

Devin.Arthur@EVSociety.CA



+1 (705) 507-9227

1 November 2022

Ontario Ministry of Transportation
438 University Ave
12th Floor
Toronto, Ontario
M7A 1N3

RE: Building public electric vehicle charging infrastructure
ERO number 019-6000

Focusing on northeast and northwestern Ontario, we would like to bring your attention to areas that have large gaps between existing electric vehicle charging infrastructure. This would fall in line with geographic regions outside of major urban areas in Ontario and would help alleviate 'range anxiety' for drivers in the north, as well as provide extra coverage in winter months.¹

According to the *Inflation Reduction Act* in the United States, electric vehicle fast charging equipment should be placed every 50 miles (or 80km)² to ensure coverage for current and future drivers, as well as to help alleviate 'range anxiety' for new drivers³. For rural locations in Ontario, we suggest this be every 100 to 150km to balance cost and distance.

EV charging stations are most useful in locations that typically do not have charging infrastructure (examples listed below), but also have certain amenities, such as adequate parking lot lighting, food, washrooms, Wi-Fi, etc.

We also would like to highlight some areas that only have single operators and no station redundancy. Station redundancy can help in situations that are very rural, have only single stations or operators, and are essential for long distance travel. Adding additional redundant stations helps with driver confidence and will allow for the growth of EV in the consumer fleet.

The following examples are current routes that do not have adequate charging infrastructure:

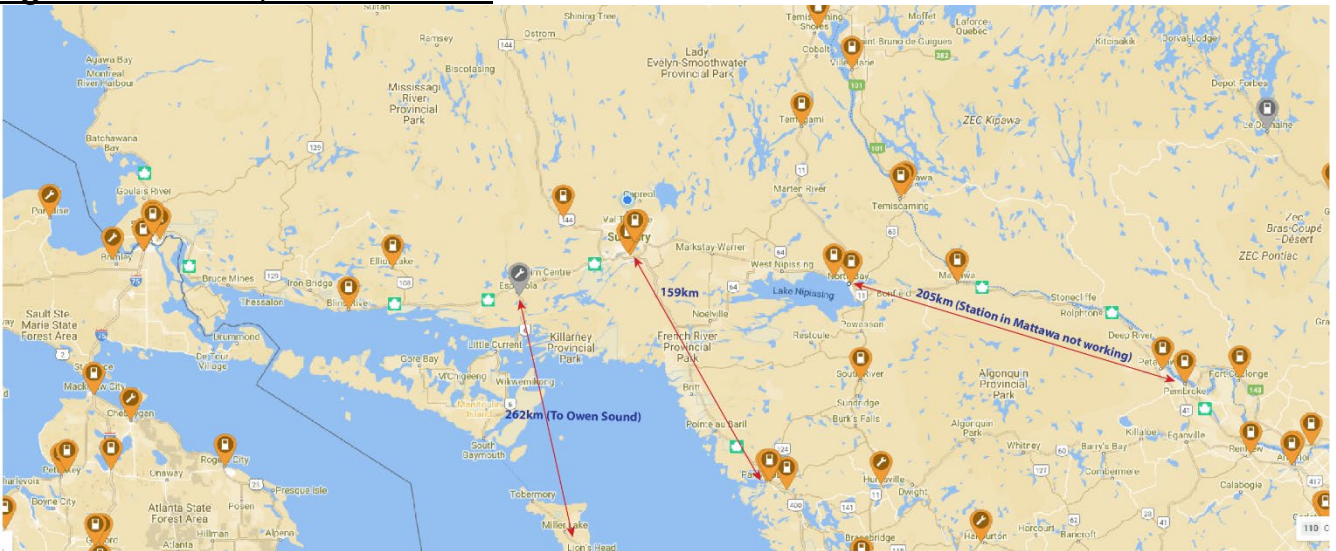
¹ Temperatures below zero affect EV battery chemistry, reducing the amount of 'available' range.

