



TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE JULY 22, 2022 MEETING

9:30 AM to 12:00 noon. Meeting was held virtually via web conferencing software. There was no on-site meeting.

MEETING ATTENDEES

MEMBERS, ALTERNATES, AND PARTICIPANTS

- Jonathan Avner (Whitman, Requardt & Assoc.)
- Bryce Barrett (Prince William Co.)
- Kelvin Belcher (MDOT-SHA-TFAD)
- Richard Brockmyer (Fehr & Peters)
- Kevin Chai (Fairfax Co. DOT)
- Yucong Du (Jacobs)
- Eric Graye (M-NCPPC, Montgomery Co.)
- Anthony Hofmann (Baker)
- Jaesup Lee (M-NCPPC-Montgomery Co.)
- Li Li (Whitman, Requardt & Assoc.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Roberto Miquel (Whitman, Requardt & Assoc.)
- Sabya Mishra (Consultant for MDOT-SHA)
- Vahid Moshtagh (VDOT)
- Srikanth Neelisetty (Transurban)
- Abhay Nigam (MDOT-SHA)
- Krishna Patnam (AECOM)
- Binny Paul (PTV Group)
- Marie Pham (Loudoun Co.)
- Mark Radovic (Gannet Fleming)
- Harun Rashid (NVTA)
- Andrew Rohne (RSG, Inc.)
- Rich Roisman (Arlington Co. DES)
- Elizabeth Scullin (Prince William Co.)
- Rana Shams (MDOT)
- Elham Shayanfar (MDOT)
- Lisa Shemer (MDOT-SHA)
- Aichong Sun (AECOM)
- Jim Yang (M-NCPPC, Prince George's Co.)
- Yi Zhao (DDOT)

COG STAFF

- Tim Canan
- Joe Davis
- Nazneen Ferdous
- Ethan Izuogu
- Ken Joh
- Martha Kile
- Sanghyeon Ko
- Nicole McCall
- Mark Moran
- Ray Ngo
- Wanda Owens
- Jinchul (JC) Park
- Jane Posey
- Meseret Seifu
- Dusan Vuksan
- Feng Xie
- Zhuo Yang
- Yue Zhang

* All meeting participants attended the meeting remotely via WebEx.

This meeting of the Travel Forecasting Subcommittee (TFS) was chaired by Ms. Shemer.

1. INTRODUCTIONS AND APPROVAL OF MEETING HIGHLIGHTS FROM THE PREVIOUS MEETING

First, a roll call was conducted. Next, the highlights of the July 22, 2022 meeting of the TFS were approved.

2. RECENT UPDATES TO THE MARYLAND STATEWIDE TRAVEL MODEL (MSTM)

This item was presented by Ms. Shemer and several other staff, who spoke from a set of presentation slides. Ms. Shemer introduced the Maryland Statewide Transportation Model (MSTM) team.

Mr. Radovic briefed the group on the major objectives of the MSTM and its role as one of the analytical tools used to address MDOT-SHA's diverse technical needs. Mr. Radovic described the model structure, its development history, and highlighted some of the ongoing research activities. Mr. Radovic mentioned several applications of "big data" and the development of the Maryland Roadway Performance Tool ("Mr. Pat") and the Maryland Truck Parking Widget that was developed as part of a partnership with the Texas Transportation Institute (TTI).

Mr. Mishra discussed integration of FHWA's long-distance passenger model into MSTM. This model is written in R, is open source and is executed as a standalone package. The model is tour-based and its demand is derived from a national synthetic population. Maryland is one of a handful of states that has integrated this new tool in their statewide model. In the chat window, Mr. Moran asked whether there is a Maryland version of the FHWA long-distance passenger model, and, if so, whether that model is documented. Mr. Mishra said that the study team has a stand-alone package right now with documentation, which can be shared with others. He concluded by noting that, as the team prepares the next version of the statewide model documentation, the long-distance passenger model documentation will be included with the MSTM documentation.

Mr. Mishra also discussed the MSTM behavior-based freight model, commonly referred to as "C20", since it is based on TRB's Second Strategic Highway Research Program (SHRP2), Project C20 (Freight Demand Modeling and Data Improvement). MDOT-SHA has been using this model for several years and has recently updated the input commodity flows to FAF5. Mr. Mishra also highlighted some of model post-processor tools that were developed around the C20 model, namely the commodity-based assignment application and the truck parking demand tool.

