

NO: R066

COUNCIL DATE: April 15, 2019

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## REGULAR COUNCIL

TO: **Mayor & Council** DATE: **April 11, 2019**

FROM: **General Manager, Engineering** FILE: **1855-01**

SUBJECT: **Application to the CleanBC Communities Fund to Expand Surrey's Public Electric Vehicle Charging Network**

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## RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report for information;
2. Authorize staff to submit a grant application to the CleanBC Communities Fund in the amount of \$502,411 for the expansion of Surrey's public electric vehicle charging network;
3. Approve the allocation of a total of \$182,726 over a six-year period for the City's portion of the project costs to be funded from the operating budget of the City's Parking Utility; and
4. Request that the City Clerk forward a copy of this report and related Council resolution to the Ministry of Municipal Affairs and Housing, Infrastructure & Finance Branch as information.

## INTENT

The intent of this report is to seek Council approval to apply for a grant under the CleanBC Communities Fund ("CCF") to assist with funding the expansion of the City's public electric vehicle ("EV") charging network. The grant application requires a Council Resolution confirming the City's support for the application and a commitment to provide the City's share of the project costs, should the application be successful.

## BACKGROUND

The Federal and Provincial governments recently committed \$63 million towards the CCF to support green infrastructure projects across the Province, including projects that expand access to clean energy transportation. For local government projects, funding is available up to 73.33% of eligible project costs (40% Government of Canada, 33.33% Province of BC).

The CCF supports BC's Clean Energy Vehicle ("CEV") program and the Zero Emission Vehicle ("ZEV") mandate. The CEV program encourages the adoption of CEVs in BC by providing vehicle incentives and investing in refueling infrastructure. The ZEV mandate requires that by 2025, 10% of new light-duty passenger vehicle sales in BC will be ZEVs, increasing to 30% by 2030 and 100% by 2040.

## DISCUSSION

The Engineering Department proposes to apply to the CCF to assist with financing the expansion of the City’s public EV charging network at select civic locations. The investment would include the following:

1. Infrastructure upgrades to transformers, electrical panels, and civil work at 10 civic facilities;
2. Installation of 40 dual port L2 charging stations at 10 civic facilities; and
3. Building in future capacity to add up to 79 additional charging stations.

The expanded charging network and additional charging stations will address gaps in the existing public charging network and provide more equitable access to EV charging for residents. The locations of the new stations are intended to be at City recreation centres, pools, and libraries, and shown on the map attached as Appendix “I”. Public EV charging is essential to supporting EV adoption in Surrey, as many households will not have access to charging at home or at work.

Surrey’s Community Climate Action Strategy provides a framework for reducing community energy use and greenhouse gas emissions. The strategy includes strategic directions that promote low emission vehicles and vehicle electrification, complementing the City’s innovations in alternative transportation fuels. The proposed investments in Surrey’s public EV charging network are also critical to meeting key commitments of the Sustainability Charter 2.0.

### Proposed Infrastructure and Charging Station Investments

The proposed electrical infrastructure upgrades and EV charging stations are intended to be phased over a six-year period, from 2020-2025, to match the funding window. The infrastructure costs represent approximately 50% of the total project costs and would be spread over the first two years of the project (as shown in Table 1 below).

In conjunction with the infrastructure upgrades, two dual port EV charging stations will be installed at each location, for a total of 20 stations. A second phase of EV station installations will follow in years 3-6, with an additional 20 dual port stations deployed and prioritized based on charging demand.

The initial infrastructure investments provide for future network expansion by increasing electrical panel capacity, running electrical conduit, and completing all necessary civil work. This approach reduces costs over the long-term and allows new charging stations to be easily added in the future. The 10 civic facilities will be able to accommodate an additional 79 dual port charging stations in the future.

### Proposed Project Costs

The estimated total project cost is \$685,137, which includes a 10% contingency for the infrastructure portion. The City’s portion of the project costs is \$182,726 and is proposed to be funded entirely from the operating budget of the City’s Parking Utility, meaning no additional funding is required.

Total Project Costs	\$685,137
Total CleanBC Funding (Federal & Provincial Contribution approximately 73.3%) if successful in receiving grant	\$502,411
Total City Contribution (approximately 26.7%)	\$182,726
Annual City Contribution Years 1 & 2 (2020-2021)	\$65,140
Annual City Contribution Years 3-6 (2022-2025)	\$13,112

**Table 1. Proposed Project Costs**

### Asset Management for Sustainable Service Delivery

The CCF grant application places significant emphasis on sustainable asset management and service delivery. The City has a strong history of managing EV charging infrastructure, and the phased introduction of EV charging fees as part of a cost-recovery model would allow for the sustainable operation, maintenance, and expansion of the City’s public charging assets.

