

Business Model and Operational Plan: Electric Vehicle Chargers

Town of Lincoln – Electric Vehicle Chargers Steering Committee



VERSION HISTORY

Version #	Date	Author	Key Differences
1	2022-11-01	Michael Gacnik	Initial Draft
2	2023-07-11	Michael Gacnik	Updated to incorporate Steering Committee comments and RFP result figures
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1 Introduction

This document will establish the Town of Lincoln's strategy for installing and operating electrical vehicle charging stations in Town owned parking spaces. As this is the first time the Town will be implementing public electric charging stations, this document is expected to be further refined to suit the changing needs of the community.

This project will improve zero emission vehicle infrastructure in the Town of Lincoln, by enabling the installation of electric vehicle charger connectors and providing infrastructure for future electric fleet vehicles.

Aligning to 2018-2022 Council's Strategic Priority of a Resilient Community and specifically to adapt and respond to a changing climate, this project is an example of the Town's commitment to build and create exceptional public places while preserving natural landscapes, promoting economic development, and prioritizing low-carbon resilience intentionally and strategically.

Project Goals & Objectives:

Connect with and learn from others who have EV Charging connectors in place for some time (i.e., Redstone Winery, Ball's Falls, Beamsville GO Transit, etc.)

- Increase zero-emission infrastructure to support local economic and community development.
- Maintain and protect immediate and surrounding eco-systems including flora, fauna, soils, and water, through the inclusion of green infrastructure/low-impact development in parking lots.
- Enhance existing community spaces and assets for residents and visitors as a means of improving quality of life.
- Apply key lessons learned to ensure the success of future zero-emission infrastructure and green infrastructure initiatives.
- Educate the public and create awareness of the benefits of zero-emission infrastructure technologies, how they work and how they are applicable to their personal lives.
- Build on the success of this installation to inspire future zero-emission infrastructure installations on private property at a scalable level.
- Maintain and enhance natural and built infrastructure and climate resilience and advance municipal asset management through the installation of zero-emission infrastructure.
- Make zero-emission infrastructure projects a normal and regular discussion topic and decision-point for consideration in all municipal projects moving forward.

2 Steering Committee and Roles

A steering committee of Town staff members has been formed to develop the Business Model and Operational Plan and to maintain the program on an on-going basis.

Table 1: Steering Committee Roles

Committee Member	Project Role
Michael Gacnik, Project Manager - Capital Projects (Public Works)	Project Manager
Walter Neubauer, C.E.T, Manager, Capital Projects (Public Works)	Design and Construction
David Warden, Manager, Public and Open Spaces (Community Services)	Facility Operations and Maintenance Lead
Frank Bufalino, Manager of Transportation and Operations (Public Works)	Road Operations and Maintenance / Fleet
Cameron Rotz, Economic Development Officer (Economic Development and Communications)	Tourism and Private Partnerships
Mike Barkway, Manager, Municipal Law Enforcement (Planning and Development)	By-law Enforcement
Rosilee Potter, Manager of Accounting, Finance & Administration (Finance, Administration & Innovation)	Financial Management
Liliana Busnello, Manager of Corporate Communications (Economic Development and Communications)	Communications
Josh Warkentin, Senior Planner, Planning and Development (Planning and Development)	Planning and Development

3 Evaluation of Charging Station Locations

The locations of proposed charging stations have been selected with an objective to maximize occupancy of the charging stations and to provide service to a variety of communities across Lincoln.

New locations and number of electrical vehicle connectors will be evaluated based on available funding and as equipment reaches the end of their typical 10-year service life. The following criteria is to be reviewed during the evaluation of new locations and number of connectors at each location:

- Parking lot must be owned by the Town
- Accessibility for Future Electric Fleet Use (primarily overnight charging)
- Proximity to Highway (less than 5 km preferred)
- Overnight accommodations within 500m
- Commercial facilities within 500m
- Public facilities within 500m
- Usage data collected from the installed charging stations

Exact parking stall locations are to be determined based on function and electrical requirements during the detailed design.

Table 1 - Evaluation of Charging Station Locations - has been developed to summarize the initial 21 electric vehicle connectors to be installed based on the criteria listed above. This table is to be updated as new charging station locations or additional connectors are considered.

