

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON NOVEMBER 1, 2016
FROM:	JAY STANFORD, M.A., M.P.A. DIRECTOR, ENVIRONMENT, FLEET & SOLID WASTE
SUBJECT:	UPDATE ON THE PROVINCIAL PUBLIC ELECTRIC VEHICLE (EV) CHARGING APPLICATION PROCESS AND NEXT STEPS

RECOMMENDATION

That on the recommendation of the Director – Environment, Fleet & Solid Waste, the following report **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

Relevant reports that can be found at www.london.ca under City Hall (Meetings) include:

- Responding to the Provincial Public Electric Vehicle (EV) Charging Stations Application Process and Related Updates (March 29, 2016 meeting of the Civic Works Committee, Agenda Item #13)

STRATEGIC PLAN 2015-2019

Municipal Council has recognized the importance of climate change, transportation, innovation and other related environmental issues in its 2015-2019 - Strategic Plan for the City of London ([2015 – 2019 Strategic Plan](#)). Expanding the network of charging stations for electric vehicles supports three of the four Areas of Focus:

Building a Sustainable City

- Convenient and connected mobility choices
- Strong and healthy environment

Growing our Economy

- Local, regional, and global innovation
- Strategic, collaborative partnerships

Leading in Public Service

- Collaborative, engaged leadership
- Excellent service delivery

BACKGROUND

PURPOSE:

The purpose of this report is to provide the Civic Works Committee and Council with an update on the outcome of the submissions to the Ontario Ministry of Transportation's Electric Vehicle Chargers Ontario (EVCO) Program, potential next steps for the City of London, and EV uptake in London and elsewhere.

CONTEXT:

The Province of Ontario's Electric Vehicle Chargers Ontario (EVCO) Program was a one-time competitive application-based grant program designed to cover the purchase and installation cost of public fast-charging stations for EVs along major inter-city transportation corridors and in urban centers across the province. London Hydro staff, with assistance from City of London staff, provided support for the two known proponents interested in London

locations - Sun Country Highway and Plug'n'Drive Ontario. The application period closed in February 2016.

In February 2016, Province of Ontario announced significant financial incentives for the various EV models. The incentive for lower-cost EV models was increased from a maximum of \$8,500 up to a maximum of \$13,000, whereas the incentive for luxury EVs models (e.g., Tesla Model S, etc.) was reduced from \$8,500 to \$3,000.

The City of London led a pilot project in 2012 and 2013 to install Level 2, 240 volt EV charging stations at the City Hall Lower Level Parking Garage, Budweiser Gardens and Covent Garden Market. The Covent Garden Market location was discontinued and repurposed as a CarShare location, but the other two remain in operation. In the last three months, the City Hall charging station has experienced over 75 percent utilization during weekday business hours, while remaining available to the public outside business hours.

London's Community Energy Action Plan has a transportation-specific goal to decrease the amount of petroleum-based fuel used per capita by 15 percent from 2012 levels by 2018. As of 2015, petroleum-based fuel used per capita has actually increased by four percent since 2012. EVs are anticipated to be a small but important part to help reverse this trend and achieve this goal.

DISCUSSION

An Overview of Electric Vehicle Chargers

Electric vehicle charging technology is classified in to the following three levels depending on their power output:

- "Level 1" - a 120 volt alternating current (AC) standard wall outlet capable of adding about 6 to 8 kilometres of range per hour;
- "Level 2" - a 208 – 240 volt AC outlet, similar to the heavy-duty power supply used for an electric oven or clothes dryer, capable of adding about 10 to 35 kilometres of range per hour depending upon the type of EV (higher for battery-only EVs); and
- "Level 3" – a 480 volt direct current (DC) vehicle charger capable of adding about 100 to 200 kilometres of range in about 20 minutes depending upon the EV.

To date, there are nine publicly-available Level 2 EV charging stations in London, as shown on the map in Appendix A.

Electric Vehicle Chargers Ontario Program (EVCO)

On April 28, 2016, the Ontario Ministry of Transportation announced the outcome of their EVCO program. It is our understanding that three new EV charging stations will be installed in London by March 31, 2017 (locations shown in Appendix A) as a result of the EVCO program:

- Four Level 2 chargers in downtown London, located in London City Centre's parking garage,
- Two Level 2 chargers in south London, located at the Wellington Commons plaza at 1210 Wellington Road, and
- One Level 3 charger in east London, located at the Tim Hortons at 146 Clarke Road.

