



Report to: General Committee

Date Report Authored: April 9, 2015

SUBJECT: Electric Vehicle Quick Charging Station at the Civic Centre
PREPARED BY: Graham Seaman, Senior Manager, Sustainability ext. 7523

RECOMMENDATION:

- 1) That the report "Electric Vehicle Quick Charging Station at the Civic Centre" be received; and,
- 2) That the CAO be authorized to enter into a three-way funding partnership with Nissan Canada and PowerStream Inc in a form satisfactory to the City Solicitor to install an electric vehicle fast charger as part of the Civic Centre's parking lot upgrade project; and,
- 3) That the tendering process be waived in accordance with Purchasing By-Law 2004-341, Part II, Section 7 (1) (e) "where the City is acquiring specialized equipment, such as equipment in which case the sources of supply may be based on technical specifications prepared by the User Department Staff"; and,
- 4) That the purchase of one SmartDC, 50kW multi-standard 208 V electric vehicle fast charger with five years of service and warranty be awarded to Add Energie Technologies Inc. in the amount of \$35,580.80 inclusive of HST; and,
- 5) That the electric vehicle charger provisional item from the Civic Centre parking lot upgrade project of \$30,609 inclusive of HST for conduit, duct, distribution panel, foundation and install be approved; and,
- 6) And that of the total of cost of equipment, site preparation and installation equal to \$66,189.80 (\$35,580.80 + \$30,609) be funded from the MECO Account # 31-2220034; and,
- 7) That the City of Markham cost will be \$22,063.27 after two-third funding from Nissan and PowerStream for \$22,063.27 each; and,
- 8) And that Council endorse the preferred location of the charging station at the Civic Centre across from the Flato Markham Theater as shown on Appendix # B; and,
- 9) And that the CAO be authorized to enter into a revenue sharing agreement, in a form satisfactory to the City Solicitor with PowerStream Inc. and Add Energie Technologies Inc. to retain 50% of net revenues (approximately 42% after fees) with a payback of five years; and
- 10) That Markham's share of the net revenues be contributed to the original funding source (MECO Account); and,

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- 11) That Staff be authorized and directed to do all things necessary to give effect to this resolution.

PURPOSE:

The purpose of this report is to seek Council's support for Markham to be the first Municipality in Ontario to host an electric vehicle (EV) fast charger at the Civic Centre. An EV fast charger, also referred to as a level three charger, is capable of delivering a nearly full charge in 30 minutes or less.

We are also seeking authority to partner with Nissan Canada and PowerStream to fund the capital costs to install the fast charger and authority to partner with PowerStream and Add Energie to share the revenue from the proposed fast charger.

BACKGROUND:

Electric vehicles are a growing vehicle segment in North America. Forecasts provided by PowerStream show the vehicle market growing by 100% for each of the next three years and 50% for each of the two years following.

The Government of Ontario's vision is for one of every 20 vehicles on our roads to be an electric vehicle by 2020 to support the creation of jobs and reduce greenhouse gas emissions.

To incent EV uptake the Province offers rebates on EV's up to \$8,500 per vehicle, \$1,000 for private/home charging stations and incentives for corporate EV fleets and charging stations. They also issue Green license plates for EV's that allow an EV to use the HOV lanes with a single occupant.

EV's require regular charging, most EV owners will have a level two charging station installed at home, but charging while on the go presents a challenge and therefore is business opportunity.

Currently there are three publicly accessible slower level two charging stations in Markham including at the Centennial GO station according the CAA's EV Charging station finder app. A level two station typically delivers a full charge in four hours or more.

PowerStream has recently installed a fast charger at their head office in addition to several slower level two charger units.

To increase PowerStream's understanding of EV driver's behavior, the EV service market, and their demands on the electricity grid PowerStream is offering a funding partnership with Nissan Canada to Markham and Barrie to install an EV fast charger. One unit is already in Vaughan at Powertream's head office. Each party would fund one third of the total cost up to \$75,000.

OPTIONS/ DISCUSSION:

Current rates for EV fast charging stations are \$10 per hour, the slower level two stations are \$1 per hour. We project an increase of \$1 per hour every two years in the business case.

