



P.O. Box 1749  
Halifax, Nova Scotia  
B3J 3A5 Canada

**Item No. 15.3.2**  
**Halifax Regional Council**  
**September 17, 2019**

**TO:** Mayor Savage and Members of Halifax Regional Council

**SUBMITTED BY:** Original Signed  
Richard Zurawski, Chair, Environment & Sustainability Standing Committee

**DATE:** September 5, 2019

**SUBJECT:** **Initiatives to increase the number of electric vehicles and charging stations in the Municipality**

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**ORIGIN**

September 5, 2019 meeting of the Environment & Sustainability Standing Committee, Item 12.1.1.

**LEGISLATIVE AUTHORITY**

*Administrative Order One*, Schedule 5, clauses 4 and 7, as follows:

4. The Environment and Sustainability Standing Committee shall:
- (a) promote and enable a variety of energy choices for residents of the municipality;
  - (b) promote and enable sustainable and renewable sources of energy in the Municipality;
  - (c) promote the achievement of the Municipality's greenhouse emission reduction commitments;
  - (d) promote diversification of municipal revenue streams through investments in utilities such as natural gas, wind energy and district energy;
  - (e) promote ways to maximize the Municipality's capital dollars through co-location of utilities and coordination of projects;
  - (f) be involved in policy development on undergrounding of services; and
  - (g) liaison with Heritage Gas and similar utilities at a governance level to encourage, promote and enable the provision of natural gas services to the residents and businesses of the municipality.
7. The Environment and Sustainability Standing Committee shall:
- (a) progress policy related to municipal climate change adaptation and mitigation, including the policy requirements of the Infrastructure Secretariat's Gas Tax Funding program;
  - (b) promote community adoption of climate change mitigation and adaptation measures; and
  - (c) provide governance oversight of the Municipality's Climate Change Risk Management Strategy

**Recommendation on page 2**

## **RECOMMENDATION**

It is recommended that Halifax Regional Council direct the Chief Administrative Officer to:

1. Report back to ESSC with both an electric vehicle infrastructure strategy and light-duty fleet strategy, complete with budgetary considerations to:
  - (a) install and administer public electric vehicle charging infrastructure at new and existing Municipal facilities, rights of way and/or public parking sites including rural fire stations with backup generators and park and ride terminal locations; and
  - (b) convert a portion of the municipal fleet to electric vehicles and install charging stations at municipal facilities.
2. Return to Council with recommendations for specific legislative amendments to enable the Municipality to require necessary zero emission vehicle infrastructure in new developments

## **BACKGROUND**

The Environment & Sustainability Standing Committee received a staff recommendation report dated August 22, 2019, at their September 5, 2019 meeting respecting initiatives to increase the number of electric vehicles and charging stations in the Municipality.

For further information on the background of this item, refer to the staff report dated August 22, 2019.

## **DISCUSSION**

The Environment & Sustainability Standing Committee reviewed the August 22, 2019 staff report at their September 5, 2019 meeting.

Following a discussion of the item, the Environment & Sustainability Standing Committee approved the staff recommendation with an amendment to specifically include "rural fire stations with backup generators and park and ride terminal locations" as new and existing Municipal facilities, rights of way and/or public parking sites for staff's consideration for an electric vehicle infrastructure strategy and light-duty fleet strategy, as outlined above.

For further discussion on this item, refer to the staff report dated August 22, 2019.

## **FINANCIAL IMPLICATIONS**

The costs of an electric vehicle infrastructure strategy and light-duty fleet strategy are estimated to be \$60,000 to \$75,000 and can be accommodated within existing operational budget in Account # D935. Moving forward, the recommendations will require financial and economic analysis due to the potential magnitude of capital expenditures required. Careful analysis will be needed to understand potential budget impacts, along with efficiency considerations of capital expenditures.

## **RISK CONSIDERATION**

Refer to the staff report dated August 22, 2019.

## **COMMUNITY ENGAGEMENT**

Meetings of the Environment & Sustainability Standing Committee are open to public attendance and members of the public are invited to address the Standing Committee for up to five (5) minutes during the Public Participation portion of the meeting. Meetings are live webcast on Halifax.ca. The agenda, reports, video, and minutes of the Executive Standing Committee are posted on Halifax.ca.

For further information on Community Engagement as it relates to this item, refer to the staff report dated August 22, 2019.

**ENVIRONMENTAL IMPLICATIONS**

Refer to the staff report dated August 22, 2019.

**ALTERNATIVES**

The Standing Committee did not discuss alternatives. Refer to the staff report dated August 22, 2019.

**ATTACHMENTS**

**Attachment 1** – Staff Recommendation Report dated August 22, 2019

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If the report is released to the public, a copy can be obtained by contacting the Office of the Municipal Clerk at 902.490.4210, or Fax 902.490.4208.

