REPORT TO COUNTY COUNCIL

FROM: Brian Lima, Director of Engineering Services

DATE: January 27, 2021

SUBJECT: Zero-Emission Vehicle Infrastructure Program

RECOMMENDATION:

THAT the report titled “Zero-Emission Vehicle Infrastructure Program” from the Director of Engineering Services, dated January 27, 2021, be received and filed; and,

THAT County Council provide staff direction on the desired electric vehicle charging station option.

INTRODUCTION:

At their meeting on December 10th, 2020, County Council passed the following resolution:

> *RESOLVED THAT the report titled “Zero-Emission Vehicle Infrastructure Program – Phase 2 Funding Award” from the Director of Engineering Services, dated December 1, 2020, be received and filed;*
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> *THAT the Warden and Chief Administrative Officer be authorized to sign the Contribution Agreement;*
>
> *THAT the County’s funding project contribution in the amount of $52,218 be preapproved in the 2021 capital budget; and,*
>
> *THAT staff be directed to provide a report detailing the costs associated with electric charging stations and metering options for Council’s consideration.*

This report details the costs associated with electric charging stations and metering options.

DISCUSSION:

Zero-Emissions Vehicle Infrastructure Program (ZEVIP)

The Government of Canada has set federal targets for zero-emission vehicles (ZEV) reaching 10% of light duty (LDV) sale per year by 2025, 30% by 2030 and 100% by

2040. Access to localized and visible charging infrastructure is key to alleviate consumer concerns about where to charge their vehicle. To that end, the Government of Canada announced $130 million over five years (2019-2024) to deploy a network of zero-emission vehicle charging (Level II and higher) and refuelling stations in more localized areas where Canadians live, work and play.

Last summer, Natural Resources Canada (NRCan) sought applications from eligible organizations to distribute funding through its Zero-Emissions Vehicle Infrastructure Program (ZEVIP – hereinafter also refer to as Program) to install a minimum of 20 electric vehicle charging stations as part of an infrastructure project in public places, on-street, in multi-unit residential buildings, at workplaces or for light-duty vehicle fleets. Successful proposals, like that of Elgin County's joint public-private partnership funding project proposal in partnership with the Municipality of Central Elgin, and ERTH Corporation, received funding for up to 50% of total project costs, to a maximum of $5,000 per connector.

The joint project involves the installation of twenty (20), Level II electric vehicle connectors at the following locations:

Location	Organization	Quantity of Level II Connectors	Public Charging Availability
Administration Building	County	4	Yes
Provincial Offences Act Building	County	2	Yes
Terrace Lodge	County	1	Yes
Elgin Manor	County	1	Yes
Bobier Villa	County	1	Yes
Whites Station*	County	4	No
Port Stanley Firehall	Central Elgin	2	Yes
Port Stanley Arena	Central Elgin	2	Yes
280 Elm Street - Aylmer	ERTH Corporation	1	N/A
180 Whiting Street - Ingersoll	ERTH Corporation	2	N/A

* Note – Facility electricity costs paid for by tenant.

Electric Vehicle (EV) Charging

According to the Ontario Ministry of Transportation's website last modified on December 22, 2020, on average a typical battery electric vehicle (EV) will cost less than $530 per year, or about $1.45 per day to charge at night.[1]

A typical plug-in hybrid EV will cost about $700 per year, or $1.92 per day for fuel (including gasoline and electricity costs).[2]

Comparable gasoline cars can cost about $2,500 per year to fuel - up to eight times more money spent each day.[3]

An independent operational cost evaluation undertaken by staff, inclusive of all electricity, extended warranty, maintenance, and Program required network solution fees, is anticipated to cost approximately $1.60 per hour to charge an EV.

All twenty (20) charging connectors to be installed as part of this project, will utilize Level II EV charging equipment. Level II charging equipment has similar electrical requirements to a clothes dryer or stove (240 Volts/30 Amps), and one hour of charging is equivalent to approximately 30 km of driving range[4].

In accordance with Program funding requirements, the manufacturer and/or supplier of the charging equipment will be selected through a formal request for proposal or tender process, and is required to support the Project with the supply of all charging hardware, provision of a cloud-based network management/annual reporting solution, complete with maintenance and warranty support for all charging connectors.

