



City of Richmond

Report to Committee

To: General Purposes Committee **Date:** November 20, 2019
From: Peter Russell **File:** 10-6460-03/2019-Vol 01
 Director, Sustainability and District Energy
Re: **Parking Stall Fees at City-Owned Electric Vehicle Charging Stations**

Staff Recommendations

1. That, as described in the staff report titled, "Parking Stall Fees at City-Owned Electric Vehicle Charging Stations" dated November 20, 2019, from the Director, Sustainability and District Energy, a cost recovery approach for public electric vehicle charging be introduced, and:
2. That each of the following Bylaws be introduced and given first, second and third readings in order to implement parking stall fees, including new ticketing provisions:
 - a) Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9926;
 - b) Traffic Bylaw No. 5870, Amendment Bylaw No. 9924;
 - c) Parking (Off-Street) Regulation Bylaw No. 7403, Amendment Bylaw No. 9923; and
 - d) Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9925.
3. That the Consolidated 5 Year Financial Plan (2020-2024) be amended accordingly.
4. That the creation of a PCC and regular full-time position be brought forward for consideration in the 2021 budget process following analysis of operational demand in 2020.

Peter Russell
 Director, Sustainability and District Energy
 (604-276-4130)
 Att. 2

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Law	<input type="checkbox"/>	
Fleet	<input type="checkbox"/>	
Finance	<input type="checkbox"/>	
Community Bylaws	<input type="checkbox"/>	
Transportation	<input type="checkbox"/>	
Communications	<input type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

During the May 18, 2018 Council meeting, Council made the following referral:

(3) a cost recovery approach to impose user fees and time limits for publicly accessible electric vehicle charging stations be endorsed as outlined in the report, and that staff be directed to bring forward amendments to the Consolidated Fees Bylaw No. 8636, the Traffic Bylaw No. 5870, Parking (Off-Street) Regulation Bylaw No. 7403, and the Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122 to implement this cost recovery approach”.

This report supports Council’s Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.

2.1 Continued leadership in addressing climate change and promoting circular economic principles.

2.2 Policies and practices support Richmond's sustainability goals.

Richmond’s 2014 Community Energy and Emissions Plan (CEEP) outlines strategies and actions for the City to reduce community energy use and GHG emissions, including:

- Strategy 7: Promote Low Carbon Personal Vehicles; and,
- Action 19: Continue expanding the City-owned network of electric vehicle (EV) charging stations.

Modeling undertaken as part of the CEEP indicates Richmond’s 2050 emissions reduction targets can only be achieved with the near-universal adoption of zero emissions personal vehicles by the 2040s, in addition to increasing transit ridership, walking, bicycling, car/ride sharing, and other transportation modes. Staff are currently renewing the CEEP, per Council direction; and it is not anticipated that these directions will be amended.

Analysis

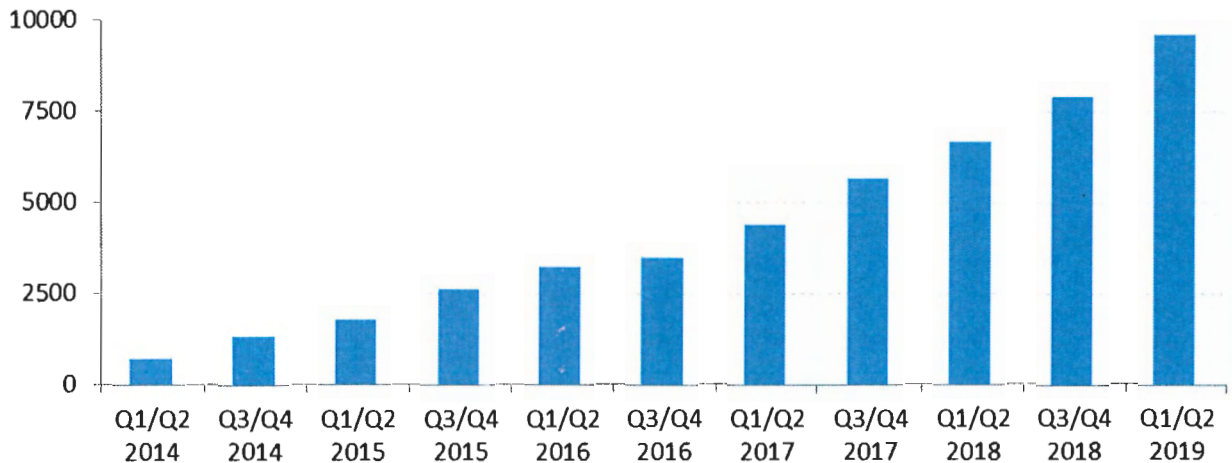
Current and Planned City-Owned EV Charging Services