Mr. Avner discussed the ongoing development of the MSTM multi-resolution database and the evolving need to build linkages between MSTM datasets and other MDOT-SHA datasets. This database also includes ongoing updates in land use assumptions with BMC, MWCOG, DeIDOT/Wilmington Area Planning Council (WILMAPCO), and the Maryland Department of Planning (MDP).

Ms. Shayanfar presented recent research activities related to travel demand modeling including a scenario analysis that was completed in 2021 to identify impacts of COVID-19 on travel demand and an ongoing research project to enhance non-motorized mode estimation by incorporating Level of Traffic Stress (LTS) in the mode choice component of the model. Mr. Rashid asked whether any changes in assumptions were made about long-term changes to land use due changes from the COVID-19-related restrictions and work-from-home trend. Ms. Shayanfar responded that the study mainly focused on travel behavior and changes in trip generation by purpose and income level rather than land use changes.

Mr. Miquel discussed the transition of MSTM from a Windows batch file (command line) execution to a CUBE Catalog format. Mr. Miquel discussed the benefits in functionality of following the data flow

in the catalog environment, the scenario management capabilities and the integration of MSTMs post-processors/utilities. Mr. Ngo asked a question about the level of effort that was involved and which PowerBi license (free or paid) was used. Mr. Miquel stated that it took a senior modeler with an advanced understanding of CUBE approximately three months to develop. Mr. Miquel also discussed how the MSTM team is looking into using Microsoft Power BI as a platform for developing visualizations and dashboards for model outputs.

Mr. Nigam (“AC”) gave the group a demonstration of MDOT-SHA’s Traffic Monitoring System (TMS). This dashboard (<https://www.roads.maryland.gov/mdotsha/pages/index.aspx?PageId=251>) is available to external users and includes an “email me” feature where traffic count data can be automatically sent by emailing “TMSDATA@mdot.maryland.gov”.

3. USING DATA FROM THE COG/TPB REGIONAL TRAVEL DEMAND FORECASTING MODEL: STAFF RECOMMENDATIONS FOR CONSULTANTS AND OTHERS WHO REQUEST MODEL OUTPUTS

Mr. Vuksan briefed the committee regarding the staff recommendations on using data from the COG/TPB regional travel demand forecasting model and spoke from a set of presentation slides. He noted that staff typically either participate in project planning/alternatives analysis modeling activities directly (e.g., staff conduct most of the regional-level modeling) or indirectly (e.g., staff provide the model/data to a DOT project team for modeling). Mr. Vuksan noted that, in those instances in which TPB staff provide the model-related data (inputs/outputs) to the project team/consultant, it is strongly recommended that the study team be able to process the binary model output files rather than extract “raw” TAZ-level data from the CSV files associated with the runs that were originally generated for an entirely different purpose (e.g., for an air quality conformity analysis rather than for the specific project planning task at hand). He added that having the modeling tools to process the binary files enables the project team to conduct additional validation/calibration, which is an essential work step in project planning studies, and that the model is not validated at the TAZ level. Ms. Yuanjun Li asked whether the most recent Gen2/Version 2.4 model transmittal differs from the Gen2/Version 2.4 model transmittal distributed earlier this year. Mr. Vuksan and Mr. Xie noted that the model itself has not changed, but that the inputs have changed and are most up to date in the transmittal associated with the 2022 Update to Visualize 2045 (adopted in June 2022).

4. COG/TPB GEN3 TRAVEL MODEL: STATUS REPORT

Mr. Rohne presented an update of recent developments with the Gen3 Model and spoke from a set of presentation slides. He discussed the models which represent auxiliary travel (e.g., external auto person travel, visitor travel, and truck/commercial vehicle travel) followed by an in-depth look at the data preparation that was done for the trip mode choice model for estimation with ActivitySim, which included how the estimation data is prepared for ActivitySim by creating estimation data bundles, and then concluded with the current status of trip mode choice.

