NEIGHBORHOOD AND WORKPLACE ELECTRIC VEHICLE CHARGING DEPLOYMENT

CITY OF TACOMA

University of Washington
Civil and Environmental Engineering:
Transportation Engineering
CET 583: Transportation Energy & Sustainability
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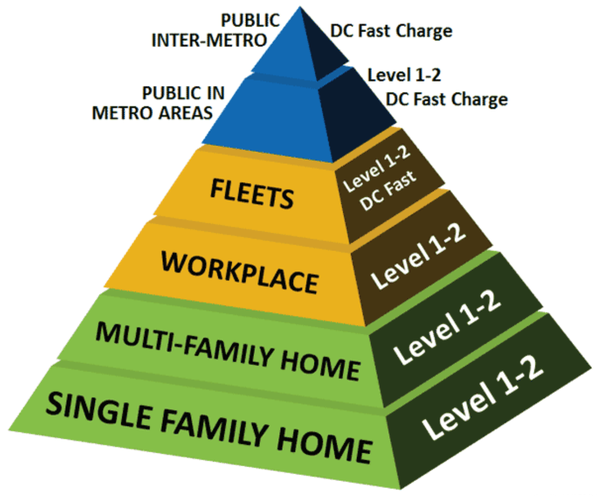
Introduction

As part of Washington State's goal of 50,000 electric vehicles (EVs) on the road by 2020, Tacoma is aiming to quadruple the number of EVs in the city from 500 to 2,000. A key to this goal is making cost-effective investments in charging infrastructure to encourage greater adoption of EVs. Student teams are developing strategies to maximize the effectiveness of future investments in charging stations for homes, workplaces, and public locations.



Credit: NYSERDA

Most electronic vehicle charging occurs at home, but charging opportunities at workplaces and public locations are key to encourage widespread adoption.

Methods & Approach

The objectives of this project are to help City of Tacoma staff to understand:

- Where should charging infrastructure be located?
- Given varied potential future funding levels, what types of investments in EV charging infrastructure should be prioritized at the local level in order to encourage further adoption of EVs?

Depending on the particular type and location of charging stations, different policies and levels of government involvement are required. Possible charging locations include:

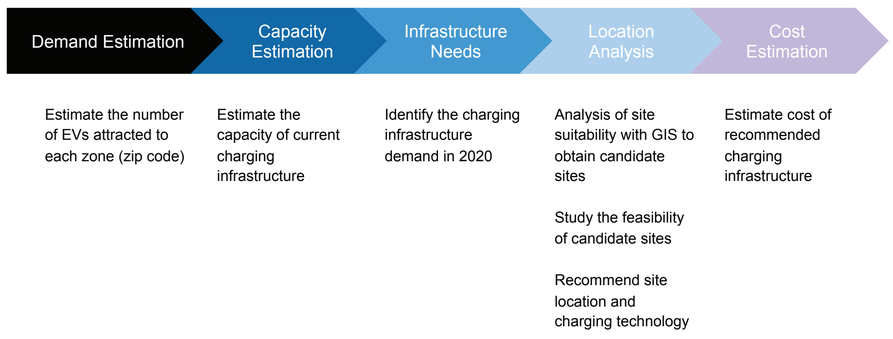
- Single-family homes
- Multi-family homes
- Workplaces
- Public locations

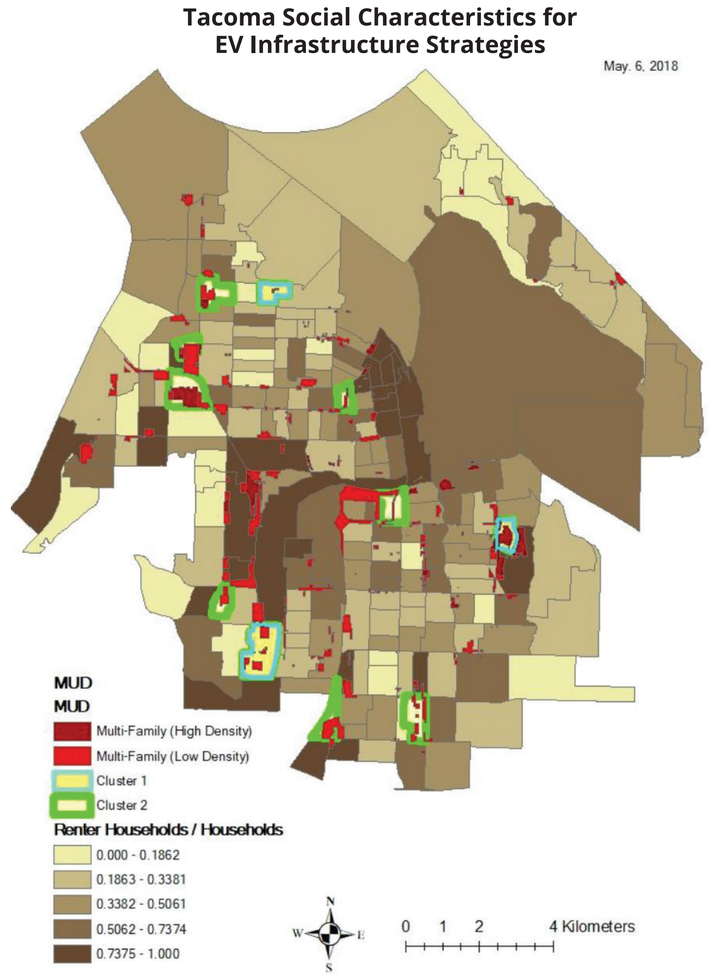
Students are assessing both the best ways to invest within each of these categories, and the relative prioritization across categories.

Initial Findings

Based on demographics and travel patterns of residents and visitors in different parts of Tacoma, student teams are identifying areas and specific sites that are the most promising for promoting EV adoption. Thus far, students have identified that costs and potential benefits for charging locations are highly site-specific, depending on existing facilities and electrical capacity, level of property owner commitment, and consumer interest. Because of this, policies for home and workplace charging should be designed to support informed and voluntary decisions by these parties. Public charging, particularly fast charging, may require more top-down coordination.

Analysis framework





Key social indicators for suitability of multi-unit dwellings.

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