Council recently approved the expansion of Public Level 2 Electric Vehicle (EV) charging in 2019 (“Public EV Charging Expansion – 2019 Funding Application to Natural Resources Canada”, dated August 16, 2019) and Direct Current (DC) Fast Chargers on May 18, 2018. Staff were able to double the approved funding for DC Fast Chargers through a Natural Resources Canada (NRCAN) funding program. A decision regarding a second grant from NRCAN for Level 2 charger funding is still pending. Staff anticipate that the design, installation and commissioning

of the additional Level 2 and DC Fast Charging infrastructure at City locations will begin in 2020. See Attachment 1 for a list of existing and planned city-owned, public EV charging locations.

The scale of current and planned infrastructure, at this stage, would not be classified as a service provider similar to refueling stations for internal combustion engine vehicles. The current approach would better be described as a customer service approach; that is, if you park at a city facility, EV charging services will be available. As a policy measure to encourage EV adoption, the City has not been requiring payment for use of City-owned public charging stations nor for parking where these services are available. Utilization of City-owned EV charging stations however has doubled over the past two years, from 4,400 sessions in Q1/Q2 2017 up to 9,600 sessions in Q1/Q2 2019 (Figure 1). With rising EV ownership, demand for on-the-go charging is causing congestion at some City-owned public Level 2 EV charging stations.

Figure 1: Number of Sessions per Month since January 2014



An EV charging session has two main components: the period that the car is actively charging and idle time that the car is plugged in but not charging as it is fully charged. Long idle times mean that stations are not being fully utilized and are unavailable to other users. Pricing policies and notifications can encourage drivers to make the chargers available for other users. Data shows that approximately 30% of time spent at City-owned public EV charging stations occurs after the battery is full. The average charging session length is 2 hours and 10 minutes; however, average idle time is currently over an hour.

City staff forecast substantial growth in Richmond electric vehicle ownership over the next decade, driven by provincial and federal incentives for zero emission vehicles and a provincial policy mandate, as well as increasing numbers of residential and commercial buildings with electric vehicle charging infrastructure in parking stalls. Predicted growth of EV ownership in Richmond is shown in Table 1.

Table 1: Predicted Growth in Electric Vehicle Ownership in Richmond Units

	Units
2018	750
2019	1750
2020	3420
2021	5488
2022	8133
2023	> 10000

Proposed EV Charging Rates for City-Owned Public Sites

The proposed user fees for City-owned public EV charging stations are guided by the following principles:

- Increase turnover, accessibility and equitable access to City charging infrastructure;
- Rates that encourage the transition to electric vehicles;
- Ensure customer service excellence and prompt resolution of technical issues that arise;
- Encourage home charging as the preferred option, where home charging exists; and,
- Rates that recover operating, maintenance, replacement and utility costs on an annual basis.

Earlier this year, the British Columbia Utilities Commission (BCUC) established an Inquiry into the Regulation of Electric Vehicle Charging Service. BCUC made recommendations to the BC government that public EV charging service providers should be permitted to resell electricity for the purposes of EV charging without being considered a regulated utility under the Utilities Commission Act. This would allow the service provider to set rates to cover capital costs, operating and maintenance costs and set rates at their discretion based on usage. For simplicity however, the trend regionally has been to charge for parking services rather than electricity.

