National Capital Region
Transportation Planning Board

TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE SEPTEMBER 18, 2026 MEETING, 9:30 AM TO 12:00 AM

The meeting was held virtually via web conferencing software.

MEETING ATTENDEES

MEMBERS, ALTERNATES, AND PARTICIPANTS

- Manfredo Davila (M-NCPPC)
- Ali Etezady (RSG Inc.)
- Joel Freedman (RSG Inc.)
- Ashkan Gholamialam (NVTA)
- Dan Goldfarb (VDOT)
- Li Li (Whitman, Requardt & Assoc.)
- Feng Liu (Cambridge Systematics)
- Chunyu Lu (Mead & Hunt)
- Vahid Moshtagh (VDOT)
- Chaitanya Paleti (RK&K)
- Krishna Patnam (AECOM)
- Akshaya Paudel (ATCS)
- Mark Radovic (MDOT)
- Andrew Rohne (Caliper)
- Rana Shams (MDOT)
- Elham Shayanfar (MDOT)
- Howard Slavin (Caliper)
- Steve Weller (Atlas Arteria)
- Chris Wichman (Geotab)
- Jun Yang (M-NCPPC)
- Yifang Yuan (VDOT)

COG STAFF

- Deven Barth
- Anant Choudhary
- Nazneen Ferdous
- Charlene Howard
- Glenn Lang
- Kaelem Mohabir
- Ray Ngo
- Jinchul (JC) Park
- Hadi Sadr
- Bahar Shahverdi
- Feng Xie
- Zhuo Yang
- Jim Yin

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1. OPENING: MEETING ROLES, RULES, AND ROLL CALL OF PARTICIPANTS

Ray Ngo opened the meeting and invited new attendees to introduce themselves, before thanking the meeting presenters, and going over standard housekeeping rules. This meeting of the TFS was chaired by Jun Yang.

2. APPROVAL OF MEETING HIGHLIGHTS FROM THE PREVIOUS MEETING, HELD ON JULY 17, 2026

The highlights of the July 17, 2026, TFS meeting were approved without any changes.

3. VISUALIZATION TOOLS FOR THE GEN3 TRAVEL MODEL

Via a series of demonstrations, COG Staff presented a set of newly developed visualization tools designed to enhance the Gen3 Travel Model, motivated by feedback received from the Gen3 Model beta tester survey and model stakeholder survey. TPB staff have spent the past few months developing several prototype tools in Python with AI assistance. The presenters noted that all four tools remain under development but are expected to be incorporated into a future release of the Gen3 Model.

Feng Xie introduced the first tool, a graphical user interface (GUI) designed to simplify the process of configuring and launching a Gen3 model run. Traditionally, Gen2 and Gen3 model executions have required users to run batch files from a command-line environment. The new GUI replaces much of this complexity with a straightforward interface that allows users to select the scenario folder, specify the model year, define environment settings, and configure various model run options.

The second tool demonstrated by Feng Xie enables model users to view disaggregate Gen3 outputs, including data at the household, persons, tours, and trips levels, many of which are too large to be opened in spreadsheet software such as Excel. The tool allows users to select a model run, choose an output table, and preview records without loading entire files into memory. Additional functionality allows users to filter records based on household or person identifiers (by jurisdiction, for example) and retrieve all associated household, person, tour, and trip records. The tool also enables a simplistic crosstab analysis of the model outputs.

Glenn Lang then presented a redesigned aggregate model visualizer. This new visualizer replaces the previous R-based application with a Python-based platform, improving both performance and flexibility. The visualizer consists of a configuration interface and an interactive dashboard, integrating aggregated land use (employment), demographic, highway assignment, and transit assignment data into a single environment. Additional features discussed by Mr. Lang included worker flow maps, trip-end visualizations, and jurisdiction filtering.

Ray Ngo concluded the presentation by demonstrating a daily travel itinerary visualizer focused on individual households and people. Users can view where people live, work, and travel throughout the day while examining the timing and sequencing of tours and trips per the Gen3 disaggregate model output. It also serves as a valuable debugging tool because inconsistencies in modeled behavior can be identified visually. Mr. Ngo showed examples of households with different travel characteristics, including a zero-vehicle household that relied entirely on Metrorail and a family with school escorting

activities. The tool further supports scenario comparison, with Mr. Ngo using a bridge-closure example to demonstrate how commuters shifted workplace/school locations and travel modes in response to changing conditions in the transportation network.

Charlene Howard commented on the new dashboard tools and asked whether TPB staff had considered using the visualizer framework to present a standardized set of data to non-model users and the public. Feng Xie responded that the TPB team would be interested in discussing what types of data could appropriately be shared and visualized for public audiences, albeit for a future discussion.

4. M-NCPPC MONTGOMERY COUNTY PLANNING DEPARTMENT TRAVEL FORECASTING AND ANALYSIS UPDATES

Jun Yang and Feng Liu provided an overview of the Montgomery County Planning Department's current travel forecasting and transportation analysis activities in presentation format, as well as some introductory context about M-NCPPC Montgomery County.

