



Public Electric Vehicle Charging Strategy

Final Report

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City of Burnaby

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City of Burnaby

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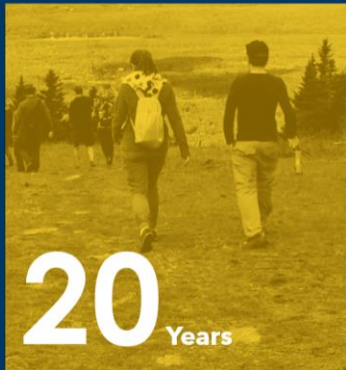
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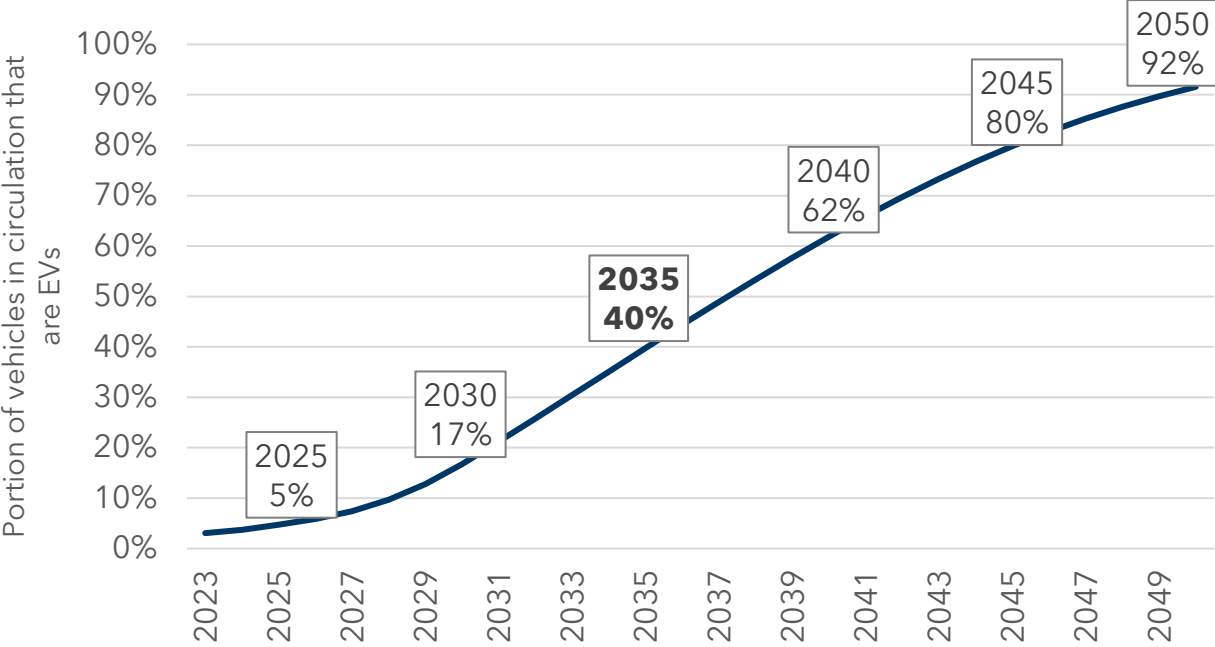
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EXECUTIVE SUMMARY

The Public Electric Vehicle (EV) Charging Strategy aims to catalyze the transition to EVs by optimizing City efforts to develop a **reliable and equitable public charging network** that meets the needs of Burnaby’s residents, businesses and commuters in 2035, in alignment with the **City’s transportation and climate policy goals**.

By 2035, two of every five vehicles on Burnaby roads are expected to be electric. Burnaby will reach 50% of vehicles on the road by 2037 and nearly all vehicles by 2050.



Public EV charging is critical to both support and enable this scale of EV adoption. Currently, there are 350 public charging ports in Burnaby: 315 Level 2 ports at 105 sites and 35 DCFC ports at 9 sites. Based on our analysis of EV adoption and associated public charging demand in Burnaby, there is a need for **2260 Level 2 ports and 126 DC Fast Charging (DCFC) ports by 2030**. By 2050, there will need to be somewhere between 6,000 and 12,000 public EV charging ports - more if few *existing* multifamily buildings undergo comprehensive retrofits, and fewer if most multifamily buildings are retrofitted to provide “at home” EV charging.

Deployment Recommendations

The City of Burnaby has an important role to play in scaling up public charging to meet the anticipated demand in 2030 and beyond. This Strategy includes deployment recommendations to work towards the 2030 charging need, organized in three broad areas:

EV Charging on **Municipal Property**

Unlock Investment in **New Construction**

Support Charging in **Existing Buildings**

The following table summarizes recommended actions.

	Objective	Action
EV Charging on Municipal Property	A. Invest in City-owned charging	A1: Invest in curbside charging and charging at new and existing City facilities to meet at least 20% and as high as 40% of Burnaby's 2030 needs.
	B. Streamline third-party investment on City land	B1: Commit to coordinating and explore an MOU with key partners (i.e., BC Hydro, Simon Fraser University).
		B2: Develop a streamlined framework (including process, acceptable locations, standards, staff education, etc.) for third-party implementation on City land.
		B3: Explore best practice requirements and specifications for safe, appropriate on-street charging in lower-density residential neighbourhoods.
B4: Incorporate curbside Level 1 and Level 2 charging in curbside management planning		
C. Support Shared Fleet Electrification	C1: Work with operators to understand infrastructure plans underway and fleet charging needs.	
	C2: Provide access to City land and/or infrastructure for shared fleet charging that aligns with City interests.	
Unlock Investment in New Construction	D. Expand EV charging requirements in TDM	D1: Enhance requirements for carshare and public Level 2 EV charging, in proportion to the development size across the City (including non-Transit-Oriented Areas).
		D2: Incentivize or negotiate with developments to implement public DCFC charging electrical and/or charging infrastructure and or to support City- or BC Hydro-owned charging stations.
E. Require non-residential EV-Ready buildings	E1. Require a minimum of 45% of parking spaces provided for non-residential uses to be EV Ready, in alignment with the current staff recommendation.	
Support Charging in Existing Buildings	F. Incentivize public charging at strategic property types	F1: Incentivize or require EV charging infrastructure at appropriate property types (e.g., gas stations, parkades, retail) through business licensing requirements or other mechanisms.
	G. Support EV-Ready retrofits	G1: Streamline and optimize municipal regulations and approval processes for EV charging infrastructure on private property.
G2: Consider opportunities to offer support (e.g. information, aggregation, incentives, etc.) for EV Ready retrofits for public non-residential buildings.		

