



January 8, 2017

**TO:** Park Board Chair and Commissioners  
**FROM:** General Manager - Vancouver Board of Parks and Recreation  
**SUBJECT:** Electric Vehicle Charging Stations - New Park Board Locations

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## RECOMMENDATION

**THAT** the Vancouver Park Board approve the installation and operation of new electric vehicle charging stations at Dunbar, Killarney, and Trout Lake Community Centres, with all work and costs managed by the City of Vancouver, to the satisfaction of the Park Board General Manager.

## BOARD AUTHORITY / PREVIOUS DECISIONS

As per the Vancouver Charter, the Park Board has exclusive jurisdiction and control over park land use in the City of Vancouver, including any structures, programs and activities, fees and improvements that occur within parks.

The Park Board's [Strategic Framework](#) includes commitments to sustainability through "Leader in Greening" as well as "Excellence in Resource Management" as priority directions.

On July 20, 2009, the Park Board [approved a motion](#) directing staff to identify potential capacity and suitable parking lots and nearby areas for electric vehicle charging.

On June 11, 2012, the Park Board approved the installation of three [electric vehicle charging stations along Beach Avenue](#).

## BACKGROUND

The City of Vancouver's Sustainability Office is implementing the [Electric Vehicle Ecosystem Strategy](#), which was approved by Council on November 16, 2016, to formalize the City's role as a provider of access to electric vehicle (EV) charging as a community amenity over the next five years.

An overview of this strategy and Park Board interests were provided to Commissioners in briefing memos dated December 12, 2016 and June 26, 2017. The purpose of this report is to seek approval for EV charging stations to be installed at three new Park Board locations in 2018.

## DISCUSSION

From 2011 to 2014, the City installed over 100 Level 2<sup>1</sup> charging stations at a variety of public, fleet, workplace, and residential locations to determine, among other things, usage patterns and variations in the installation and operation of various technology vendors. The

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<sup>1</sup> Level 2 charging stations provide approximately 30 km of range per hour of charging and are considered ideal at locations where drivers tend to park for two to three hours or more.

public locations included adding charging stations at Coal Harbour, Hillcrest, and Mount Pleasant Community Centres, the Vancouver Aquarium, and three along Beach Avenue at Cardero Street, Broughton Street, and Bute Street amongst others. These stations have provided thousands of charging sessions each year that they have operated.

The City approved its [EV Ecosystem Strategy](#) in November 2016. A significant pillar of that strategy was to expand the existing Level 2 charging network to all public-facing City properties not already equipped with EV charging infrastructure. These include approximately 20 community centres under Park Board jurisdiction. Under the EV Ecosystem Strategy, the City committed to a parallel approval process through Park Board for any installations on Park Board lands.

The EV Ecosystem Strategy includes \$2M in capital funding between 2016 and 2021 to install public charging stations both on City-owned properties and private properties. In general, most City and Park Board sites are better suited to Level 2 charging stations over DC Fast Charging<sup>2</sup> stations, owing to the longer dwelling times at these sites by the public.

The City will own, operate, and manage, either directly or through contractors, the majority of the public charging stations installed under the EV Ecosystem Strategy. The ongoing operation of the existing charging network is currently transitioning from Sustainability to Engineering Services.

#### **Deployment Strategy - Short Term (3-6 months)**

The short-term strategy for the installation of Level 2 infrastructure at Park Board sites first takes into account the amount of public charging infrastructure available nearby, and then prioritizes those within this short list based on neighbourhood attributes such as potential for installation of at-home charging.

Community centre locations receive high utilization due to the dearth of public charging infrastructure in Vancouver, relative to the rapidly increasing number of EVs on the road, and City staff have identified four community centre locations considered as top priorities for installation of Level 2 charging stations, which include upgrading the existing infrastructure at Sunset Community Centre (originally installed in 2009), along with the following three new locations:

1. Dunbar Community Centre
2. Killarney Community Centre
3. Trout Lake Community Centre

After site inspections in July of 2017, it was determined that a minimum of two charging stations be deployed at each location, with additional installed capacity for future stations as demand increases. Based on initial reviews of each site, staff determined that all installations except for Trout Lake can be connected to the community centres' electrical panels, although some upgrades of these panels may be required based on the conclusions from more detailed site inspections. EV Charging infrastructure installed at Trout Lake will require connection directly to the BC Hydro distribution system.