All three locations were part of a large \$11.4 million application from Koben Systems Inc. of Mississauga, Ontario, who worked in partnership with organizations such as McDonalds, Tim Hortons and Impark. Proximity to quick-service restaurants and shopping were defined key site selection criteria for the EVCO program.

This will bring the number of publicly-accessible stations to 12, a 33 percent increase over the current number of locations. The total number of chargers in London has increased from 13 to 20, a 54 percent increase.

For intercity travel between London and other major urban centres in Ontario, the EVCO program will be funding the installation of fast-charging Level 3 stations along the 401/402/403 corridor in highway-accessible locations in Brantford, Chatham, Ingersoll, Strathroy and Woodstock.

Neither of the two previously-known proponents - Sun Country Highway and Plug'n'Drive Ontario – were successful in their applications for sites in London.

It is suspected that Plug'n'Drive Ontario's application may have been too ambitious. Plug'n'Drive was the lead proponent for a large, province-wide EV charging network supported by a technology and equipment suppliers, a consortium of 18 electricity distribution companies (including London Hydro), and several larger organizations. This one application alone proposed 95 Level 3 charger locations, 749 public Level 2 charger locations, and 89 workplace Level 2 charger locations across Ontario with a total proposed cost over \$16 million equal to 80 percent of the available EVCO funding.

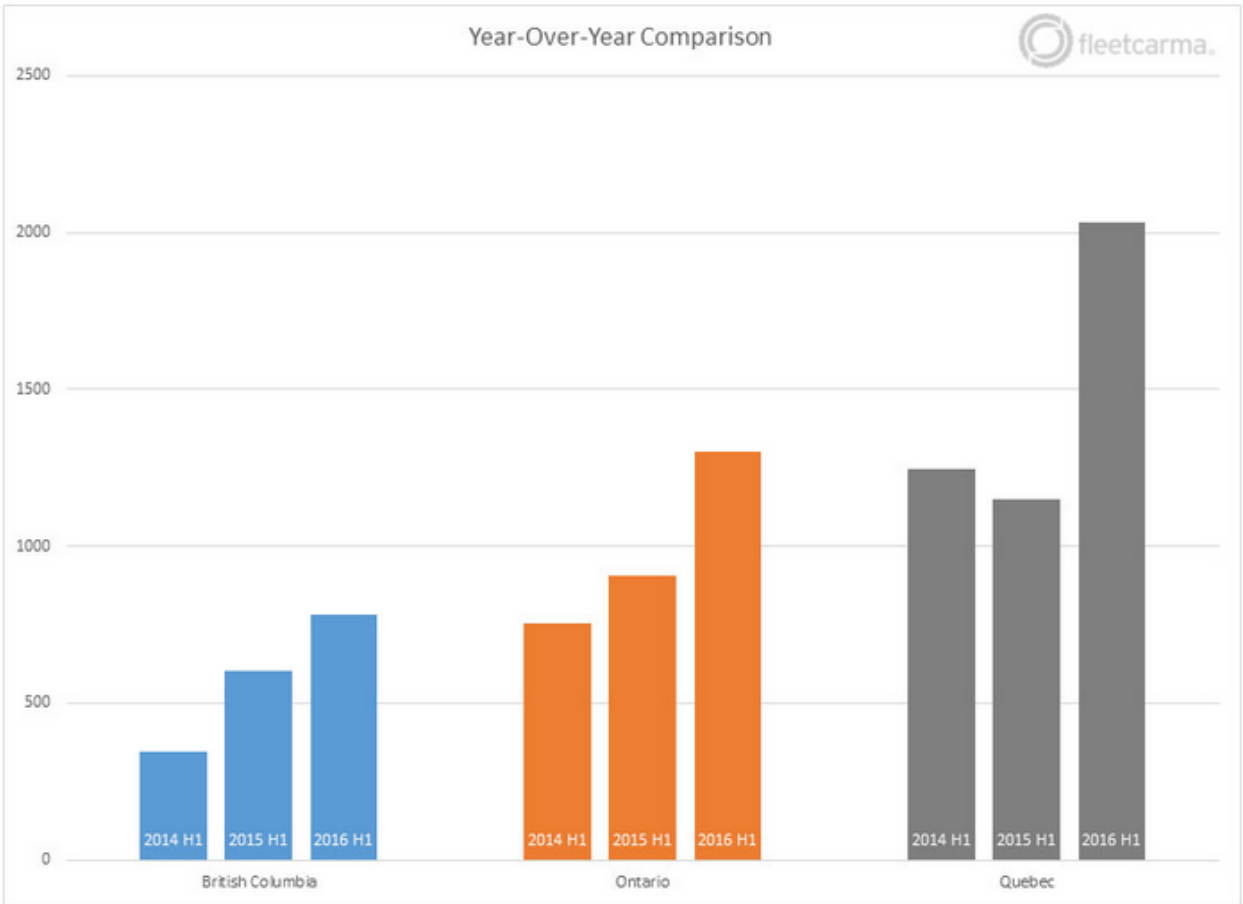
The locations supported by Sun Country Highway were likely deemed to be too close to the Wellington Commons location within the winning bid.