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Glossary

Term	Definition
Battery-electric vehicles (BEVs)	"Pure" electric vehicles that have only an electric powertrain and that plug in to charge
Direct Current Fast Charging (DCFC)	A 480V+ (25kW - 400kW+) charging level. Provides 200-2000+ km per hour of vehicle charging.
Electric Vehicle (EV)	A vehicle powered by an electric motor, including BEVs and PHEVs
EV-Ready	Futureproofing approach where a parking space features an adjacent electrical outlet at which a charging station can be installed in the future.
Level 1 (L1)	A 120V (1.3kW - 2.4kW) EV charging level (as defined by SAE J1772 standard). Provides 2-10 km of vehicle range per hour of charging.
Level 2 (L2)	A 208V/240V (3.3kW - 19kW) EV charging level. Provides 15-100+ km per hour of vehicle charging.
Light-duty vehicles	A vehicle with a gross vehicle weight rating of less than 3,856 kilograms (8,500 lbs), covering Classes 1 and 2a. Typically cars, SUVs, and light trucks.
Plug-in hybrid electric vehicles (PHEVs)	Hybrid vehicles that can plug in to charge and operate in electric mode for short distances (approximately 30 to 80 km), but that also include a combustion powertrain for longer trips
Port	An EV charging port provides power to charge only one vehicle at a time.
Shared fleets	A transportation network company, including ride-hail services (e.g., Lyft, Uber), taxi services, carshare services (Evo, Modo), or vanpool services
Site	An EV charging site is one location that can have one or more EV charging ports.
Transit-Oriented Areas (TOA)	A lot that is located within 800 m of a passenger rail station or 400 m of a bus exchange, as defined in the Zoning By-Law
Transportation Demand Management (TDM)	Initiatives or infrastructure aimed at maximizing sustainable transportation choices and reducing single occupancy vehicle trips, as defined in the Zoning By-Law
Town Centre	An urban centre, where the highest concentration and mix of office, retail, residential and amenities are located. Town centres are well served by transit. In Burnaby, there are four Town Centres: Metrotown, Brentwood, Lougheed and Edmonds. Metrotown is also the City's Downtown.

1. Public EV Charging Strategy Purpose

The City of Burnaby has defined the need for **public charging infrastructure** to meet its **transportation and climate targets**. *Connecting Burnaby: Burnaby Transportation Plan* outlines a target to reach zero emissions from transportation by 2050. The plan outlines a range of policies to reduce emissions by prioritizing sustainable transportation, including by enabling zero-emission vehicles. Specifically, the policy is to actively support the provision of infrastructure that enables the use of zero-emission vehicles (policy 4.9.5) and defines the following five related actions:

1. Require electric vehicle (EV) charging infrastructure in new commercial, institutional, mixed-use and residential developments.
2. Provide EV charging infrastructure at all public facilities, such as recreation centres, libraries, and other public buildings by 2030.
3. Support a retrofit policy to facilitate EV charging infrastructure in existing buildings.
4. Determine appropriate locations across the City for public on-street EV charging infrastructure.
5. Convert the City's fleet to zero-emission vehicles where possible.

In addition, the City's Climate Action Framework Move 5 supports the EV transition through the provision of EV infrastructure¹. This Move has three quick-start actions related to infrastructure:

1. Expand and monitor the City's public charging network.
2. Adopt non-residential EV charging requirements.
3. Plan and design for EV charging stations at civic facilities

The City engaged Dunsky Energy & Climate Advisors (Dunsky) and Bunt & Associates (Bunt) to develop strategies related to public EV charging. This effort is taking place in the context of the broader work Bunt is leading, including the development of strategies and policies at the intersection of transportation demand management (TDM), parking and EV charging. It also aligns with Dunsky's efforts supporting Metro Vancouver in undertaking a regional EV Charging Analysis to identify and model charging needs.

This Public EV Charging Strategy (the Strategy) provides the current context, future needs, and tangible recommendations and implementation guidance to move forward on public charging-focused actions 2 and 4 (in bold above) under policy 4.9.5, while integrating considerations for actions 1, 3 and 5 and the Climate Action Framework Quick Starts. The policy context and Strategy focus are summarized in Table 1.

¹ City of Burnaby. 2020. [Council Report: Environment Committee - Climate Action Framework](#).

Table 1. Key City policies and actions related to public EV charging

Action	Connecting Burnaby Policy 4.9.5 Actions	Climate Action Framework Move 5 Quick Starts	Strategy Focus
EV charging requirements in non-residential new construction	●	●	
EV charging at public facilities	●	●	☑
Retrofit policy for EV charging in existing buildings	●		
Determine appropriate on-street EV charging locations	●		☑
Convert the City's fleet to zero-emission vehicles where possible.	●		
Expand the City's public charging network, including on-street		●	☑

Bold = Public Charging Related ● Complete ● In progress ● Not yet started

1.1 Strategy Objective and Scope

The Strategy aims to catalyze the transition to EVs by optimizing City effort, investment and partnerships to develop a reliable and equitable public charging network that meets the needs of Burnaby's residents, businesses and commuters in 2035.

This Strategy scope includes:

- **public** EV charging infrastructure within Burnaby's boundaries (defined in section 1.3)
- **light-duty** (i.e., cars, vans, SUVs and light trucks) battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs)
- the time period from **2024 to 2035**

The recommendations in this Strategy will require collaboration across all City departments, but it will be championed and reside within the Transportation Division of the Engineering Department.

This Strategy does not cover at-home charging, an important component of the EV charging landscape but outside the scope of this Strategy.

1.2 EV Charging Types

For light-duty vehicles (LDVs), there are three main charging levels: Level 1, Level 2, and direct current fast charging (DCFC), sometimes referred to as Level 3 or, simply, fast charging. The charging characteristics of each type are summarized in Table 2

Table 2 Charging characteristics of Level 2, Level 2 and DCFC charging

Charging Type	Charging Power	Approx. charging time for 300 km of range ²		Type of light-duty EV that can use	Typical charging location
		Typical car	Typical SUV/light truck		
Level 1	1.3-2.4 kW	46-25 h	69-37.5 h	BEV and PHEV	Residential
Level 2	3 kW	20 h	30 h	BEV and PHEV	Public, Residential
	7 kW	8.5 h	13 h		
	9.6 kW	6 h	9.5 h		
	19.2 kW	3.25 h	4.75 h		
DCFC	25 kW ³	2.5 h	3.5 h	BEV	Public
	50 kW ⁴	1.25 h	1.75 h		
	100 kW	36 min	54 min		
	150 kW	24 min	36 min		
	350 kW	10 min	15 min		

The Strategy focuses on Level 2 and DCFC charging. These charging levels can provide drivers with sufficient charge for their driving needs based on appropriate dwell times (see Section 4.1). In contrast, Level 1 is usually insufficient for large vehicles such as increasingly popular pickup trucks and SUVs, and for those that drive longer than average distances. Likewise, Level 1 futureproofing usually has higher “Day One” capital cost than an equivalent Level 2 with reasonable load management (though it can be lower cost on a life cycle basis due to no or low-cost EV chargers). For these reasons, Dunskey does not include Level 1 as a preferred public charging solution.

² Many vehicles do not require a full 300 km charge on a typical day.

³ While 25 kW chargers use direct current, they are not considered “fast” chargers. As seen in the charging times, they are only appropriate where vehicles are staying for over two hours.

⁴ While 50 kW chargers use direct current, they are increasingly not considered sufficiently “fast” to provide on-the-go charging. Deployment organizations are increasingly focusing on charging speeds of 75kW and above.

1.3 Charging Preferences and the Important Role of Public Charging

Most EV drivers prefer to charge at home. Home charging is cheaper and more convenient for drivers. Therefore, most **charging takes place at home** today and we expect that this trend will continue.

However, **home charging is not available** to all drivers. It is more challenging for multi-family building residents to install EV charging due to legal, financial, technical and logistical barriers inherent in both strata and rental apartments. Further, some residents of multi-family housing rely on on-street parking, either because their building does not have parking or because, as renters, they do not have access to the strata's assigned parking spaces. These drivers must rely on public charging to charge their vehicles. In addition, public charging plays an important role for those who have access to home charging but require top-ups when out and about.

