



Electric Vehicle Charging Infrastructure Study

Edmonton

Executive Summary 2026

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Electric Vehicle Charging Infrastructure Study: Executive Summary

A Strategy for a Resilient and Accessible Future

Introduction and Mandate

The City of Edmonton (the City) has ambitious goals to achieve net zero greenhouse gas (GHG) emissions per person by 2050 in **The City Plan** and the **Community Energy Transition Strategy & Action Plan**. Along with the mandate to reduce community GHGs, the City actively supports equitable access to zero-emission mobility.

Electric vehicle (EV) charging infrastructure will become an essential utility required for Edmontonians to maintain low carbon mobility, access economic opportunities and grow their businesses. This Electric Vehicle Charging Infrastructure Study provides key forecasts to help the City, the public, and private investors understand the likely trajectory of EV adoption and the resulting need for charging infrastructure as Edmonton moves toward a population of two million. The forecasts are not predictions, but critical planning tools to identify potential service gaps, direct investment, and measure the impact of municipal policy against likely future demand.

EV Adoption and Public Charging Demand Forecasts

The Inevitable Shift

The long-term trend for EV adoption is clear: driven primarily by the continued decline in battery costs, it is highly probable that most light-duty vehicles on Canada's roads will be electric by mid-century. This shift is expected even with successful mode shifts towards transit and active transportation.

The study analyzed six scenarios, charting different outcomes based on policy changes and market forces. In a **high-to-moderate scenario (Scenario 2)**, which assumes the federal EV Availability Standard is delayed but remains in place and the City continues to grow and urbanize in line with *The City Plan*:

- **2030:** Edmonton could expect approximately **36,000 EVs** on the road (about 7% of all vehicles).
- **2035:** This number could rise to **191,000 EVs** (about 35% of all vehicles).

Public Charging Demand: Key Requirements

To support this level of adoption, the demand for public charging will rapidly increase over the next decade. The following table summarizes the range of forecasted need for both public Level 3 Fast Charging (DCFC) and Level 2 ports:

Scenario	Type of port	2025 (actual)	2030	2035	2040	2045	2050
1 (Max EV Adoption)	DCFC	40	230	470	680	810	950
2 (High charging support + high urbanization)			140	310	520	680	820
6 (Min EV adoption)			120	270	470	630	800
1 (Max EV Adoption)	Level 2	315	1,600	5,300	10,100	15,000	17,500
2 (High charging support + high urbanization)			800	5,300	12,100	18,500	20,800
6 (Min EV adoption)			700	5,600	15,100	25,500	30,800

Level 2 ports use a 240V outlet and are the most common chargers for public spaces (e.g. workplaces, retail lots & residential buildings). Offer moderate charge speeds (~4-10 h) for long duration stops.

DCFC fast chargers are high-power stations designed for a fast turnaround (20-30 min) and are usually located along major travel corridors.

Summary of Near-Term Need (to 2035, Scenarios 1, 2, 6):

- **DCFC:** Edmonton needs between **270 and 470** Fast Charging ports.
- **Level 2:** Edmonton needs between **5,300 and 5,600** Level 2 ports.

Even in the scenarios with reduced need for public charging due to increased home access, the City is at a significant deficit with public charging compared to what is needed by 2030 to 2035.

The Density Challenge: Home Charging Dynamics

Home charging remains the most convenient and affordable option for most EV owners. However, as Edmonton urbanizes in line with *The City Plan*, increasing housing density—particularly in Multi-Unit Residential Buildings (MURBs)—will limit home charging access for many residents and renters.

This dynamic creates a higher demand for public charging infrastructure. **Scenario 6** explicitly models this outcome, where reduced home charging access (and no bylaw requirement that new construction must be EV ready), combined with increasing density, results in the same number of EVs requiring a substantially higher number of public charging ports.

This underlines the critical importance of:

1. Supporting **new residential construction** to be EV-ready.
2. Facilitating the **retrofitting of existing MURBs** to enable charging access for current residents.

The City's Role in Deployment

The supply of charging infrastructure requires collaboration across many sectors. Many actors must work together to supply charging infrastructure, and cities have a crucial role to play thanks to the unique tools at their disposal. Because of this control over land use, Edmonton can remove barriers, incentivize and direct charging deployment even without large-scale municipal-led investment. Edmonton's strategy is to act as a **facilitator and partner** in deployment, while also ensuring equitable access.

Recommended Near-Term Actions

The City should foster investment in public charging in high demand areas. This could involve the following:

- **Communicate & Educate:** Share the findings of this study with key partners, investors and the public to reduce market uncertainty and guide investment decisions.
- **Remove Barriers:** Review the current permit/approval processes for third parties (businesses and private developers) installing EV charging infrastructure and examine opportunities to remove any unnecessary barriers.
- **Residential Support:** Educate residents, rental property owners and condominium corporations on the lowest-cost options for providing charging in MURBs, and connect them with qualified service providers.
- **Investor Collaboration:** Collaborate with utility partners (like EPCOR) to identify sites where electrical capacity upgrades are minimized, offering a service to potential charging investors.

Charging Deployment Priority Framework

The study provides a three-part framework to prioritize charging locations, ensuring deployment is cost-effective, equitable and aligned with City policy. This framework can be used by all partners (City, private, and non-profit) when selecting sites.

1. **Maximize Home and Workplace Charging Access:** Prioritize the use of regulatory and educational tools to ensure charging is deployed at private homes and workplaces first, thereby avoiding the higher costs associated with public charging wherever possible.
2. **Establish Minimum Geographical Coverage:** Over the next five years, ensure a public charging network exists that provides a basic, minimum service level of charging access across **all areas of the city**. This visible infrastructure is vital for building public confidence and accelerating adoption across all demographics.
3. **Top Up Supply in Areas of High Demand:** Over time, foster investment in public charging specifically in areas where home charging access is inherently low (dense MURBs) and in high-traffic commercial corridors and nodes.

We invite you to visualize how the forecasts translate into real-world infrastructure needs by viewing the projected demand for both Level 2 and DCFC public chargers from 2030 to 2050 across the city. The maps can be used to identify high-demand locations where investment in EV charging infrastructure would benefit citizens, provide equitable charging access and promote EV adoption.