Report Prepared by: Simon Ross-Siegel, Legislative Assistant, Office of the Municipal Clerk, 902.490.6519

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P.O. Box 1749  
Halifax, Nova Scotia  
B3J 3A5 Canada

**Item No. 12.1.1**  
**Environment & Sustainability Standing Committee**  
**September 5, 2019**

**TO:** Chair and Members of Environment & Sustainability Standing Committee

Original Signed

**SUBMITTED BY:**

\_\_\_\_\_  
Kelly Denty, Director, Planning and Development

Original Signed

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Jane Fraser, A/Chief Administrative Officer

**DATE:** August 22, 2019

**SUBJECT:** **Initiatives to increase the number of electric vehicles and charging stations in the Municipality**

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### **ORIGIN**

On November 2, 2017, the following motion of the Environment and Sustainability Standing Committee was put and passed:

*“That the Environment and Sustainability Standing Committee request a staff report identifying the number and location of electric vehicle (EV) charging stations currently within the Municipality and provide recommendations with regards to developing an initiative to increase the number of EV charging stations in the Municipality, including, but not limited to suggestions regarding planning policies, fleet, and infrastructure.”*

### **LEGISLATIVE AUTHORITY**

*Halifax Regional Municipality Charter*, clauses 7A and 79A (a), as follows:

7A The purposes of the Municipality are to

- (c) provide good government;
- (b) provide services, facilities and other things that, in the opinion of the Council, are necessary or desirable for all or part of the Municipality;
- © develop and maintain safe and viable communities.

79A (1) Subject to subsections (2) to (4), the Municipality may only spend money for municipal purposes if

- (a) the expenditure is included in the Municipality’s operating budget or capital budget or is otherwise authorized by the Municipality;

Recommendation on page 2..

## **RECOMMENDATION**

It is recommended that the Environment and Sustainability Standing Committee recommend that Regional Council direct the Chief Administrative Officer to:

1. Report back to ESSC with both an electric vehicle infrastructure strategy and light-duty fleet strategy, complete with budgetary considerations to:
  - (a) install and administer public electric vehicle charging infrastructure at new and existing Municipal facilities, rights of way and/or public parking sites; and
  - (b) convert a portion of the municipal fleet to electric vehicles and install charging stations at municipal facilities.
2. Return to Council with recommendations for specific legislative amendments to enable the Municipality to require necessary zero emission vehicle infrastructure in new developments.

## **BACKGROUND**

### **Electric Vehicle Efficiency**

Electric vehicles (EVs) are advancing as an affordable and clean transportation alternative to internal-combustion engines (ICEs). As municipalities and organizations across the country set more ambitious environmental targets and policies, EVs are beginning to represent a greater portion of the transportation industry in Canada. This can be attributed to the distinct advantages that EVs have over ICEs, including lower operating costs, higher efficiencies and reduced greenhouse gas (GHG) emissions. Less noise and emissions also promote active transportation and improved air quality and health.

In Nova Scotia, the owner of an EV can expect to see an annual average savings of up to \$2,000 on fuel and maintenance. Without the need for an ICE (approximately half of a vehicle's weight) friction losses in EVs are negligible, resulting in an overall vehicle efficiency of nearly 90%.<sup>1</sup> This higher efficiency results in better fuel economy and as mechanical wear is limited, it is typical for most EV owners to travel over 200,000 km before any major maintenance is required aside from tire replacement.<sup>2</sup> As the Nova Scotia utility grid moves towards a regulatory target of 40% electricity generation through renewables by 2020, owners of an EV can expect to reduce their transportation emissions by at least 50% today,<sup>3</sup> and even more in future years.

### **The Role of Government**

In late January of this year, the Government of Canada made an announcement on zero emission vehicle (ZEV) sales targets out to 2040. These ambitious targets include 10% of light-duty vehicles sales by 2025, 30% by 2030 and 100% by 2040. This aligns with 16 other countries across the world that have also announced plans to phase out ICE vehicles.<sup>4</sup> Shortly after this announcement, Halifax Regional Council declared a climate emergency, emphasising that climate change is a serious and urgent threat to our community.

The Municipality is in the process of updating the Community Energy Plan and Corporate Plan to Reduce Greenhouse Gas Emissions and combining them into one comprehensive climate action plan, HalifACT 2050. Through HalifACT 2050, various emission reduction scenarios will be modeled against a 2016 baseline. With feedback from defined stakeholder groups and the community, a preferred pathway will be

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<sup>1</sup> Plug 'N Drive. "About Plug'n Drive" <https://www.plugndrive.ca/about-us/>

<sup>2</sup> Nova Scotia Power. "2018 Electrify Your Ride booklet"

[https://www.nspower.ca/site/media/Parent/Digital\\_Nova%20Scotia%20Power\\_EYR\\_June%202018\\_v8.pdf](https://www.nspower.ca/site/media/Parent/Digital_Nova%20Scotia%20Power_EYR_June%202018_v8.pdf)

<sup>3</sup> Nova Scotia Power. "FAQS" <https://www.nspower.ca/en/home/for-my-home/heating-solutions/electric-vehicles/FAQ.aspx>

<sup>4</sup> Clean Energy Canada. "Canada Targets 100% zero-emission vehicle sales by 2040" <http://cleanenergycanada.org/canada-targets-100-zero-emission-vehicle-sales-by-2040/>

recommended to Regional Council in spring 2020, along with a detailed action catalogue and required financial commitment. Almost one-quarter of all carbon emissions within the community currently come from transportation, and policies, programs and incentives to support the electrification of this sector will be among the many recommendations brought forward through HalifACT 2050.

As of November 2018, there were more than 41,000 EVs on the road in Canada, of which only 170 were registered in Nova Scotia.<sup>5</sup> The International Council on Clean Transportation predicts an inflection point in late 2020, where EVs will reach cost parity with ICE vehicles. This supports a recent study conducted by Nova Scotia Power, which forecasts that 10% of Nova Scotia Vehicle stock will consist of EVs by 2030 and 25% by 2040. While provincial incentives have been proven to increase EV sales in British Columbia, Quebec and Ontario<sup>6</sup>, municipalities can play a key role in advancing the adoption of this clean alternative by influencing policy, increasing charging infrastructure and creating public awareness.