The City’s public charging network was initiated in 2013 and has steadily expanded through investments by the Surrey Parking Utility and funding partnerships with the Province of BC and National Resources Canada. Today, there are 32 stations with a total of 56 charging ports located at 13 separate civic sites (as shown in Appendix “I”). As the network has grown, so has the number of individual charging sessions that have been recorded: from 592 in 2013 to 23,917 in 2018 (Figure 1).

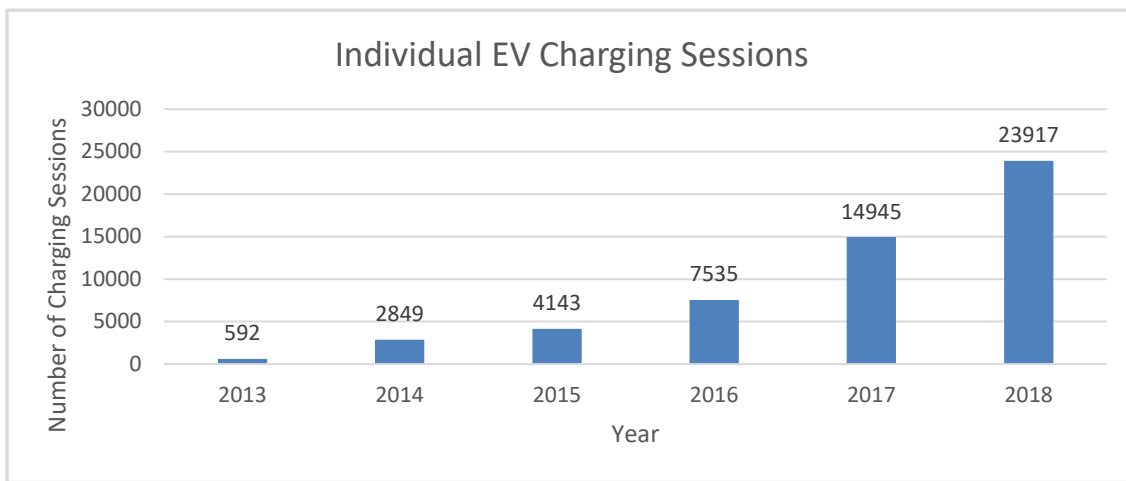


Figure 1. Surrey Public Charging Network EV Charging Session

The proposed investment and deployment of 40 dual port charging stations would grow the public charging network from 56 ports to 136 ports over a six-year period (243% increase), and the additional future capacity investments would allow for a more than five-fold increase to the City’s public charging network over the long-term (Figure 2).

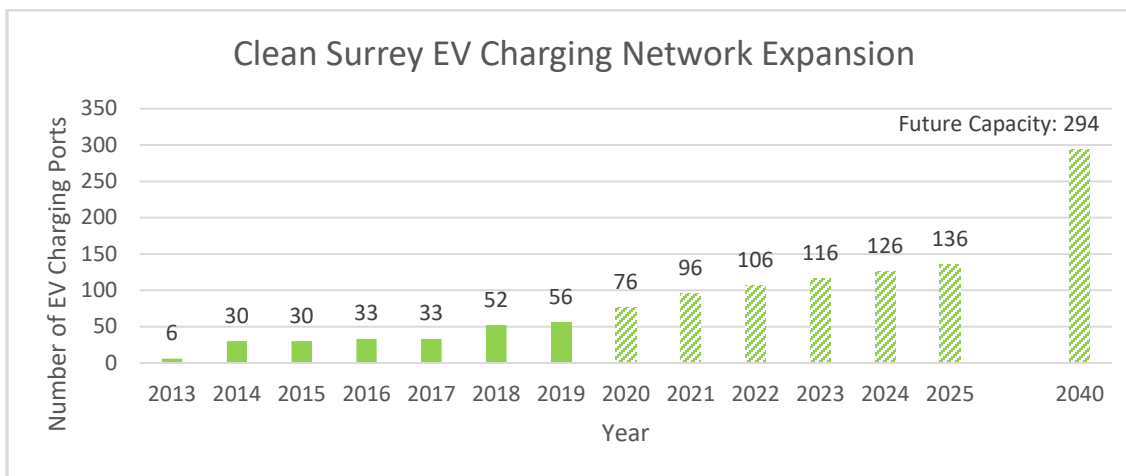
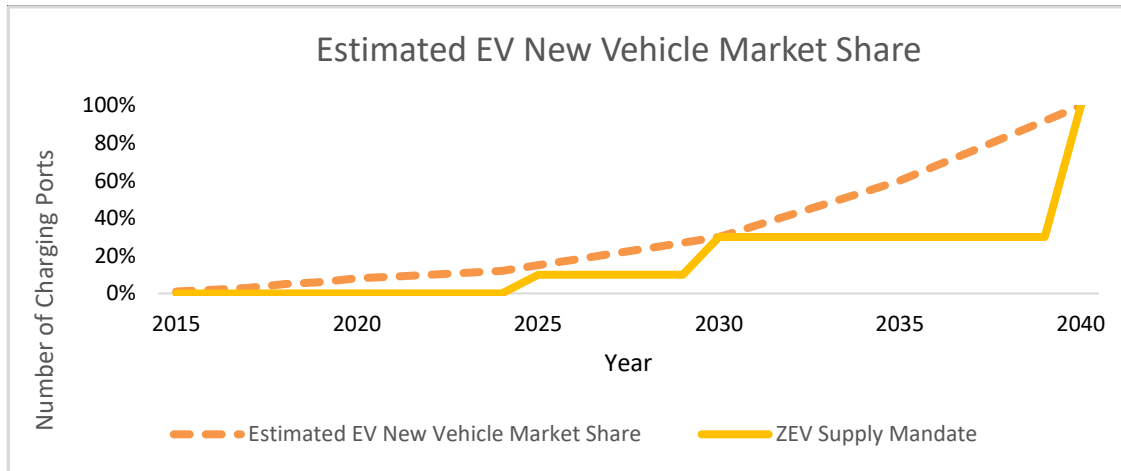