Mr. Yang gave an overview of Travel4, the department's primary travel demand modeling platform, which is a county-focused adaptation of the regional Gen2 travel model. Compared to the Gen2 Model, M-NCPPC's Travel4 Model has a substantially more detailed transportation network and TAZ structure local to Montgomery County, allowing planners and other county staff to obtain results at a finer geographic resolution. Mr. Yang also described how Montgomery County codes its transportation network databases, using an in-house ArcGIS add-in called MCTools (akin to COGTools). He also explained some of the performance metrics used for analyzing traffic capacity and demand for sub-area plans/development-related studies.

Feng Liu then continued the presentation to discuss consultant activities related to M-NCPPC's modeling efforts, specifically regarding the Travel4 Model. He explained that the objective was to update Travel4 by advancing the model base year from 2015 to 2018, in tandem with the Gen2 Ver 2.4.6 Model used in production by MWCOG. Using comparative metrics across Travel4 and the Gen2 travel models, Dr. Liu performed a rigorous validation analysis to ensure that the Travel4 Model outperforms the benchmark Gen2 Model, due to its specificity inside of Montgomery County. Validation results showed agreement between modeled and observed conditions across a variety of measures (e.g., RMSE of linkwise volumes), with Travel4 outperforming Gen2 inside the county. Dr. Liu additionally gave insight into sensitivity tests performed with the updated Travel4 Model, modeling changes to land-use and road capacity (expansion) and noted that the results were in-line with their hypotheses.

Feng Xie made a comment noting interest in the ABM preparation work M-NCPPC is doing to ensure compatibility with efforts made by MWCOG to upgrade and transition to using the Gen3 Model for future production/transmittal work. Dr. Yang responded that future support will be appreciated from MWCOG in aiding with this transition.

In the Webex chat feature, Joel Freedman asked if the improvements in performance (RMSE) were attributable to the enhanced network resolution for the Travel4 Model or if there were any structural changes done to improve the model fit. Dr. Liu responded that the more detailed network inputs largely contributed to the improved model performance.

5. VDOT NOVA MODELING ACTIVITIES AND VDOT GUIDANCE ON MODELING

Dan Goldfarb gave a presentation on the modeling ecosystem within the Virginia Department of Transportation's Northern Virginia District and elaborated on VDOT's forecasting procedure and governance. Mr. Goldfarb started out by introducing the structure of the team as well as the nature of the work, largely consisting of traffic impact studies, as well as the general guidance/procedures VDOT performs in ensuring coordination across the Virginia state government. This included an explanation on VDOT's Strategic Traffic Analysis for Roadways (STARS) program (responsible for developing and reviewing forecasts) as well as the Project Pipeline Initiative from the Virginia Office for Intermodal Planning and Investment (for project budgeting).

Mr. Goldfarb then outlined the general procedure to develop and validate forecasts in ensuring interoperability between jurisdictions in Virginia (not only limited to NoVA and the Capital Region), by introducing a traffic forecasting guidebook, updated as of May 2024. He noted that the guidebook focuses primarily on vehicle traffic forecasting, while highlighting the unique needs of the NoVA Region because of its multimodal highway network and extensive transit services (in the form of bus transit) compared to the rest of the state.

Mr. Goldfarb noted that there are 18 travel demand models within the state that VDOT uses as benchmarks, corresponding to MPOs and local jurisdictions. The guidebook also covers model specifications for each regional model (TAZs, socioeconomic datasets, transportation networks) as well as validation procedures and model applications (LRTP vs TIP projects). Mr. Goldfarb also described the use of big data platforms such as StreetLight as an additional source of model validation outside of traditional methods utilizing travel surveys and traffic counts.

Mr. Goldfarb restated the NoVA planning district team's role in coordinating the region with the central office in Richmond, to ensure consistency in forecasting methodology and output for initiatives at the state level, with efforts to continue and strengthen this coordination (across the state and with MWCOG/TPB). He also noted the value of MWCOG's public data clearinghouse, as well as the need to procure the necessary hardware to be able to run the Gen3 Model, as the team remains largely reliant on the standard four-step trip-based model (such as the Gen2 Model) to make forecasting assumptions.

Feng Xie asked a question about VDOT's use of big data such as StreetLight and inquired about what specific data is used by the team. Mr. Goldfarb responded that probe data is primarily used, as well as OD data.

Jun Yang mentioned that his agency (Montgomery County) was also exploring into using StreetLight data, and Mr. Goldfarb suggested that Michael Pack of UMD's CATT Lab could be invited to a future TFS meeting to discuss opportunities and challenges associated with probe-data analytics in general.

6. STATUS REPORT ON CONSULTANT ASSISTANCE WITH TRAVEL DEMAND FORECASTING METHODS USED BY THE COG/TPB STAFF

The original presenters (Tom Rossi and John Gliebe of Cambridge Systematics) were unable to attend this TFS meeting, so Feng Xie verbally provided remarks regarding consultant activities with MWCOG.

