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Refreshing the Household Travel Survey: Case Studies in Seattle and Calgary

15th TRB National Transportation Planning Applications Conference

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Presentation Outline

- Introduction: Types of household travel surveys
- Seattle Case Study
- Calgary Case Study
- Lessons





Types of Household Travel Surveys

Core Design Options: Household Travel Survey

- Most common practice: periodic cross-sectional surveys
- However, trend of agencies considering other options
 - Obtain more current, more accurate, more longitudinal data
 - Smooth out funding cycles, find ways to bring down costs

DESIGN OPTION	EXAMPLE	BRIEF DESCRIPTION
Periodic Cross-Sectional	California, NHTS	Data collected during distinct period every 6-20 years
Recurrent Cross-Sectional	PSRC	Cross-sectional repeated at regular intervals (e.g. every other year)
Continuous Cross-Sectional	Calgary, Australia	Cross-sectional survey is continual and ongoing (e.g. 365 days per year)
Panel	Germany, Netherlands	Same households participate multiple times to measure change over time



Case Study #1: PSRC (Seattle)

PSRC's History



PUGET SOUND REGIONAL Travel Study

A strong history of:

- Innovative Surveys

- 1989-2002 panel: 10 waves of 1,700 households (but not suited for land use and travel model estimation)
- 1999 Household travel survey: ~5,250 HHs
- 2006 Household travel survey: ~4,750 HHs

- High Civic Engagement

- Translates to higher response rates than many other U.S. regions

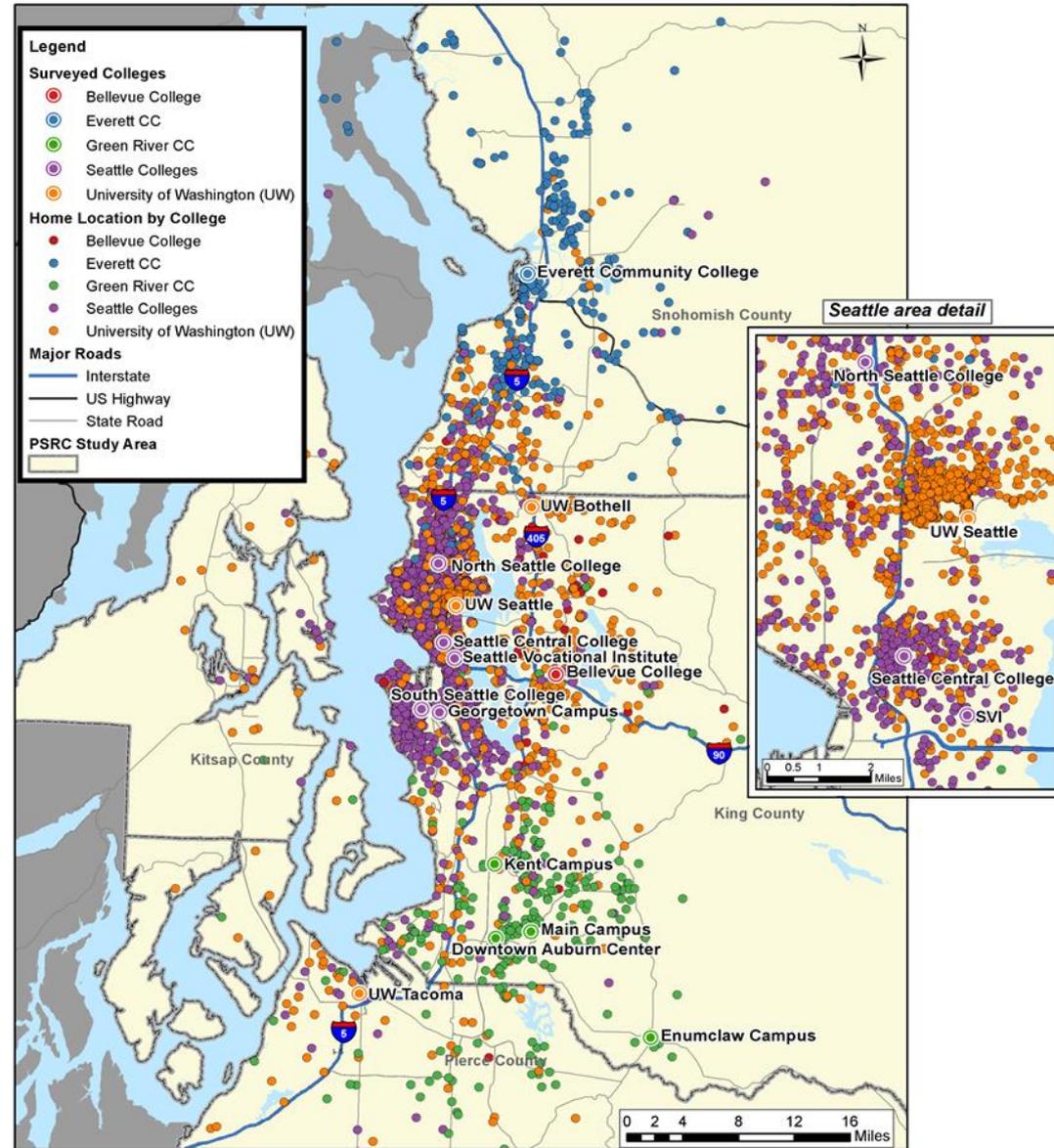
2014 Travel Survey

Spring Household Travel Survey

- “Booster” cross-sectional sample of 6,000 HHs
 - Includes add-on sample from Cities of Seattle & Bellevue

