TO:	**GENERAL COMMITTEE**
SUBJECT:	**ELECTRIC VEHICLE SUPPLY EQUIPMENT MANAGEMENT**
WARD:	**ALL**
PREPARED BY AND KEY CONTACT:	**A. MCMULLIN, MANAGER OF ENERGY MANAGEMENT**
SUBMITTED BY:	**R. PEWS, P.ENG., DIRECTOR OF CORPORATE FACILITIES**
GENERAL MANAGER APPROVAL:	**D. MCALPINE, GENERAL MANAGER OF COMMUNITY AND CORPORATE SERVICES**
CHIEF ADMINISTRATIVE OFFICER APPROVAL:	**M. PROWSE, CHIEF ADMINISTRATIVE OFFICER**

RECOMMENDED MOTION

1. That the Director of Corporate Facilities issue a request for proposals and be authorized to enter into an agreement with the successful third-party turn-key service provider for the replacement and upgrade of the current downtown Electric Vehicle Supply Equipment (EVSE) under the following general parameters and with terms subject to approval by the Director of Legal Services and the Director of Transit and Parking Strategy:

    a) The third-party turn-key service provider would be responsible for the provision and installation of replacement and/or upgrading of existing EVSE in the downtown with universal charging stations, at no cost to the City;

    b) The third-party turn-key service would be responsible for decisions related to the number and location of EVSE in consultation with the City;

    c) The third-party turn-key service would be responsible for management of operational aspects related to the EVSE including maintenance, client services, as well as setting, collecting and overseeing fee and charging services;

    d) The third-party turn-key service would be responsible for maintenance and other operating costs associated with the equipment;

    e) The third-party turn-key user would be responsible for providing the City with data concerning utilization of the EVSE.

2. That the Director of Corporate Facilities be authorized to amend the agreement with the turnkey service provider to accommodate the inclusion of additional electric vehicle supply equipment or to modify the terms of the agreement as needed.

PURPOSE & BACKGROUND

Purpose

4. The purpose of this staff report is to provide Council an update on future opportunities for replacement, management and operation of the downtown and marina electric vehicle supply equipment (EVSE) and to recommend an approach to modernize this service moving forward.

Background

5. In 2016, Council passed Motion 16-G-306, directing that "All Level II Electric Vehicle Charge Stations installed by the City of Barrie offer free charging of vehicles." As a result, users currently incur no charging fees for utilizing these stations; however, standard parking fees still apply for the use of pay parking lots. Further details are available in Staff Report FCT005-16: Investigation – Installation of Level II EV Charging Stations dated December 12, 2016.

6. In 2017, Council approved Motion 17-G-285, titled 'Tesla Charging Infrastructure Investment,' which allowed for the installation of public Electric Vehicle Supply Equipment infrastructure at no capital cost to the City. A total of 54 public charging stations were subsequently installed in the city's downtown area, strategically dispersed across the Collier Street Parkade, Downtown Library, Heritage Park, and Marina locations. All of these charging stations were fully operational by 2018. Further details are available in Staff Report FCT008-17: Tesla Charging Infrastructure Investment dated on October 30, 2017.

7. In 2020, Council passed Motion 20-G-082 to formalize the City's approach to providing and operating EVSE within the City, and to bring it into alignment with Provincial Bill 123. Bill 123 amended the Highway Traffic Act with respect to parking in designated spaces serviced by electric vehicle charging stations. Motion 20-G-082 was carried as amended to include "That once normal parking operations resume, parking fees for Electric Vehicle stalls in the Collier Street Parkade be waived for a 12-month period." Further details are available in Staff Report TSP002-20: Electric Vehicle Charing Stations dated May 25, 2020.

8. In 2021, the City partnered with Alectra Energy Services Inc (Alectra), backed by the support of the Natural Resources Canada (NRCAN) Zero Emission Vehicle Infrastructure Program (ZEVIP). This collaboration resulted in the installation of ten additional electric vehicle (EV) charge stations situated at four of the City's recreation centres, namely the East Bayfield Community Centre, Peggy Hill Team Community Centre, Allandale Recreation Centre, and Sadlon Arena. Pursuant to the terms of the turnkey agreement, Alectra assumes responsibility for all operational, capital, and maintenance costs and services associated with the electric charge stations at the recreation facilities. Further details are available in Staff Report FAC003-21: Zero Emission Infrastructure Project (ZEVIP) dated June 21, 2021.

9. In 2023, Council passed Motion 23-G-222, as amended, directing City staff to provide a comprehensive report regarding EVSE, as well as to investigate the feasibility of extending the limitations of the Waterfront Parking Permit to include the designated EVSE at the Marina. The amended motion included imposing restrictions on electric vehicle users while charging at a net zero cost to taxpayers.

