Application of Geotab in Transportation Modelling

RTM User Group Meeting – April 2025

Harry Teja, EIT
Maryam Zakeri, MASc, EIT

McElhanney

CANADA BEST MANAGED COMPANIES
Platinum member

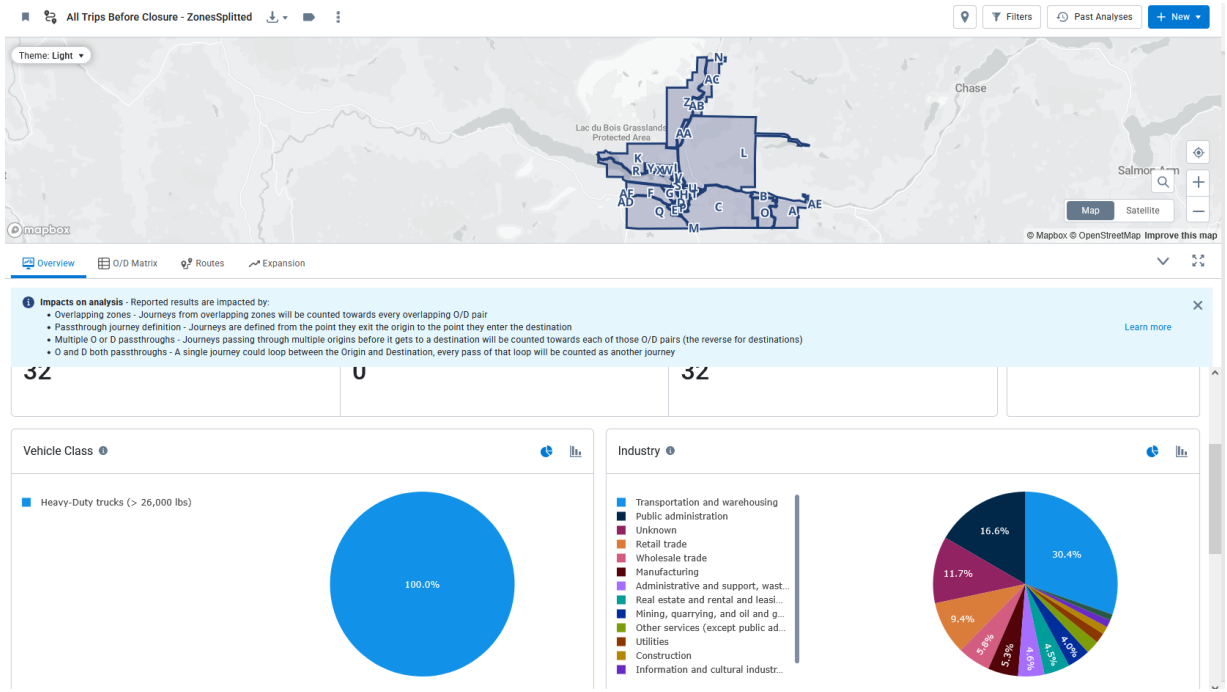
Today's Presentation

- What is Geotab?
- Provincial Truck Model
- Kamloops Truck Study

What is Geotab?

What is Geotab?

- Fleet management solution for commercial vehicles
- Complete sample of vehicle activity
- Allows origin/destination, route, and VKT analysis
- Filter by vehicle class/weight and vocation
- Insights about industries that the commercial vehicles service and activity patterns



Provincial Truck Model

Project Background

- Lack of current data on trucking and goods movement in BC
- Recent flood-related highway closures highlighted the need for a central repository.
- Tasked with data collection, analysis and developing a GIS dashboard for data visualization.

Data Sources

MOTT Permanent Counters
- Vehicles by length
- Location
- Volume by time of day

Truck Volume and Classification
- Truck classification volume
- Volume by location and time of day
- 38 locations