More information from Geotab: <https://www.geotab.com/blog/ev-range/>

² <https://cleanenergynews.ihsmarkit.com/research-analysis/four-charging-ports-every-50-miles-for-ev-drivers-us-dot.html>

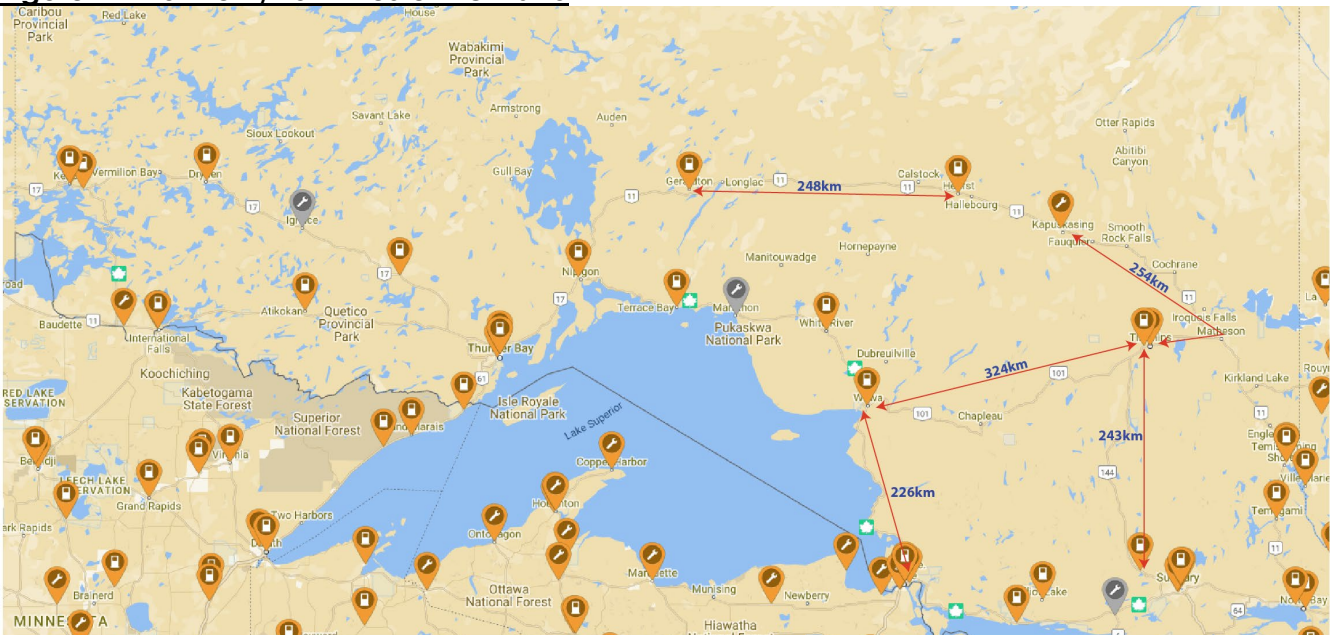
³ Range anxiety is a term used for new or potential EV drivers that are nervous about being unable to make it to their destination due to lack of charging equipment or lack of understanding of how electric vehicles work. Education combined with the installation of more charging equipment will eliminate range anxiety.

Figure 1 – northern/eastern Ontario



- Sudbury to Parry Sound – 159km**
 Ideally a DC-Fast station should be placed at the halfway point between Sudbury and Parry Sound to facilitate winter travel and help provide an alternative stop between the two locations.
- Espanola to Owen Sound – 262km**
 Manitoulin Island is sorely lacking any type of charging infrastructure which is unfortunate due to its tourism industry, especially in the summer months. A DC-Fast station on Manitoulin Island would open this route for additional tourism traffic in summer and would allow winter travel onto the Island.
- North Bay to Pembroke – 205km**
 Since the DC-Fast station(s) in Mattawa are not working reliably, this route is not possible to traverse in winter months for all but the highest range electric vehicles, mostly due to terrain changes. A more reliable station in Mattawa or Stonecliffe would allow travel during the winter months and eliminate any range anxiety during the summer months.