ANALYSIS

10. Demand and utilization of the downtown EVSE has increased since the installation of the units in 2018. There was sharp increase in electricity consumption of 60% in 2023 compared to 2022. Table 1 outlines the total annual electricity usage and cost for the downtown public charge stations from 2018 – 2023.

Table 1: EV Charge Station Usage Summary 2018 - 2023

Year	Consumption (kWh)	Hydro Cost ($)
2018	17,413	$2,308
2019	56,662	$8,022
2020	8,141	$1,202
2021	79,987	$10,464
2022	111,601	$15,192
2023	178,022	$24,147

11. In 2023, approximately 50% of the total downtown EVSE electricity usage occurred at the Heritage Park site, with the Collier Street Parkade accounting for 27%, and the Library and Marina contributing 16% and 12%, respectively. Paid parking is only required Monday to Friday from 9:00 am to 5:00 pm in downtown lots which includes the Heritage Park parking lot. This has resulted in heightened utilization of the charge stations, as patrons seize the opportunity to charge their vehicles at no cost. The Library parking lot has a three hour maximum occupancy to deter non-library patrons from long term parking, and the Marina lot is exempt from the waterfront parking permit program. Both of these policies impact EVSE utilization at these sites.

12. In the initial four years of operation, there were minimal maintenance requirements. Nevertheless, with the expiration of the warranty period for the EV charge stations, there has been a growing number of breakdown incidents, resulting in increased downtime for the electric vehicle chargers. In 2023, Corporate Facilities staff were dispatched to sixteen equipment failure complaints from residents and has had to replace seven of the charge stations due to failure.

13. The charging stations consist of a combination of universal and Tesla units, lacking 'smart' functionality. The absence of smart features restricts operational staff from diagnosing or remotely addressing equipment downtime effectively. As well, Staff are unable to implement charging fees for usage and accessing utilization and operational data from these units.

14. Staff reached out to other municipalities and conducted a scan to solicit information regarding the operations, management and future plans for public charging infrastructure. Here is a summary of the findings:

- Surrounding jurisdictions (Simcoe County, City of Orillia, Innisfil) include a fee to charge on publicly available level 2 chargers. These charges range from $2.00 to $2.15 per hour of use.
- Municipalities incur annual service fees associated with smart chargers, ranging from $200 to $1,610 per charge head per year.
- Several local governments, including the City of Markham, the City of St. Catharines, City of Guelph, have effectively utilized ZEVIP grant funds to facilitate the implementation of EVSE. Typically, these implementations entail establishing a turnkey revenue-sharing arrangement with a charging station provider like IVY or FLO. Despite generating revenue, the overall income is limited and falls short of covering operational and utility expenses.
- None of the municipalities that responded provide special parking provisions for their EVSE infrastructure.

15. Public feedback has been gathered by staff, comprising comments, recommendations, and suggestions received since the installation of the units. Additionally, two surveys were conducted, one in the summer of 2018 and another in the spring of 2023, the major themes of this feedback are outlined below:
    - Downtown parking is limited in the summer, dedicated EV spaces reduce parking availability.
    - Charge stations should all be universal, Tesla charge stations limit accessibility.
    - The Marina parking lot is underutilized in the winter and shoulder seasons. Parking fees are prohibitively expensive to charge a vehicle.
    - Patrons should pay to use the charge station; providing free charging raises a fairness and equity concern.
    - Downtown charging infrastructure provides opportunities for residents to access charging infrastructure that reside in high rise buildings.

Recommendation Rationale

16. Staff recommend establishing a partnership with a third-party service provider to rejuvenate the City's downtown and Marina ESVE infrastructure. The turnkey service model is designed to mirror the current arrangement with Alectra for the recreation facility charge stations, involving the management of operational aspects, maintenance, client services, as well as overseeing fee and charging services. The existing Alectra turnkey agreement incurs no capital or ongoing operating costs for the City. Alectra and other vendors would be able to submit proposals for this opportunity.

17. Renewing the EVSE infrastructure and outsourcing the service to a third-party provider will address various concerns raised by residents and bring forth additional benefits, including:
    - Transitioning all charging stations to universal models for enhanced accessibility to all EV owners
    - Implementing a charging fee for patrons
    - Lowering operational and maintenance costs incurred by the City
    - Recouping utility expenses
    - Eliminating future capital expenditures

18. Moving to 'smart' chargers will deliver comprehensive utilization data. This information will allow the City and the third-party service provider to fine-tune the deployment of charge stations in the downtown area and other locations. It enables the strategic relocation, removal, or addition of charge stations at specific locations, responding to demand for public charging. This approach aims to strike a balance during high-demand periods, such as the summer, by effectively managing dedicated EV parking spaces and traditional parking spots.

