Great Candidates for Future Sustainable Transportation

Michael Qiu, Program on the Environment, University of Washington
Site Supervisor: Eugene Kramer, Seattle Subway Foundation
Faculty Advisor: Yen-chu Weng, UW Program on the Environment
Seattle Subway Foundation

Backgrounds
- The transportation systems come with many problems, including global warming, environmental degradation, health implications, etc.
- Fossil fuel needs to be replaced with more efficient energy.
- Sustainable transport systems, aka green transportation, refer to all modes of transport with a low environmental impact.

Research Questions
- What are the advantages and disadvantages of green transportation, especially among EVs, public transit, and biking? (Figure 1)

Internship
- Seattle Subway Foundation assisted me in collecting data on how the subway would be a great approach to building a sustainable transportation
- Notice that in Seattle, 62% of greenhouse gases come from transportation alone
- Added persuasiveness to the residents of the greater Seattle area about the subway as green travel

Methods
- Online survey: conducted an online survey asking respondents to rank four forms of green transportation. Respondents were found at random through outreach events in Ballard, Seafood Market, and Alki Beach Pride; 71 responses (Figure 2)

Survey Results

General Results
- EVs
  - Produce zero tailpipe emissions
  - Do not emit a noise
  - Cheap, etc.
  - Battery & Production

- Subway
  - Less energy consumption
  - No exhaust emissions
  - Cheap, etc.
  - Time to build

- Biking
  - Benefits Health
  - Zero-emission
  - Destination Range
  - High Requirement

Figure 3: Shows the Carbon intensity of Travel among different types of transportation: the lower number, the better to be sustainable.

Connection
- Situational (Public >/= EVs > Biking)
- Being sustainable is the priority

Implications
- The popularity is far less than that of traditional gasoline vehicles
- The transition requires a long period
- The significance of the project aims to advocate the development of a sustainable transportation network

Acknowledgment
- Family and Friends
- POE faculties
- Seattle Subway Foundation
- Survey Participants