Home charging access can be particularly limited for certain equity-deserving groups. Studies in the U.S. have demonstrated that EV owners today are disproportionately wealthy, white, male, middle-aged, and live in detached houses that they are more likely to own.^{5,6} Cost and **access to charging** are two of the predominant barriers to EV adoption facing people in poverty and recent immigrants (who are all more likely to be renters and live in multi-family buildings⁷). When examining access to charging specifically, there are several additional barriers facing these and other groups, including the ability to install home charging, the ability to use charging, greater cost and time burden, and lower access to programs.

Therefore, public charging is critical to enable EV adoption to ensure that the benefits of EV adoption (and transportation emission reductions) are available to all residents, regardless of their housing situation.

For the Strategy, **public charging** includes the three following charging types:

- 1. Community charging:** DCFC and Level 2 stations in communities (e.g., curbside, community centers, retail).
- 2. Workplace charging:** a subset of community charging, Level 2 stations at places of employment, including public workplace parking and employee-only (semi-public) parking.
- 3. Corridor (or highway) charging:** DCFC stations along major highway corridors

The Strategy considers all three categories but focuses on Community and Workplace charging.

⁵ ICCT (2017). [Expanding access to electric mobility in the United States](#).

⁶ National Center for Sustainable Transportation (2018). [Understanding the Distributional Impacts of Vehicle Policy: Who Buys New and Used Alternative Vehicles?](#)

⁷ Low-income people are about twice as likely as other people to be renters (Source: Statistics Canada, [Housing Experiences in Canada: People in poverty, 2016](#)).

2. EV Charging Needs in Burnaby

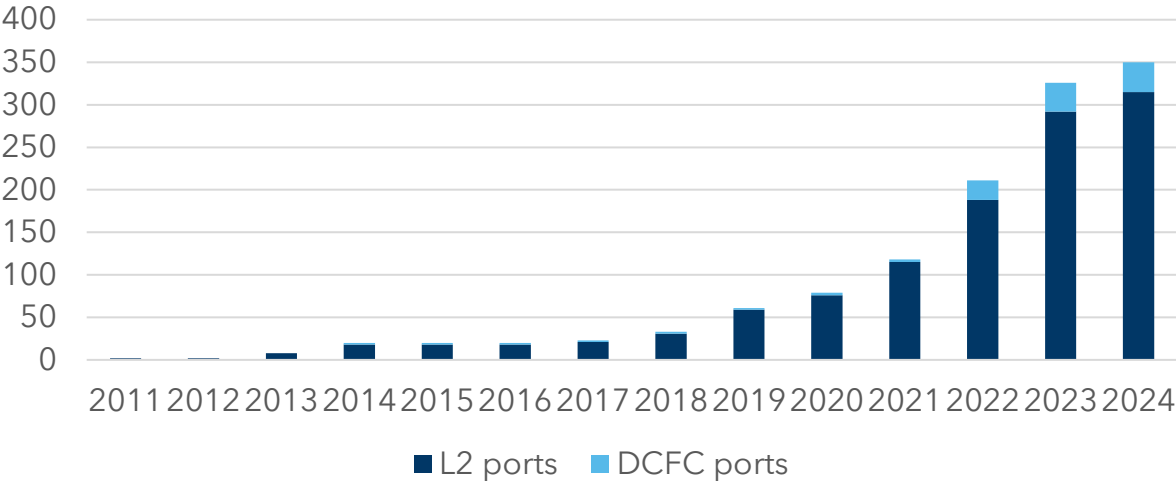
2.1 Current Conditions

In Burnaby, there are a total of 350 public charging ports.⁸ This number includes 315 Level 2 ports at 105 sites. The City of Burnaby owns ~23% of all public Level 2 ports (72 ports at 20 sites).

There are 35 DCFC ports at 9 sites. Tesla operates 1 site with 16 DCFC ports deployed in 2022 (with additional ports added in 2024) representing nearly half of the DCFC ports in the City. Parkland operates 3 sites with 4 DCFC ports each. BC Hydro operates 1 DCFC site and the rest are privately-owned.

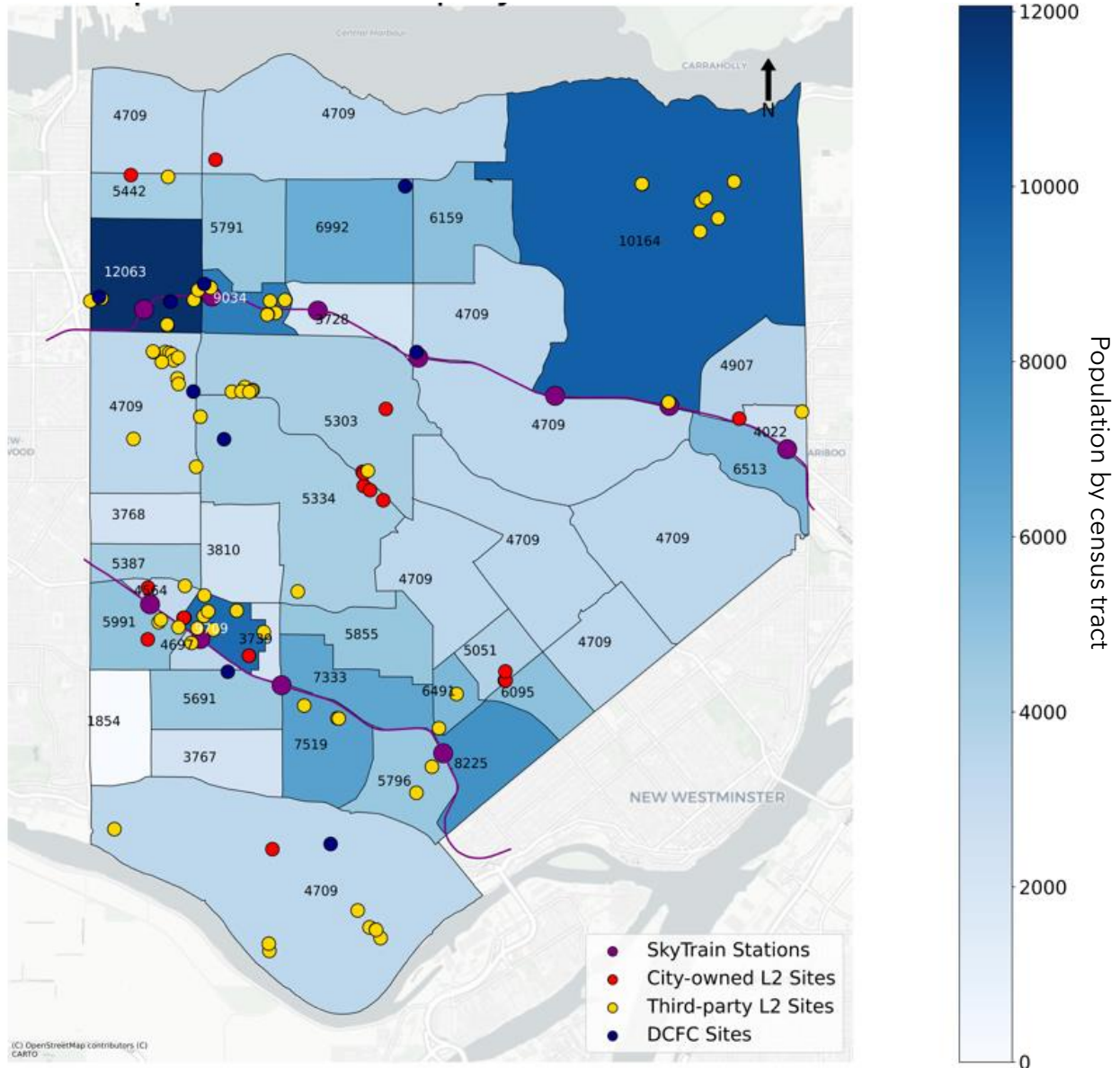
The number of ports has increased over time, as expected, and is summarized in Figure 1. There was a notable increase after 2018, when there was an effort by the City to provide coverage across all four quadrants of the City, as well as increasing private sector development. The number of charging sites (i.e., one site with one or more charging ports) across the City is shown, along with the population by census tract in Figure 2. This map highlights that the current public ports align relatively well with the higher population areas of the City, while some neighbourhoods have no public ports.