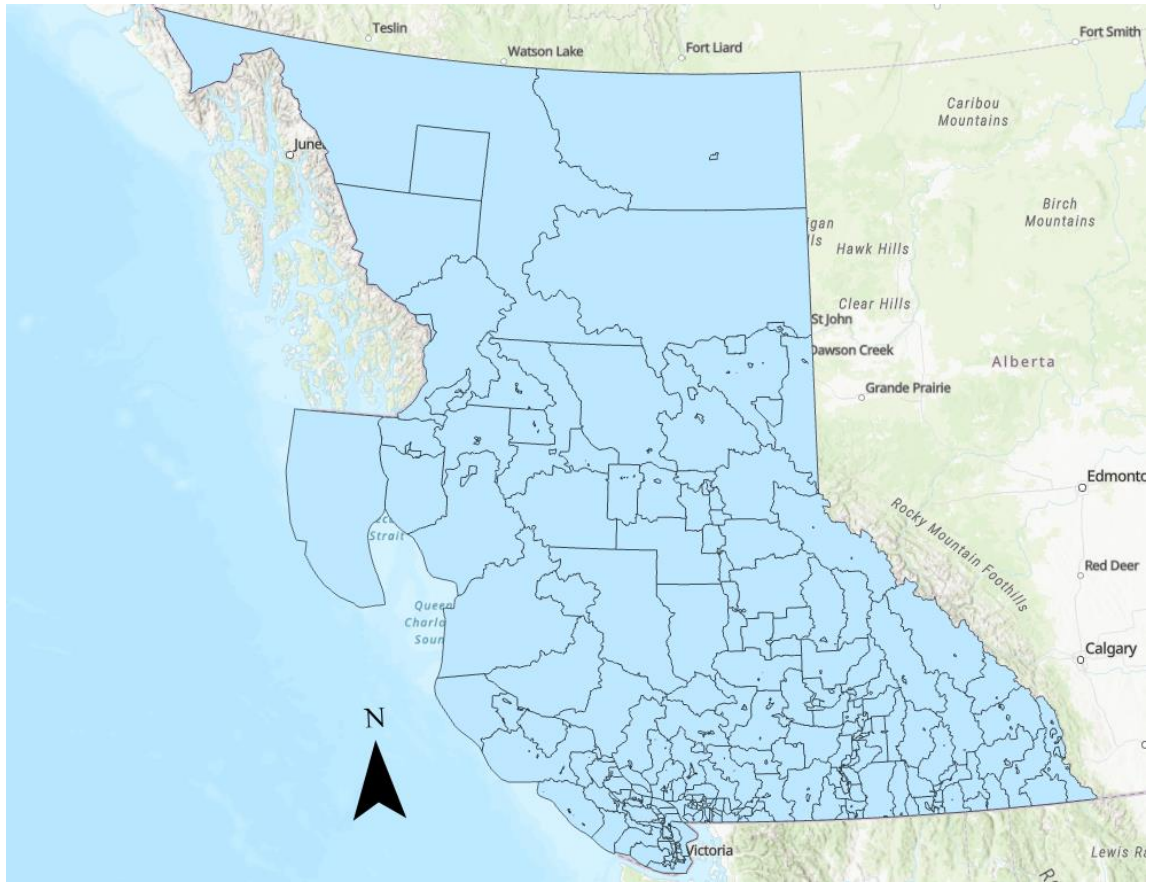
Roadside Intercept Surveys
- Truck classification
- Industry and commodity type
- Driver and Vehicle Information
- 35 Locations

Provincial Truck Model

Demand Model w/ Geotab
- Origin-destination analysis
- VKT
- Emissions Model

Model Development

Zone System
- Based on census subdivisions (w/ aggregation)
- External zones at provincial and international borders.
- Internal zones at major ferry terminals



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Road Network
- MOTT Uniform Traffic Volume Segments (UTVS)
- Major truck routes in the lower mainland added