19. Implementing a charging fee can increase the utilization of the charging stations for their intended purpose. Presently, at downtown parking locations offering free parking times, EV patrons may occupy charge stations for extended periods of time when not charging, limiting access to these spaces from those who require them. Introducing a charging fee for EV patrons will encourage a more efficient turnover of these locations. As the intent is for the third-party service provider to procure and install the infrastructure at no cost to the City, the provider would recover its costs through the charging fee. The provider would establish the fee, manage the fee collection system and retain the net revenues.

20. The City is not currently staffed to physically monitor the downtown ESVE and relies on user feedback to identify issues with it. Third party service providers have dedicated resources to monitor equipment, handle customer service, troubleshoot technical and operational issues, and to address challenges related to payment matters. The effectiveness of this service may be further bolstered through integration with smart charging infrastructure, offering alerting and triaging support in case of issues. This approach significantly improves customer service compared to the current setup, where City operational staff can only address complaints that are escalated by EV patrons.

21. Staff were directed to investigate the feasibility of extending the limitations of the Waterfront Parking Permit to include the designated EVSE at the Marina. Enforcing parking fees imposes restrictions on residents who are electric vehicle users at the Marina lot. Staff are not recommending implementing additional allowances, limitations, and/or special provisions at the Marina parking lot. This can lead to greater confusion to all parking users by complicating messaging and equity concerns related to regulations in the by-laws for electric vehicle and internal combustion engine owners.

ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS

22. Electric vehicles, which are powered by electricity obtained from the Ontario electrical grid, offer environmental benefits by reducing life-cycle greenhouse gas emissions when compared to traditional gasoline or diesel-fueled vehicles and avoid having the same impact on air quality from fuel powered vehicles.

23. In 2022, Council approved a community energy and greenhouse gas emission reduction plan ‘Inspiring Climate Action in Barrie’ and endorsed a target of net-zero greenhouse gas (GHG) emissions by 2050. The plan recognizes that the transportation sector accounts for 56 percent of community emissions and identifies several strategies to reduce these emissions, including to ‘Advance the adoption of electric vehicles by creating an ‘EV-ready City’’. This includes enabling actions to improve access to EVSE through the deployment of publicly available charging infrastructure. Renewing and optimizing the management of the downtown EVSE infrastructure will aid in improving the utilization of the existing downtown charging stations and support the implementation of the City’s climate action plan.

ALTERNATIVES

24. The following alternatives are available for consideration by General Committee:

Alternative #1 General Committee could choose not to proceed with a third-party partnership option and maintain the status quo.

This alternative is not recommended as it would not address the operational issues identified by the public and will not maximize the utilization of the downtown area EVSE.

Alternative #2 General Committee could recommend that the City renew and upgrade the EVSE infrastructure and operate and manage the service in house.

Although this alternative is available, this would require significant capital investment and operational resourcing to be managed. The required capital investment produces a poor business case whereby revenue generated from charging fees does not offset the operational and capital costs over the lifespan of the infrastructure.

Alternative #3 General Committee could choose to waive parking fees for residents with EVs while charging at paid parking lots upon completion of a third-party agreement for EVSE.

This alternative is not recommended as it would introduce additional complexity and confusion to the parking system for customers. In addition, it could set a precedent likely to prompt similar requests and concessions elsewhere in the parking system, potentially fostering debates regarding equity and fairness between drivers of electric vehicles and those using internal combustion engines.

FINANCIAL

25. Leveraging the partnership opportunity of a no cost third-party turnkey service provider includes several potential benefits:

- Eliminate utility costs associated with powering the EVSE. In 2023, hydro costs for the downtown ESVE exceeded $24,000, a sharp increase from 2022 costs. If utilization continues to grow, in addition to hydro rate inflationary pressures, utility costs will continue to escalate significantly.
- Minimize upcoming financial obligations by revitalizing the EVSE infrastructure. The expected lifespan of the EV charge stations is 10 years, and replacement and upgrades will be necessary in the next five years. The estimated cost for this replacement and upgrade is $180,000.
- Eliminate $3,500 in annual maintenance related costs.
- Avoid ongoing service fees associated with 'smart' charger functionality, which ranges from $200 to $1,650 per charge head per year.

26. The current EVSE grant funding initiatives, including the NRCAN ZEVIP and EV ChargeON Program, do not extend eligibility for the upgrading or replacement of existing ESVE.

LINKAGE TO 2022-2026 STRATEGIC PLAN

27. The recommendation(s) included in this Staff Report support the following goals identified in the 2022-2026 Strategic Plan:

☒ Infrastructure Investments

☒ Responsible Governance

28. The recommendations of this staff report support the infrastructure investments and responsible governance strategic plan goals by renewing EVSE infrastructure and reducing operational costs through a third party partnership opportunity.