Figure 1. Existing Public EV Charging Ports in Burnaby



⁸ Natural Resource Canada. Electric Charging and Alternative Fuelling Stations Locator. Accessed August 2024.

Figure 2. Public charging ports and SkyTrain stations in Burnaby, with census tracts showing population (August 2024)



2.2 Forecasting EV Adoption

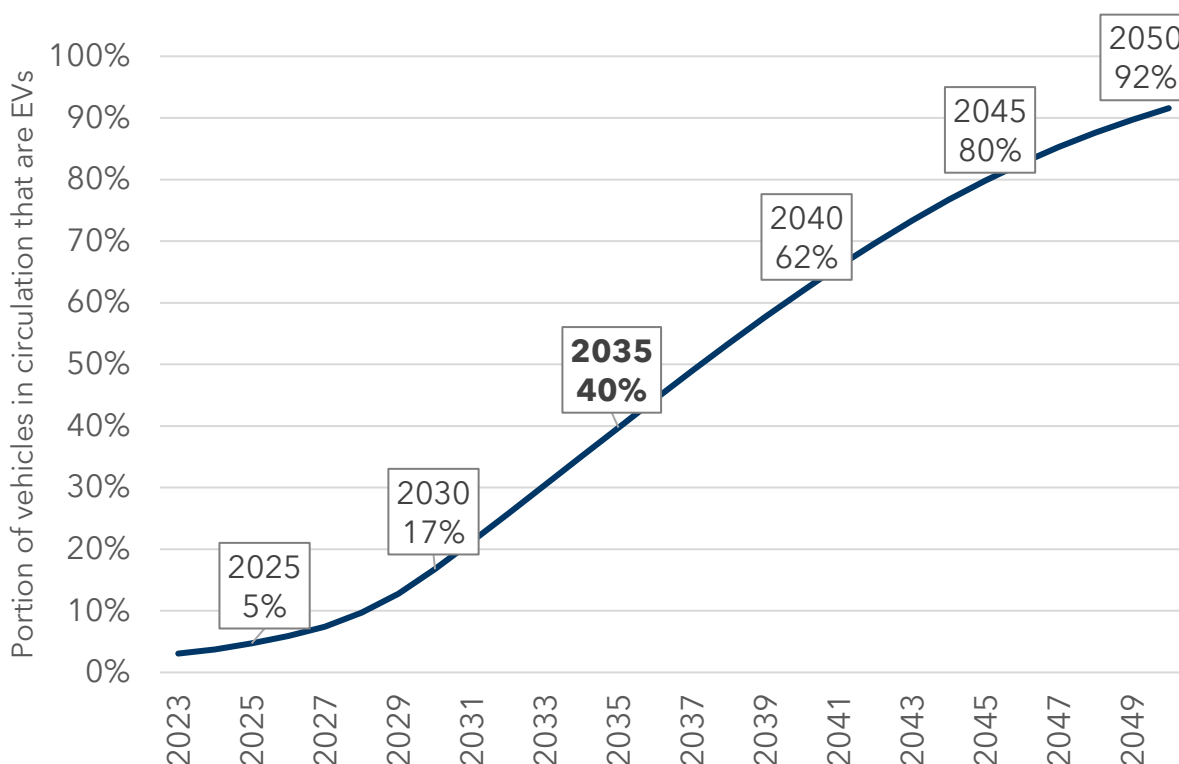
To develop the EV adoption forecast for Burnaby, we leveraged the analysis completed for Metro Vancouver to produce a regional EV Charging Analysis. Our modelling analysis assessed historic trends along with technical and economic factors. The analysis determined two key levers driving Metro Vancouver EV adoption:

- 1. Provincial ZEV mandate:** The provincial sales requirement will push the availability of EVs in the province, supporting adoption. While this is a key lever, early adoption rates are higher in Metro Vancouver than in the rest of the province, which is incorporated in our model.

2. Incentives: purchase incentives are key factors to enable EV adoption in the region. Our modelling assumes availability of incentives until at least 2025, varying by EV type and level of government.

Our modelling produced the forecast for EV adoption within Burnaby in Figure 3. By the end of this Strategy’s study period in 2035, **two of every five vehicles on Burnaby roads are expected to be electric**. Burnaby will reach 50% of vehicles on the road by 2037 and nearly all vehicles by 2050.

Figure 3. Proportion of EVs on the road in Burnaby



The details on the methodology are outlined in the in the regional Metro Vancouver study summary, which was the basis for this Strategy’s analysis.⁹

2.3 Forecasting Charging Demand to 2035

The high levels of EV adoption translate to demand for EV charging infrastructure. However, the amount of home charging available impacts the amount of public charging needed to meet the same level of EV adoption. Specifically, the more home charging available, the less public charging is needed while still reaching 92% of vehicles on the road being EVs by 2050.

To determine the public charging demand, we modelled three scenarios related to home charging, and particularly a key driver of home charging access: EV-Ready retrofits in existing buildings (see the text box below for more details on EV-Ready retrofits). As outlined in Section 1, single-family homes typically have high access as it is generally reasonably feasible

⁹ Dunsy Energy + Climate Advisors. 2023. [Keeping it Current: Guidance for Collaborative Deployment of EV Charging in Metro Vancouver](#). Metro Vancouver Climate Action Committee - Appendix.

to install an EV charger. Residents in existing multi-family buildings, however, experience a range of barriers to installing an EV charger. Therefore, the level of retrofits in existing buildings is an important indicator of public charging needs.

EV-Ready Retrofits in Existing Buildings

An EV Ready parking space features an adjacent electrical outlet capable of providing Level 2 EV charging which makes it easier and cheaper to install charging equipment in the future. All new residential buildings in Burnaby are required to be 100% EV Ready.

For existing multi-family buildings, comprehensive (e.g., 100%) EV Ready retrofits are the preferred approach for many existing multi-family buildings as it is more affordable, with the average cost in last year of \$1,300/parking space when all parking is made EV Ready in a multi-family building. Further, these retrofits are more effective in future-proofing the building's charging needs than a piecemeal approach - It is much more cost-effective on a life-cycle basis to make all parking EV Ready as part of one comprehensive project, as opposed to adding EV charging to parking a few at a time.¹⁰

We developed three scenarios to explore the impact that multi-family retrofits can have on the overall demand for public charging. They are:

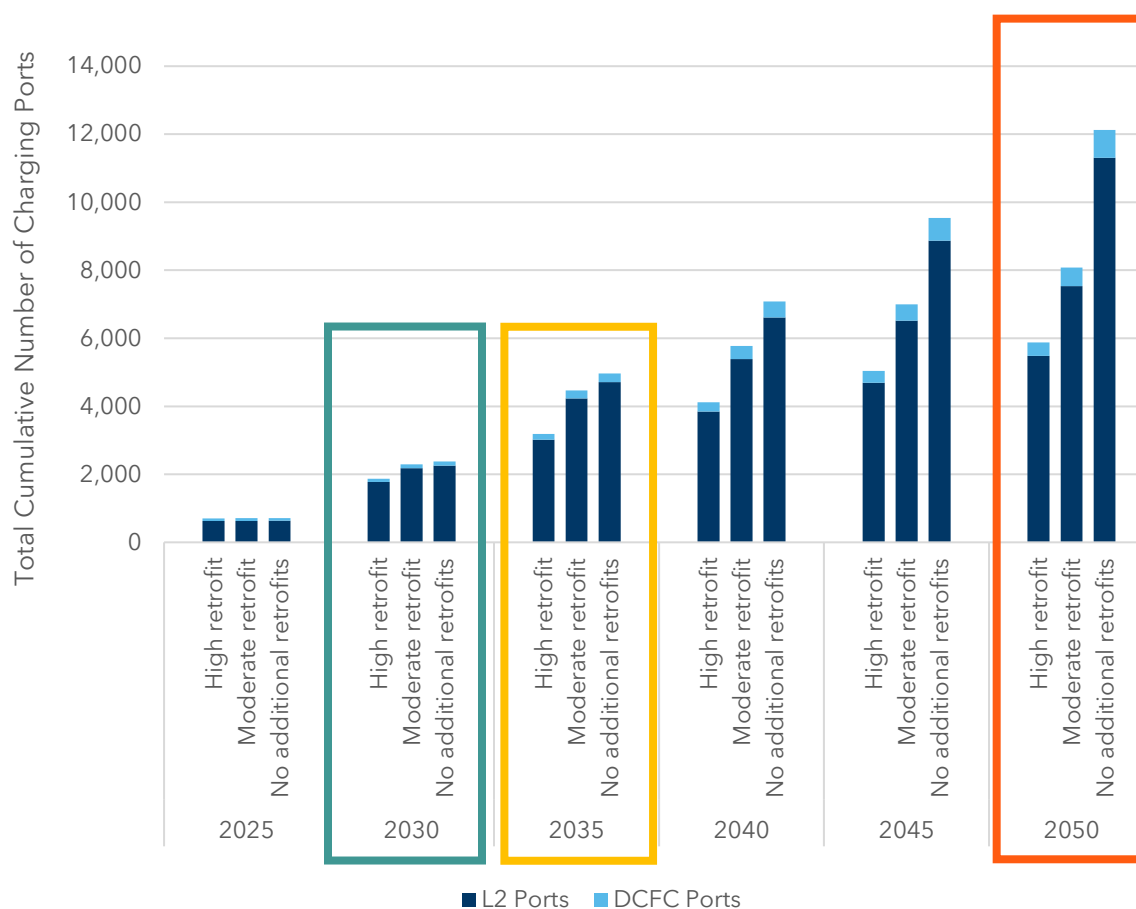
- 1. High multi-family building retrofit scenario:** 90% of today's existing multi-family building units are made EV ready by 2035
- 2. Medium multi-family building retrofit scenario:** 30% of today's multi-family building units are EV Ready by 2035 and 60% by 2050
- 3. Low multi-family building retrofit scenario:** no additional EV ready retrofits of multi-family buildings are carried out

The **high retrofit scenario** would see higher levels of home charging access, and therefore, **less public charging is needed** to meet the charging demand. On the opposite end, the **no additional retrofits scenario** sees the same level of home charging access as today with limited charging in multi-family buildings, which would require **higher levels of public charging** needed to meet the demand.

The results in Figure 4 show the expected demand for public charging, shown in the cumulative number of public Level 2 and DCFC ports, over time, under each scenario.

¹⁰ Dunsky Energy + Climate Advisors. 2024. [Futureproofing Multifamily Buildings for EV Charging - Final Report](#).

Figure 4. Forecast of public charging demand under three scenarios of home-charging retrofits



Our analysis finds:

- **In 2030:** there is **alignment** on public charging needs across scenarios

Therefore, **there is little risk of overbuilding**. Early build out will support earlier adoption and this scale of public charging infrastructure in 2030 in any scenario will need to be built in the coming decade.

- **2031 to 2035:** the scenarios begin to **diverge**

There is a need to re-assess the state of home charging (primarily driven by the level of EV Ready retrofits) to determine the public charging needed in this period.

- **2036 to 2050:** **major differences** across scenarios

While recommendations after 2035 are not in scope of the Strategy, this long-term view highlights the range of public infrastructure needed based on scale of multi-family EV Ready retrofits.

Given the alignment for charging demand in 2030 and some uncertainty on home charging access in 2035, **we defined the target for the number of public charging ports available for 2030** and recommend an **evaluation** process, further outlined in the Implementation Plan, to determine the public charging needs beyond 2030.

2.4 Defining EV Charging Needs to 2030

Based on our analysis of EV adoption and associated public charging demand in Burnaby, there is a need for **2260 Level 2 ports and 126 DCFC ports by 2030**.

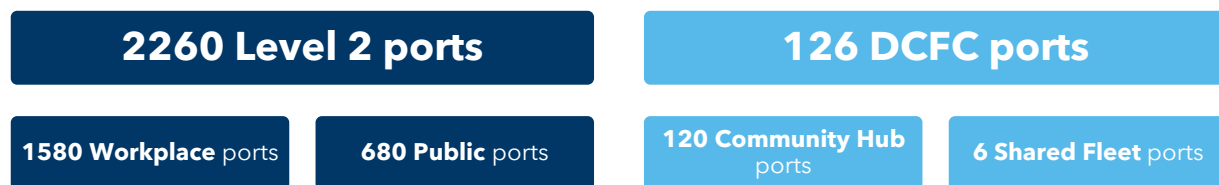
This value is the total cumulative number of public charging ports needed to serve City residents and businesses, including third-party- and City-owned ports.

The public ports are further categorized by:

- **Level 2 workplace:** charging in parking areas designed for employees, which can be on- or off-street. This charging category can be public (i.e., a public parkade used by nearby workers) and semi-public (i.e., a parking area that is employee-only). The Level 2 workplace charging need is based on the net inflow of employees into Burnaby.
- **Level 2 public:** charging located on-street (i.e., curbside) or off-street (i.e., community centres).
- **DCFC Community Hubs:** charging which can be located off-street (i.e., in a grocery store parking lot, or on-street (i.e., curbside).
- **DCFC Shared Fleet Hubs:** charging which is primarily reserved for shared fleet services, including taxis, ride-hailing, carshare and vanpool. The total shared fleet needs were determined at a regional level and Burnaby's share was allocated based on population.

The total 2030 public charging port infrastructure for 2030 is summarized in Figure 5.

Figure 5. Cumulative number of public charging ports needed to meet 2030 demand in Burnaby



3. Deployment Recommendations

There is a **significant gap** between the current levels of public charging available and the 2260 Level 2 and 126 DCFC ports needed by 2030. The following recommendations outline leading solutions to fill this gap by directly or facilitating infrastructure deployment, in three broad areas:

EV Charging on
Municipal Property

Unlock Investment in
New Construction

Support Charging in
Existing Buildings

These recommendations were developed through an iterative process, including:

- Solution developments based on Metro Vancouver analysis and Burnaby policy context.
- Review with City staff across various departments.
- Engagement with key stakeholders, including public charging network operators, developers, local institutions, car share operators and government agencies.

3.1 EV Charging on Municipal Property

The City has a key role in deploying and enabling public charging infrastructure as the steward of City lands and rights-of-way.

A. Invest in City-owned charging

The City has taken a key role in deploying infrastructure to date, with access to critical locations for public charging: curbside and civic facilities. The City can expand on this effort to ensure a portion of the charging infrastructure is deployed without relying on third parties.

