Travel Behavior Inventory Program Recommendations

2/17/2015

Transportation Advisory Board

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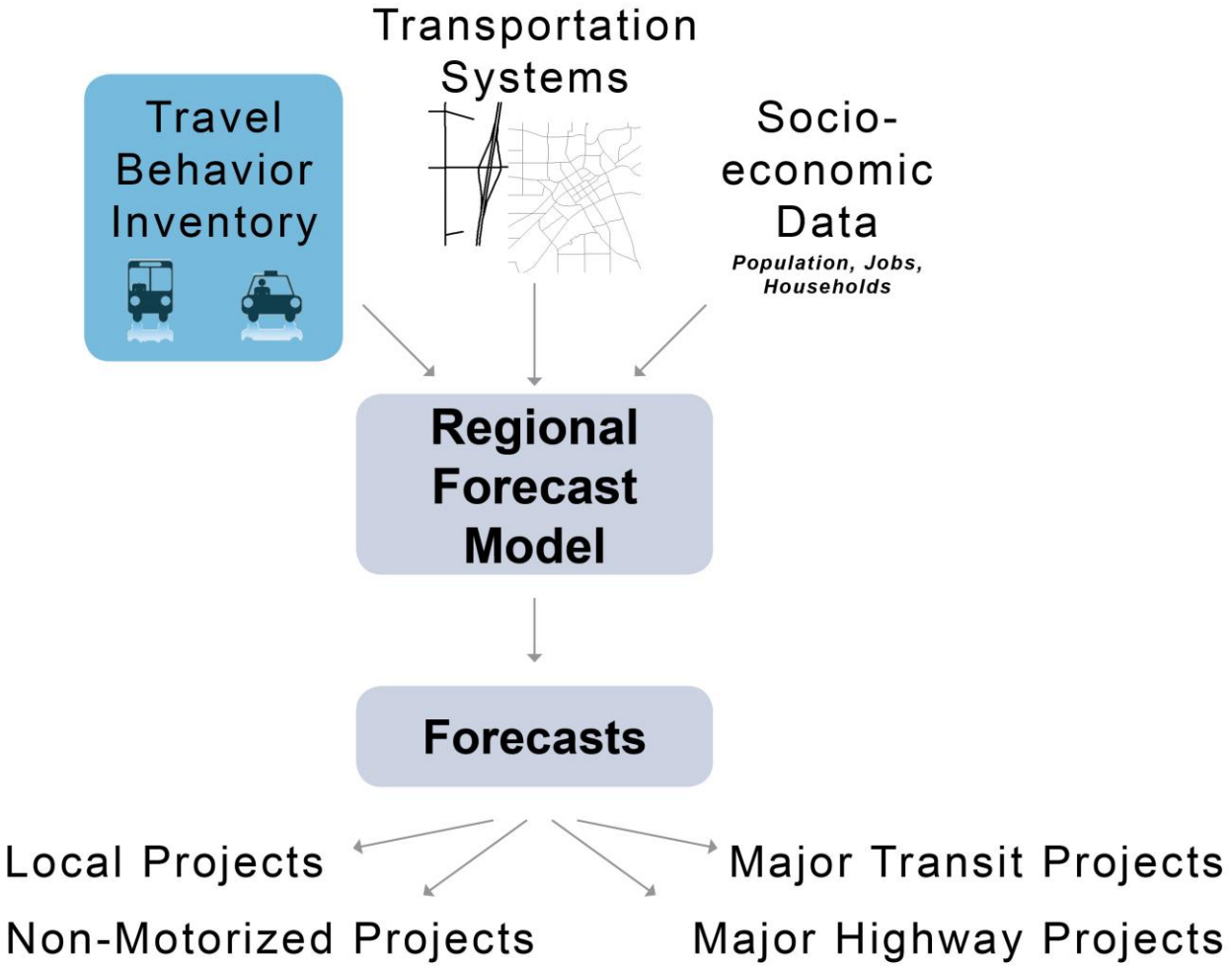
TBI Purpose