Fall College/University Special Generator Travel Diary

- 5 colleges for 4,460 people
- ~2,300 Univ. of Washington students



2015 Travel Surveys (In Progress)



Spring Household Travel Survey

- Cross-sectional sample of 800 HHs
 - Includes add-on sample from City of Tacoma
- Convenience (panel) sample of 1600 HHs
 - HHs that participated in 2014 are re-invited for 2015
 - Targeted HHs that rode revised bus routes or lived in block groups of revised bus routes
 - Also targeted HHs that commute to downtown Seattle and/or live in downtown Seattle

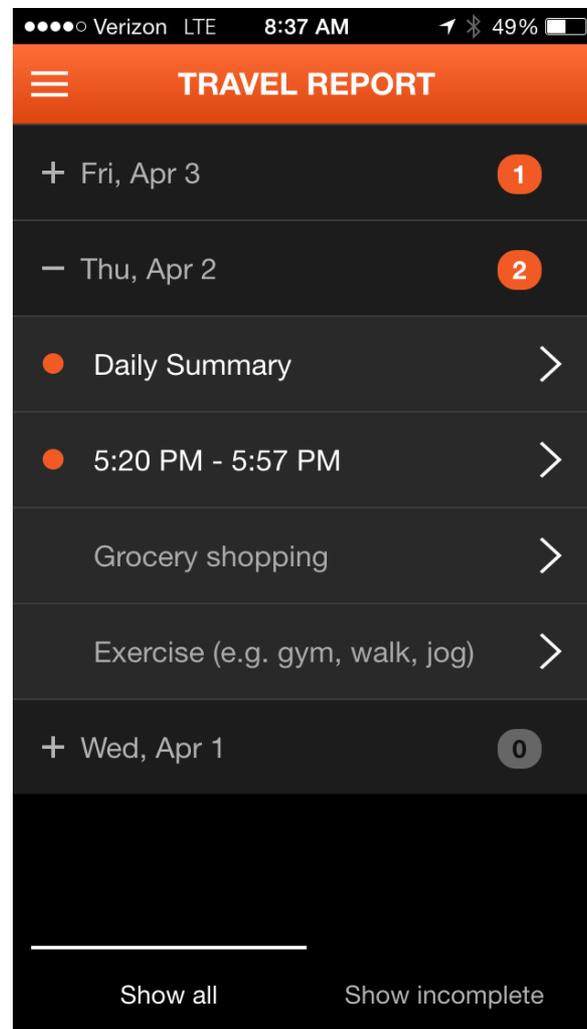
Preliminary Take-Aways: on Response Rates

- Response rate estimates by block group increasingly accurate and informed by census data and previous year response rates
- Convenience sample has very high response rates: ~92% of recruited HHs and ~60% of all invited HHs complete the diary

2015 Travel Surveys (In Progress)

Spring GPS Sample

- Convenience sample of 250 HHs (also participated in 2014)
 - HHs that participated in 2014 are re-invited for 2015
 - All HH members age 16+ have an Android or iOS smartphone
 - Download rMove™ app and participate for 3 days (Tues-Thurs)
 - Answer survey of each trip and an end of day 'daily summary' survey



PSRC is Looking Ahead: 2016 and beyond

What Survey Design Options are Preferred?

- Planning a Biennial Recurrent Survey (2017, 2019, etc.)
 - Likely mix of cross-sectional and panel HHs
 - Increasing desire/need for panel data
 - Agency consensus that frequent surveying is better, especially given expected rapid changes in transportation technology and behavior
 - Also desire to stay informed of modernizing/changing survey technologies