Action	Lead Dept.
A1: Invest in curbside charging and charging at new and existing City facilities to meet at least 20% and as high as 40% of Burnaby's 2030 needs (summarized in Table 3).	Curbside: Transportation - Engineering Civic Facilities: Civic Building Projects - Lands & Facilities

Key Considerations:

- The 20% to 40% range represents a target for City-owned ports. This investment would be led by the City, but the City can expect external funding and revenue. We expect significant portions of the capital costs to come from senior government funding, investment by utility partners, and TDM investment by developers. Costs will also be offset by user fees as well as low carbon fuel credit revenue under the provincial and federal regulations. Overall, we anticipate that the City's operation of its network can have a positive long-term return on investment.

- The City has plans to deploy public charging at multiple civic facilities. Our estimate is that the current and planned Level 2 charging ports at civic facilities will provide approximately 6% of the 2030 Level 2 port need, which falls short of the recommended target range.
- The City does have a significant number of Level 2 ports that are coming online that will be designated for fleet only. There is an important opportunity to coordinate with Lands & Facilities and Fleet to support the growth of the public charging network. While allowing staff or general public access to fleet charging ports would require careful assessment to ensure it does not lead to conflicts between user types, fleet charging sites could potentially be expanded to include additional ports for public and/or staff charging with significant cost savings.
- Low carbon fuel credits¹¹ can be an important revenue source to municipal networks in BC, improving the business case for public charging.
- The City should consider incorporating a 4-port minimum when building infrastructure to improve user experience and reduce lineups.

Table 3 Recommended range of ports for City investment

City investment by 2030	Level 2 Ports	DCFC Ports
20% of 2030 needs	~450	~25
40% of 2030 needs	~900	~50

Spotlight on Leading Examples: City of Surrey’s Public Charging Network

The City of Surrey operates a large public EV charging network to ensure **equitable access** to EV charging for all residents adopted in their [2021 EV Strategy](#). The City currently operates 52 public Level 2 charging ports at 16 different City facilities and hosts 40 BC Hydro fast-charging ports on City property. The City has dedicated \$1.04M in funding, with contributions from the City and senior levels of government, to expand the City-operated network over 6 years.

B. Streamline third-party investment on City land

As a major landholder, the City plays an important role as an enabler for third parties to provide public charging on City land where it aligns with City priorities. The City can take an active role by working with key partners and by clarifying the process for other third-party actors interested in contributing to the public charging network.

¹¹ BC’s Low Carbon Fuel Requirements require that gasoline and diesel wholesalers reduce the GHG intensity of the fuel they sell. These fuel sellers can purchase carbon credits from sites that provide EV charging. This provides the potential to generate revenue for municipalities that provide EV charging for the public, employees, and/or fleets.

Action	Lead Dept.
B1: Commit to coordinating and explore a memorandum of understanding (MOU) with key partners (i.e., BC Hydro, Simon Fraser University).	Transportation - Engineering
B2: Develop a streamlined framework (including process, acceptable locations, standards, staff education, etc.) for third-party implementation on City land.	Co-leads: Transportation-Engineering, Planning & Development, Lands & Facilities
B3: Explore best practice requirements and specifications for safe, appropriate on-street charging in lower-density residential neighbourhoods.	Transportation - Engineering
B4: Incorporate curbside Level 1 and Level 2 charging in curbside management planning	Transportation - Engineering

Key Considerations:

- Clarifying the process for third-party public charging is important. Equally important is to ensure the process is streamlined. A simplified process should be prioritized for projects that align with City interests, rather than a procedure that requires significant administration for either party.

C. Support Shared Fleet electrification

Shared fleets, and their electrification, play an important role in Burnaby's transportation ecosystem and emission reduction efforts. Shared fleets include carshare services (e.g., Evo, Modo), ride-hail services (e.g., Lyft, Uber), taxi services, and vanpool services.

Action	Lead Dept.
C1: Work with operators to understand infrastructure plans underway and fleet charging needs.	Transportation - Engineering
C2: Provide access to City land and/or infrastructure for shared fleet charging that aligns with City interests.	Transportation - Engineering

Key Considerations:

- These actions should be woven into the key partner engagement streamlined processes outlined in action area B, and not considered in isolation. Shared fleet actions are defined separately to emphasize their importance.

3.2 Unlock Investment in New Construction

D: Expand EV charging requirements in TDM

Action	Lead Dept.
D1: Enhance requirements for carshare and public Level 2 EV charging, in proportion to the development size across the City (including non-Transit-Oriented Areas [TOA]).	Transportation - Engineering
D2: Incentivize or negotiate with developments to implement public DCFC charging electrical and/or charging infrastructure and or to support City- or BC Hydro-owned charging stations. This action could sit under TDM policies or as a standalone rezoning policy.	Transportation - Engineering

Key Considerations:

- The City has made important strides by incorporating carshare public charging in TOA, with the recent direction to apply the Transportation Demand Management (TDM) Guidelines to rezoning applications in TOAs.¹² This foundation can be built on to incorporate carshare and general public charging in new developments, as integrating electrical infrastructure for charging is most cost-effective during the new construction process (compared to upgrades in existing buildings).

E. Require non-residential EV-Ready buildings

Action	Lead Dept.
E1. Require a minimum of 45% of parking spaces provided for non-residential uses to be EV Ready, in alignment with the current staff recommendation. <ul style="list-style-type: none">Complete: The City amended the Zoning Bylaw No 4742 to meet these requirements, effective July 8, 2024.¹³	Community Planning - Planning & Development

¹² City of Burnaby. 2024. [Planning and Development Committee - Committee Report Applying Transportation Demand Management to Development Applications In Transit-Oriented Development Areas.](#)

¹³ City of Burnaby. 2024. [Bulletin: Electrical \(EV\) Charging Requirements for New Non-Residential Development.](#)

3.3 Support Charging in Existing Buildings

F. Incentivize public charging at strategic property types

Action	Lead Dept.
F1: Incentivize or require EV charging infrastructure at appropriate property types (e.g., gas stations, parkades, retail) through business licensing requirements or other mechanisms.	Co-leads: Transportation - Engineering and Planning & Development

Key Considerations

- This effort should be designed to focus on deploying public charging at appropriate sites that align with the City’s broader development strategy. Appropriate sites include areas where the vehicle dwells for a period of time that is sufficient for charging. However, the design should not prioritize such an infrastructure investment at a site (such as a surface parking lot) that would be prioritized for redevelopment.
- The design should consider some flexibility to meet the requirements, such as being able to fund charging off-site for appropriate locations that have unique constraints (i.e., significant electrical constraints).

Spotlight on Leading Examples: City of Vancouver’s Business Licensing Fee Reduction for Public Charging

In 2026, the City of Vancouver’s business licensing fees will be lower for gas stations and parking lots with public charging available. All gas stations and parking lots in the City will need to pay a \$10,000 fee when renewing their business license if their site does not offer Level 2 or DCFC charging. To avoid the fee, gas stations would be required to provide 50 kW of charging capacity (e.g., a single 50 kW DCFC) and parking lots (with over 60 stalls) would need to have 26.4 kW of charging capacity (e.g., four 6.6 kW Level 2 chargers on dedicated circuits).

G. Support EV-Ready retrofits

Action	Lead Dept.
G1: Streamline and optimize municipal regulations and approval processes for EV charging infrastructure on private property.	Community Planning - Planning & Development
G2: Consider opportunities to offer support (e.g. information, aggregation, incentives, etc.) for EV Ready retrofits for public non-residential buildings.	Community Planning - Planning & Development

Key Considerations

- In alignment with action area B, the City can encourage public charging by simplifying the process for its deployment.
- Incentives should **only be done** after Burnaby has maximized EV-Ready retrofits in existing **residential** multi-family buildings as these residential retrofits are more impactful for EV adoption.

