

TFS item #7a

FY-2010 development program for TPB travel forecasting models: Draft report

Presented to the Travel Forecasting Subcommittee
of the TPB Technical Committee
July 23, 2010

Mark Moran, TPB staff

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

fy2010_models_docum_v2.pptx

Background (1 of 2)

- COG fiscal year 2010: July 1, 2009 to June 30, 2010
- Each June, TPB staff typically produces the following two reports
 - Models development (item 4C in the FY 2010 UPWP)
 - Network development (item 4A in the FY 2010 UPWP)
- This presentation: “models development” program.
 - Bobby Snead will cover “network development” program

Background (2 of 2)

- Models documentation
 - Some years: Documents a newly released travel model
 - Other years (like this one): Documents the work done during the fiscal year
- Both documents: Draft
 - Paper copies available today
 - Electronic (PDF) copies available on the TFS webpage following this meeting
 - 30-day period for review and comment
 - Please send comments to me (mmoran [at] mwcog [dot] org) or Bobby (rsnead [at] mwcog [dot] org)

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

3

Organization of the models development program (1 of 2)

- Track 1 – Applications
 - Short-term improvements made to the currently adopted travel model
 - Examples: Version 2.2 Travel Model, Version 2.3 Travel Model
- Track 2 – Methods Development
 - Longer-term improvements involving the incorporation of advanced forecasting methods that are not yet operational.
 - May be associated with a structurally advanced four-step model or a “next generation” model.
 - Examples: Activity-based model (ABM), Dynamic traffic assignment (DTA)
 - The Version 2.3 Travel Model had been in this category, but it has now moved into the Applications Track.

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

4

Organization of the models development program (2 of 2)

- Track 3 – Research
 - Keeping abreast of advanced travel forecasting theory that has not yet made its way into accepted transportation planning practice.
- Track 4 – Data Collection
- Track 5 – Maintenance
 - Information sharing (e.g., TFS), documentation, and training.

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

5

Organization of the models report

1. Introduction
2. Data collection, cleaning, and analysis
3. Applications track
4. Methods development and research tracks
5. Looking ahead

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

6

Key points in the report

- Development of the Version 2.3 Travel Model on the 3,722-TAZ area system using the 2007/08 HTS is in progress
 - There have been some delays (surveys, networks), but we still plan to have the model ready for use by the end of Dec. 2010
- Data collection, cleaning, and analysis
 - Census/ACS summaries to update demographic sub-models (HH size and HH income)
 - Base-year (2007) traffic counts have been extracted from the Regional Transportation Data Clearinghouse (RTDC), for inclusion in the base-year highway network

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

7

Key points:

Data collection, cleaning, and analysis

- Data from the RTDC used to calculate peak-hour factors and to examine traffic variation by day of the week and season
- 2007 Air Passenger Survey used to adjust air passenger vehicle trip tables used by the model
- 2007 HTS is ready
 - Various logic checks have been performed
 - TPB staff has begun developing estimation/calibration files
 - TPB staff planning to expand peak periods from 3 to 5 hours and increase the no. of TOD periods from 3 to 4
 - New parking cost model has been developed (discussed earlier)
- Developed mode choice targets for transit modes
 - however, bus-only trips are just now being finalized (discussed earlier)

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

8

Key points: Applications track

- Ver. 2.2 Model: Minor enhancements
 - Application of tolls to external travel markets
 - Addition of explicit HOV assignment step (a.k.a. “two-step assignment”)
 - Not to be confused with “multi-step assignment”
 - Auto operating costs are now assumed to grow at the same rate as inflation

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

9

Key points: Applications track

- Ver. 2.3 Model on 3,722-TAZ area system
 - Base-year highway and transit networks are now ready
 - NHB has been split into two groups
 - NHB work (NHW)
 - NHB other (NHO)
 - Split will be carried through trip distribution
 - Non-motorized trip end model for all purposes (not just HBW)
 - Traffic assignment convergence: 1) set a goal of attaining a specific relative gap (e.g., 10^{-3}) for all five user classes, 2) use this value as a stopping criterion, instead of simply using 60 iterations
 - More about this later (TPB staff comments on CS task orders 7-10)

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

10

Key points: Applications track

- Development of “pseudo Round 8.0” land activity data, to be used for model estimation/calibration before true Round 8.0 data available
- Updated external and through trips
- Updated truck model to work on new zone system

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

11

Key points: Methods devel. & research track

- Scan of best modeling practice: Findings and conclusions from CS tasks 7-10 (later today)
- Training and webinars
- AMPO Travel Modeling Work Group
- Modeling air passenger trips to the three commercial airports

7/23/2010

FY-2010 development program for TPB
travel forecasting models: Draft report

12

Looking ahead: FY 2011

- Network checks
 - Building/tracing trees
 - Loading the 2007 HTS on the network
 - Any underreporting will need to be addressed in TG
- Complete estimation/calibration of the Ver. 2.3 Travel Model
- Validation work
 - VMT comparisons, screenline volumes, daily trips by mode and transit submode
 - Model validation of a future year (2030, 2040?)