The following proposed parking rates consider the above where both Level 2 and DC Fast Charging stations are located:

- **Level 2 Charging** (up to 30 km of range per charging hour, 4 to 6 hours for full charge):
 - \$2 per hour for the first 2 hours,
 - \$5 per hour after 2 hours
- **DC Fast Charging** (up to 200 km of range per charging hour, 0.5 to 1 for full charge):
 - \$8 Per hour (25kW)
 - \$16 per hour (50kW)

Note that fees are calculated by total minutes during an active charging session (i.e., charging session activated by the user by tapping a card or mobile application). According to the City of Vancouver and City of Los Angeles, higher rate will increase the turnovers. Staff will monitor usage patterns and recommend rate structure adjustments over time, as needed.

For comparison purposes, the following provides context for the City's proposed DC fast charging rates.

Table 2: Regional DC Fast Charging Rates

Organisation	DC Fast Charging Rate
City of Vancouver	\$16.00/hour
Fortis BC	\$18.00/hour
City of Richmond Proposed Rate	\$16.00/hour

Charging stations are enabled to use the charging device for collecting user parking fees. Attachment 2 describes the user experience for accessing charging stations.

Given the planned and continuing expansion of electric charging infrastructure, staff anticipate a full-time position will be required in 2021 to maintain the infrastructure. Further assessment during 2020 will be undertaken to assess this requirement as well as operating/maintenance requirements and revenues. Should this assessment confirm the need for a regular full-time position, it is expected that the associated costs will be fully recoverable through the proposed cost recovery approach.

Public Communications

The proposed effective date for applying fees is March 1, 2020, subject to the approval of bylaws in this report, to allow time for the public to be notified. City staff will inform the public prior to implementing new user fees through the following means:

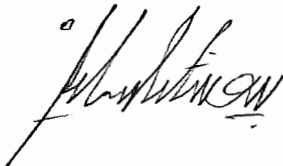
- Signage will be posted adjacent to EV charging stations at each location;
- The charging stations display will be updated to show the rate structure;
- Online posts at Richmond.ca and EV infrastructure mapping sites like Chargepoint.com, Chargehub.com and plugshare.com outlining new pricing; and,
- Regular social media reminders.

Financial Impact

The proposed fee structure is anticipated to recover all costs related to annual software subscription fees, credit card fees, utility costs and other operational and maintenance costs. Based on projections, the total estimated revenue in 2020 is \$178,000 with the net estimated revenue of \$75,000. Operating costs for 2020 are estimated to be \$103,000, and would be funded through existing budgets for 2020 only. Usage and revenues will be assessed throughout 2020 to better refine estimates for 2021 and future years.

Conclusion

Staff are recommending that parking fees be implemented where City-owned public electric vehicle charging stations are available effective March 1, 2020. Fees have been set with the intention of increasing turnover, reducing average idle time at stations and encouraging EV drivers to preferentially charge at home or in the workplace, if that option is available. Staff will implement a communications program to create awareness of the new fees. The proposed fees take into consideration cost recovery for electricity, annual operation and maintenance associated with existing and planned public charging stations.



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Attachment 1: Approved & Planned Future Stations for Public Use
Attachment 2: User Experience