4. Implementation Framework

The following section includes guidance on key implementation considerations.

4.1 Charging Locations

4.1.1 Align Port Type with Location Dwell Time

The best place to charge is a place where the vehicle is already parked, whether at home overnight, at work during the day, or at retail establishments or other amenities.

The charging location should define the charging port type. Ideally, a reasonable charge can be completed in the period of time a driver typically is at a location (i.e., their “dwell time”). For DCFC ports, dwell time would be between 15 to 45 minutes, such as a grocery store or service station. For Level 2 ports, the dwell time could be short- or long-term. Short-term level 2 ports would be for stays of one to three hours, such as at a community centre or mall. These Level 2 ports should have a dedicated 40A circuit to ensure a faster rate of charge suitable for a 1-3 hour stay. Long-term Level 2 ports are typically used for 6 to 8 hours, such as workplace parking. These Level 2 ports can be on a shared circuit with significant load management (e.g. four ports sharing a single 40A circuit).

We recommend a 4-port minimum for all charging infrastructure sites to increase capacity for deployment, increase deployment efficiency and improve user experience (i.e., reduced line ups, increased certainty of finding an available port at a given site).

4.1.2 Priority Geographical Locations

To support the geographic prioritization distribution of charging ports within the City, we completed a gap assessment to determine areas with public charging gaps in the current network based on:

- Geographic distribution across the City (by census tract)
- Layering on three key priority metrics (census tracts with higher proportions of multi-family buildings, renters,¹⁴ and transit hubs (specifically SkyTrain stations)).

Distributing port needs by population at the census tract level **ensured geographic distribution** of ports across the city while still ensuring more populous neighbourhoods will have a higher proportion of charging ports. The three priority area metrics (multi-family density, renter density, and transit hubs) had **significant overlap**, such that neighbourhoods with a higher proportion of multi-family buildings were heavily aligned with renters and somewhat aligned with SkyTrain stations.

The results are summarized in the two following maps broken out by census tract. Figure 6 highlights the total ports (Level 2 and DCFC ports combined) needed to meet the forecast charging demand in 2030. This map considers the number of ports needed and does not account for existing ports.

¹⁴ Multi-family building and renter data by census tract is based on Statistics Canada Census Profile 2021.

Figure 6: Heat map of total requires ports by census tract by 2030

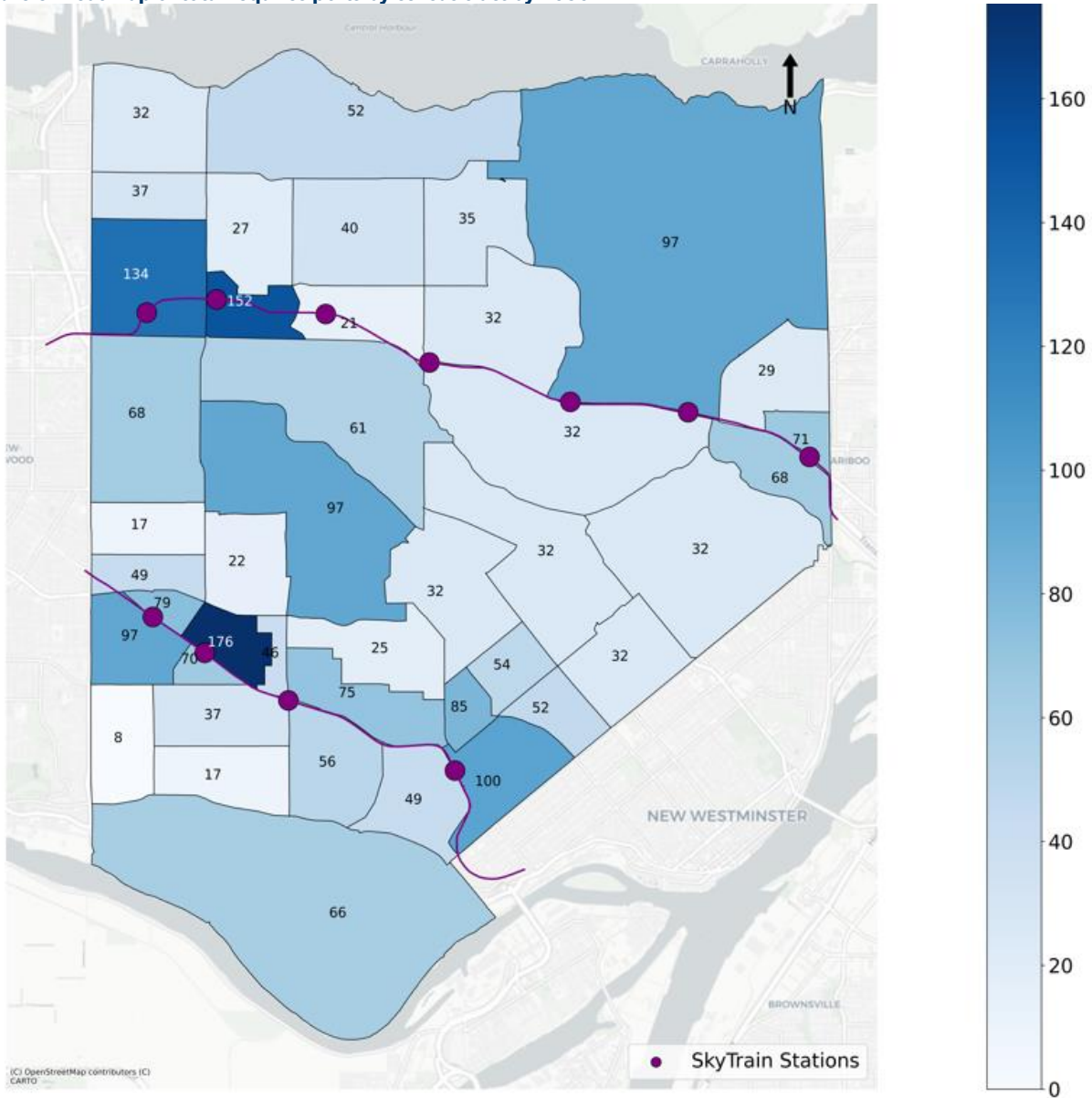
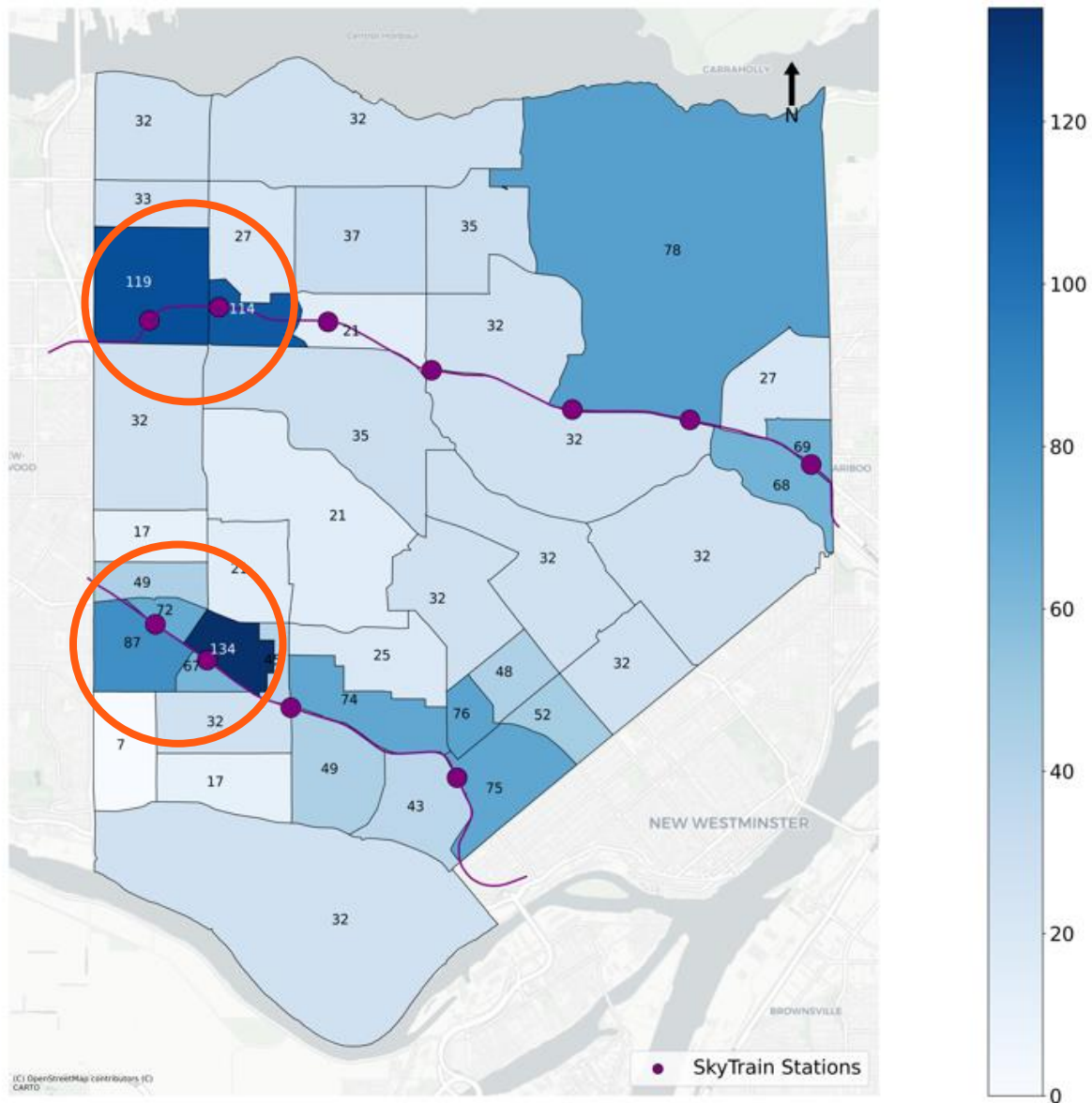


