Contextualized Freight & Mobility Insights

Jean Pilon-Bignell - VP of BD, Gov & ITS
Presentation January 2022
Agenda

- Introducing Geotab ITS
- Proxying the Commercial Vehicle Population
- NIITEC Case Study
- IDOT Case Study
- Modelling the Freight & Mobility Population
- Q&A
Get the Most out of CV Data

Connected-vehicles are an amazing source of transportation data:

- Vehicle classification
- Engine configuration
- Driving behavior
- Routing
- Travel speed and time
- Trip purpose
- Trip duration
- More
The **Where** and the **When** of Freight

What if you could sample millions of vehicles worth of data from a single platform?

- 2.6M connected **commercial** fleet vehicles
- 25M trips per day
- 50B raw data records per day
The **What** and the **Why** of Freight

What if you could label journeys to understand **trip purpose**?

- People vs goods movement
- Vehicle classifications
- Trip vocations
- Commercial industry segmentation
- True origin and destination
Introducing Altitude
A contextualized transportation analytics platform

Origin/Destination
Plan smarter from point A to Z with a comprehensive picture of true origins and destinations

Intersections
Improve signal timing and progression for better traffic flow

Roads
Create smarter roadways with reduced travel times and bottlenecks.
Can sample fleet data be used as a proxy for the freight population?
NITTEC Case Study - Objectives

**Objective:** could Geotab sample freight data be used to infer temporal wait times for the entire freight population at 4 critical Niagara region border crossings?

**Labels:** freight border wait times were provided from Transport Canada

**Study Area:**
1. Fort Erie
2. Queenston
3. Sarnia
4. Windsor
NITTEC Case Study - Methodology
NITTEC Case Study - Methodology
NITTEC Case Study - Results

Correlation = 0.97

Correlation = 0.86
NITTEC Case Study - Inferring the Population

Canada to US freight wait times

Average border crossing time is nominally higher on Tuesdays.

For Tuesdays, 2 pm and 4 pm are observed with the longest average crossing duration.
NITTEC Case Study - Inferring the Population

US to Canada freight wait times

Average border crossing time is nominally higher on Wednesdays

6-8 pm with longest average crossing duration for most days;

Most noticeably for Mondays and Wednesdays
IDOT Case Study - Objectives

**Objectives:** could Geotab sample freight data be used to infer temporal volume variances in the freight population?

**Labels:** mainline Weight in Motion (WIM) sensors across the State of Illinois

**Study Area:** 15 mainline WIM sensors across the State
IDOT Case Study - Results

Geotab shows between 4% and 14% freight penetration at the various WIM locations.
Overall volume correlation is excellent, varying between **96.6%** and **98.5%**.
IDOT Case Study - Inferring the Population

By applying geospatial expansion factors, Geotab sample freight data is a statistically significant representation of temporal volume fluctuations.

Correlation at 96.6% when compared to aggregated hourly WIM volumes.
Can sample fleet data be used as a proxy for the freight population?

- **Yes**... in some cases
- Geotab freight sample data seems to be correlated with temporal and spatial label data
- More label data is needed!
- Geotab is working with SCAG and Caltrans to try and replicate this work and create a Freight & Mobility data set that is a **statistically significant representative of the entire trucking population in California**

**Conclusion**
Questions?