Table 2: Evaluation of Charging Station Locations

Location	No. of Proposed Connectors (Level 2)	Future Potential Electric Fleet Use	Nearest Highway Ramp	Overnight Accommodations within 500m	Commercial Facilities within 500m	Public Facilities within 500m
Jordan Village Public Parking Lot (3763 Nineteenth Street)	9	Emergency Services Fleet, Public Works Fleet, Public and Open Spaces Fleet	5km	Jordan House, Inn on The Twenty, Future Hotel (Proposed Development), Private B&Bs	Jordan House Tavern, Inn on Twenty Restaurant, Tay's Treats Bakery, RPM Bakery, Cave Springs Winery, Bus Tour Pickup, various retail stores	Lincoln Museum and Cultural Centre, Hiking Access, Lincoln Fire Rescue & Emergency Services Station 4,

Location	No. of Proposed Connectors (Level 2)	Future Potential Electric Fleet Use	Nearest Highway Ramp	Overnight Accommodations within 500m	Commercial Facilities within 500m	Public Facilities within 500m
						Future Special Events at Main Street Plaza
Rotary Park (5020 Serena Drive)	4	Public and Open Spaces Fleet	3km	N/A	Crabby Joe's Restaurant, Shoppers Drug Mart, Conversations Café, various retail stores	Fleming Memorial Arena, Rotary Park, Lincoln Public Library, Konkle Creek Trail
Municipal Administration Offices (4800 South Service Road)	4	Public Works Fleet, Public and Open Spaces Fleet	1.5km	N/A	Various commercial offices	Town Hall, Town Hall Park, Public Works Yard
Vineland Public Parking Lot (Victoria Ave and Tallman Dr)	2	Fire Station?	4km	N/A	Foodland Grocery, Home Hardware, IDA Pharmacy, Thrift Store, Dentist Office, The Local Restaurant, Just Cooking Restaurant, various retail stores	Lincoln Fire & Emergency Services Station 3
Charles Daley Park, (1969 North Service Road)	2	Public and Open Spaces Fleet	2km	Ramada Beacon Hotel	N/A	Charles Daley Park

4 Procurement and Installation Strategy

The preferred installation and maintenance approach is through a design, build, and operate contract. This is the most effective contract type to allow the Town to meet installation timelines and specify installation and operational requirements. This contract type also minimizes the risk of expensive repairs, minimizes downtime, and does not require specialized training for staff members.

A Request for Proposal (RFP) has been developed by the steering committee and will be used as a basis for future electric vehicle charger installations in accordance with the Town's procurement policy. The request for proposal process allowed for the Town to specify specific installation, hardware, reporting, and maintenance requirements to evaluate the lowest life-cycle cost alternative. Pavement markings and signage for designated parking spaces are to be installed in accordance with Figure 1.

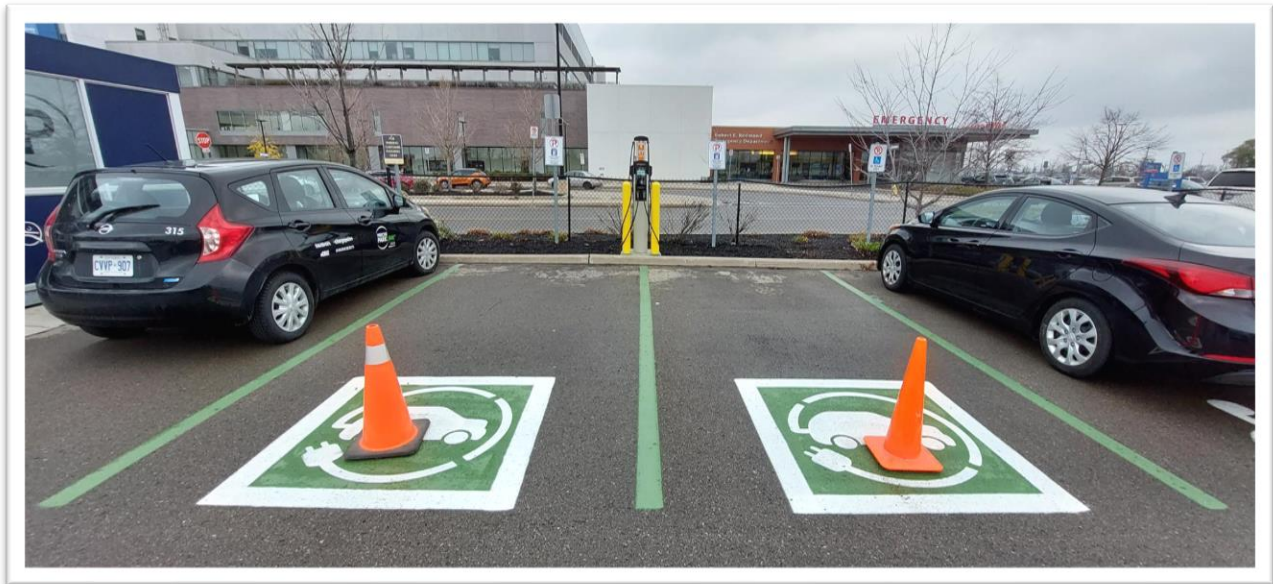


Figure 1: Parking Space Configuration Example St. Catharines General Hospital

5 Maintenance and Operations Strategy

General maintenance including snow removal, signage and pavement markings will be completed by the Town as part of normal Town operations.