The team at Cambridge Systematics recently completed the administration of the model stakeholder and peer MPO surveys, and Feng Liu proceeded to present the results of these surveys in the next meeting item. Cambridge Systematics also conducted two sessions with TPB staff regarding the SWOT analysis on July 30 and August 28. Cambridge Systematics staff is working on compiling a report per the SWOT analysis to be ready for TPB review by early October.

RSG is performing a software evaluation task after releasing data packages to three participating vendors and has also helped to set up interviews with peer agencies to discuss software experience. RSG is also responsible for updating the Gen2 Model in terms of re-estimating the household sub-models, vehicle availability model, and the trip generation model; per the 2018 data provided by TPB Staff, RSG will also update the trip distribution model in parallel.

No additional questions were raised regarding this particular meeting item.

7. PRELIMINARY RESULTS AND FINDINGS FROM TPB'S PEER MPO SURVEY

Feng Liu presented preliminary findings from TPB's peer MPO surveys. Surveys were distributed to twenty-one MPOs, of which sixteen responses were received. The survey collected information about staffing, computing environments, model structures, applications, and future modeling priorities.

Feng Liu reported that most MPOs perform modeling work through a combination of in-house staff and consultant support, at roughly 70% of respondents. Survey responses also revealed substantial variation in staffing levels. Most agencies reported having between five and six staff dedicated to model development, while model application teams varied more widely. Many MPOs indicated that only one or two staff members perform model application type work, with MWCOG/TPB at the upper end (9-10). The survey also found that most MPOs continue to rely primarily on in-house server infrastructure, although a growing number are starting to partially adopt cloud-based infrastructure, including MWCOG/TPB.

Dr. Liu reported that most surveyed agencies either currently operate activity-based models in production or are actively in development. Among agencies operating both ABMs and trip-based models, most continue to use trip-based models for a large share of routine applications (~80% of applications) because of their shorter runtimes as well as increased barriers/resources required to perform model estimation and calibration for ABMs.

No questions or comments were raised for this particular meeting item.

8. ROUNDTABLE DISCUSSION OF CURRENT MODELING EFFORTS AROUND THE REGION

Jun Yang and Ray Ngo led a roundtable discussion focused on current modeling practices around the region. Dr. Yang and Mr. Ngo administered an anonymous live poll with the goal of better understanding how local agencies and consultants conduct network coding practices and transportation network updates. Ray Ngo emphasized that the purpose of the discussion was to create an opportunity for participants to learn from one another and provide feedback that could help TPB staff better support model users. TPB staff were exempt from participating in the poll.

Results from the first poll question revealed that 56% of respondents rely on consultants to perform transportation network coding activities, while 22% perform network coding activities in-house. Jun Yang mentioned that although his team primarily performs in-house network coding activities (via CUBE or MCTools), he was curious about how other jurisdictions handle this responsibility.

Feng Xie pointed out that local agencies and their consultants often use TPB-developed networks as the basis for their own project network(s), and that TPB is trying to develop an improved mechanism for users to better report potential errors in these networks. The current procedure is to send TPB an email with a screenshot plus a description of the error, and TPB Staff will fix it in an upcoming iteration of its networks.

Many poll respondents noted difficulties with transit coding as one of the top concerns, and Dr. Yang chimed in mentioning difficulties regarding performing manual edits and maintaining staff capacity on his team to perform the work needed. He also described the process of merging TPB's networks with Montgomery County's, which is the main bottleneck in maintaining transit networks for his team (due to considering inter-jurisdictional bus/transit routes). Additionally addressed were difficulties maintaining scenarios and versioning because of such changes to transit/highway networks. Mr. Ngo emphasized that building network databases/tools such as MCTools or COGTools could be used to overcome some of these difficulties, especially as different agencies have different needs.

9. NEXT MEETING AND OTHER BUSINESS

Feng Xie made a quick announcement regarding the next TFS Meeting, which is due to take place in November in a hybrid format. In addition, future TFS Meetings will be conducted using Microsoft Teams rather than Webex, per a decision made by MWCOG's leadership.

Jun Yang then introduced Hadi Sadr, the new director of travel demand forecasting and emissions analysis at MWCOG. Dr. Sadr proceeded to introduce himself and share his vision for the team at MWCOG and the broader TFS as a whole.

Zhuo Yang provided a brief update on the status of the regional travel survey on behalf of Kenneth Joh, who could not attend this TFS meeting. Dr. Joh and Dr. Yang have been working with RSG on Spring 2026 data collection and finding areas for improvement in terms of recruitment, retention, and representation of the respondent pool for future survey iterations. Dr. Yang then outlined a plan to conduct the upcoming Fall 2026 round, in terms of communication and outreach.

Feng Xie noted that TPB Staff have developed the Round 10.1 Cooperative Land-Use Forecast data to be used as inputs for the travel demand models, and that the data is available for data requests in draft form until the next long-range plan update.

10. ADJOURN

The meeting was adjourned at approximately 12:03 PM.

Attribution: *This meeting summary was developed using a variety of sources, including notes from participants, a recording of the meeting, presentation slides, and a meeting summary generated by artificial intelligence (AI), via Webex and Microsoft Co-Pilot. Any sections of the*

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