the *2040 Transportation Plan* and nearly ten years of experience that the City has in electric vehicles and electric vehicle infrastructure. One of the early actions identified in the *EV Ecosystem Strategy* is to explore a curbside EV charging pilot program, as a way of enabling better access to charging infrastructure.

Shifting to electric vehicles not only reduces our greenhouse gas emissions, it provides direct benefits to our residents. EVs are quieter and reduce localized air pollution when compared to fossil fuelled vehicles. As well, EVs have significantly lower operating costs because the fuel is approximately one-fifth the price of gasoline and the maintenance cost is almost zero. The City buys EVs for our passenger fleet not only because it's environmentally sound, but because the lifecycle cost is lower than for gasoline-powered vehicles.

Strategic Analysis

Transportation accounts for 41% of total greenhouse gas emissions in Vancouver and is a significant source of air pollutants that can harm human health and the environment. To mitigate these impacts, the *Renewable City Strategy* and *Transportation 2040* both place significant emphasis on shifting transportation modes to walking, cycling and public transit; however, both strategies recognize that light-duty vehicles will continue to be important parts of the transportation system for the

foreseeable future. Therefore electrification is key, as our electricity is typically around 98% renewable.

The results of the City's public survey for the *EV Ecosystem Strategy* show Vancouverites being out ahead, with most stating that they are interested in making their next vehicle an electric one, provided key barriers - including reasonable, convenient access to charging infrastructure - are removed. The City currently has some of the most used EV charging stations in British Columbia. While this usage indicates that the stations are providing utility to the public, those stations may not be available to potential new users since they are already at capacity.

The *Curbside EV Charging Pilot Program* will support this by allowing residents and non-residential applicants to install charging infrastructure at their curbside, with minimal cost to the City. To date, the City has received a number of requests for a curbside program from both residents and businesses. In the past, some residents have illegally installed curb-side charging stations as a way of enabling them to charge at home (the stations were removed by the City for safety reasons). The pilot program supports the growth of home charging as per the *EV Ecosystem Strategy*, and the growth of public charging infrastructure in non-residential areas.

The *Curbside EV Charging Pilot Program* will be offered in two streams: one for non-residential applicants (e.g., retail businesses) and one for residential applicants. Under both streams, an applicant may apply to the City for the right to install an EV charger on City property in front of the applicant's home or business. Every accepted applicant would be required to enter into a license agreement with the City governing the use of City property and the EV charger. The license agreement would cover the key principles and terms set out in Appendix B and be subject to the approval of the City's Director of Legal Services.

Residential

The residential pilot program will be limited to "garage orphan" homeowners (one- and two-family homes with no access to off-street parking). In this case, a homeowner will be permitted to install a Level 1 or Level 2 charger (equivalent to a typical electrical outlet of 120V or 240V) at the back of curb, which will be fed from the house's utility panel. The charger will only be available to the homeowner. Parking will be limited to a maximum of three hours between 9am and 10pm; however the City reserves the right to amend the parking restrictions as required. The cost to buy, install, maintain and remove the EV charger will be borne by the homeowner. The homeowner will be required to enter into a license agreement with the City and the City will retain the right to remove the station. Neighbours within the residential block will be notified prior to the installation.

Non-Residential

For non-residential applications (e.g., retail businesses), the applicant will be enabled to install an EV charging station in front of their business that will be fed off the business's power supply. Charging will be available to the public and free of charge (under the B.C. Utilities Act, a private company can't resell

electricity). The parking space will be metered, to ensure reasonable turnover at the charging station. The cost to buy, install, maintain and remove the EV charger will be borne by the applicant. Advertising will not be permitted. Accepted applicants will be required to enter into a license agreement with the City and will be responsible for all costs of installation and maintenance. Adjacent businesses will be notified prior to the installation.

If approved, the pilot program will be offered for two years, with a five-year term for the license agreements. Staff will report back to Council in 2019, after the application period for the pilot program has closed, with respect to the effectiveness of the program. Appendix A provides a more detailed description of the pilot program. Appendix B sets out the key principles and terms that will be covered by the license agreement that each accepted program applicant will be required to enter into. Application guidelines and a license agreement template, with terms and conditions satisfactory to the Director of Legal Services, will be developed after Council approves the pilot program.

Implications/Related Issues/Risk (if applicable)

Financial

The Curbside EV Charging Pilot Program is expected to generate up to \$4000 of license fees during the pilot period (\$200 per license x 20 installations). All applicants are responsible for the cost to buy, install, maintain and remove the EV charger, as well as to carry appropriate insurance coverage as outlined in Appendix A.

Human Resources/Labour Relations

Management of the existing and planned EV infrastructure network will require staff time for proposal review, legal review, site inspections and administration; however this will be managed within existing lines of business processes. At this time no additional positions are expected to be required in support of this program.

Environmental

One of the key reasons for encouraging widespread adoption of electric vehicles is to create a more environmentally sustainable city. Transportation accounts for 41% of the carbon pollution emitted in Vancouver, and it has significant impacts on local air quality. Electric vehicles produce no tailpipe emissions, and because the BC Hydro electrical grid is amongst the cleanest in North America (in 2015, it generated 97.4% of its electricity from renewable sources) EVs have the potential to significantly reduce greenhouse gas emissions. Health benefits from cleaner air will benefit the poorest in society the most, as they are often the most negatively impacted by pollution.

Legal

A license agreement covering the key principles and terms set out in Appendix B and that is satisfactory to the City's Director of Legal Services will be developed for the *Curbside EV Charging Pilot Program*. The term of the agreement would be for five years.