Figure 2. Surrey’s EV Charging Network Expansion

Projecting future EV adoption rates is difficult; however, the new Provincial ZEV mandate means that minimum EV sales will now grow at a predictable rate, which will translate into higher overall EV market share and charging demand in Surrey. The proposed charging stations and built-in future capacity will allow the City to add new stations in response to growing EV ownership and charging demand in Surrey over the coming decades (Figure 3.).



**Figure 3. EV New Vehicle Market Share and Expanded Public Charging Network**

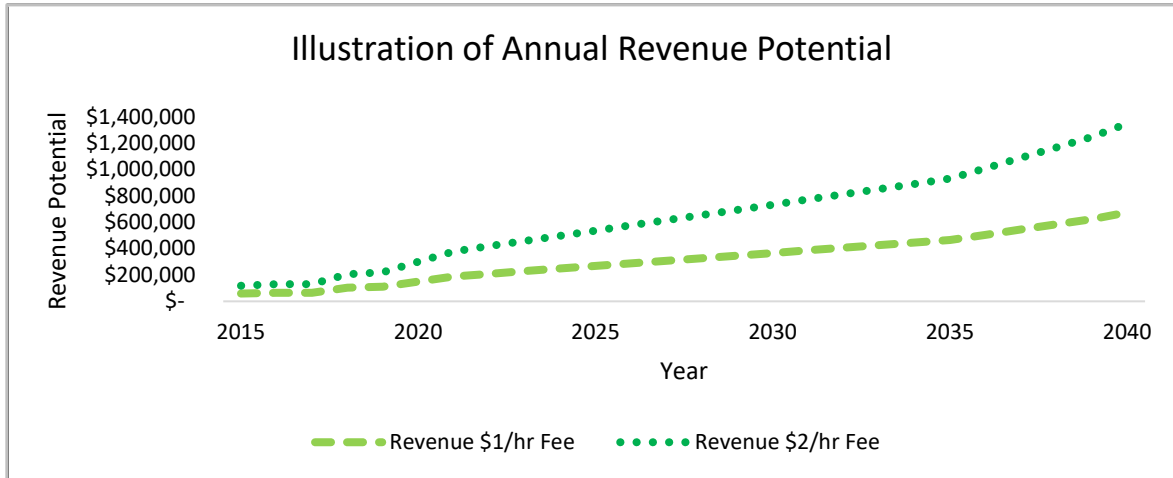
## FUNDING

### Future Cost-Recovery and Cost-Neutral Operating Structure

To support the long-term operation and maintenance of Surrey's public charging network, EV charging fees could be introduced as part of a cost-recovery model designed to recoup the cost of electricity, account for asset depreciation, and cover operating costs.

The City of Vancouver has utilized user fees for public EV charging since 2017, charging a fee of \$1-\$2/hour. If this same model were to be applied to Surrey's public charging network, based on the average number of charges per station and average charge duration, the City would have generated annual revenues ranging between \$100,000-\$200,000 in 2018.