The electrical charger operator will be responsible for maintaining the charging stations and payment system in working order. Each charging location will feature a clearly labeled call number to report damage or technical issues.

As selected through the Request for Proposal (RFP) competitive process, charging station operations will be maintained by the ChargePoint Assure Comprehensive Maintenance Program. This program offers comprehensive parts, repairs, inspections, and reporting. A highlight of this maintenance program is a one business day response to requests. The program also features a 98% annual uptime guarantee, where ChargePoint will reimburse lost-service costs if station uptime drops below 98%. This ensures complaints are to be received and addressed in a timely manner by the operator.

6 By-law Enforcement Strategy

Town of Lincoln By-law enforcement officers will routinely inspect stations to ensure only electric vehicles plugged into a charging station are permitted to park in spaces with a designated EV parking sign. Ticketed vehicle owners may be subject to a fine of \$125 under section 30.2 of the Highway Traffic Act.

Tickets can be issued for:

- Parking a non-electric vehicle in a designated EV charging space
- Parking an EV in a designated EV charging space that is not plugged in



Figure 2: Standard sign to be installed to enable enforcement

In addition, Town of Lincoln By-law No. 2022-44 “A by-law to Regulate the Use of Municipal Parks” Part IX: Vehicles General Prohibitions 36. c) prohibits the public to “park or leave a vehicle between the hours of 11:00 p.m. and 7:00 a.m., unless approved by the Director or authorized by a permit;”. As a result, the public will not be permitted to park overnight at Electric Charging Stations. If residents request permission to park overnight for the use of electric charging stations a permit may be issued by the Director of Community Services. The permit would include a liability waiver and requirements for residents to forgo use of the chargers during overnight winter maintenance.

7 Financial Strategy

Overview:

The Town will collect and control user fees of the electric vehicle charges while paying an operational fee to manage the payment system, reporting, and required maintenance or repairs. This approach provides the Town with the flexibility to adapt fees according to the rapidly evolving industry, promoting a lifecycle cost recovery strategy. The financial aim for this program is cost neutrality.

User fees are beneficial for several reasons:

- **Annual Review:** User fees offer the opportunity for yearly reassessment. The Town can establish hourly rates based on projected costs and market trend and adjust fees as necessary to maintain a cost-neutral service.
- **Lifecycle Cost Recovery:** User fees support lifecycle cost recovery. This ensures that chargers can be replaced or upgraded when they reach the end of their service life.
- **Efficient Usage:** User fees incentivize vehicles to move once charging is complete, freeing up spaces for other users, and promoting efficient use of the charging infrastructure.

Hourly Rate Formula:

The following table provides a breakdown of the cost components to establish a cost-neutral hourly rate. The formula assumes a 10-year service life with a 10% average occupancy rate to convert operational costs to hourly rates. General parking lot maintenance costs are assumed under existing operational budgets and therefore not included below.

The average occupancy rate and hourly rate formula will undergo an annual review, using data collected to inform future user-fee decisions in this rapidly evolving industry.

Table 3: Hourly Rate Formula

COST RECOVERY ITEM	DETAILS	HOURLY COST
Operational Fee Recovery	\$71.68 / Month Per Connector	\$ 0.98
Life-Cycle Cost Recovery	Target \$5000.00 Per Connector (Assume 10-Year Service Life)	\$ 0.57
Energy Cost Recovery	\$ 0.103/kWH average x 7.2 kW Maximum Output	\$ 0.74
Total Hourly Recovery Costs		\$ 2.29
10% Revenue Collection Fee (ChargePoint)		\$ 0.23
Total Hourly Rate (Rounded Before Tax)		\$ 2.50
Total Hourly Rate (After HST)		\$ 2.82

This established hourly rate and public notes are summarized in “Appendix A: Electric Charge Station Use – Fee Schedule” to be incorporated into the Town of Lincoln Fees and Charges By-law 2023-01.

Local Market Rate Comparisons:

At present, local organizations charge hourly rates typically ranging from \$1 to \$4 for Level 2 Charging. These rates are determined based on a variety of factors, such as the organization's financial goals and the chargers' occupancy rates. Some locations incorporate electric charging fees within the regular parking fees, while others add them on top. The following table provides a comparison of the market rates from different organizations.