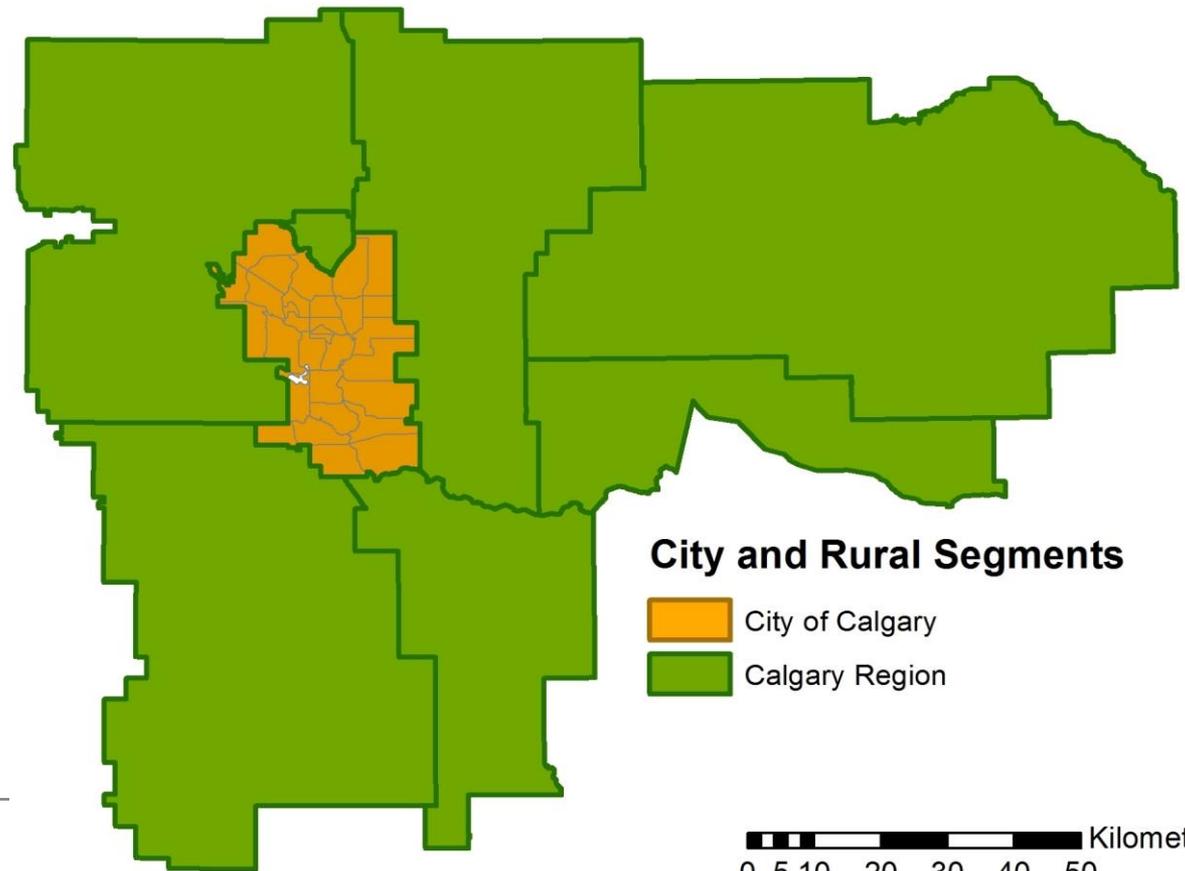


Case Study #2: City of Calgary

Calgary's History & Goals

Similar commitment to surveys

- Historically every 10 years
- In 2012, conducted an HTS of 9,000 HHs
- Study region includes City and surrounding region



Calgary's History & Goals

2015-2017 Data Goals

- Support Municipal Development Plan (MDP) and Calgary Transportation Plan Monitoring/Reporting Program (CTP)
 - Report requirements are every 4 years
- Update/re-calibrate Calgary Regional Transportation Model
- Obtain data in support of other planning analyses
- Test and verify “proof of concept” continuous survey as full replacement to current approach

My Travel Log

A study of **how**, **when** and **why** you travel.



2015-2016 Survey Program

Approach

- December 2014 Pilot: 214 HH's
- March 2015–December 2016:
 - Conduct continuous survey (~350 days/year) of 3,000 HHs
 - 80% population proportional, 20% targeted sample
 - City annually selects targeted sample
 - City also able to implement targeted add-on survey questions or sampling



Additional Considerations for Continuous Surveys

Specific to Calgary

- All data hosted on servers in Alberta
- City provides sample, also separate sample provider for rural areas
- City pays incentives (avoid currency conversions)

Specific to Continuous Surveys

- Questionnaire design is particularly important
- Clear plan for handling change requests
 - Scheduled quarterly or biannually
 - Monitoring or adjusting based on response to date



Lessons from 2 Case Studies

Advantages in Moving Away from Periodic Cross-Sectional Surveys

Advantages

- Current data at your finger tips
- Ability to look at changes over time (“before and after”)
 - Example: PSRC looking at impact of cancelled bus routes
- Ability to accommodate analysis needs that pop-up
 - Example: Calgary secondary suites data
- Add to accommodated targeted sampling with limited start-up costs
 - Example: other agency add-on purchases of sample
- Pool of households and people for future needs:
 - Panel, secondary surveys, etc.
- Reduced “waiting” for data for plan or model update needs
- Once up and running, fairly consistent costs year over year (smooth out funding needs)
- Room for incremental updates and improvements



Challenges in Moving Away from Periodic Cross-Sectional Surveys

Challenges

- Maintaining data compatibility/comparability over time
- Without a 'booster' survey to start, it can take a long-time to obtain enough data to analyze
- Automate everything possible that is a daily or weekly task to drive down costs
- Additional complexities in combining, weighting data
- Potentially harder to change consultants over time

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