For those charging station locations whereby, the public will have an opportunity to charge EVs, pricing options available through the manufacturer's cloud-based web portal and onsite transaction kiosk provides station owners with the flexibility to choose how they wish to implement charging services. In an effort to seek Council's desired EV charging rate structure, Council may wish to consider allowing the broader public use of the charging stations for a nominal fee which would be consistent with industry standards observed across numerous networks in Canada. Industry observed charging options include:

1. Free charging for all users anytime; or,

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[1] Value for Nissan Leaf, adapted from Natural Resources Canada 2018/19 Fuel Consumption Guide, using Ontario off-peak electricity prices, based on an average annual driving distance of 20,000 km.
[2] Value for Chevrolet Volt, adapted from Natural Resources Canada 2018/19 Fuel Consumption Guide, using Ontario off-peak electricity prices and a gas price of $1.20/litre, based on an average annual driving distance of 20,000 km.
[3] Estimate based on values from Natural Resources Canada 2018/19 Fuel Consumption Guide and a gas price of $1.20/litre.
[4] https://www.plugndrive.ca/guide-ev-charging/

2. Free charging for corporate fleet, and public use is charged a nominal fee per hour.

A review of EV Level II charging fees available through web applications like PlugShare https://www.plugshare.com/ or ChargeHub https://chargehub.com/, for all local public charging station locations within a 30-minute driving range of the County's Administration Building, determined that charging fees vary in pricing anywhere from being free to $2.40 per hour. Based on the aforementioned anticipated operational costs, staff envisions that a competitive hourly charging station rate fee is likely to be somewhere between $1.75 to $2.00 per hour, necessary to fund its anticipated operational costs and future lifecycle replacement of the charging equipment hardware. Should Council elect to impose a fee, staff will prepare and table a future report providing its recommendation of an appropriate EV charging rate fee following procurement of the charging equipment hardware and installation service.

Subject to Council's charging option and hourly port fee direction, an amendment to the County's Fees and Charges By-Law No. 20-18 may be required to include a new electric vehicle charging station charge rate fee.

FINANCIAL IMPLICATIONS:

The County of Elgin's successful joint public-private partnership funding project proposal involves the installation of twenty (20) electric vehicle charging station at an estimated cost of $216,040, and received the maximum ZEVIP funding contribution in the amount of $100,000. The project costs will be funded as follows:

County of Elgin	$52,218
Municipality of Central Elgin	$46,416
ERTH Corporation	$17,406
NRCan ZEVIP Funding	$100,000
PROJECT TOTAL:	**$216,040**

ALIGNMENT WITH STRATEGIC PRIORITIES:

Serving Elgin	Growing Elgin	Investing in Elgin
☐ **Ensuring alignment of current programs and services with community need.** ☒ **Exploring different ways of addressing community need.** ☒ **Engaging with our community and other stakeholders.**	☐ **Planning for and facilitating commercial, industrial, residential, and agricultural growth.** ☒ **Fostering a healthy environment.** ☐ **Enhancing quality of place.**	☒ **Ensuring we have the necessary tools, resources, and infrastructure to deliver programs and services now and in the future.** ☐ **Delivering mandated programs and services efficiently and effectively.**

LOCAL MUNICIPAL PARTNER IMPACT:

The ZEVIP funding will allow the Municipality of Central Elgin to install electric vehicle charging station connectors at select municipal facilities, and made available for both workplace and public use.

COMMUNICATION REQUIREMENTS:

None.

CONCLUSION:

Natural Resources Canada's Zero-Emission Vehicle Infrastructure Program (ZEVIP) recently awarded the County of Elgin, in partnership with the Municipality of Central Elgin and ERTH Corporation, with application-based funding in the upset amount of $100,000 to the install the majority of the twenty (20) Level II electric vehicle charging station connectors at key municipal facilities throughout the County.

As it specifically pertains to charging of public personal electric vehicles, there generally exists two industry standard charging service provision options for Council's consideration, which either allows the public the ability to charge an electric vehicle for free, or for a reasonable hourly charging fee.

A detailed operational cost evaluation undertaken by staff, inclusive of all electricity, extended warranty, maintenance, and Program required network solution fees, is anticipated to cost approximately $1.60 per hour to charge an electric vehicle.

Subject to Council's charge option direction, an amendment to the County's Fees and Charges By-Law No. 20-18 may be required to include a new public personal electric

vehicle charging rate fee. Should Council elect to impose a fee, staff will prepare and table a future report providing its recommendation of an appropriate EV charging rate fee upon receipt of all projected costs following procurement the charging equipment hardware and installation service.

All of which is Respectfully Submitted

Brian Lima
Director of Engineering Services

Approved for Submission

Julie Gonyou
Chief Administrative Officer