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<sup>2</sup> DC Fast Charging or DCFC stations consume significantly more power than Level 2 charging stations, and can provide approximately 200 km of range or more per hour of charging. DCFC are considered ideal at locations with dwelling times of 20 minutes to an hour.

The proposed EV charging locations shown in [Appendix A](#) illustrate the parking stalls best suited for hosting EV charging infrastructure at Dunbar, Killarney and Trout Lake. As shown in [Figure 1](#), three possible locations at Dunbar Community Centre have been identified. Should installation of EV charging infrastructure at the location closest to the building not provide adequate sidewalk clearance (minimum 1.5m), other locations will be considered in greater detail.

The proposed EV charging parking stalls for Killarney Community Centre are located centrally in the parking lot, close to the building's electrical room (see [Figure 3](#)).

For Trout Lake Community Centre, [Figure 4](#) and [Figure 6](#) show 'Option 1' and 'Option 2' for infrastructure installation, as well as the location of the BC Hydro electrical distribution system. Option 1 is the preferred location, but must be weighed against the cost of additional trenching in the parking lot for electrical conduit and potential disruptions to the parking area. A final decision will be made following the detailed site inspection and in consultation with Park Board staff.

The electrical panels at the Sunset Community Centre and Nursery are being upgraded as part of the ongoing park renewal project. This work will allow for the installation of Level 2 charging stations where the less powerful electrical outlets for EV charging currently exist. The change is not expected to have an impact on parking since EV charging infrastructure already exists at this site.

In all locations, any charging infrastructure will be installed to meet accessibility requirements, although it will not be installed in accessible parking stalls<sup>3</sup>. No standard exists in Canada at present; however, the *Americans with Disabilities Act* ("ADA") sets out requirements that will be followed. A number of standard Level 2 charging stations exist that meet the height requirements of the ADA.

A fifth location - Kerrisdale Community Centre (KCC) - was also visited to determine feasibility of installing EV charging stations. While the installation itself is feasible, the Community Centre Association and community centre staff expressed concerns about impacts to parking. The parking lot at KCC already has capacity issues because parking on local streets surrounding are metered and its lot is free. Staff and the CCA both expressed concerns that EV charging infrastructure would draw in more vehicles that are not necessarily patrons of the community centre.

Letters were sent to the Community Centre Associations at the proposed installation locations to inform them of the project. As aforementioned, comments were received about the Kerrisdale location and so it was removed from consideration at this time. The installation of EV charging infrastructure at the Kerrisdale Community Centre will be included in the long-term deployment strategy instead, pending further consultation.

### **Deployment Strategy - Long Term (Q3 2018 - end 2021)**

The City is in the process of introducing user CCAs at its public EV charging stations. While not likely reliable in the short-term, City staff will be able to use utilization data to determine 'true demand' for public infrastructure. This has not been possible to-date, since it is likely that all public stations (presently free to use) are used by residents who have access to home

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<sup>3</sup> In future, as EVs become more prevalent and as public infrastructure becomes more prevalent, additional opportunities to support EV infrastructure in accessible locations should be explored.

charging. User fees are expected to create availability as drivers with home charging reduce their demand in the public realm. Along with other demographic tools, City staff will use demand estimates to prioritize specific locations for additional infrastructure deployments.