Attachment 1
Approved & Planned Future Stations for Public Use

Station Location	Address	No. of Ports (Parking Stalls)	Type of Station	
			Level 2	Level 3
Public Use – Charging Stations				
City Hall	6911 No. 3 Rd	2	✓	
Firehall 1	6960 Gilbert Rd	2	✓	
Thompson CC	5151 Granville Ave	2	✓	
Steveston CC	4111 Moncton St	2	✓	
Cambie CC	12800 Cambie Rd	2	✓	
Minoru Centre for Active Living	7191 Granville Ave	4	✓	
Approved Stations (2017 Capital Budget - CE000025)				
City Hall	6911 No. 3 Rd	1		✓
City Hall	6911 No. 3 Rd	2	✓	
Richmond Oval	6111 River Rd	1		✓
Richmond Oval	6111 River Rd	2	✓	
Future Planned Stations				
King George Park ⁴	4100 No 5 Rd	1		✓
King George Park ⁴	4100 No 5 Rd	2	✓	
Richmond Ice Centre ⁴	14140 Triangle Rd	1		✓
Richmond Ice Centre ⁴	14140 Triangle Rd	2	✓	
Steveston Tennis Courts ⁵	4151 Chatham St	2	✓	
West Richmond Community Centre ⁵	9180 No 1 Rd	4	✓	
Britannia Heritage Ship Yards ⁵	5180 Westwater Dr	4	✓	
Garden City Park	6620 Garden City Rd	2	✓	
Minoru Park (Arenas) ⁵	7551 Minoru Gate	2	✓	
South Arm Community Centre ⁵	8880 Williams Rd	2	✓	
Blundell Park ⁵	6468 Blundell Rd	2	✓	
Hamilton Community Centre ⁵	5140 Smith Dr	2	✓	
TOTAL		46		

Attachment 2 User Experience

Users can easily start a charging session with a member card, using a mobile application with an RFID credit card or by calling driver support. A driver support number is listed on each station and on the back of the member's card.



There are three ways to start a charging session:

- *Tap to charge.* With the app installed, a user can start a charging session by holding their phone over the reader symbol on the station provided they have the app installed on their device and are signed in to their account.
 - *iPhone:* In the app, go to Menu, select Account and then Manage Cards. Pick set it up, add pass to Apple Wallet and tap phone on the station to charge.
 - *Android:* Enable NFC, turn phone screen on and tap your phone on the station to charge.
- *Start charging from the app.* Choose the station and click the Start Charge button.
- *Use member card.* Users can just tap an activated card on the card reader symbol on the station.



Parking (Off-Street) Regulation Bylaw No. 7403
Amendment Bylaw No. 9923

The Council of the City of Richmond enacts as follows:

- 1. Parking (Off-Street) Regulation Bylaw No. 7403, as amended, is further amended by deleting the text in subsection 1.1(b) and replacing it with "City EV parking stalls".
2. Parking (Off-Street) Regulation Bylaw No. 7403, as amended, is further amended by adding the following as a new section 3.5:

3.5 City EV Parking Stalls

- 3.5.1 A person must not stop, stand or park a vehicle, other than an electric vehicle, in a City EV parking stall
3.5.2 A person may only park an electric vehicle in any of the City EV parking stalls for the duration of a charging session, and must pay the applicable parking rates to the City through the EV Supply Equipment payment system.
3.5.3 The parking rates payable for parking and charging an electric vehicle in a City EV parking stall are set out in the City's Consolidated Fees Bylaw No. 8636.

- 3. Parking (Off-Street) Regulation Bylaw No. 7403, as amended, is further amended at Section 8.1 - "[Interpretation]" by inserting the following definitions in alphabetical order:

Charging Session means the period of time an electric vehicle is connected to the EV supply equipment, commencing once the owner or occupant of the electric vehicle has authorized payment of the City's applicable parking rates through the EV supply equipment payment system, and terminating once the elector is no longer connected to the EV supply equipment.

City EV Parking Stall means an EV parking stall located on land owned, leased, or licensed by the City, and/or fitted with EV supply equipment owned or leased by the City.

Electric Vehicle means a vehicle that uses electricity for propulsion, and that can use an external source of electricity to charge the vehicle's batteries.

EV Supply Equipment

means a complete assembly consisting of conductors, connectors, devices, apparatus, and fittings installed specifically for the purpose of power transfer and information exchange between a branch electric circuit and an **electric vehicle**, including the ability to collect authorized payments of the applicable parking rates.

EV Parking Stall

means a **parking stall** or portion of a **street** marked as "EV Only" and featuring **EV supply equipment** capable of providing charging services to an **electric vehicle**."

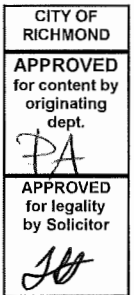
- 4. This Bylaw is cited as "**Parking (Off-Street) Regulation Bylaw No. 7403, Amendment Bylaw No. 9923**".

