

The Ravina Project

EV Plug-in Potential

An Inventory of EV Plug-in Locations in The Pocket Neighbourhood



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2021/04/18
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The Ravina Project - Goals

The Ravina Project consists of several projects all proceeding concurrently. If we were to rename our project today we probably would name it, "The Ravina Projects".

Our project goals page allows our readers to understand the scope and depth of the various areas of inquiry focused totally on the household.

See the Project Goals page on our WEB site at:

www.theravinaproject.org/project_goals.htm

The Pocket's EV Plug-In Potential

Abstract

In The Pocket neighbourhood there are about 452 locations that could be electrified to become charging stations for electric or hybrid-electric vehicles.

Introduction

The Pocket is an Old Toronto neighbourhood South East of Jones and Danforth. It is bounded on the West by Jones Avenue, on the East by the Greenwood TTC yards, on the North by Chatham and the South by the Boultbee Avenue.

One of the limiting factors for EV adoption is the problem of charging stations. Where do the owners of such vehicles get a charge? Based upon our 3 years experience with an EV we find that the vast majority (99%) of our car charging is done at home in our driveway. In our opinion and based upon our experience, THE issue for EV adoption by the general public is one of being able to charge at home. Price, in our view comes next.

In this short paper we provide a hand count of the possible locations EV owners might use as a charging location. By a hand count we mean we drove through every back alley and street in The Pocket to manually make this count. This inventory of available spaces for Electric Vehicle charging was conducted on April 13th, 2021.

What constitutes a potential charging location?

Here are the criteria we use to determine whether a property has a potential charging location for an EV:

1. Located on private property

The potential charging location must be located on private property. We found several areas in The Pocket that have communal parking. There are two issues with this kind of parking. One, the parking space is communal property and two, there is no reasonable way to install a charging station that is wired into each unit's circuits. If these communal spaces were electrified and added to the count, the total would increase by about 20.

2. Garages

We counted both one and two car garages. For the most part we counted two spaces in a two car garage except where it was obvious that the garage was used for more than car storage.

3. Parking pads

Note that the parking location may not be electrified at the moment but has the potential to be electrified. Many parking pads are located on the front of the house adjacent to the street.

Laneway parking is a large fraction of the total amount of parking available to residents of The Pocket. Laneway locations are attributed to the property on the street they serve when they are counted.

Totals broken out by street

We strongly suspect that the error bar for this count should be set to be about +/- 3% or about +/- 14 spaces. We were surprised by the number of candidates for charging locations. Our initial estimation was on the order of a few hundred.

The Pocket EV Plug-in Location Inventory

Street	Charging Locations
Shudell	61
Seymour	31
Ravina	39
Queen Victoria	14
Phin	5
Oakvale	7
Lydia	23
Jones	36
Hunter	45
Earl Grey	38
Dawson	18
Condor	37
Chatham	55
Boultbee	28
Boothroyd	4
Baird	11
Total	452

Conclusion

We hope this count will allow planners to better understand the challenges of and opportunities for charging EVs in The Pocket.

Grid Considerations

We can make an estimate of the extra load EVs will provide for local grid distribution. If 450 EVs require an overnight charge of 10 kWh on average (40-80 km daily commute based upon 125-250 Wh per kilometer) then The Pocket will have an extra overnight draw of about 4.5 MWh. If we estimate the daily load a house places on the grid to be on average 30-40 kWh, the 4.5 MWh corresponds to an extra 112-150 houses on the local distribution grid segment. It's like adding a new housing sub-division. This is a significant increase.

"If we knew what we were doing, it would not be called research."
- A. Einstein

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