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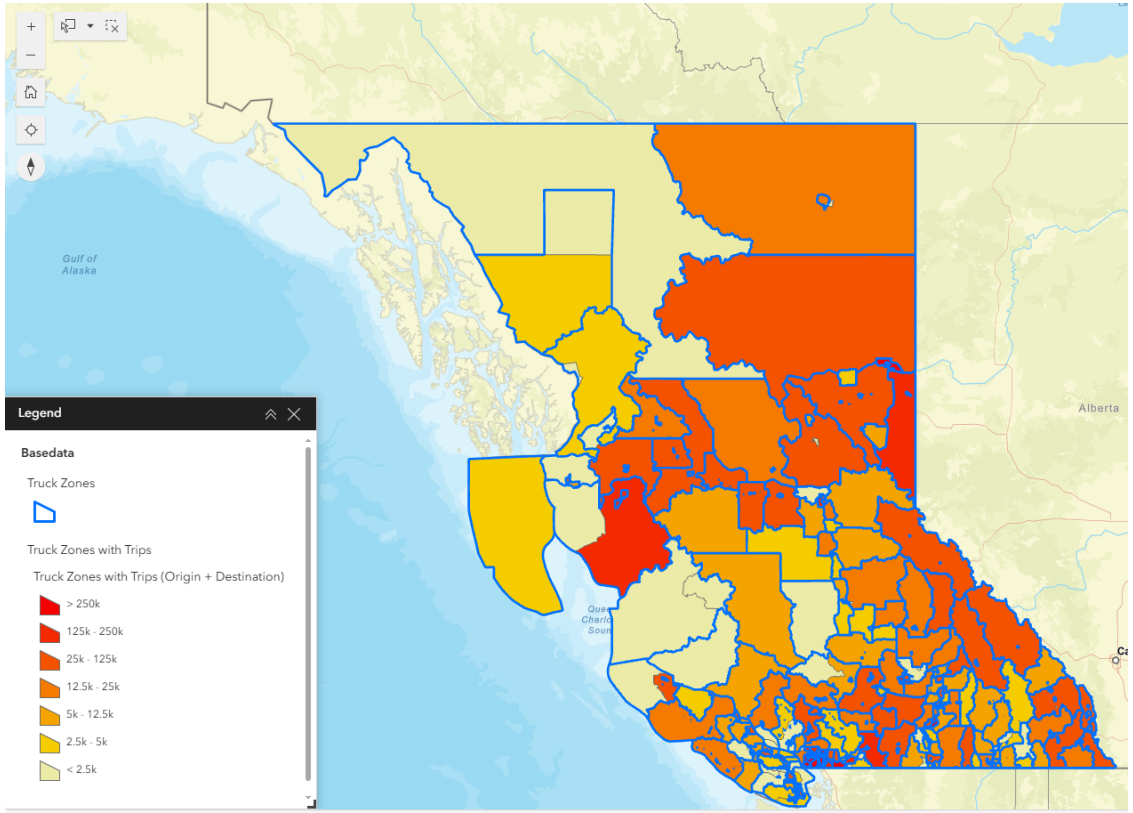
Demand Model
- Heavy-duty trucks (>26,000lbs)
- Long-haul vocation
- Trip chaining
- Demand adjustment based on length-capable permanent counters

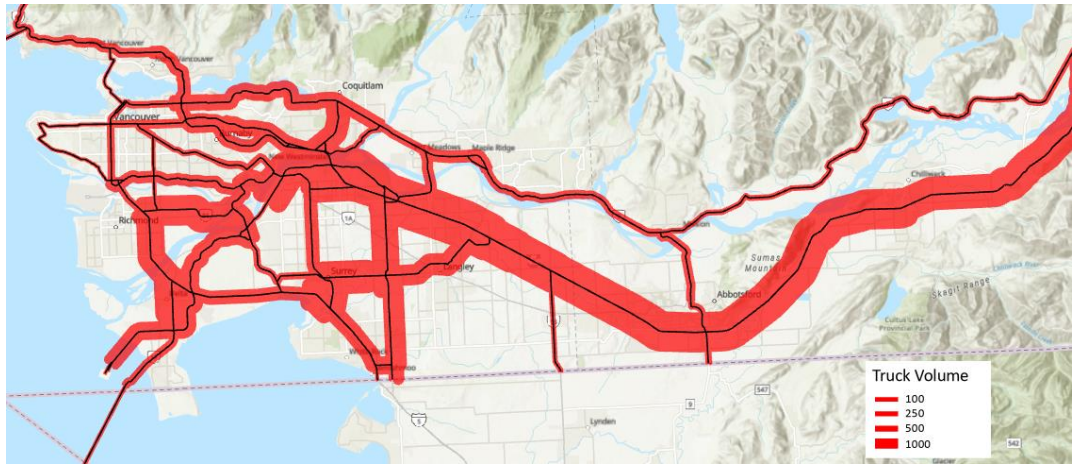


Model Application

- Modelling commercial vehicle emissions
- Filling the gaps in the existing goods movement data
- Assessing the traffic and economic impacts of road closures
- Data to support future infrastructure planning and policy development
- Identifying trends in truck travel over time

Lessons Learned

- Capture rates are consistent on a regional scale vary on a route-by-route basis.
- Increased network and zone density will allow studying truck movements on a municipal or regional scale.
- Expansion factors are not provided by Geotab in Canada.
- Geotab is suited to study changes in truck travel patterns.