## **DISCUSSION**

### **Policy**

Municipal efforts to promote the transition to EVs are supported by Regional Plan Policies E-25 to E-34. These policies outline the Municipality's commitment to reducing GHG emissions related to fuel consumption. The draft Centre Plan is also supportive of EVs by permitting charging stations in all parking areas. There is also potential for the transition to EVs internally as they are supported through the Municipality's 2009 Sustainable Procurement initiative: Vehicle Right Sizing Filter and Life Cycle Analysis Methodology. This policy applies to all light-duty fleet vehicle purchases and requires that vehicles be compared based on relative fuel efficiency and emissions.<sup>7</sup>

EV adoption across the country and abroad has been driven largely by ambitious, but attainable, local policy. According to the International Energy Agency's 2018 EV Outlook, the number of EVs worldwide could potentially double current expectations by 2030 should efforts from local governments increase.<sup>8</sup>

With specific regard to new development, there are three EV readiness options that Council could support for new commercial, residential and mixed-use developments:

#### Partial electric vehicle supply equipment (EVSE)

This 'rough in' option can be categorized as "pre-service low" or "pre-service high" depending on the technical definition, which includes specifics on what EV infrastructure is installed. This could include conduits, cabling, breakers, meters, etc., to accommodate EV connection and charging.

#### Energized ("EVSE-ready")

All infrastructure for charging an EV is installed with exception of the physical charging station.

#### EVSE - Installed

All infrastructure, including the physical charging station, is installed.

Such policies could be gradually phased-in with threshold percentages based on gross floor-area or number of parking spaces for easier market transition with the eventual outcome of a complete requirement. Examples of past and current policies for some Local Governments in British Columbia are outlined in Table 1.

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<sup>5</sup> Nova Scotia Power. "Electric Vehicles in Nova Scotia" <https://www.nspower.ca/en/home/for-my-home/heating-solutions/electric-vehicles/EV-NS.aspx> (Accessed November 19, 2018)

<sup>6</sup> Fleetcarma. "Electric Vehicle Sales in Canada, Q3 2017" <https://www.fleetcarma.com/electric-vehicle-sales-in-canada-q3-2017/>

<sup>7</sup> Sustainable Procurement Initiatives: Vehicle Right Sizing Filter and Life Cycle Evaluation Methodology. <http://legacycontent.halifax.ca/council/agendasc/documents/090707ca1115.pdf>

<sup>8</sup> Global EV Outlook 2018. <https://webstore.iea.org/global-ev-outlook-2018>

Table 1 – Examples of Past and Current Electric Vehicle Requirements in New Residential Development, Local Governments in British Columbia.<sup>9</sup>

Community	Current Policy	Previous Policy, if applicable
City of Burnaby	Every dwelling unit: every required parking space, excluding visitor and secondary suite, provided with energized outlet, Level 2.	Multi-unit residential buildings: negotiated ~10% of parking stalls EV-ready or EVSE installed.
City of Coquitlam	Apartment, townhouse, and street-oriented village home: one energized outlet per dwelling unit, Level 2.	
City of North Vancouver	Single-family: capacity for Level 2 in 100% of parking spaces. Multi-family: 20% of parking spaces supplied by 40A 240V branch circuit. Capacity in electrical room for 100% of parking spaces.	
City of Port Coquitlam	Every dwelling unit: one stall per residential unit roughed-in (all electrical infrastructure other than wire), Level 2.	
City of Richmond	Every residential parking space, excluding visitor parking, provided with energized outlet, Level 2.	Multi-family parking spaces: 20% provided with 120V receptacle; 25% pre-ducted.
City of Vancouver	Single-family: one energized outlet per parking area (garage, carport). Multi-family: every parking space, excluding visitor, energized outlet, Level 2.	Level 2 (40A, 240V) for 20% of parking stalls in multi-unit residential; all garages/carports of 1–2 family homes.
District of North Vancouver	Multi-family: 20% of parking spaces EV-ready, wired for Level 1; conduit for 100%. Secure bicycle storage to include one outlet for electric bicycle charging.	
District of Squamish	Multi-family: 30% of off-street parking stalls in shared parking areas have shared access to EV charging receptacles, Level 2.	

Currently, under the HRM Charter, the Municipality does not have the legal authority to require EV-readiness, therefore regulatory amendments would be needed. If given direction to investigate possible regulatory amendments, further consultation will be conducted with the Province of Nova Scotia to inform more specific recommendations included in forthcoming climate action plan (HalifACT 2050) and/or the proposed EV strategy.

## Infrastructure

Charging stations are categorized by three levels as outlined in Table 2 below.

Table 2 – Charging station classifications and description

	Level 1	Level 2	Level 3
<b>Approximate charging time</b>	10-12 hours	3-8 hours	15-30 minutes
<b>Estimated cost (material)</b>	Up to \$1,000	\$1,000 to \$10,000	\$25,000 to \$100,000
<b>Voltage (V)</b>	120	208/240	480
<b>Amperage (A)</b>	15	30	100
<b>Additional information</b>	Best suited for charging overnight.	Most common for public use. 1-2 hours to top up while shopping etc.	Also known as direct current fast chargers (DCFC). Not all EVs can plug into DCFC.

