National Capital Region
Transportation Planning Board

TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE NOVEMBER 17, 2023 MEETING, 9:30 AM TO 11:15 AM

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.)
- Christina Baker (Arlington County)
- Kelvin Belcher (MDOT)
- Kevin Chai (Fairfax Co. DOT)
- Yucong Du (Jacobs Inc.)
- Joel Freedman (RSG, Inc.)
- Anson Gock (Delaware DOT)
- Dan Goldfarb (ATCS)
- Brett Gunderson (Bentley, Inc.)
- Tony Hoffman (Michael Baker, Inc.)
- Ramgiridhar (Giri) Kilim (VDOT)
- Li Li (Whitman, Requardt & Assoc.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Srikanth Neelisetty (Transurban)
- Carmine Parascandola (Kimley-Horn)

- Marie Pham (Loudoun Co.)
- Mark Radovic (Gannet Fleming)
- Mushtaqur (Mushtaq) Rahman (Baseline Mobility Group)
- Maggie Qi (Fairfax County DOT)
- Harun Rashid (NVTA)
- Andrew Rohne (RSG, Inc.)
- Rich Roisman (Arlington County)
- Rana Shams (MDOT)
- Elham Shayanfar (MDOT)
- Lisa Shemer (MDOT-SHA)
- Malcolm Watson (Fairfax County DOT)
- Chris Wichman (AirSage)
- Jim Yang (M-NCPPC, Prince George's Co.)
- Zhibo Zhang (DDOT)

COG STAFF

- Bill Bacon
- Tim Canan
- Joe Davis
- Nazneen Ferdous
- Charlene Howard

- Mark Moran
- Ray Ngo
- Wanda Owens
- Jinchul (JC) Park
- Jane Posey

- Meseret Seifu
- Bahar Shahverdi
- Jessica Storck
- Dusan Vuksan
- Feng Xie

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

Mr. Moran discussed roles of the meeting participants (e.g., chair, host, technical host, and note taking), meeting rules, and then performed a roll call of participants.

2. APPROVAL OF MEETING HIGHLIGHTS FROM THE SEPTEMBER 22 MEETING

This meeting of the Travel Forecasting Subcommittee (TFS) was chaired by Dr. Zhang. The highlights of the September 22, 2023 meeting of the TFS were approved without any changes.

3. ARLINGTON COUNTY, VIRGINIA TRAVEL MODEL: STATUS REPORT

This item was presented by Christine Baker and Brett Gunderson, who spoke from a set of presentation slides. Ms. Baker introduced the presentation. She noted that this was the third time that Arlington had presented to the TFS regarding its new tour-based travel model. She noted that Arlington plans to use the new model for an update to its master transportation plan, along with some other studies. Mr. Gunderson then presented the rest of the presentation. He noted that Bill Allen had started this work, but given Mr. Allen's retirement, Mr. Gunderson was tasked to finish the project. Arlington County has been working on refinements and upgrades to its tour-based travel model, including coding adjustments, updated input data, enhancing the time-of-day model, adding an air passenger model, adding an intermediate forecast year, and revalidating the model. Mr. Gunderson highlighted the key changes and features that went into this model enhancement process. For example, the model was re-validated to new data sources, such as the 2017-2018 Regional Travel Survey (RTS).

Regarding slide 8, Mr. Moran noted that the first step was labeled "HH synthesis." He asked if this was a population synthesis or just a household synthesis. Mr. Gunderson said that this is just a household synthesis, so there is no population synthesis. It results in one record per household. More details can be found on slide 5.

Mr. Freedman posed a question via the chat window: Suppose that a person travels five miles, with half the trip involving taking a child to school, and the other half is driving alone. What is the tour mode? Mr. Gunderson stated that the Arlington model assumes that there is no changing of travel modes within a tour. Thus, there is no mode switching within a trip. So, in this case the designated mode would have been the mode which covered the largest share of the tour.

In the chat window, Mr. Belcher asked where he could find some information about the use of Bentley's Cube, EMME, or Agent software by the FHWA or and local Virginia counties. If so, can you share a link where one can see a presentation of these? Mr. Gunderson stated he would address this question at the end of his presentation via email to Mr. Belcher.

