

Regional Travel Model and Travel Behavior Inventory

10/05/2016

TAB Technical Advisory Committee



Model Background

- The Metropolitan Council, like all large MPOs, maintains a regional transportation forecasting model.
- The model is regularly updated to reflect changes in
 - Regional transportation networks
 - Observed travel patterns and behaviors
 - Questions of interest to planners and policymakers
 - Evolution of best-practice methods
 - Lessons learned

Legal / Regulatory Framework for Forecast Model

- 23 USC §134(h) Planning Factors
- National Environmental Policy Act
- 1990 Clean Air Act
- Title VI
- Conformity Rule
- USDOT TMA Certification Checklist

Model Use: Clean Air Conformity

- Required by Clean Air Act Conformity Rule
- Demonstrates that regional emissions from planned investments in the TIP, TPP are consistent with federal and state goals
- Without Conformity determination, TIP and TPP cannot be implemented, federal transportation funds (\$500M+/year) cannot be spent

Model Use: Project Forecasting

- Project justification
- Project design, right-sizing
- Council role: Maintain model, maintain input data, provide technical support, review model validation and results
- Credibility of forecasts is crucial to major highway and transit projects

Users of the Regional Model

Metropolitan Council

- Performance measures for TPP
- Air quality conformity
- System studies
- Transit ridership

MnDOT

- System studies
- Highway forecasts

Counties and Regional Railroad Authorities

- Arterial/collector forecasts
- Transit ridership forecasts

Cities

- Arterial/collector forecasts

Wisconsin State Highway 23

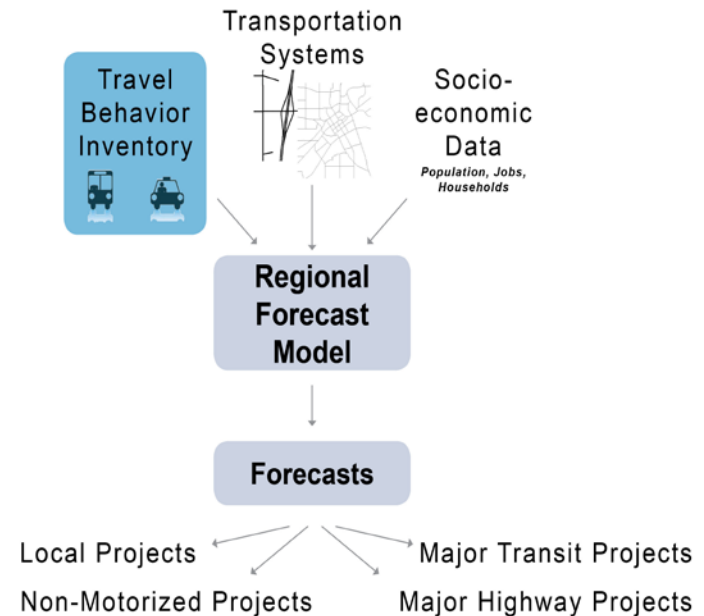
- Proposed highway expansion in SE Wisconsin
- 1000 Friends of Wisconsin, Inc. v. USDOT, et al.
- US District Court Findings:
 - Traffic Projections
 - Not documented or explained
 - Inconsistent with new demographic projections
 - Failure to incorporate new information
 - Failure to consider alternatives
 - Failure to consider induced travel
- 2014 Record of Decision vacated 5/22/2015

Maryland Purple Line

- Proposed 16 mi. LRT from Bethesda to New Carrollton
- Friends of the Capital Crescent v. FTA et al. v. Maryland
- US District Court Findings
 - Ridership forecasts don't account for recent WMATA ridership decline
 - Failure to reconsider forecasts “arbitrary and capricious”
- 2014 Record of Decision vacated 8/3/2016

The model is kept current and valid through the Travel Behavior Inventory

- Supports estimation and validation of travel demand forecast models
- Informs transportation planning



Overview of TBI Data Collection

Household Interview Survey

- Every 2 years
- Record travel of each member of a sample of households
- Smartphone GPS

Transit On-Board Survey

- Every 5 years
- Passengers on all fixed-route transit lines

Special Generator Surveys

- One every 2-3 years
- Examples include University of MN, MSP airport, major shopping centers, visitors

Third Party Data Purchase

- Every 5 years
- Examples include external traveler origin-destination
- Data shared with other stakeholders

What's Changed?

- Transition to continuous program
 - Household survey every 2 years (with larger starter survey)
 - Transit on-board survey every 5 years
 - Model updates, other data collection performed regularly
 - New data available more often
- New technology
 - Household survey based on smartphone GPS
 - Use of 3rd party commercial data where possible

Elements of 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
3 rd 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

Cost Comparison

Year	Proposed Program	Decennial Surveys
2018-19	\$2,550,000	
2020-21	\$2,550,000	\$6,300,000
2022-23	\$2,550,000	
2024-25	\$2,550,000	
2026-27	\$2,550,000	\$1,300,000
2028-29	\$2,550,000	
2030-31	\$2,550,000	\$7,600,000
Total	\$17,850,000	\$15,200,000

- Proposed program provides
 - More flexibility
 - More current data
 - More frequent model updates
 - More consistent expenses

New 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
- Increased ability to make data-driven decisions

Cost estimates for program

Time Period of Consultant Work	Funding / Contracting Year	Regional Solicitation Year	Elements	2-year Cost
2017-19	2017	2016	“Kick-Start” household survey 3 rd party data Model update	\$2,550,000
2019-21	2019	2016	Household survey Special generator Transit on-board survey	\$2,550,000
2021-23	2021	2016	Household survey Special generator Model overhaul	\$2,550,000
2023-25	2023	2018	Household survey Special generator / 3 rd party data Model update	\$2,550,000
2025-27	2025	2020	Household survey Special generator survey Transit on-board survey	\$2,550,000

Proposal

- \$2.5M average cost every two years
- Funding would be split evenly between
 - State: MnDOT (\$850,000 – federal and local sources)
 - Region: Metropolitan Council (\$850,000 – federal and local)
 - Local: TAB Regional Solicitation (\$850,000 – federal)

2017 will be different- MnDOT not yet able to participate
Will return every 2 years with specific funding request

2016 Funding Request

Funding / Contracting Year	Elements	Estimated Cost	Council Share	MnDOT Share	TAB Share
2017	“Kick-Start” household survey 3 rd party data Model update	\$2,500,000	\$1,500,000	\$0	\$1,000,000
2019	Household survey Special generator Transit on-board survey	\$2,550,000	\$850,000	\$850,000	\$850,000
2021	Household survey Special generator Model overhaul	\$2,550,000	\$850,000	\$850,000	\$850,000
Total		\$7,600,000	\$3,200,000	\$1,700,000	\$2,700,000

Proposed Actions

1. Recommend and adopt 2016 funding proposal for TAB share of TBI
2. Direct staff to develop memorandum of agreement for future funding on the principle of equal (1/3) shares between the Council, MnDOT, and TAB



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