<sup>9</sup> Residential Electric Vehicle Charging: A Guide for Local Governments. <https://pluginbc.ca/wp/wp-content/uploads/2018/10/Residential-EV-Charging-A-Guide-for-Local-Governments.pdf>

While improvements to battery technology continue to extend the distance travelled between charges, range anxiety is still a common issue for consumers. In a 2016 survey undertaken by Nova Scotia Power, 65% of respondents stated that they would consider an EV if there were more charging stations available.<sup>10</sup> A review of the EV charging locator website, Plugshare.com, found that there are just over 100 locations across the province that offer EV charging. 41 of these are located within the municipality as shown in Attachment 1. While Level 2 charging stations make up the majority, 12 Level 3 fast chargers were recently installed across the province through, Nova Scotia Power's Fast Charging Network pilot project<sup>11</sup>. Strategically installing more stations throughout the municipality can help reduce range anxiety amongst consumers and improve the convenience of using an EV.

Over the past few years, underground infrastructure needed for future EV charging stations was installed as part of four HRM facility construction projects:

- Bridge Transit Terminal
- Dartmouth Four-Pad Arena
- Bedford-Hammonds Plains Community Centre
- Halifax Central Library

Currently, there are three Level 2 charging stations installed at the Halifax Central Library and five Level 1 stations at the Bedford-Hammonds Plains Community Centre.

A jurisdictional scan of the Maritime provinces shows that other municipalities have been active in providing more accessible charging infrastructure. In 2013, the City of Summerside in Prince Edward Island partnered with Sun Country Highway to install 30 charging stations across the municipality. The charging stations were provided to the city in exchange for green credits that are generated through the city's wind farm utility. These stations offer charging to EV owners at no cost.<sup>12</sup> As HRM does not own a renewable utility, this model cannot be replicated here at this time.

Although much of EV charging occurs at home, adding more public Level 2 charging stations throughout the municipality would further incent market transition. Level 2 stations are recommended for public use as drivers generally use only a fraction of an EV's range on a given day. An hour of charging while shopping or watching a sporting event is usually all that is needed to "top-up" the vehicle. Suitable locations would include community centres, libraries, sports venues and parks, as they are highly visible, have adequate space, and will be well-used. Additionally, the charging stations could be integrated with a solar canopy to further reduce environmental impact, manage charging during peak electrical demand, and improve the financial model.

For residents without access to off-street parking, curbside charging has been identified as a potential solution. Vancouver, Toronto and Montreal currently have pilot projects and programs dedicated to the deployment of curbside chargers. When siting curbside chargers, proximity to existing, aboveground electrical infrastructure is favoured for keeping installation costs low. Connection to existing utility poles and overhead transformers, as opposed to underground services, can avoid added costs of trenching and concrete or asphalt replacement. The feasibility and location of potential curbside chargers will be informed by the proposed EV infrastructure strategy.

A recent study conducted by Nova Scotia Power forecasts that EVs will make up 10% of Nova Scotia's vehicle stock by 2030 and 25% by 2040. To optimally meet the expected charging demand, over 2,000 electric vehicle charging stations need to be installed throughout the municipality by 2030. If charging infrastructure became mandatory for all new developments, much of this required infrastructure would come through the private sector. However, this does not address the need for charging infrastructure to current

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<sup>10</sup> Leading the Charge; Nova Scotia Power Connecting Electric Vehicles Coast to Coast with Fast Charging Network.  
<https://www.nspower.ca/en/home/newsroom/news-releases/leading-the-charge.aspx>

<sup>11</sup> Halifax Today "Nova Scotia Power to install electric vehicle fast-charging stations across the province"  
<https://www.halifaxtoday.ca/local-news/nova-scotia-power-to-install-electric-vehicle-fast-charging-stations-across-the-province-856207>

<sup>12</sup> Greg Gaudet, Municipal Services Director for the City of Summerside.



renters and condo owners with no access to at home charging.

An initial public infrastructure investment of \$600,000 is expected for a mix of Level 2 and DC Fast chargers that could be installed in localized areas for maximum exposure. For larger charging networks, it is common for a single tender to be awarded for the supply, installation and ongoing operational support (maintenance and administration) over the service life of the chargers. While this operational cost varies, it can range from \$400 - \$1,200 annually per station. Additional cost considerations include ongoing electricity consumption and demand charges. Depending on the rate structure, electricity consumption could be covered by users. Demand charges can be mitigated by strategically managing consumption using an energy management system. Funding opportunities, and potential partnerships with the Province of Nova Scotia, Nova Scotia Power and non-profit organizations like the Electric Vehicle Association of Atlantic Canada will actively be sought to reduce costs where possible and inform socially responsible investments.

This past spring, Natural Resources Canada (NRCan) announced the Zero Emission Vehicle Infrastructure Program (ZEVIP) which will see \$130 million dollars in funding over the next five years for public and workplace Level 2 or higher charging infrastructure.<sup>13</sup> The program will fund up to 50% of eligible project costs in an effort to increase charging infrastructure in localized areas where Canadians live, work and play. Potential savings to organizations would average \$5,000 for every Level 2 charger installed and \$37,500 for every DC fast charger. In May of this year, an expression of interest was submitted to help NRCan gauge program interest, and project readiness. Submitting the expression of interest does not bind the Municipality in any way to proceed with the program. Cost sharing of public charging infrastructure will allow municipal funds to extend further, impacting a broader range of the community.

### **Light-Duty Fleet**

A baseline inventory of the Municipality's 2008 corporate GHG emissions determined that 9% of emissions were the product of light-duty fleet vehicles and equipment. While the environmental impact of light-duty fleet vehicles has typically been addressed through the Sustainable Procurement Initiative and the Municipality's Vehicle Anti-Idling Policy, further action could be taken by investigating the feasibility of converting part of the light-duty fleet to EV.