City staff suspect that the EVCO Program was oversubscribed, and that MTO had to pick and choose from the range of applicants to achieve a balance in terms of EV charger locations across Ontario as well as proponents selected.

Future Provincial Action on EV Charging Infrastructure

Future plans for EV charging depends upon the public's uptake of EVs. With the changes of provincial incentives in February 2016, the pace of EV sales in Ontario has increased significantly in the first half of 2016 compared to previous years. As of June 30, 2016, there are now over 7,200 EVs on the road in Ontario.

Figure 1 – January-to-June Electric Vehicle Sales in British Columbia, Ontario, and Quebec over 2014 – 2016



Source: Fleet Carma, 2016

At this point in time, there is no recent information on EV ownership in London, although as of July 2014 there were about 100 EVs registered in London. The London Electric Vehicle Association maintains a Facebook group page to promote EV ownership and new EV charging locations in London, and currently has 128 followers.

In September 2016, the Premier of Ontario issued mandate (program direction) letters to the Ministers of many ministries. The Ministry of Transportation Ontario has been tasked to increase the uptake of EVs by annually reviewing the Electric Vehicle Incentive Program for 2017 and delivering additional rounds of the EV Chargers Ontario program to help make Ontario the easiest jurisdiction in North America to charge an electric car. Consistent with this aim, no less than three Ministerial mandate letters include direct instructions with respect to facilitating the adoption of EVs.

The impending availability of lower-cost 300+ kilometre range battery EVs such as the upcoming 2017 Chevrolet Bolt, and future models such as the Tesla Model 3 and second-generation Nissan Leaf, are also expected to increase demand for EVs.

NEXT STEPS

The future of electric vehicles in Ontario and Canada continues to be a priority. What has not been made clear is the potential role for municipalities. To date, most Ontario municipalities have played a limited role, primarily through the installation of charging stations at their city/town halls and one or two major recreation centres. The City of Toronto, through its parking authority, has the most aggressive plan to date, with its five-year plan to provide EV charging stations at all Green P parking lots across Toronto.

The City of London has been engaged in a charging station pilot project, provided opportunities for industry members to raise awareness about the benefits of EVs and has supported the work of London Hydro. For now, our current plans are:

- In anticipation of this second round of EVCO charging station locations, City staff will further review existing municipally-owned and operated downtown parking lots to identify those lots that are suitable locations for Level 2 and Level 3 chargers.
- City staff will conduct a survey of City employees to determine the near-term interest in having long-term (Level 1) EV charging spots at major City-owned employment sites for City employees who routinely park for eight hours or more. This survey would also include an assessment of their willingness to pay for the use of these dedicated 120 volt standard wall outlets for long-term (Level 1) EV charging spots. Over an eight hour period, a dedicated 120 volt wall outlet is capable providing enough recharging (at 12 amps) to add about 50 to 65 kilometres of range depending upon the EV model. Compared to providing Level 2 EV charging, this would be a lower-cost solution capable of providing enough range for most City employees to return home.
- Proposed next steps for potential EV Chargers at major City of London employment sites:
 - i. Early 2017 – Review the results of the employee survey to determine the demand for the service and shortlist the high demand locations, and survey other municipalities and major London employers with respect to EV charging programs and policies for employees.
 - ii. Mid 2017 – Provide update to Committee and Council with survey results and the steps required (e.g., feasibility assessments, scope of work, potential funding sources, schedule) to complete a business plan.
- City staff will also assess the potential to provide Level 2 EV charging at major City of London public destinations, such as community centres and arenas, whenever asset renewal work involving the improvement of electrical systems is being undertaken. Incorporating Level 2 EV charging infrastructure within planned facility renewal work will help to lower the installation cost.