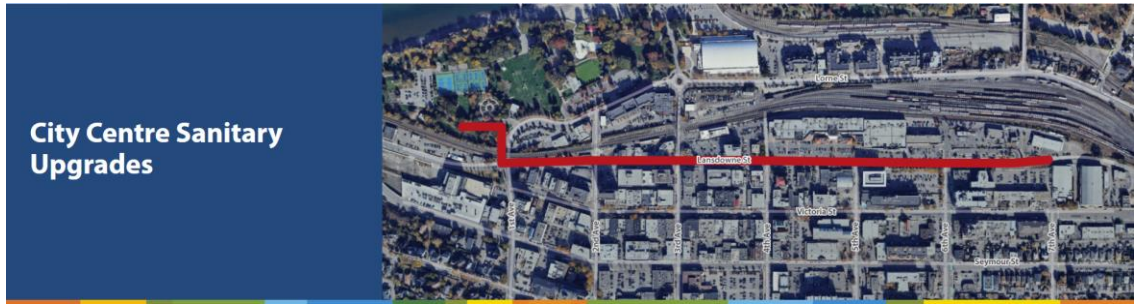


Kamloops Truck Study

Lansdowne Corridor Construction Impacts

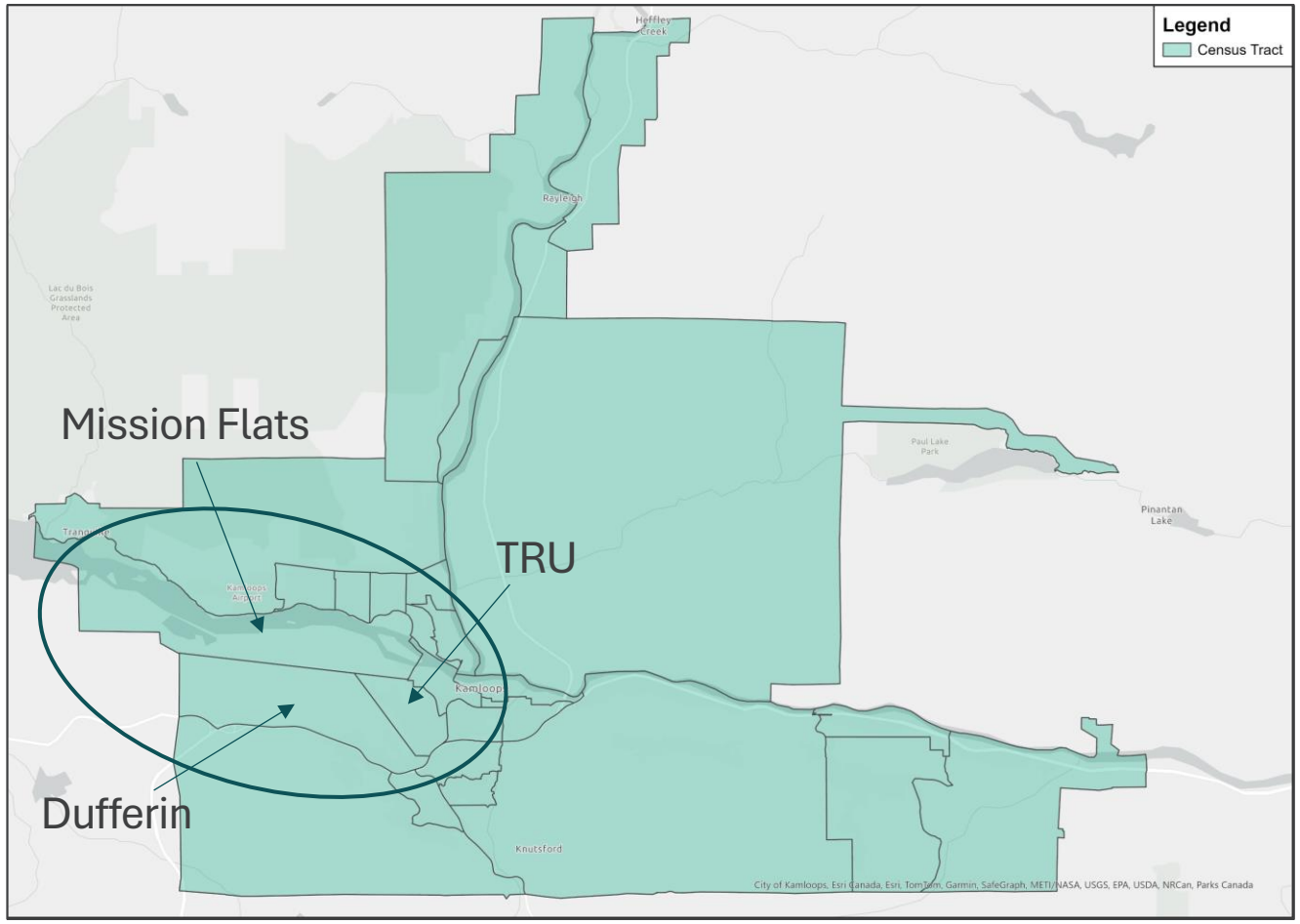
Problem Statement

- Pre and post closure analysis of trucks on network and OD-analysis of existing trips
- Estimate impacts to truck movements and alternative route
- Impacts to trucking movements in time and distance