City staff will lead the following process to prioritize EV charging infrastructure at Park Board jurisdiction sites going forward in collaboration with Park Board staff:

1. Collect population and vehicle sales data and compare to existing public charging infrastructure.
2. Identify Park Board jurisdiction sites in areas with (a) older housing stock; and (b) higher proportions of multi-family buildings with the least amount of surrounding public charging infrastructure.
3. Conduct a preliminary site visit to confirm suitability for Level 2 infrastructure (likely) and DC Fast Charging infrastructure (less likely at Park Board sites). Inspect location of electrical panel(s) relative to parking area(s) to identify ideal parking stalls to be equipped with EV infrastructure.
4. Present a prioritized list of sites to Park Board staff for approval, assuming future installations progressing at approximately 8-10 locations per year. Priority lists will likely only include one year of installations at a time, as site assessments should be made to capture changing usage patterns as EV uptake increases.
5. Engage with stakeholders at the site selected, as recommended by Park Board staff.
6. Conduct detailed site visits for highest priority sites with qualified electricians and engineers. Prepare electrical design of sites.
7. Seek approval from the elected Park Board for any new recommended locations.
8. Install and commission infrastructure.
9. Report back to Park Board staff on progress of infrastructure deployment.

### **User Fees**

Park Board staff continue to collaborate with City Sustainability staff on opportunities for charging stations in areas of Park Board jurisdiction and are reviewing user fees.

All future installations of EV infrastructure by the City will incorporate user fees, and future installations at new Park Board sites will be subject to Park Board approval. User fees that are collected through EV charging stations will be used first to cover operating costs of EV infrastructure.

Sustainability staff will develop training to ensure that off-street parking enforcement is consistent with City and Park Board policies. At this time, the locations currently under consideration are not pay parking lots. Following installation, the enforcement of rules relating to EV charging stations (i.e. that they be reserved solely for the purpose of electric vehicles that are connected to the stations) will be the responsibility of Park Board staff, with advice to be provided by City staff as needed.

## **SUMMARY**

The proposal from the City of Vancouver to install new EV charging stations at Dunbar, Killarney, and Trout Lake Community Centres, as well as to upgrade the existing EV charging infrastructure at Sunset Community Centre, has been vetted and supported by Park Board staff. The Community Centre Associations at these locations have been advised of the project and as this project aligns with the Park Board Strategic Framework for Green Operations and the City's Electric Vehicle Ecosystem Strategy, staff recommend that the Board support this proposal.

General Manager's Office  
Vancouver Board of Parks and Recreation  
Vancouver, BC

