

COG/TPB Travel Modeling Stakeholder Meeting: Presentation by COG/TPB staff

February 27, 2015

Mark S. Moran and Ronald Milone, COG/TPB staff

National Capital Region Transportation Planning Board (TPB)
Metropolitan Washington Council of Governments (COG)



Welcome and introductions

- Project team
 - ▣ COG/TPB staff
 - Ronald Milone; Mark Moran; Dzung Ngo
 - ▣ Cambridge Systematics, Inc. (CS)
 - John (Jay) Evans; Feng Liu; Nikhil Puri
- Other attendees in the room
 - ▣ Please sign attendance sheet
- Others attending via teleconference
 - ▣ We will sign attendance sheet for you



Project overview & purpose of mtg.

Mark Moran



Overview (1 of 2)

- COG/TPB staff, working with CS, is developing a **multi-year strategic plan** for the improvement of the COG/TPB travel demand forecasting procedures
- Process began in January and will end in June
- As part of this process, **COG/TPB staff is soliciting input from stakeholders**, i.e., current and future users of the COG/TPB regional travel demand model, including users of the model inputs and outputs.
- Focus is on technical users



Overview (2 of 2)

- Two opportunities for stakeholder input
 - ▣ Web-based stakeholder survey
 - Developed jointly by COG/TPB and CS
 - Open Fri., Feb. 13 through Fri., Feb. 27 (today)
 - ▣ Stakeholder meeting (today)
- In the later part of this meeting, CS will
 - ▣ Present some preliminary findings from web-based survey
 - ▣ Take additional input from meeting participants



Background

- Last strategic plan for models development at COG
 - ▣ Occurred over 20 years ago (PBQ&D et al., 1993)
 - ▣ 7-year plan (FY 1993-1999)
- Intervening years
 - ▣ Review of Transportation Modeling and Data Collection Activities at MWCOG (Harvey et al., 1995)
 - ▣ Review by a special TRB committee (letter reports: 2003, 2004)
 - ▣ Series of consultant assistance contracts
 - Provide assistance in development & application of COG/TPB travel demand model (2005 to present)
 - In 2012, TPB staff did a review of first six years of consultant recommendations from consultant-assist. project
 - ▣ But no formal strategic plan (**until now**)



Strategic plan (Task Order 2 of FY 15)

- Develop a multi-year strategic plan for the development of the COG/TPB regional travel demand forecasting process
- Goal: To ensure that the TPB travel demand modeling process is, at least, state of the practice, and, possibly, state of the art, when compared with peer MPOs
- Deliverables: 3 reports (see next slide)



Deliverables: 3 reports

1. Potential shortcomings of the current travel demand model (Version 2.3.57) and opportunities for improvement
2. Status report on the use of activity-based models and dynamic traffic assignment at peer MPOs
3. **Strategic plan for the improvement of the COG/TPB regional travel demand modeling procedures**



Report 1: Shortcomings of current model & possible improvements (1 of 2)

- Identify current actual and perceived issues
 - One source of information: Stakeholder survey and meeting
 - Stakeholders are current and future users of the model, e.g.,
 - TPB staff, including senior management
 - Other users of the model
 - State DOTs
 - Local governments
 - Other users, such as consultants & WMATA



Report 1: Shortcomings of current model & possible improvements (2 of 2)

□ Assemble preliminary solutions

□ Focus areas

- Highway assignment
- Tolling, modeling HOV lanes/HOT lanes
- Transit path building
- Mode choice model
- Transit modeling/assignment
- Non-motorized travel
- Visitor/tourist travel
- Land use inputs
- Freight modeling
- Version control software, bug/issue-tracking software



Report 2: Status report on MPO use of ABMs & DTA (1 of 3)

- Report will
 - Describe what other MPOs are doing in the area of implementing activity-based travel demand models (ABMs) and dynamic traffic assignment (DTA).
 - Discuss which MPOs are actively using one or both of these two approaches
 - Indicate how long the MPO has been using the approach
 - Indicate whether the usage is part of the production travel model or whether it is in a developmental or testing stage



Report 2: Status report on MPO use of ABMs & DTA (2 of 3)

- Report will
 - Discuss any MPOs that began developing ABM, but then abandoned its use or development
 - Explore the technical requirements (e.g., hardware, software, training) needed for these two approaches
 - Investigate why many MPOs that have moved to an ABM have continued to use static traffic assignment
 - Investigate whether there are any examples of trip-based demand models paired with DTA



Report 2: Status report on MPO use of ABMs & DTA (3 of 3)