Risks

Staff are recommending a pilot for this program in order to monitor and adjust the program, as to date there have only been two other curbside charging programs in North America, with varying success. The target of 15 stations for the residential program and five for the non-residential have been set as a way of limiting the City's risk, while enabling a meaningful number with which to evaluate. Staff will monitor for issues such as parking and maintenance issues, as well as for uptake and overall satisfaction of the applicants. The number of pilot installations may be increased if warranted by demand. Staff will then report back to Council at the conclusion of the two-year pilot with the results and recommendations on next steps.

CONCLUSION

The *Curbside EV Charging Pilot Program* provides an opportunity for residents and businesses who wish to grow the adoption of electric vehicle through the installation of EV charging infrastructure. The program will expand the EV charging network at no cost to the City, and in a way that limits risk and liability. The installation of charging infrastructure supports the *EV Ecosystem Strategy* vision of creating more community amenities that will accelerate the electrification of light-duty vehicles, create new economic opportunities and is integral to achieving the City's goal of deriving 100 per cent renewable transportation before 2050.

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Appendix A - Vancouver's Curbside EV Charging Pilot Program

The *Curbside EV Charging Pilot Program* will consist of two streams:

1. Non-Residential - with a maximum of 5 installations for this pilot program.
2. Residential - with a maximum of 15 installations for this pilot program.

Under either stream, an applicant may apply to the City for the right to install an EV charger on City property in front of the applicant's business or home. Accepted applicants would be required to enter into a license agreement with the City governing the use of City property and the EV charger. Each license agreement will cover the key principles and terms set out in Appendix B and will be subject to the approval of the City's Director of Legal Services.

The *Curbside EV Charging Pilot Program* would be open for applications for two years, with each installation to be permitted under a licensing agreement for a term of five years. The details of the two streams are outlined below:

<i>Curbside EV Charging Pilot Program</i>	Non-Residential Applicants	Residential Applicants* *Only if off-street parking cannot be accommodated
Level of Charger Allowed	Dual port Level 2 and DC Fast Charging Station	Single port 120V (Level 1) or 240V (Level 2) outlet
Number of Installations allowed for pilot	5 installations	15 installations
Duration of installation term	5 years	5 years
Licensing Agreement With	Property owner	Property owner
License Fee	\$200 one-time payment	\$200 one-time payment
Parking Restrictions	Restricted to electric vehicles and will be metered	Parking limited to 3hrs max between 9am and 10pm
EV Charger Access	Public access and free charging	Only homeowner/applicant has access via lockbox to control power
Notifications	BIA notification prior to installations	Neighbourhood notification prior to installations
Installation Costs	Business takes responsibility	Homeowner takes responsibility
Ownership and Maintenance	Business owns and maintains	Homeowner takes responsibility
Insurance Requirements	Min. \$2M Commercial liability insurance, naming the City of Vancouver as Additional Insured	Min. \$2M homeowner liability insurance, naming the City of Vancouver as Additional Insured

Appendix B - List of Key Principles and Terms to be covered in a License Agreement

1. *Costs of EV Charger:* Applicant will be responsible for the costs of the EV charger, installation of the EV charger, all electricity costs and all costs and expenses to maintain or repair the EV charger for the duration of the term of the pilot.
2. *City approval of EV Charger:* Applicant will obtain the approval of the City in respect of the type of EV charger proposed to be installed.
3. *Use of EV Charger:* Residential applicant will have exclusive use of the EV charger. Non-residential Applicants must allow the EV charger to be used by any member of the public for free.
4. *Safe operation of EV Charger:* Applicant must comply with all requirements of the City and all applicable laws to ensure the safe operation of the EV charger.
5. *Payment of City License Fee:* Applicant will be required to pay the City's license fee.
6. *Installation of EV Charger:* Applicant must comply with all applicable laws, including all City by-laws and inspections, in respect of the installation of the EV charger and shall provide to the City copies of any plans, designs, drawings or other information reasonably requested by the City for approval or other City purposes.
7. *Liability caused by EV Charger:* Applicant will be liable for any property damage or injury caused by the EV charger to a third party and will indemnify the City against any legal claims against the City by such third parties.
8. *Requirement for Insurance:* Applicant will be required to add third party liability insurance to their homeowner's insurance policy and to add the City as an additional insured party under such policy.
9. *Upkeep of EV Charger:* Applicant will be required to maintain and repair the EV charger to a reasonable standard set out in the license agreement.
10. *Use of City property:* There will be terms governing the use of the City boulevard upon which the EV charger will be installed.
11. *Parking in front of EV charger:* Applicant must comply with any parking restrictions that will be applicable under the pilot program in respect of the portion of street in front of the EV charger.
12. *Security to ensure compliance with license agreement:* The City will require appropriate security to ensure the Applicant complies with their obligations under the license agreement. If the Applicant defaults on any requirements of the license agreement the City will have appropriate remedies.

13. *If Applicant sells home/business:* If Applicant sells their home or business before the expiry of the license agreement, the City may, in its sole discretion, permit any one of the following:
- a. if Applicant moves to another house or business property in the City of Vancouver, the City may permit the Applicant to move the EV charger to the new location provided it is at Applicant's expense and Applicant otherwise complies with all other terms of the license agreement;
 - b. if the buyer of Applicant's house or business property wishes to assume ownership of the EV charger and is otherwise capable of complying with all other terms of the license agreement, the City may allow the license agreement to be assigned to the new owner; or
 - c. if neither of the above scenarios is applicable, the City may permit Applicant to terminate the license agreement.
14. *Term of license agreement:* The term of the license agreement will be for 5 years. The City will have the right to terminate the license agreement if Applicant does not comply with its terms.
15. *Responsibility at the end of Pilot:* Applicant will be responsible for removing the EV charger from City property at their expense.