Prepared by:  
Park Development / PB Commercial Operations / CoV Sustainability

in/dm/tm/clc



Proposed EV Charging Station Location Options

Dunbar Community Centre

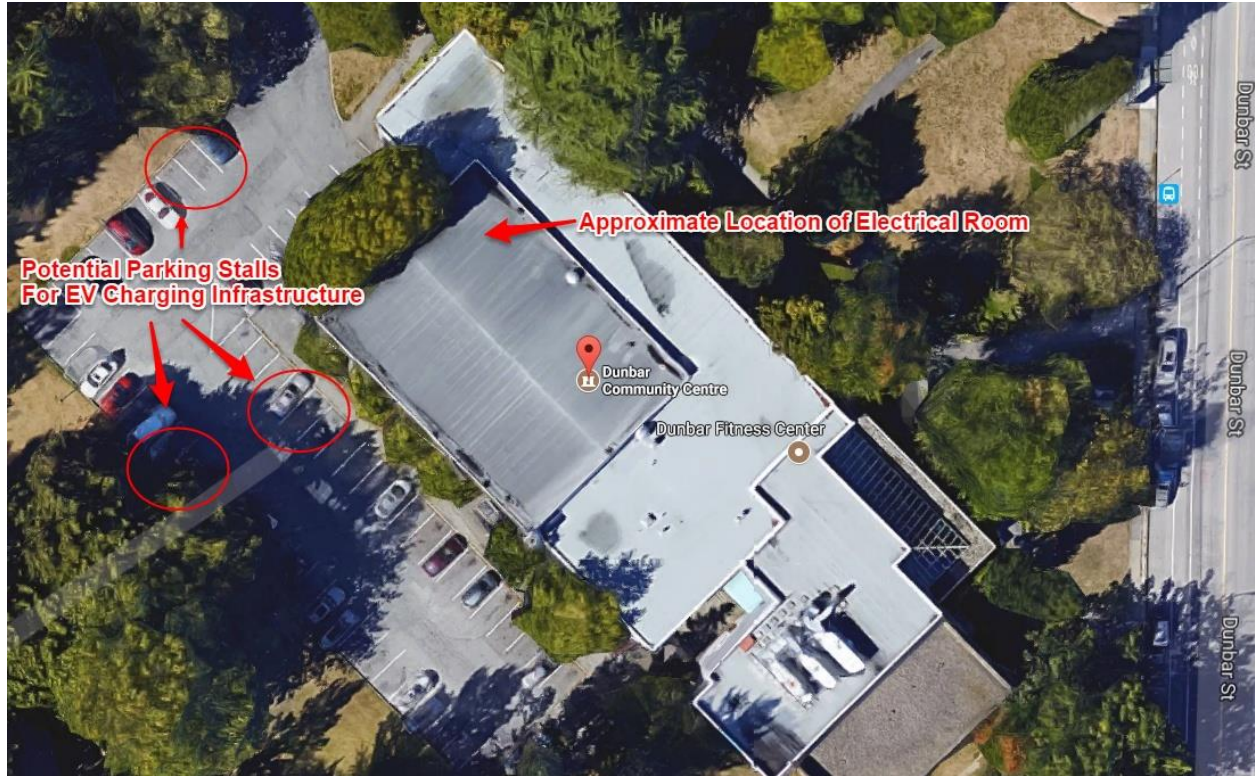


Figure 1 (above): Aerial photo showing 3 possible location options of EV charging infrastructure and approximate location of building's electrical room.

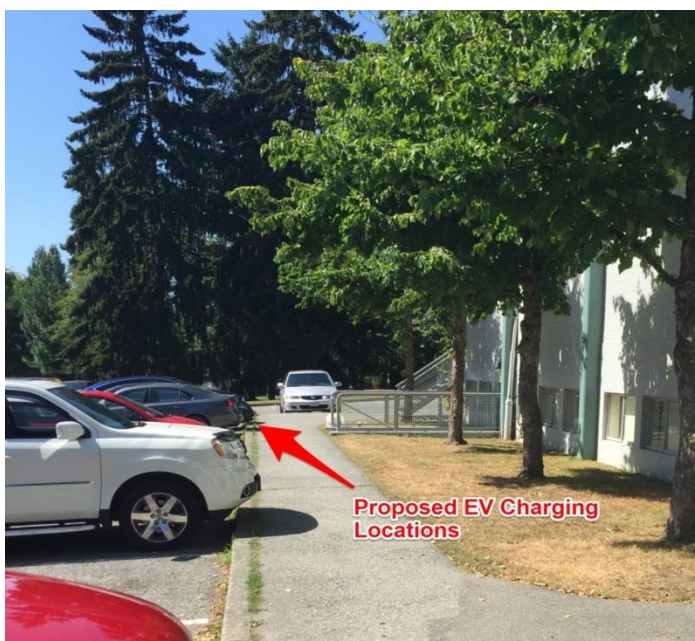


Figure 2 (left) - Photo of community Centre parking area (facing northwest). Proposed location of EV charging infrastructure is indicated in red.

Proposed EV Charging Station Location Options

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Killarney Community Centre



Figure 3 - Aerial photo showing proposed locations for EV charging infrastructure and approximate location of the building's electrical room.



Proposed EV Charging Station Location Options

Trout Lake Community Centre



Figure 4 (left): Aerial photo showing the two proposed location options for EV charging infrastructure and approximate location of the anticipated tie-in with the BC Hydro distribution system.



Figure 5 (above): Photo of anticipated connection point to BC Hydro electrical system at Trout Lake (facing northeast). Electrical supply at this location will require upgrades to supply more power to support EV charging infrastructure



## Proposed EV Charging Station Location Options

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### Trout Lake Community Centre



Figure 6: Photo of community centre parking area, facing south from anticipated BC Hydro connection point with the two possible location options for EV charging infrastructure noted in red.