In August 2018, Planning & Development's Buildings and Compliance team had the opportunity to test drive a Mitsubishi PHEV SUV for three weeks. Distance travelled, and fuel consumption was tracked, resulting in an average combined (city/highway) fuel economy of 4.3 litres/100 km, on par with other hybrid vehicles of comparable size. For internal comparison, the combined fuel economy of 13 light-duty ICE SUVs/trucks in the Municipal fleet was analyzed under similar day-to-day usage during the same period (July 30 to August 15). The overall fuel economy for those vehicles varied from 16 to 23 litres/100 km. Feedback from the drivers of the hybrid was generally positive. Most noted that there was no difference between the hybrid and their work or personal vehicle. However, most noted that a longer battery life would be preferable. All drivers reported that the electric battery was drained after 3-4 hours of usage, meaning the vehicle switched back to ICE mode.

In early 2017, Nova Scotia Power conducted a feasibility assessment on 16 of their current fleet vehicles. The assessment took data collected from the ICE fleet and modeled it against different EVs to determine the best suited and most cost-effective solution. Ultimately, it was recommended that 11 ICEs be replaced with EVs. The study projected that making this switch would result in fleet savings of over \$134,000 and GHG emissions reductions of 292 tonnes over the service life of the vehicles. The overall study cost approximately \$20,000. See Attachment 2 for the assessment summary.

As the Municipality currently has 366 fleet vehicles equipped with AVL devices, a \$20,000 feasibility assessment could extend further than the one performed by Nova Scotia Power. A strategic assessment would determine the best suited and most cost-effective EV solution to replace the current light-duty fleet vehicles as they are retired. As per the Municipality's 2009 Sustainable Procurement Initiative, light-duty

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<sup>13</sup> Zero-Emission Vehicle Infrastructure Program (ZEVIP). <https://www.nrcan.gc.ca/zero-emission-vehicle-infrastructure-program/21876>

fleet vehicles are typically retired after either 5 years of service or 250,000 kilometers driven (combined highway and city). There are currently 180 light-duty fleet vehicles in use that exceed five years in age and will likely be retiring in the coming years.

While EVs are expected to reach cost parity by the late 2020s, today consumers will pay an average premium of \$10,000 to \$20,000 for an EV equivalent.<sup>14</sup> Through the Federal Zero Emission Incentive Program, Municipalities are eligible for ten rebates of up to \$5,000 each, on select EV purchases annually.<sup>15</sup> Pending the results of the feasibility study, replacing ten retired ICE vehicles with EVs is expected to come at an approximate cost of \$360,000. There is an average premium of \$8,500 per new EV (after factoring in the \$5,000 federal incentive). Each EV is expected to realize an average savings of \$12,000 in lifecycle costs (fuel and maintenance) and achieve an emission reduction of 26 tonnes as compared to a similar ICE vehicle. Switching to EVs where it makes sense ultimately saves the Municipality money over the vehicle's useful life.

While the infrastructure needed to service newly acquired light-duty fleet vehicles will be determined through the feasibility study, an initial investment of \$200,000 is expected. Again, cost sharing through NRCan's ZEVIP funding program will be explored as fleet and workplace charging infrastructure is also eligible.

## **Conclusion**

The Municipality has the opportunity to support the electrification of transportation through policy, increased access to public charging infrastructure and fleet conversion. Supporting these recommendations will further advance the Municipality's climate change mitigation efforts as outlined in its community and corporate climate action plans that aim to reduce energy consumption and GHG emissions while transitioning to a more energy efficient, sustainable, livable, and green community.

Electrification of transportation will be a key focus of the Municipality's forthcoming climate action plan with a view to 2050. HalifACT 2050 will outline mitigation and adaptation strategies necessary for meeting our 2050 emission reduction targets and transitioning to a low-carbon future while adapting our communities and infrastructure to be more resilient to anticipated climate impacts. Given the certainty around the need to support a greater number of electric vehicles now and a wholesale changeover in the near future, advancing the work outlined in the report ahead of the delivery of HalifACT 2050 for Council's consideration will allow the Municipality to better understand and prepare for its infrastructure needs in this regard.

## **FINANCIAL IMPLICATIONS**

The costs of an electric vehicle infrastructure strategy and light-duty fleet strategy are estimated to be \$60,000 to \$75,000 and can be accommodated within existing operational budget. Moving forward, the recommendations will require financial and economic analysis due to the potential magnitude of capital expenditures required. Careful analysis will be needed to understand potential budget impacts, along with efficiency considerations of capital expenditures.

## **RISK CONSIDERATION**

There are no risks associated with the recommendations of this report.

## **COMMUNITY ENGAGEMENT**

Preliminary discussions were conducted with the Electric Vehicle Association of Atlantic Canada, Nova Scotia Power and the Province of Nova Scotia to inform this report. Further community engagement with relevant stakeholders will be conducted while developing the recommended Electric Vehicle strategy and

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<sup>14</sup> 2018 Nissan Altima MSRP \$26,000, 2018 Nissan LEAF MSRP \$36,000, 2018 Ford Focus MSRP \$18,000, 2018 Ford Focus Electric MSRP \$35,000. <https://www.autotrader.ca/>

<sup>15</sup> Federal iZEV Program. <http://www.tc.gc.ca/en/services/road/innovative-technologies/zero-emission-vehicles.html>

to inform possible regulatory amendments.

### **ENVIRONMENTAL IMPLICATIONS**

In general, there are significant positive environmental impacts to promoting the use of EVs. These benefits are outlined within this report.