FIRST READING

SECOND READING

THIRD READING

ADOPTED



MAYOR

CORPORATE OFFICER



Traffic Bylaw No. 5870
Amendment Bylaw No. 9924

The Council of the City of Richmond enacts as follows:

- 1. Traffic Bylaw No. 5870, as amended, is further amended at Section 1 – “[Interpretation]” by inserting the following definitions in alphabetical order:

“Charging Session means the period of time an electric vehicle is connected to the EV supply equipment, commencing once the owner or occupant of the electric vehicle has authorized payment of the City’s applicable parking rates through the EV supply equipment payment system, and terminating once the electric vehicle is no longer connected to the EV supply equipment.

City EV Parking Stall means an EV parking stall located on land owned, leased, or licensed by the City, including road, and/or fitted with EV supply equipment owned or leased by the City.

Electric Vehicle means a vehicle that uses electricity for propulsion, and that can use an external source of electricity to charge the vehicle’s batteries.

EV Supply Equipment means a complete assembly consisting of conductors, connectors, devices, apparatus, and fittings installed specifically for the purpose of power transfer and information exchange between a branch electric circuit and an electric vehicle, including the ability to collect authorized payments of the applicable parking rates.

EV Parking Stall means a parking stall or portion of a street marked as “EV Only” and featuring EV supply equipment capable of providing charging services to an electric vehicle.”

- 2. Traffic Bylaw No. 5870, as amended, is further amended at Section 12 – “[Parking and Stopping of Vehicles]” by deleting subsection 12.4(n) and replacing it with the following:

“(n) other than an electric vehicle, in an EV parking stall;”

3. **Traffic Bylaw No. 5870**, as amended, is further amended by inserting the following as new section 12D:

“12D. Electric Vehicle Parking

12D.1 The **City** may designate any **street** or part of the **street** for the reserved **parking** only of **electric vehicles** by posting on the **street** signs indicating a prohibition on **parking** except for an **electric vehicle** in the **City EV parking stalls**.

12D.2 A person may **park** an **electric vehicle** in any **City EV parking stall** under the following conditions:

(a) a **charging session**, for which the person pays the applicable user fees to the **City** through **EV supply equipment** payment system, has been initiated and is continuing; and

(b) the **electric vehicle** complies with all other **parking** restrictions that apply in that area.

12D.3 The general allocation of **City EV parking stalls** on the **street** will be based on a first-come, first-served basis.

12D.4 The user fee for **parking** in a **City EV parking stall** during a **charging session** are set out in the **City’s Consolidated Fees Bylaw No. 8636**.”

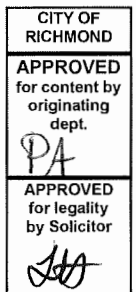
4. This Bylaw is cited as **“Traffic Bylaw No. 5870, Amendment Bylaw No. 9924”**.

FIRST READING

SECOND READING

THIRD READING

ADOPTED



MAYOR

CORPORATE OFFICER



**Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122,
Amendment Bylaw No. 9925**

The Council of the City of Richmond enacts as follows:

1. Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, as amended, is further amended by adding the table in Schedule A attached to and forming part of this Bylaw in Section number order to Schedule – Parking (Off-Street) Regulation Bylaw No. 7403 (2002).
2. Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, as amended, is further amended by adding the table in Schedule B attached to and forming part of this Bylaw in Section number order to Schedule – Traffic Bylaw No. 5870 (1992).
3. This Bylaw is cited as “**Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122, Amendment Bylaw No. 9925**”.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

CITY OF RICHMOND
APPROVED for content by originating dept.
PA
APPROVED for legality by Solicitor
<i>[Signature]</i>