The business case analysis includes three visits per day in year one growing to 25 visits per day in year five. The business case also considers the visit duration and electricity consumption, current and future electricity costs as well as regular increases in the cost per charge for the consumer.

Staff evaluated three possible sites for the EV fast charger to be installed; the Civic Centre (two possible locations) and 8100 Warden and the Civic Centre (Appendices A, B and C respectively). Important considerations for locating an EV charger include proximity to major highways, 24/7 access, services and amenities within walking distance and free wi-fi. 8100 Warden is closer to Highway 407 while the Civic Centre has better services and amenities. Events at the Civic Centre may hinder access Option A, however Corporate Communication and Community Relations will put in place policies and training to ensure 24/7 access.

Site Option Evaluation

	Civic Centre Option A	Civic Centre Option B	8100 Warden Ave
Infrastructure Cost	\$ 18,609.00	\$ 30,609.00	\$ 31,509.98
Equipment Cost	\$ 35,580.80	\$ 35,580.80	\$ 35,580.80
Total Cost	\$ 54,189.80	\$ 66,189.80	\$ 67,090.78
Markham's 1/3 share	\$ 18,063.27	\$ 22,063.27	\$ 22,363.59
Projected Break Even for Markham Share	Early in year 5	Middle of year of 5	Middle of year 5

The cost differences at the Civic Centre are due to the difference in cable and duct work runs from Option A and Option B. The cost difference at 8100 Warden is due to additional panel needs and electrical cabling and duct work.

FINANCIAL CONSIDERATIONS AND TEMPLATE: (external link)

The total cost of equipment, site preparation and installation at the Civic Centre Option A in the amount of \$66,189.80 (\$35,580.80 + \$30,609) will be funded from the MECO Account # 31-2220034.

The City of Markham will be reimbursed from both Nissan and PowerStream in the amount of each parties' one third share of \$22,063.27, and the net cost to the City of Markham will be \$22,063.27.

Based on the assumptions and revenue share of 15% to Add Energie (fees to administer the service and payments) and 42.5% to both PowerStream and the City, it is anticipated that the ten year total revenue (over the useful life of the charging unit) will be \$83,000.

Once the capital investment of Markham's share is repaid, the revenues will continue to flow back to the MECO Balance Sheet Account. Future replacement will be funded from the MECO Balance Sheet Account where future revenues will continue to flow, making this a self sustaining initiative.

HUMAN RESOURCES CONSIDERATIONS

Not applicable.

ALIGNMENT WITH STRATEGIC PRIORITIES:

This project supports the City goals in the following ways:

Safe and Sustainable Community - EV's reduce fossil fuel consumption and therefore greenhouse gas emissions (GHG) and the resulting climate change, transportation fuels are the largest contributor of GHG's in Ontario and Ontario's electricity mix is fairly low in GHG emissions.

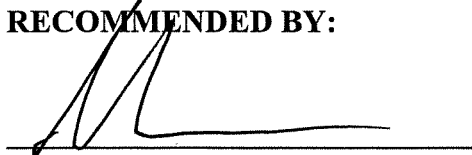
Stewardship of Money and Resources - Synergies achieved with the larger parking lot project, the three way funding and that there is a business case with a project breakeven in year four of operation.

Exceptional Services by Exceptional People - Early stage adoption of EV fast charger technology provides enhanced services for our community and illustrates Markham's innovative nature.

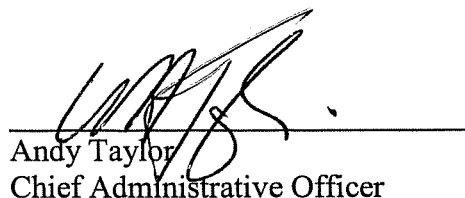
BUSINESS UNITS CONSULTED AND AFFECTED:

Finance, Corporate Communications and Asset Management.

RECOMMENDED BY:



Graham Seaman
Senior Manager, Sustainability



Andy Taylor
Chief Administrative Officer

ATTACHMENTS:

Appendix A – Civic Centre Option A
Appendix B – Civic Centre Option B
Appendix C – 8100 Warden Ave.