### **ALTERNATIVES**

Regional Council may direct staff to give no further consideration to all, or some of the recommendations. This is not recommended for the reasons outlined in the report.

### **ATTACHMENTS**

Attachment 1: Summary of Electric Vehicle Charging Stations in HRM

Attachment 2: NSPI Fleetcarma Study Summary

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A copy of this report can be obtained online at [halifax.ca](http://halifax.ca) or by contacting the Office of the Municipal Clerk at 902.490.4210.

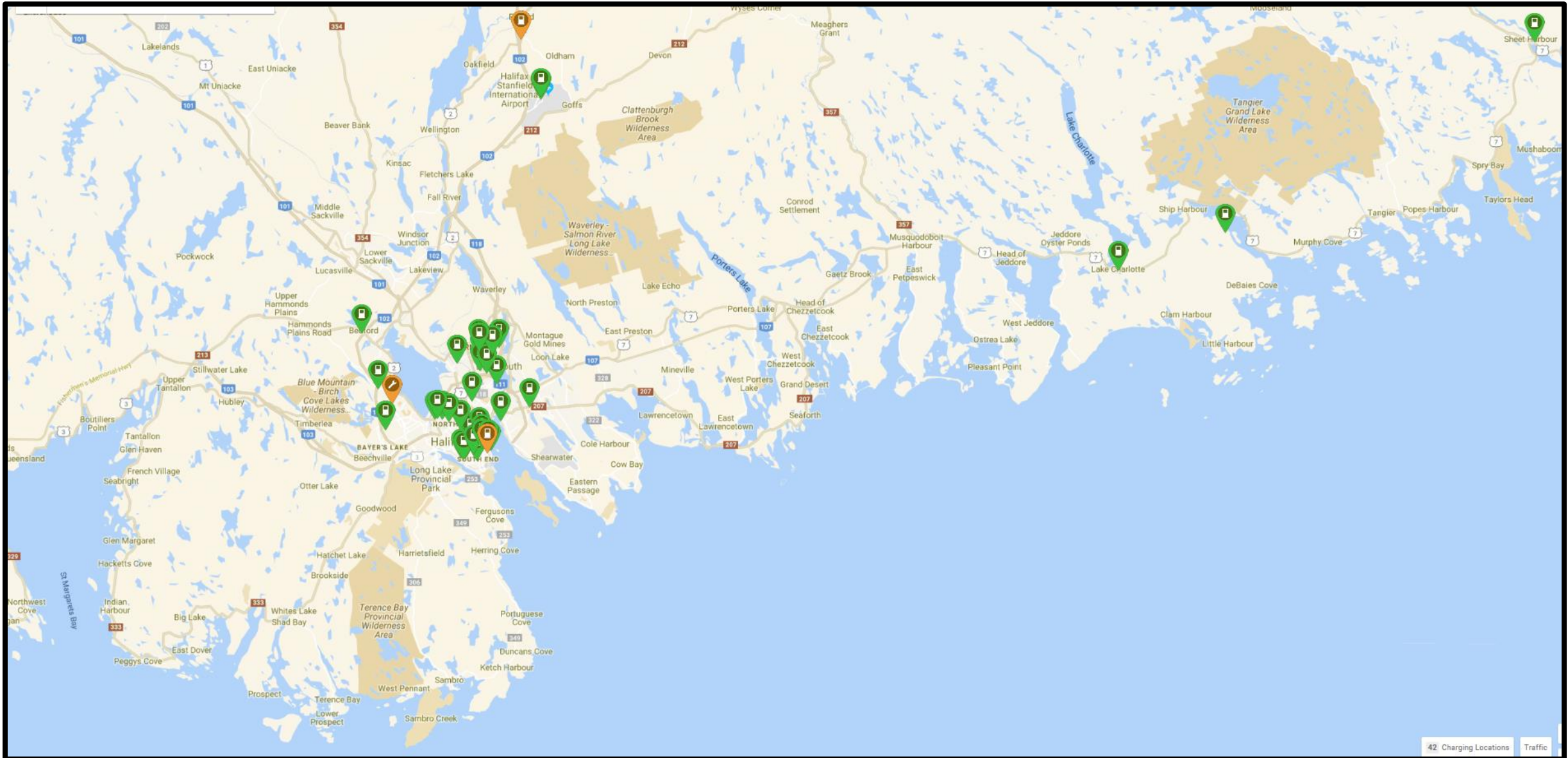
Report Prepared by: Kevin Boutilier, Clean Energy Specialist, Energy & Environment, 902.490.6821

Report Approved by: Shannon Miedema, Energy & Environment Manager, Energy & Environment, 902.490.3665