MAYOR

CORPORATE OFFICER

SCHEDULE A to BYLAW NO. 9925

Schedule - Parking (Off-Street) Regulation Bylaw No. 7403 (2002) Designated Bylaw Contraventions and Corresponding Penalties							
A1 Bylaw	A2 Description of Contravention	A3 Section	A4 Compliance Agreement Available	A5 Penalty	A6 Early Payment Option	A7 Late Payment Amount	A8 Compliance Agreement Discount
Parking (OffStreet) Regulation Bylaw No. 7403 (2002)	Period of Time from Receipt (inclusive)		n/a	29 to 60 days	1 to 28 days	61 days or more	n/a
	Parking in a City EV parking stall, other than an EV Vehicle Parking in a City EV parking stall when not engaged in a charging session (incl. payment of parking rates)	3.5.1 3.5.2	No No	\$ 75.00 \$ 75.00	\$ 65.00 \$ 65.00	\$ 110.00 \$ 110.00	n/a n/a

SCHEDULE B to BYLAW NO. 9925

Schedule - Traffic Bylaw No. 5870 (1992)							
Designated Bylaw Contraventions and Corresponding Penalties							
A1 Bylaw	A2 Description of Contravention	A3 Section	A4 Compliance Agreement Available	A5 Penalty	A6 Early Payment Option	A7 Late Payment Amount	A8 Compliance Agreement Discount
Traffic Bylaw No. 5870 (1992)	Period of Time from Receipt (inclusive)		n/a	29 to 60 days	1 to 28 days	61 days or more	n/a
	Parking in a City EV parking space, other than an EV Vehicle	12.4(n)	No	\$ 75.00	\$ 65.00	\$ 110.00	n/a
	Parking in a City EV parking stall when not engaged in a charging session (incl. payment of user fees)	12D.2(a)	No	\$ 75.00	\$ 65.00	\$ 110.00	n/a



**CONSOLIDATED FEES BYLAW NO. 8636,
AMENDMENT BYLAW NO. 9926**

The Council of the City of Richmond enacts as follows:

1. The **Consolidated Fees Bylaw No. 8636**, as amended, is further amended by adding Schedule A attached to and forming part of this bylaw to "SCHEDULE – PARKING (OFF-STREET) REGULATION" to Consolidated Fees Bylaw No. 8636.
2. The **Consolidated Fees Bylaw No. 8636**, as amended, is further amended by adding Schedule B attached to and forming part of this bylaw to "SCHEDULE – USE OF CITY STREETS" to Consolidated Fees Bylaw No. 8636.
3. This Bylaw is cited as "**Consolidated Fees Bylaw No. 8636, Amendment Bylaw No. 9926**".

FIRST READING

SECOND READING

THIRD READING

ADOPTED

CITY OF RICHMOND
APPROVED for content by originating dept. <i>PA</i>
APPROVED for legality by Solicitor <i>JS</i>

MAYOR

CORPORATE OFFICER

PARKING (OFF-STREET) REGULATION Bylaw No. 7403
EV Charging – City EV Parking Stall User Fees
 Section 3.5.3

Description	Fee
<u>Charging Level of EV Supply Equipment</u>	<i>Per minute</i>
Level 2 – 3.1kW to 9.6kW Charging Session Parking Rate	Initial 2 hrs: \$0.0333/min (\$2.00/hr) After 2 hrs: \$0.08325/min (\$5.00/hr)
Level 3 – 25kW Charging Session Parking Rate	\$0.1333/min (\$8.00/hr)
Level 3 – 50kW Charging Session Parking Rate	\$0.2666/min (\$16.00/hr)

SCHEDULE – USE OF CITY STREETS

Traffic Bylaw No. 5870
EV Charging – City EV Parking Stall User Fees
 Section 12D.4

Description	Fee
<u>Charging Level of EV Supply Equipment</u>	<i>Per minute</i>
Level 2 – 3.1kW to 9.6kW Charging Session User Fees	Initial 2 hrs: \$0.0333/min (\$2.00/hr) After 2 hrs: \$0.08325/min (\$5.00/hr)
Level 3 – 25kW Charging Session User Fees	\$0.1333/min (\$8.00/hr)
Level 3 – 50kW Charging Session User Fees	\$0.2666/min (\$16.00/hr)