It is difficult to predict future utilization with accuracy; however, an illustration of the annual revenue potential of the expanded public charging network is presented in Figure 4. This illustration assumes a continuation of 2018 utilization levels, the fee structure discussed above, and the expanded network proposed in this funding application. Staff will investigate alternative fee structure and bring a recommended approach to Council.



**Figure 4. Illustration of Annual Revenue Potential**

Predicting the effect that a fee for charging will have on charging demand is also a challenge, as this will depend on several factors, including access to lower-cost alternatives (at home or at work), availability of private EV charging service providers, and the overall rate of EV adoption. At Council’s direction, staff can report back with recommendation on a potential fee structure and implementation timeline for Surrey’s public EV charging network. Such a model would allow Surrey’s public EV charging network to be operated, maintained, and expanded over the long-term through user fees, rather than depending on City funding.

### **SUSTAINABILITY CONSIDERATIONS**

The application to the CCF and the proposed Clean Surrey EV charging network support the objectives of the City’s Sustainability Charter 2.0. In particular, this network expansion relates to the Sustainability Charter 2.0 themes of Economic Prosperity and Livelihoods, Ecosystems and Infrastructure. Specifically, this network expansion supports the following Desired Outcomes (“DO”) and Strategic Directions (“SD”):

- Economy DO9: Surrey’s economy is able to adapt and thrive in response to external forces, such as the changing climate;
- Water, Air and Soil SD8: Work with senior governments, TransLink, other local governments, non-governmental organizations and the private sector to reduce greenhouse gas emissions and ensure good air quality throughout Surrey;
- Energy and Climate DO7: Per capita emissions are low, and align with global, national and provincial GHG reduction targets;
- Transportation DO13: Low-emission vehicles predominate and are supported by the necessary fueling infrastructure; and
- Energy and Climate SD5: Work collaboratively with diverse stakeholders to lower greenhouse gases and to improve air quality.

## CONCLUSION

Investing in EV charging at public locations is supported by numerous City strategies and policies, including the Sustainability Charter 2.0, the City's Official Community Plan, the Community Climate Action Strategy, and the Transportation Strategic Plan. The continued investment in the City's public EV charging network will help support EV adoption in Surrey and support residents in their transition to EVs anticipated under the Province's ZEV mandate. The CCF grant presents an opportunity to leverage senior government funding to finance the expansion of the public EV charging network while ensuring the infrastructure is in place to meet future demand.

The Engineering Department recommends that Council:

- Receive this report for information;
- Authorize staff to submit a grant application to the CleanBC Communities Fund in the amount of \$502,411 for the expansion of Surrey's public electric vehicle charging network;
- Approve the allocation of a total of \$182,726 over a six-year period for the City's portion of the project costs to be funded from the operating budget of the City's Parking Utility; and
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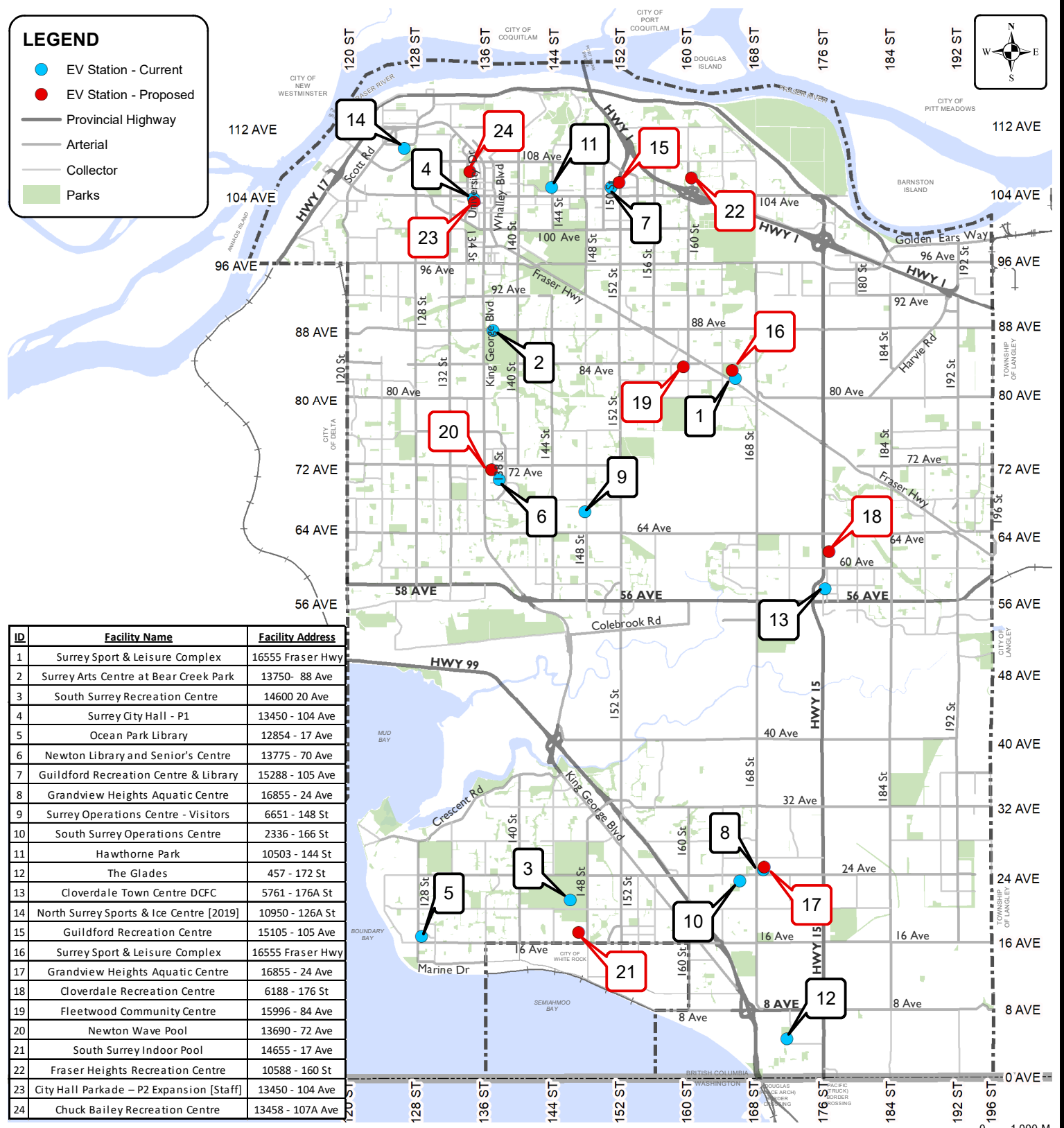
Fraser Smith, P.Eng., MBA  
General Manager, Engineering

JB/RG/cc

Appendix "I" - Map of Current and Proposed Public Charging at Civic Facilities

**LEGEND**

- EV Station - Current
- EV Station - Proposed
- Provincial Highway
- Arterial
- Collector
- Parks



ID	Facility Name	Facility Address
1	Surrey Sport & Leisure Complex	16555 Fraser Hwy
2	Surrey Arts Centre at Bear Creek Park	13750- 88 Ave
3	South Surrey Recreation Centre	14600 20 Ave
4	Surrey City Hall - P1	13450 - 104 Ave
5	Ocean Park Library	12854 - 17 Ave
6	Newton Library and Senior's Centre	13775 - 70 Ave
7	Guildford Recreation Centre & Library	15288 - 105 Ave
8	Grandview Heights Aquatic Centre	16855 - 24 Ave
9	Surrey Operations Centre - Visitors	6651 - 148 St
10	South Surrey Operations Centre	2336 - 166 St
11	Hawthorne Park	10503 - 144 St
12	The Glades	457 - 172 St
13	Cloverdale Town Centre DCFC	5761 - 176A St
14	North Surrey Sports & Ice Centre [2019]	10950 - 126A St
15	Guildford Recreation Centre	15105 - 105 Ave
16	Surrey Sport & Leisure Complex	16555 Fraser Hwy
17	Grandview Heights Aquatic Centre	16855 - 24 Ave
18	Cloverdale Recreation Centre	6188 - 176 St
19	Fleetwood Community Centre	15996 - 84 Ave
20	Newton Wave Pool	13690 - 72 Ave
21	South Surrey Indoor Pool	14655 - 17 Ave
22	Fraser Heights Recreation Centre	10588 - 160 St
23	City Hall Parkade - P2 Expansion [Staff]	13450 - 104 Ave
24	Chuck Bailey Recreation Centre	13458 - 107A Ave

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Scale: 1:125,000



## EV Charging Locations: Current and Proposed

ENGINEERING  
DEPARTMENT

The data provided is compiled from various sources and IS NOT warranted as to its accuracy or sufficiency by the City of Surrey. This information is provided for information and convenience purposes only. Lot sizes, Legal descriptions and encumbrances must be confirmed at the Land Title Office.