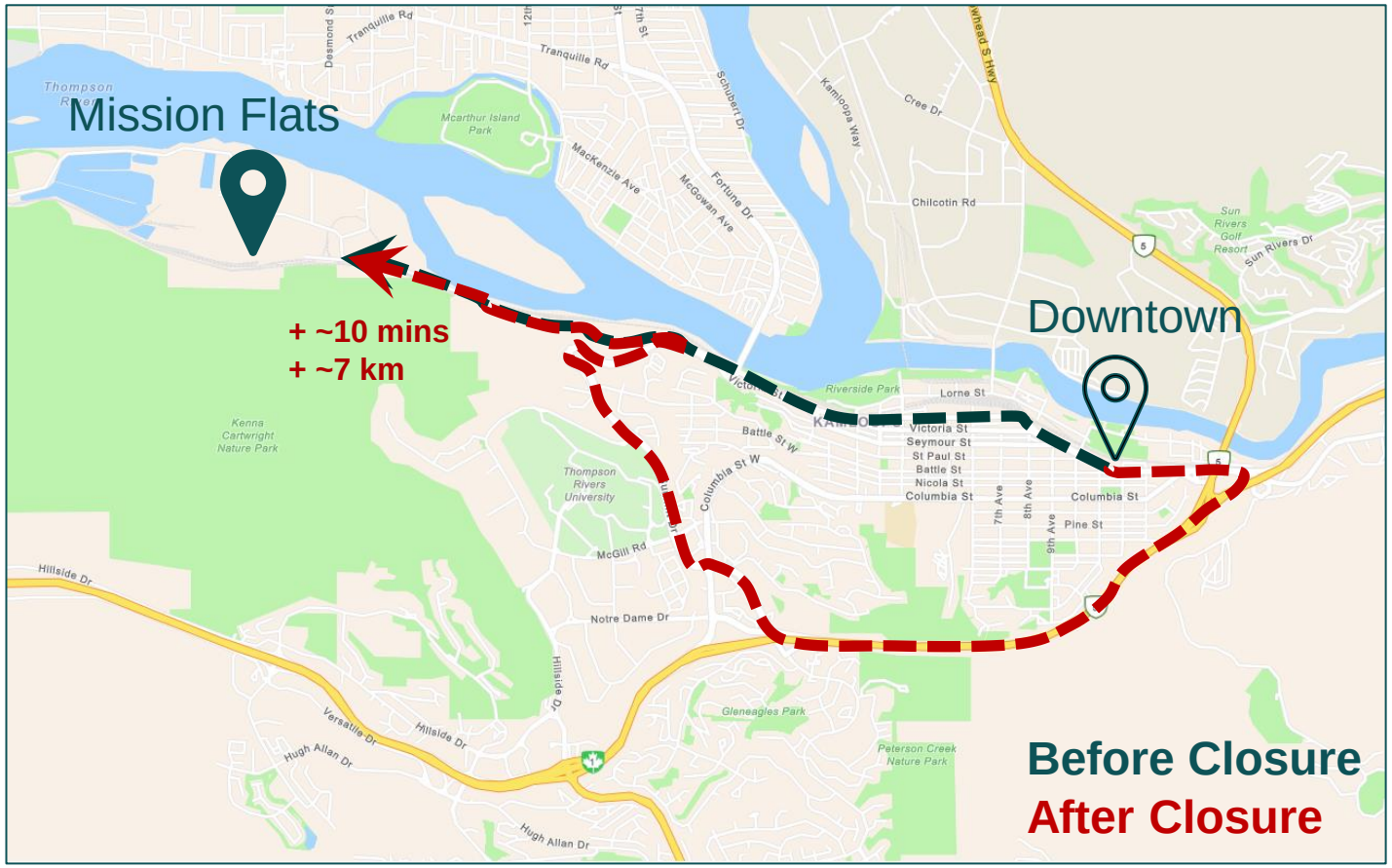
Existing Conditions Analysis

- Use census boundaries and select traffic on closed links
- Expand to observed counts in pre-closure period
  - Estimate local sample rate on routes of interest
  - Limit to heavy GVW vehicles
- Look at current route choice market and identify key activity pairs
  - Key arterial use and access patterns
  - Market sizing



Closure Analysis

- Plot route choice for key activity centers
- Estimate travel time and distance impacts
- Economic impacts



Outcomes

- Date base limitations in Geotab allows explicit before/after data capture after the fact
- Verified good sample rate in this context
- Selection bias in users of Geotab service
- High consistency observed in choice of route based on expectations of local travel patterns

Thank You

Harry Teja, hteja@mcelhanney.com
Maryam Zakeri, mzakeri@mcelhanney.com

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