

Status report on the Version 2.3 Travel Model: Builds 47, 48, and 49

Presentation to the Travel Forecasting Subcommittee
January 25, 2013

Mark S. Moran, COG/TPB staff
National Capital Region Transportation Planning Board (TPB)
Metropolitan Washington Council of Governments (COG)



Presentation overview

- Overview of recent model updates
- Build 47 of the Ver. 2.3 Travel Model (i.e., 2.3.47)
- Build 48 of the Ver. 2.3 Travel Model (i.e., 2.3.48)
- Build 49 of the Ver. 2.3 Travel Model (i.e., 2.3.49)
- Current status and next steps



Overview of recent model updates

- Production model: Ver. 2.3.39 (“Build 39”)
- Developmental models:
 - ▣ Builds 47, 48, 49
- What has changed since Build 39?
 - ▣ Faster run times, due to added parallelization
 - ▣ Other refinements, e.g., more consistent naming of output files
- What has **not** changed?
 - ▣ Modeled results



Build 47, Ver. 2.3 Travel Model

- Discussed at the last TFS meeting (11/30/12)
- Compared to Build 39
 - ▣ Additional parallelization
 - Reduced model run time by about 30%
 - For a base year, run time went from ca. 26 hours to ca. 18 hours
 - Three types of parallelization (Native windows, Cube Cluster IDP, & Cube Cluster MDP)
 - ▣ Model inputs: Definitional change regarding treatment of LRT in calculation of percent-walk-to-transit values



Build 48, Ver. 2.3 Travel Model (1 of 4)

- Uses more consistent names for output files
 - ▣ Many output files, such as skims, change from one speed feedback (SFB) iteration to the next
 - These files contain a two-letter SFB iteration code (pp, i1, i2, i3, i4)
 - All such output files are currently saved in the output folder
 - ▣ **Before Build 48:** SFB iteration code could occur anywhere in the file name and was not delimited by a special character (e.g., SOVPPAM.SKM, SKIMTOTPP.TXT)
 - ▣ **Now:** SFB iteration code is
 - Always at the start of the file name
 - Always delimited by an underscore (e.g., **PP**_AM_SOV.SKM)



Build 48, Ver. 2.3 Travel Model (2 of 4)

- Benefits of more consistent names for output files
 - ▣ File names that may have appeared to be SFB-iteration specific (such as busoppnr.tb), but actually were not, are now **named less ambiguously** (bus_op_pnr.tb)
 - ▣ **Easier to identify** which output files are temporary or final
 - “temp,” e.g., those from SFB iterations pp, i1, i2, and i3
 - “final,” e.g., those from SFB iteration i4
 - ▣ Has allowed us to move temp files a separate folder, where they can be easily deleted, thus **freeing up storage space**
 - **26 GB of output files => 9 GB** (since 17 GB are temp files)



Build 48, Ver. 2.3 Travel Model (3 of 4)

- Files considered “temp”
 - ▣ Files associated with SFB iterations pp, i1, i2, and i3
 - But **NOT** five “i3” files that are used for truck TG, TD, & MC
 - And **NOT** files needed for the HOV3+ skims substitution technique, which is used for HOT-lane modeling
 - ▣ Files with the following patterns
 - *.tem?, temp.*, temp*.net
 - transit.temp.*
 - *.skf, *.def



Build 48, Ver. 2.3 Travel Model (4 of 4)

- Batch file (move_temp_files_v4.bat) run at the end of the model run does the following
 - ▣ Creates a subfolder, called “temp_files,” under the output folder
 - ▣ Moves temp files to the subfolder
 - ▣ “Restores” any files that are not considered temp, such as files needed for the HOV3+ skim substitution technique
- Result: **65% reduction in the size of the output files**
- User may then use Windows Explorer to delete the temp_files folder and its contents



Build 49, Ver. 2.3 Travel Model

- Two changes
 - ▣ Report files (*.rpt) associated with pp, i1, i2, & i3 SFB iterations are no longer considered temporary
 - So they are “restored” to the output folder (move_temp_files_v5.bat)
 - These report files don’t take up too much space
 - They are useful to have when monitoring the progress of a running model (e.g., one can compare pp_highway_assignment.rpt)
 - ▣ Error checking associated with running mode choice (AEMS) has been removed, since, on some computers, the model had been stopping after running AEMS in SFB iter. 1
 - MC_purp.bat
 - Removed “if errorlevel 1 goto error” following call to AEMS



Current status and next steps (1 of 2)

- Running Ver. 2.3.49 (Build 49) for the following scenarios on our main travel model server (tms5)
 - ▣ 2010
 - ▣ 2020 (base & final)
 - ▣ 2030 (base & final)
 - ▣ 2040 (base & final)
- Also testing running the model on the following hardware configurations (using a virtual machine)
 - ▣ Computer with 4 cores
 - ▣ Computer with 2 cores
 - ▣ Computer with 1 core



Current status and next steps (1 of 2)

- Documentation
 - User's guide has not yet been updated, but this will be done
 - Available documentation for Build 48 (Ver. 2.3.48)
 - Moran, M. S. (2012, December 14). Transmittal memo in response to your request for the latest version of the TPB Version 2.3 Travel Model. Memorandum.
 - Build 48 was transmitted to AECOM for Task Order 8 (traffic assign.)
 - Includes flowcharts and control totals, but not all the detailed information that is normally included in the standard transmittal memo.
- It is expected that a derivative of 2.3.49 will be used in upcoming air quality conformity model runs



Thank you!

- Questions?