Figure 7 shows **the gap of additional public charging ports needed** beyond those currently **available** by all operators and public ports that are **planned** by the City at civic facilities. The gap number provides an important indicator of where, and how many ports, will be needed across the City. There is a need across all census tracts, with a higher number of ports needed in two neighbourhoods identified by circles.

Figure 7: Heat map of additional ports needed by 2030 (i.e., the gap between ports required and ports installed), with neighbourhoods with higher levels needed with circles.



As the City directly deploys or encourages the deployment of public charging, the City should consider the following two factors to be prioritized as the next steps:

- Focused deployment in two key neighbourhoods:** Deployment in two neighbourhoods with the largest needs gap: Brentwood Town Center and Metrotown Regional Town Centre. The highest priority census tract in Brentwood requires 119 additional ports (113 Level 2 ports and 6 DCFC ports) and the highest priority census tract in Metrotown requires 134 ports (127 Level 2 ports and 7 DCFC ports). These areas have seen significant deployment of charging infrastructure to date, but the demand is expected to remain significant.
- Even deployment across all neighbourhoods:** The City should continue to deploy infrastructure to ensure geographic coverage of all four quadrants of the city, as there are

still gaps in some regions. The deployment to date (see Figure 2) has been focused on the key neighbourhoods and has generally aligned with higher needs to date. However, there are neighbourhoods with less demand, but also limited access to charging. Therefore, the City should continue to build up the base level of public charging access.



As a metric to ensure even geographic distribution, the City can aim to ensure that there is sufficient public charging so that there is at least one public charging port within **a five-minute drive** of their home.

4.1.3 Considerations Based on Public Survey Feedback

A public survey was conducted in August 2024 through the City's Your Voice! Engagement page. A total of 800 responses were received.

Respondents indicated that public charging is an important part of the current charging landscape in Burnaby. Addressing public charging can enable more people to use EVs. For current EV drivers, public charging is used as the primary charging location for roughly half of respondents who have EVs. Public charging is expected to remain in demand for future EV charging. A range of potential sites were identified as preferred, with City facilities receiving the highest number of rankings.

4.2 Partnerships

To foster partnerships with public charging providers, the City could consider:

- Coordinate with key partners (action B1) to understand their deployment plans and opportunities.
- Regularly connect and engage with private public charging networks to identify opportunities for collaboration, facilitate deployment, and mitigate roadblocks.
- Engage with non-residential land-owners to develop public charging infrastructure on their sites, which could be owned by the landowner or by the City or other partners (such as BC Hydro).

4.3 Public Charging Infrastructure Costs

The 2030 public infrastructure investment required for all actors is **\$45M**. This cost can be broken down into costs by Level 2 ports and DCFC ports:

~\$28M for Level 2 ports

~\$17M DCFC ports

The installation and equipment costs are \$15k per port for Level 2 and \$142k to \$210k per port for DCFC.¹⁵

The City's share of this total, based on the recommendation of investing between 20% and 40% of the 2030 needs is between \$9M and \$18M as summarized in Table 4.

Table 4. Suggested number of City-owned public ports and investment by 2030

City investment by 2030	Level 2 Ports	DCFC Ports	Est. Cost
20% of 2030 needs	~450	~25	~\$9M
40% of 2030 needs	~900	~50	~\$18M

4.4 Monitoring

Monitoring the status of public charging deployment is critical to understanding if the scale and pace of deployment are meeting the public charging needs of the City.

We recommend an **annual report** to Council on the public charging strategy to track progress. The report should include:

- A progress update on each Strategy action
- Revisions, changes or additions to the Strategy actions
- Key public charging use and access metrics:
 - Cumulative total and new additional number of Level 2 and DCFC ports deployed by the City and other actors
 - Cumulative and new additional number of EV-ready retrofit stalls completed
 - City-operated network utilization levels
 - City-operated network financial performance (if not reported in other City processes)
 - Qualitative survey of public charging users to assess if charging needs are met and preferences to inform future deployment

To inform the charging needs from 2031 - 2035 and beyond, the City will need to assess the level of home charging access based on the level of EV-Ready retrofits in existing multi-family buildings. We recommend that by 2028, the **City evaluates the level of home charging access** and assesses the public charging needs to produce a 2035 public port target.

¹⁵ The installation and equipment cost assumed for Strategy costs are in 2022 CAD and vary by port power: 150 kW DCFC: \$142,000/port; 250 kW DCFC: \$179,600/port; 350 kW DCFC: \$210,400/port; public Level 2 (7 kW): \$15,000/port



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This report was prepared by Dunsky Energy + Climate Advisors, an independent firm focused on the clean energy transition and committed to quality, integrity and unbiased analysis and counsel. Our findings and recommendations are based on the best information available at the time the work was conducted as well as our experts' professional judgment.

Dunsky is proud to stand by our work.