Table 4: Local Market Rate Comparison

ORGANIZATION	FEE STRUCTURE
City of St. Catharines	\$2.75 / Hour
City of Hamilton	\$1.00 (first 4 hours) \$4.00 (thereafter)
Municipality of Clarington	\$1.50 (first 3 hours) \$4.00 (thereafter)

	\$1.50 (nighttime)
*Region of Peel	\$1 / Hour

**Majority of Regional Peel chargers are exclusive for fleet use. The public charging rate was established for partial cost recovery.*

For a comprehensive overview of available electric charging stations and their associated costs, please refer to the ChargeHub.com public charger map available at [this link](#).

Several local businesses offer free charging as part of their marketing strategy. This practice opens opportunities for collaboration between the Town and local businesses. To foster such partnerships and promote higher occupancy rates, the Town has developed a program that allows organizations to sponsor charging fees. For more information on this, refer to Section 8, titled “Private Partnerships Strategy”.

Assumed Occupancy Rate:

The formula for determining a cost-neutral hourly rate is substantially influenced by the projected average occupancy rates throughout the lifespan of the charging stations. The occupancy rate refers to the average number of hours per day that a charger is in use, thereby generating fees. Higher occupancy rates allow cost recovery fees to be distributed across a larger number of hourly charges.

A conservative average occupancy rate of 10% has been established by the steering committee over the anticipated 10-year lifespan of the chargers. This equates to an average daily occupancy of 2.4 hours, or 8,766 hours per connector throughout the 10-year expected service period.

This conservative average occupancy rate allows for a competitive starting point. Occupancy rates are known to fluctuate widely, influenced by factors such as location, fees, local user patterns, and organizational usage. The first year of charging operations will provide a better understanding of actual occupancy rates. It is expected that the initial occupancy rates for the electric chargers will be low, with a gradual increase anticipated over the next decade as electric vehicles become more widely adopted.

The federal government's draft regulations, which propose that at least 20% of new vehicles sold in Canada will be zero-emission by 2026, rising to 60% by 2030, and

reaching 100% by 2035¹, would significantly accelerate the market share of electric vehicles, and consequently, public occupancy rates.

While the Town of Lincoln currently does not possess electric fleet vehicles partially due to a lack of charging infrastructure, electric vehicles will be considered during the procurement process for new and replacement fleet vehicles. As the Town transitions to electric fleet vehicles, organizational usage will contribute significantly to increasing the average occupancy rate. On a recurring basis, fleet vehicles alone may charge for up to 8 hours a day.

Should actual occupancy rates outpace the set targets, the program could reach its life-cycle recovery goal ahead of schedule. In this ideal scenario, the steering committee may review further reducing the hourly rates or updating program goals. On the other hand, should there be periods where occupancy rates fall short of targets, the shortfalls will be temporarily covered by the Town until future revenue collection can offset program costs.

The average occupancy rate and hourly rate formula will undergo an annual review, using data collected to inform future user-fee decisions in this rapidly evolving industry.

Operational Financial Tracking:

The ongoing financial tracking and annual rate assessment for the program will be managed by the Town's Community Services Department, in collaboration with the Finance Department.

Through a competitive Request for Proposal (RFP) process, the Town has selected a comprehensive operational package from ChargePoint Assure Program, which comes at a monthly cost of \$71.68 per connector. With the Town's initial installation of 21 connectors the Town will be responsible for an annual fee of \$18,063. The user fees collected will be allocated to the project account to offset these operational costs as detailed in the previous sections.

ChargePoint will also provide us with a live dashboard, allowing for real-time monitoring of charger occupancy rates, collected fees, and system settings modifications. The initial setup of this dashboard will be conducted by our project consultant, Blackstone Energy Services Inc., who will further offer a comprehensive training session for Town

¹ Canada, G. o. (2022, December 21). Environment and Climate Change Canada News Release. Retrieved from Government of Canada: <https://www.canada.ca/en/environment-climate-change/news/2022/12/let-it-roll-government-of-canada-moves-to-increase-the-supply-of-electric-vehicles-for-canadians.html>

staff. This ensures that staff is fully equipped to leverage the platform efficiently for managing and optimizing the charger infrastructure.

8 Private Partnerships Strategy

Numerous local businesses, including Bench Brewing and local wineries, are currently offering no-fee electric vehicle charging as a customer-oriented marketing strategy. This scenario offers an opportunity for the Town to work with local businesses to allow the public to charge their vehicles at no cost while presenting a unique marketing avenue for the local businesses.