- City staff will continue to review and support education and awareness opportunities brought to our attention from EV vendors, associations and community groups.
- City staff will assist London Hydro with in-kind support for proponents interested in participating in the second round of EVCO requests for proposals for publicly-accessible EV charging in London.

ACKNOWLEDGEMENTS:

This report was prepared with assistance of Steven MacDonald, P.Eng., Corporate Energy Management Engineer.

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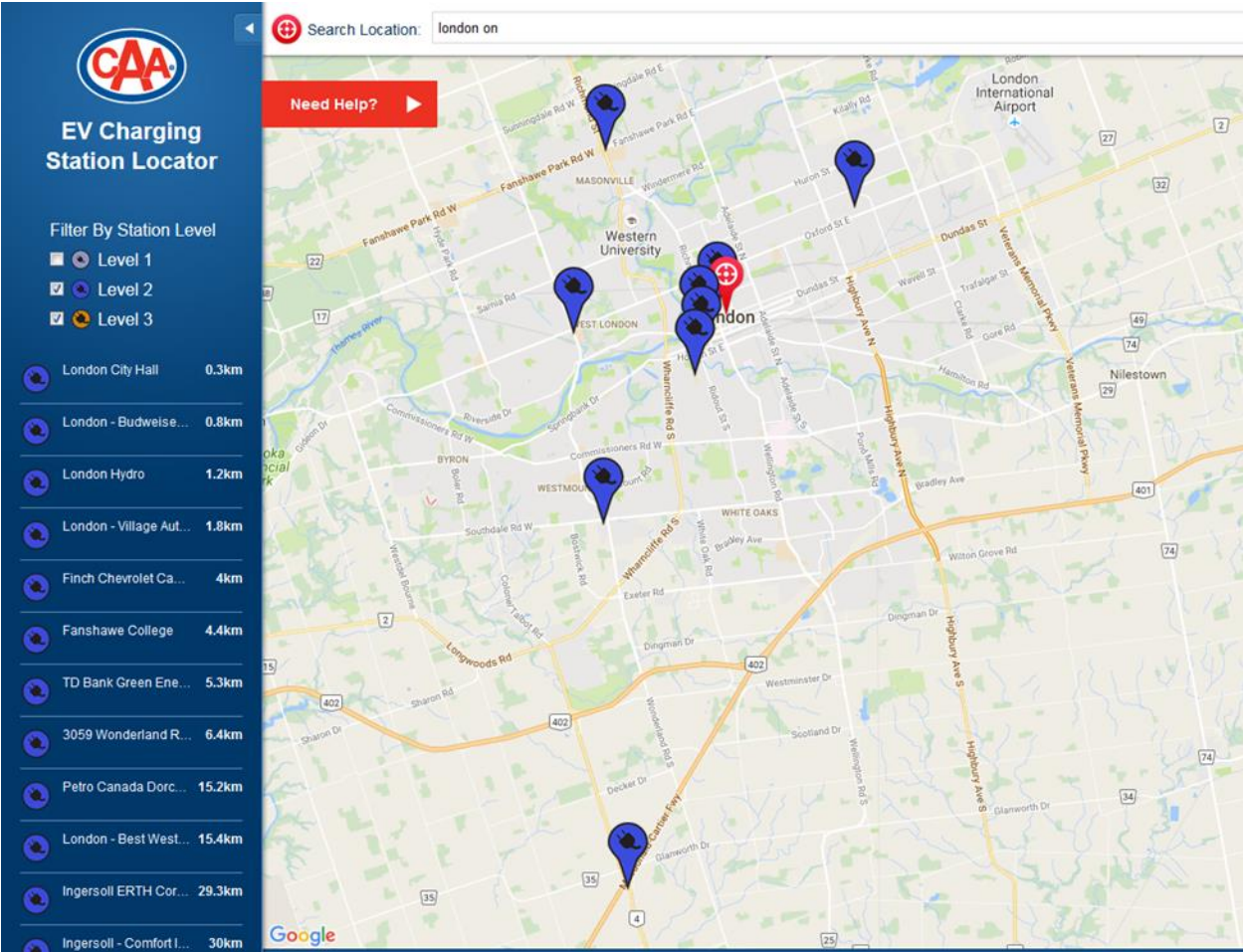
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Appendix A Maps of Current Charging Locations and Upcoming EVCO Charging Stations in London, Ontario