Figure 2 – northern/northwestern Ontario



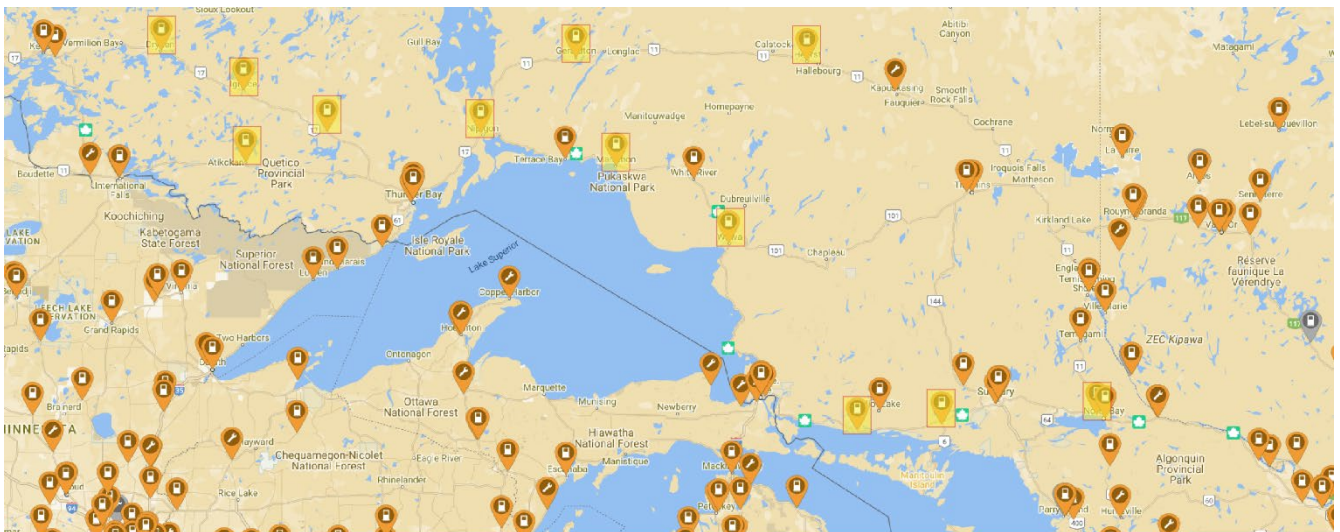
The following routes require an additional mid-point DC-Fast station, which would allow winter travel and provide an additional charging spot during summer months:

- Geraldton to Hearst – 248km**
- Kapuskasing to Timmins – 254km**

- **Timmins to Sudbury – 243km**
This is one of the most frequently requested routes that requires a DC-Fast location in the mid-point. Many drivers travel this route for mining operations and even during the summer have a hard time driving an electric vehicle this distance.
- **Timmins to Wawa – 324km**
- **Wawa to Sault Ste Marie – 226km**

Locations with a single operator that could benefit from additional sites

The following locations highlighted in yellow all have a single station or single operator and could benefit from additional stations installed to allow for redundancy. This is also a great option since these locations already have new service/equipment so adding additional stations is not as complex or expensive as installing a new site.



Challenges for public charging stations

One of the biggest challenges for charging infrastructure facing the entire industry, including Ontario, is equipment reliability⁴. There are many networks (including some in the suggestions above) that have equipment installed, but it is frequently disabled and not working. There are many ways to address this issue. We suggest a collaborative approach with the charging industry (networks and equipment manufacturers as well as not for profits like EV Society) to address this problem and find the best path going forward.

Another issue in rural areas is power availability. Since DC-Fast stations require significant power infrastructure, it is not always feasible in certain locations. Deploying novel solutions in these instances is required, such as having stations tied into energy storage reducing the dependency on high-capacity power, or utilizing lower powered charging equipment based on the amount of power available. Another alternative is to provide redundancy, as mentioned above, to existing sites that may only have a single provider.

Sincerely,

Devin Arthur
Electric Vehicle Society
Government Relations Committee
Chapter President – Greater Sudbury

Cc: Jon Seary – President, EV Society – Canada
Wilf Steimle – Chair, EV Society – Canada

⁴ <https://electricautonomy.ca/2022/10/03/ev-charger-reliability-responsibility-canada/>