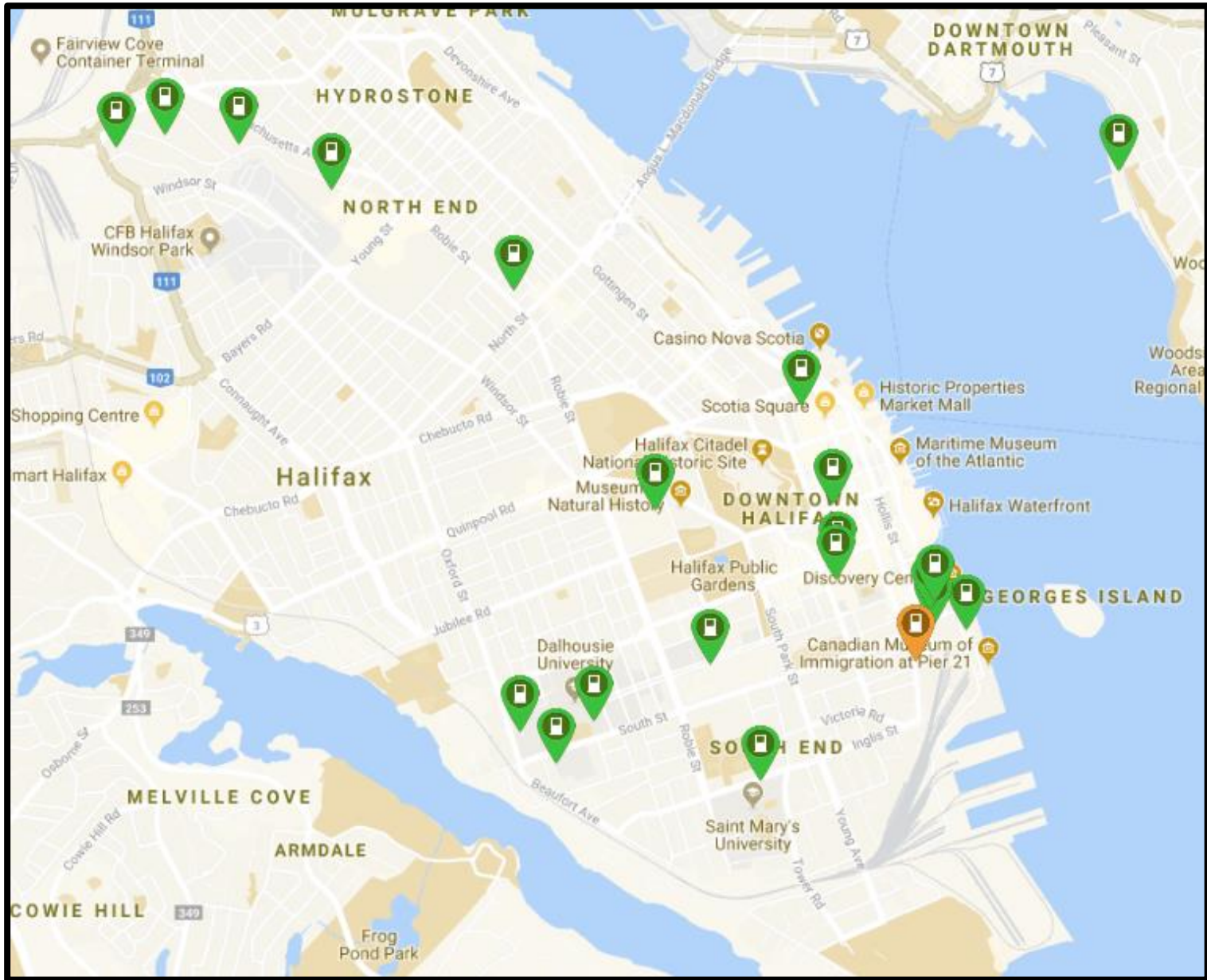
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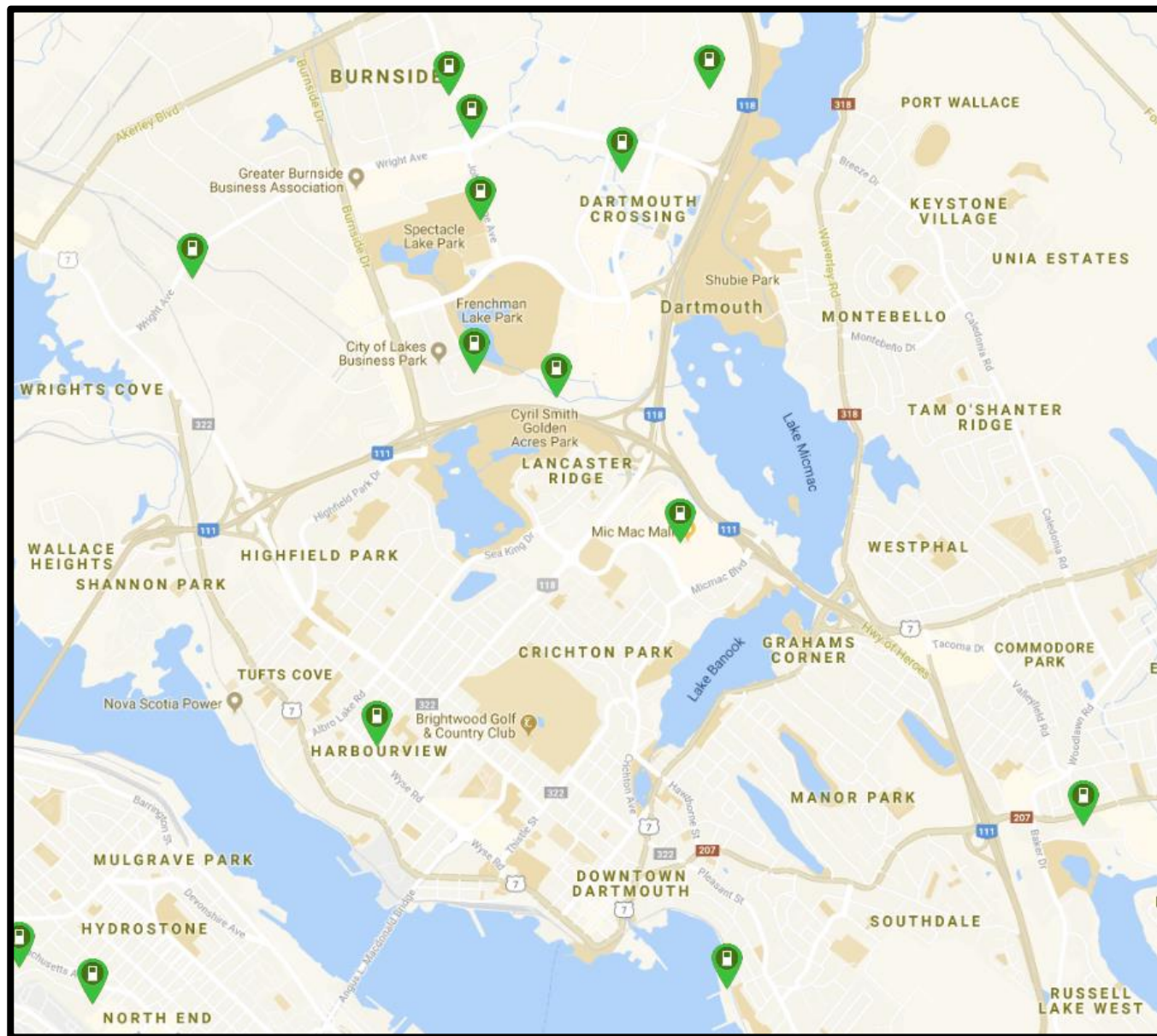
## Attachment 1