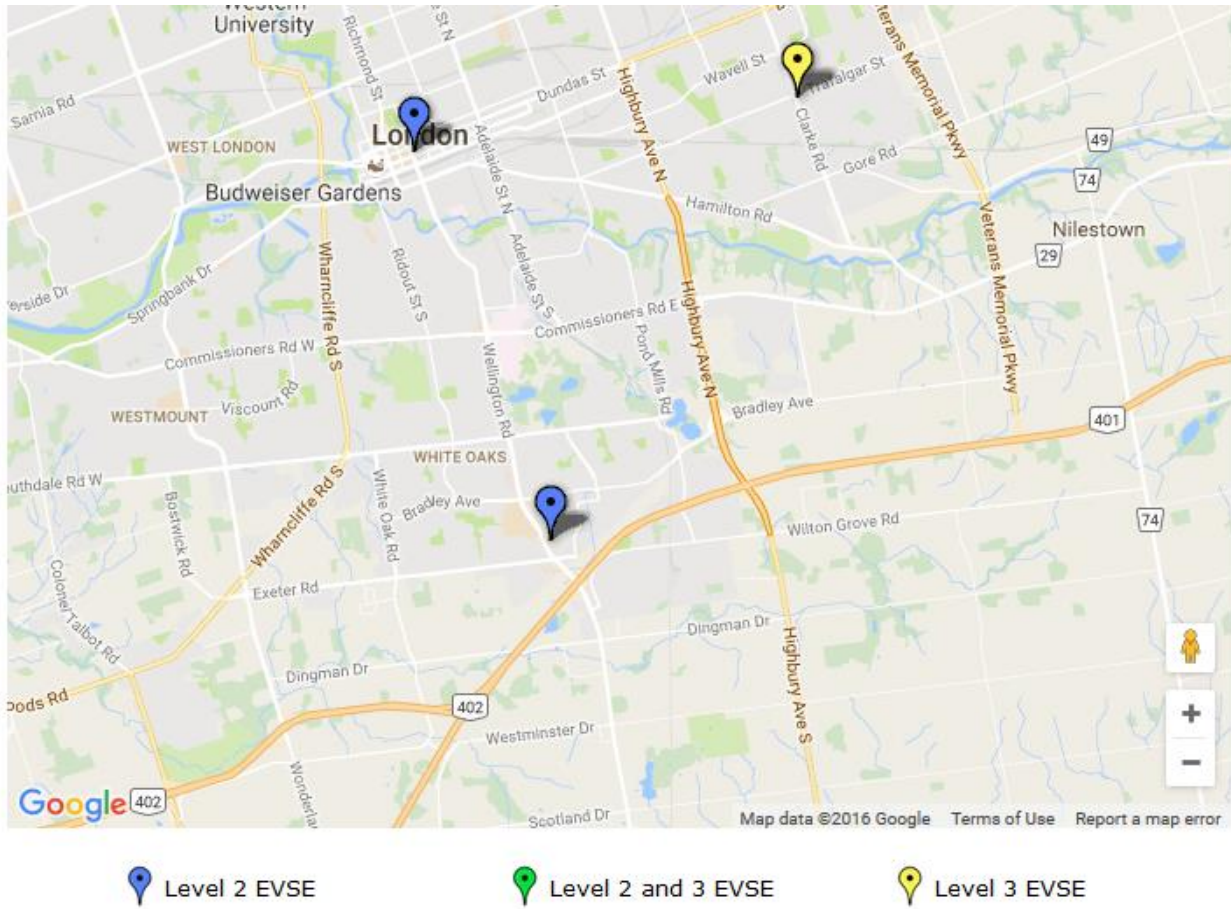
c Vinay Sharma, CEO, London Hydro

APPENDIX A

Maps of Current Charging Locations and Upcoming EVCO Charging Stations in London, Ontario



Source: CAA EV Charging Station Locator, 2016



Source: Ministry of Transportation Ontario, 2016