

Regional Travel Model and Travel Behavior Inventory

10/19/2016

Transportation Advisory Board



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
- Users include MnDOT, counties, cities, Metro Transit
- 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 / Metro Transit

- Transit ridership
- Air quality conformity
- TPP / System Studies

MnDOT

- System studies
- Corridor studies
- Highway project forecasts

Counties and Cities

- Highway project forecasts
- Development impact forecasts
- Transit ridership forecasts
- Base to develop local models

Wisconsin State Highway 23

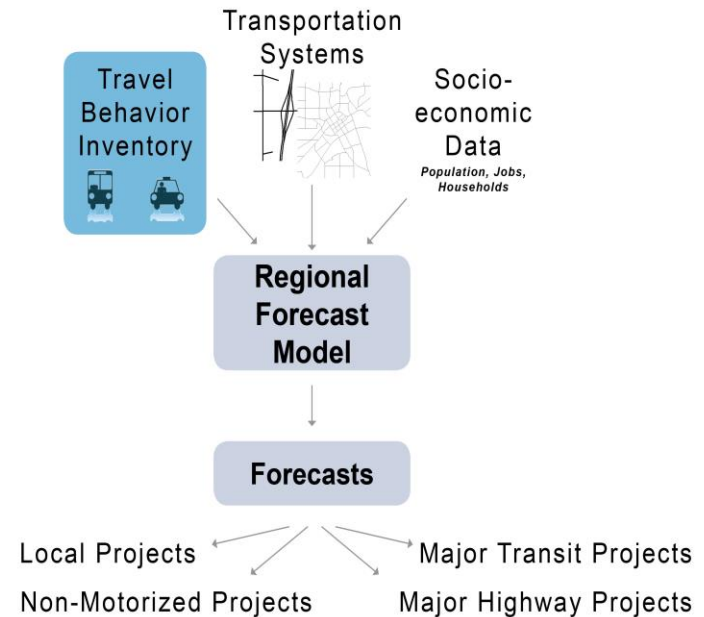
- Proposed highway expansion in SE Wisconsin
- 1000 Friends of Wisconsin, Inc. v. USDOT, et al.
- US District Court Findings:
 - Traffic Projections
 - Not documented or explained
 - Inconsistent with new demographic projections
 - Failure to incorporate new information
 - Failure to consider alternatives
 - 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?

- 2015 TBI Program Evaluation recommendations
- 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

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
- More consistent expenditures

Elements of TBI and Regional Model 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	2-3 years	\$200,000

TBI / Regional Model Cost estimates

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

Discussion of Peer Funding

- All large MPOs maintain regional model and support with similar data collection
- Many MPOs are moving to more frequent data collection
- Many use federal STP funds
- DOT funding participation is common
- Some MPOs use local member dues or charge for use of the regional model

Proposal

- \$2.5M average cost every two years
- Funding would be split evenly between major users
 - State: MnDOT (federal and local sources)
 - Region: Metropolitan Council (federal and local)
 - Local: Counties/Cities (TAB-allocated federal represents local contribution)

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

Status / Schedule

- TAC heard proposal in early October, created task force to discuss proposal and make recommendation to TAC
- TAC could forward recommendation to TAB in November or December
- Council staff will bring proposal to TAB following TAC action



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