Location	Address	Community	Level	Stations
HRM Community Centre	200 Innovation Drive	Bedford	1	5
Westway Park	120 Western Parkway	Bedford	2	12
CAA	330 John Savage Avenue	Dartmouth	2	1
Metro Mitsubishi	230 Wyse Road	Dartmouth	2	2
Portland Street Honda	36 Baker Drive	Dartmouth	2	1
Steele Chevrolet Buick GMC Cadillac	636 Portland Street	Dartmouth	2	1
NSCC Akerley Campus	21 Woodlawn Road	Dartmouth	2	1
Mic Mac Mall	12 Micmac Boulevard	Dartmouth	2	1
IKEA Halifax	645 Cutler Avenue	Dartmouth	2	4
Sleep Country Distribution Centre	130 John Savage Avenue	Dartmouth	2	2
Discount Hub	211 John Savage Avenue	Dartmouth	3	2
Park Place	100 Eileen Stubbs Avenue	Dartmouth	2	4
Bluefrog Business Campus	134 Eileen Stubbs Avenue	Dartmouth	2	2
Jaquar Land Rover Canada	1203 Main Road	Eastern Passage	2	1
Alt Hotel - Halifax Airport	40 Silver Dart Drive	Enfield	2	1
Halifax Airport	1 Bell Boulevard Extension	Enfield	2	1
Holiday Inn Express	980 Parkland Drive	Halifax	2	4
Halifax Infirmary Capital Health	1796 Summer Street	Halifax	2	1
Halifax Central Library	5440 Spring Garden Road	Halifax	2	3
Halifax Seaport Farmers' Market	1209 Marginal Road	Halifax	2	1
The Westin Nova Scotia	1181 Hollis Street	Halifax	2	1
Atlantic Superstore	1075 Barrington Street	Halifax	3	1
Dalhousie Ocean Sciences Building	1355 Oxford Street	Halifax	2	1
Dalplex	1153 Dalhousie Street	Halifax	2	6
Saint Mary's University	923 Robie Street	Halifax	1	1
Solutions Park Business Centre	38 Solutions Drive	Halifax	2	3
Steele Ford Lincoln	3773 Windsor Street	Halifax	2	1
Steele Hyundai	3637 Kempt Road	Halifax	2	1
O'Regan's Nissan Halifax	3461 Kempt Road	Halifax	2	1
Steele Jaguar Land Rover	3345 Kempt Road	Halifax	3	1
O'Regan's BMW	3240 Kempt Road	Halifax	2	1
Colonial Honda	2657 Robie Street	Halifax	2	1
Dalhousie University - Wickwire Field	6185 South Street	Halifax	2	1
IWK Children's Hospital	5850 South Street	Halifax	2	1
Scotia Square Parkade	1899 Albemarle Street	Halifax	2	2
Nova Centre	5262 Sackville Street	Halifax	2	10
Dalhousie Sexton	5269 Morris Street	Halifax	2	1
Discovery Centre	1223 Lower Water Street	Halifax	2	1
Emera HQ	5151 Terminal Road	Halifax	2	2
The Deanery Project	751 West Ship Harbour Road	Lake Charlotte	2	1
Memory Lane Heritage Village	5435 Clam Harbour Road	Lake Charlotte	2	1









If 11 of the baseline vehicles are replaced with the FleetCarma Recommended plug-in vehicles, the fleet will see the following total savings over the service lives of the baseline vehicles.

Fleet Savings (19%)

**\$134,167**

If 11 vehicles are replaced with the best fit vehicle, the fleet could save \$134,167 in total savings over the service life. This represents 19% of the fleet budget.

Emission Reductions (62%)

**↓292 tons**

If 11 vehicles are replaced with the best fit vehicle, the fleet could realize a total emission reduction of 292 tons over the service life, representing a 62% reduction in CO<sub>2</sub> emissions.

Fuel Reduction (68%)

**↓105,615 L**

If 11 vehicles are replaced with the best fit vehicle, the fleet could reduce gasoline and diesel consumption by a total of 105,615L over the service life, representing a 68% reduction in fuel.