GREENEST CITY SCHOLARS PROGRAM - 2014 PROJECT

Project title

Analyzing Vancouver's Fire & Rescue Service's heavy vehicle fleet travel patterns and identifying opportunities for efficiencies

Greenest City goal(s) supported

- Climate Leadership: Reduce community-based greenhouse gas emissions by 33% from 2007 levels
- Green Operations Plan (Zero Carbon)

Project context, scope, and value to City

Vancouver Fire & Rescue Services employs more than 800 men and women to respond to a wide variety of emergency and non–emergency incidents including fires, motor vehicle accidents, hazard materials events and medical situations. In addition, fire fighters are routinely dispatched for training/certification, community services, fire prevention and other duties. Heavy duty trucks are often used for non-fire related calls as firefighters are re-routed while responding to a call and need to be ready to respond to a fire related call while performing other related duties.

Within the Fire Department fleet, the heavy duty trucks used for fire suppression are the largest contributor of carbon pollution. This project aims to analyze the available data, determine the biggest opportunities for carbon pollution reduction and to propose recommendations.

Where and when do the heavy duty fire suppression trucks travel? What are the best opportunities for providing service by lighter duty vehicles? What are the opportunities to create routing efficiencies or overall reduction of trips for travel required by the heavy duty fire suppression trucks?

The Scholar will work with the Fire Department and Equipment Services to help better understand how the heavy duty trucks are being used and what the key opportunities for trip reduction. The Scholar will:

- Conduct analysis of trip data from the onboard Engine Control Unit (ECU) equipment (available from 18 of the 2007 heavy duty trucks) and identify trip patterns. This will give fuel data such as engine idle time, PTO time, fuel used in driving.
- Analyze fuel usage of the 26 apparatus due for replacement in 2015/2016.
- Compare GPS data in relation to the data available from emergency dispatch
- Use interviews with key fire personnel to determine the purpose of non-emergency, frequently travelled routes

- Identify and assess potential strategies to reduce travel in the heavy duty vehicles (e.g. use smaller vehicles, routing efficiency opportunities, etc.)
- Provide recommendations related to the top opportunities, quantifying the potential carbon pollution reductions, fuel savings and financial savings associated with reduced wear on the heavy duty trucks

The Scholar's research will support the work underway around green fleets.

Deliverables

The Scholar will produce report and presentation containing:

- Summary of the data analysis
- Summary of current conditions (related to heavy duty fleet travel)
- Assessment of potential strategies to reduce the heavy duty fleet travel
- Recommended top opportunities with savings (carbon pollution, fuel and maintenance related)

Mentor Department

Vancouver Fire and Rescue Services (Fire Department)

Candidate skill set/background

- Quantitative data analysis
- *Computer Aided Dispatch (CAD)*
- *Mapping software*
- *Demonstrated interest in fleet management*
- *Experience with route planning is an asset*
- Excellent research and writing skills.
- Strong communication skills