- Report will include a **survey of 23 peer MPOs**
 - ▣ 20 largest MPOs by population (TPB is #9)
 - ▣ 3 smaller MPOs known for innovation
 - SACOG, Sacramento (#22)
 - Portland Metro (#36)
 - MORPC, Columbus, OH (#37)



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Report 3: Strategic plan for models development (1 of 2)

- Goal: To ensure that the TPB travel demand modeling process is, at least, state of the practice, and, possibly, state of the art, when compared with peer MPOs
- Inputs
 - ▣ Two previous reports (described earlier)
 - ▣ Prioritization of potential improvements so they can be phased over the seven-year planning horizon



Report 3: Strategic plan for models development (2 of 2)

□ Inputs

- Existing policy requirements
 - e.g., MAP 21 & FTA guidance
- TPB planning efforts
 - e.g., TPB Vision, Region Forward, and activity centers
- Existing and planned uses of the TPB model
 - e.g., air quality conformity, CLRP evaluation, project planning, scenario analyses



Project Schedule

- Report 1: Identifying potential opportunities for improvement
 - ▣ Expected end of **March**
- Report 2: Status report on ABM and DTA at MPOs
 - ▣ MPO web-based survey of 23 MPOs
 - Feb. through end of March
 - ▣ Report expected **mid-April**
- Report 3: **Strategic Plan**
 - ▣ Expected end of **June 2015**



Principles for the strategic plan

Ron Milone



Objectives of the travel model improvement plan

To provide **meaningful** answers to **the right questions**.

Historical TPB model features:

- ❑ Empirically based and validated to revealed behavior
- ❑ Practical to apply (e.g., reasonable turnaround times)
- ❑ Cost effective to maintain and use
- ❑ Accurate within an established margin of error
- ❑ Operable with variables that are forecastable



Organizing themes of the strategic models development plan

Four “pillars” of the plan:

1. Policy considerations
2. Data requirements
3. Computational considerations
4. Institutional objectives



Policy considerations

The plan should be in sync with goals, issues and challenges articulated in regional policy documents.



Policy objectives

- ❑ To provide a broad range of public and private transportation choices
- ❑ To maximizing accessibility
- ❑ To minimizing reliance upon single-occupant automobiles
- ❑ To create dynamic mixed-use activity centers with walkable environments
- ❑ To encourage transit oriented developments
- ❑ To foster sustainability and minimize ecological harm



Data requirements

The plan should focus on:

- Zone grain and network resolution;
- Travel surveys, traffic counts; and
- System inventory requirements

Model improvements can't be implemented without data improvements



Computational considerations

The plan should consider evolving computer platforms needed to support improved methods

- How much storage is needed to support improvements?
- How frequently should hardware be upgraded?
- How should agencies trade off investments in hardware vs. data



Institutional objectives

The plan needs to consider:

- How improved methods can be sustained by MPO staff
- How improved methods can be used for meeting *both* the MPO's study needs as well as local project planning needs



Closing

- Questions?
 - ▣ Mark Moran (mmoran@mwkog.org)
 - ▣ Ron Milone (rmilone@mwkog.org)



Supplementary slides



Peer MPOs for COG/TPB*

- 1. Southern California Association of Governments (SCAG)
- 2. New York Metropolitan Transportation Council (NYMTC)
- 3. The Chicago Metropolitan Agency for Planning (CMAP)
- 4. Metropolitan Transportation Commission (MTC)
- 5. North Jersey Transportation Planning Authority (NJTPA)
- 6. North Central Texas COG (NCTCOG)
- 7. Houston-Galveston Area Council (H-GAC)
- 8. Delaware Valley Regional Planning Commission (DVRPC)
- 9. **National Capital Region Transportation Planning Board (TPB)**
- 10. Atlanta Regional Commission (ARC)
- 11. Southeast Michigan COG (SEMCOG)
- 12. Maricopa Association of Governments (MAG)
- 13. Puget Sound Regional Council (PSRC)
- 14. Boston Region MPO
- 15. San Diego Association of Governments (SANDAG)
- 16. Metropolitan Council
- 17. Denver Regional COG (DRCOG)
- 18. Baltimore Regional Transportation Board (BRTB)
- 19. Southwestern Pennsylvania Commission (SPC)
- 20. East-West Gateway Council of Government (EWGCOG)
- 21. Sacramento Area COG (SACOG)
- 22. Portland Area Comprehensive Transportation System (METRO)
- 23. Mid-Ohio Regional Planning Commission (MORPC)

*20 largest MPOs (based on 2010 population in the MPO planning area) plus 3 smaller MPOs known for innovation in travel demand modeling