The Town plans to provide an opportunity for local businesses to sponsor public electric charging stations. As part of this initiative, a dedicated sign bearing the sponsor's name or logo would be installed on the selected charger(s), indicating that the business is covering the charging costs. An example of the sign configuration is illustrated in **Figure 2** below.

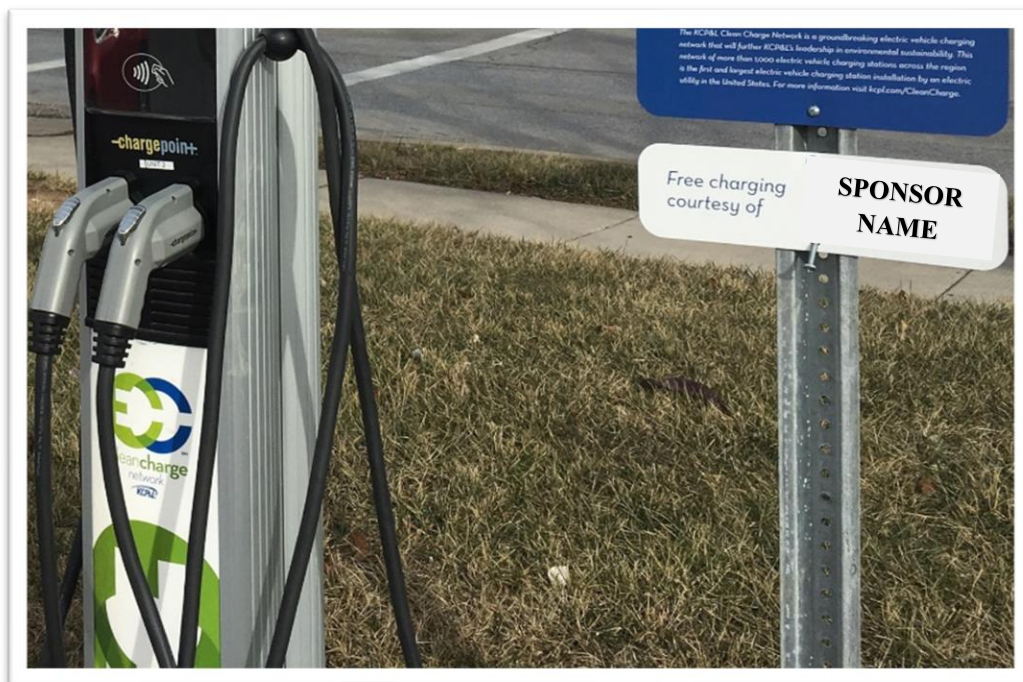


Figure 2: Example sponsorship sign “Free Charging Courtesy of Business Logo”

To keep the program cost-neutral for the Town, sponsors would be asked to pay an initial service fee of \$300, which would cover the sign installation costs. Following this,

charging for public vehicles would be free, with the associated user fees invoiced to the sponsor on a monthly basis. Please note that charging costs for fleet vehicles are excluded from these sponsorship fees.

In other efforts to collaborate privately, The Town will also share program information with businesses to promote future private installations of electric charging stations through the project's communications strategy.

9 Communications Strategy

The main communication objective for this project is to educate the public and create awareness of the benefits of zero-emission infrastructure technologies, how they work and how they are applicable to their personal lives.

Town staff will implement comprehensive communication campaigns that incorporate both digital and print tools, such as newsletters, media releases, social media. The campaign will share information as well as corporate success stories to inform on charging etiquette, parking and signage, green infrastructure elements, and opportunities for the local private sector to advance zero-emissions infrastructure on private property.

A webpage will be developed to summarize information on zero emissions, and QR codes will be advertised at each charging station location for users to learn more.

Town staff will also engage with the community to guide program development and establish future opportunities for other EV charger locations.

Appendix A: Electric Charge Station Use – Fee Schedule

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Table 1: Fee Schedule

Service	Fee
Level 2 - Electric Vehicle Station Use	\$2.50 + HST / Hour

Notes:

Parking Spaces may be reserved on a first come first serve basis. Hourly user fees will continue to apply if vehicles remain connected after the vehicle reaches full charge.

Parking tickets can be issued for parking a non-electric vehicle in a designated EV charging space and parking an EV in a designated EV charging space that is not plugged in. Ticketed vehicle owners may be subject to a fine of \$125 under section 30.2 of the Highway Traffic Act.

Charging stations may be sponsored by private organizations and will be available free to the public as signed.

Overnight parking is prohibited between the hours of 11:00 p.m. and 7:00 a.m. (Town of Lincoln By-law No. 2022-44) However, residents may apply for an overnight parking permit, please contact Town of Lincoln Community Services to apply.