- Information on personal travel patterns to directly inform transportation planning
- Data to support estimation and validation of travel demand forecasting models
- Best reliable source of data on non-commute travel
- All projects require current data and/or forecasts
  - Highway
  - Transit
  - Bicycle
  - Pedestrian



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Previous TBIs

- 2000
  - 0.5% household survey
    - 6,400 households
  - Transit on-board survey (2005)
  - External O/D survey
  - Highway speed survey
  - Model overhaul
  - $2M; $2.8M in 2015 $
- 2010
  - 1% household survey
    - 12,100 households
  - Transit on-board survey
  - External O/D survey
  - 3rd party speed data
  - Model overhaul
  - $4M; $4.4M in 2015 $

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Issues with previous approach

- Travel habits and trends are changing more rapidly
- 10-year timeframe results in outdated data
- Differences in methods, focus over ten years makes comparisons difficult
- Large and infrequent project makes securing TBI funding difficult and unstable
- One long contract reduces flexibility

Recommendations from TBI Program Evaluation

- Separate data collection, model development contracts
- Recurrent, more frequent travel surveys:
  - Begin with larger “kick-start” survey
  - Every 2 years thereafter
- Shift to smartphone-based GPS data collection
- Increase oversampling of targeted populations
- Third party data should be used for validation and for external/visitor surveys
- Secure dedicated funding

Recommendations from U of M *Travel Behavior Over Time* Research Project

"As we enter an era with more rapidly changing transportation technologies, we recommend that the Travel Behavior Inventory be collected continuously on a rolling basis, rather than once a decade, so that we may more rapidly understand and so that policy may more quickly respond to those changes"

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Elements of Travel Behavior Inventory Program

- Data Collection
  - Household travel survey
  - Special generator surveys
  - Transit on-board survey
  - Third-party data purchase
- Model development and enhancement

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Proposed Household Travel Survey

- “Kick-Start” survey in 2018
- Smaller survey every two years following
- Maximize use of multiple day, smartphone-based data collection
  - Reduce forgotten trips, participant burden
  - Device always on person anyway
  - Real-time imputation

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Proposed TBI Program

Element	Size	Frequency	Est. Cost (2015 $)
Starter household survey (0.5%)	7,500 HH	Once	$2,000,000
Periodic household survey (0.2%)	3,000 HH	2 years	$800,000
University special generator	3,000 people	5 years	$150,000
Airport/visitor special generator	1,000 people	5 years	$100,000
Transit on-board	25,000 riders	5 years	$1,000,000
3rd party data purchase	n/a	5 years	$200,000
Regional model: overhaul	n/a	10 years	$1,000,000
Regional model: update	n/a	5 years	$200,000

Notes on Cost Estimates

- Cost estimates are for year of survey; each survey is a multi-year effort including
  - Contracting
  - Survey/sample design and testing
  - Survey administration
  - Data analysis
- Inflation and growth of region will increase cost over time (included)
- Technology maturation should decrease cost over time (not included)

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Proposed TBI Program Cost Estimates

Time Period	Elements	2-year Cost (Y.O.E.)
2018-19	"Kick-Start" household survey 3rd party data Model update	$2,500,000
2020-21	Household survey Special generator Transit on-board survey	$2,200,000
2022-23	Household survey Special generator Model overhaul	$2,100,000
2024-25	Household survey Special generator / 3rd party data Model update	$1,500,000
2026-27	Household survey Special generator survey Transit on-board survey	$2,300,000
10 Year Total		$10,600,000

TBI Program Benefits

- Adaptability to technological, social, economic change
- New data available regularly
- Growing ability to track changes
- Continuous improvement in forecasting
- Increasing confidence in forecasts
- More competitive projects

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Next Steps

- Secure 10-year dedicated funding
  - $2.5M required in 2017 to start
  - Approximately $2.1M every two years ongoing
  - Potential Sources
    - MnDOT
    - Transit motor vehicle sales tax
    - Metropolitan Council federal planning funds
    - STP administered by TAB
    - Other?

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