Ms. Yuanjun Li noted that, in COG’s current, production-use, trip-based model, school trips are not a separate, modeled trip purpose, and she asked how one validates school travel for the Gen3 Model. Mr. Rohne noted that we have observed data on school travel, based on the household travel survey data. He noted that, since we do not have school bus ridership data, we simply try to match the data in the survey. Regarding the bar charts in slides 14-19, Mr. Moshtagh noted that, although it is good to validate to the household travel survey data, that observed data itself has variability (e.g., sampling error). Consequently, Mr. Moshtagh wondered how closely we need to calibrate to the survey data. Mr. Rohne agreed and said that that was why we try to match several different metrics,

such as highway assignment (traffic counts) and transit assignment (transit boardings). Also, Mr. Moran noted that, on slides 14-19, the blue bars marked “validation” are showing the observed data.

5. ROUNDTABLE DISCUSSION OF CURRENT MODELING EFFORTS AROUND THE REGION

No one had any items to share with the group.

6. OTHER BUSINESS

6a. Snapshots of effects of COVID-19 on travel, available on COG website

Ms. Kile reported that COG/TPB staff continue to develop snapshots to illustrate how the COVID-19 pandemic is impacting travel in the Metropolitan Washington Region. The charts show changes in roadway traffic and enplanements as compared with pre-pandemic levels. The snapshot is available on the COG website using this link <https://www.mwcog.org/documents/2021/07/16/covid-19-travel-monitoring-snapshot-traffic-monitoring/>.

Ms. Kile noted that regional roadway traffic levels had rebounded to 93 percent of 2019 levels in May and June of 2022. Traffic levels in the Inner and Outer rings were steady throughout the spring, but traffic levels in the regional core have been increasing substantially since April when compared with 2019 levels. Enplanements were 92 percent of 2019 levels at the region’s three major airports in April, while enplanements at Reagan National Airport were higher in April and May 2022 than they were in 2019.

6b. Recent updates to several webpages regarding the COG/TPB Regional Travel Demand Forecasting Model, including a page about the Gen3 Model

Mr. Moran noted that COG/TPB staff have updated several web pages related to the TPB’s regional travel demand forecasting model, including the following:

1. <https://www.mwcog.org/transportation/data-and-tools/modeling/data-requests/> (Updated to include information about the latest Ver. 2.4 Model transmittal package)
2. <https://www.mwcog.org/transportation/data-and-tools/modeling/model-documentation/> (Updated to note that the current, adopted, production-use model is now Ver. 2.4)
3. <https://www.mwcog.org/transportation/data-and-tools/modeling/current-model/> (Updated content)
4. <https://www.mwcog.org/transportation/data-and-tools/modeling/inputs-outputs/> (More detailed information and advice about which model outputs are recommended for use)
5. <https://www.mwcog.org/transportation/data-and-tools/modeling/developmental-travel-model/> (New webpage: Information about and documentation of our Gen3, Phase 1, Model)

6c. Planned presentations at upcoming TFS meetings

Mr. Moran provided an update on planned presentations from non-COG presenters at upcoming TFS meetings:

- Sep. 23 TFS meeting:
 - Long-range-plan related scenario analyses, Northern Virginia Transportation Authority (NVTA staff)

- A Review of Transportation Surveys Measuring Short and Long-Term Impacts to Travel Behavior from COVID-19 that Inform Regional Transportation Planning (Ken Joh, COG/TPB staff)
- Gen3 Model, status update (RSG staff)
- Nov. 18 TFS meeting:
 - Recent updates to the Baltimore Metropolitan Council InSite Activity-Based Travel Model (Charles Baber, BMC)
 - 2017-2018 Regional Travel Survey 7-Day Panel Evaluation (Ken Joh, COG/TPB staff)
 - Gen3 Model, status update (RSG staff)
- Jan. 2023 (likely Jan. 20 or Jan. 27)
 - “Using Location-Based Services and Metro Data to Understand Our Market” (Kayleigh Campbell, WMATA)
 - Gen3 Model, status update (RSG staff)

Mr. Moran requested that people interested in making presentations to the TFS please contact him, so that he could schedule the presentation.

6d. Next meeting scheduled for Friday, September 23, 2022

7. ADJOURN

The meeting adjourned at about 11:40 AM.