Regarding slide 21, which used the abbreviations "P-A" and "A-P," Mr. Moran asked whether traffic assignment and transit assignment are being conducted in production-attraction format or origin-destination format. Mr. Gunderson stated that the model uses origin-destination format. He noted that, on slide 21, "P-A" is referring to the first leg of the tour and "A-P" is referring to the second leg of the tour.

In the chat window, Mr. Gock asked for more information about terms used regarding HBW travel, such as "share" and "taxi." He also wondered how a typical Transportation Network Company (TNC) trip, such as on Uber, fit in the summaries on slide 14. Additionally, he wondered how are Door Dash or Amazon delivery trips (i.e., deliveries to households) accounted for. Lastly, does airport drop off mode include TNC? Mr. Gunderson said that the Arlington model includes both a truck and commercial vehicle travel model, which should cover Amazon delivery trips. For airport travel, taxi

and TNC are combined as one category. The same is true with home-based work trips: taxi and TNC are combined.

Mr. Rashid asked about highway and transit assignments, including which are capacity-constrained and whether the highway assignment accounts for intersection delay. Mr. Gunderson said that the highway assignment is still a traditional static traffic assignment. And he noted that intersection delay is accounted for by an adjustment of highway capacities and speeds at the approach links of intersections. So, for example, if there is an additional turn lane, there is an added lane on that approach link, which adds a little more capacity. And for control types such as stop signs, we add adjustments for the speed.

In Chat window, Ms. Qi, asked, when you include the turning lane feature, are you considering both the total number of lanes and the length of the turning lanes? Mr. Gunderson said we do not consider the length of lanes. We consider the total amount of lanes. How many additional lanes there are what you put in for that attribute. We do not consider distance. Now for facility type, we do use different variables for being adjusted. So, it impacts certain areas.

In the chat window, Mr. Xie had three questions: First, when you increased number of zones for Arlington County, did you maintain the total number of zones to be 3,722, as is used in the COG travel model? Second, is the accessibility variable used in your logit model the logsum or the 45-minute accessibility? Third, is your transit capacity calculated for capacity per car or capacity per train? Does it differ by time period? Does it consider train length (e.g., 6-car vs. 8-car for Metrorail)?

Regarding question one, Mr. Gunderson stated that the Arlington Model does have more zones overall, since many zones in Arlington Co. were split. Regarding question two, Mr. Gunderson said that the Arlington Model uses logsums, not 45-minute thresholds. Regarding question three, Mr. Gunderson stated that he would need to look that up. And he noted that the Arlington Model applies crowding to only the AM period. And we're assuming that there's no crowing in the off-peak. So, we are adjusting only the AM travel skims. After looking up the information, he noted that it was done by train, not by car.

Mr. Vuksan asked who will run and update the production-use model, e.g., Arlington Co. staff, consultants, or a combination. Ms. Baker stated that she expects that the model will be run and maintained using both staff and consultants. She said that Rich Roisman will be helping with this effort. Mr. Roisman stated because of Christine's increased responsibilities around Vision Zero for bike/pedestrian safety, we will have some staff managing the model, along with me and someone in our transportation planning section. He noted that we will keep that going as long as we can. And then figure out, with leadership, what would be our strategy moving forward. We will continue to use Bentley Services for the rest of the contract. In terms of model runs, we are working with VDOT contractors to make sure that they can run the model for the work that there doing.

In the chat window, Mr. Belcher asked whether Mr. Gunderson made use of Bentley AGENT or Bentley Dynameq for this study. Mr. Gunderson said that those models were not used for this study. Then, Mr. Belcher asked what model was used. Mr. Gunderson stated the study made use of Bentley Cube and Alogit.

4. COG/TPB GEN3 TRAVEL DEMAND MODEL: STATUS REPORT

This item was presented by Mr. Freedman of RSG, who spoke from a set of presentation slides. Mr. Freedman provided updates on the development of the Gen3 Phase 2 Model. Mr. Freedman first described model adjustments made since the last TFS meeting. Mr. Freedman then shared final calibration and validation results from the Gen3 Phase 2 Model. Mr. Freedman described the draft calibration and validation documentation report prepared by RSG which is currently under review by COG staff. Mr. Freedman then provided an update on the sensitivity tests conducted by the RSG team and COG staff, including updates made to fix errors in the autonomous vehicle sensitivity test presented at the last TFS meeting. Finally, RSG presented the scope of work for a new task order which includes a task to complete calibration and validation, a task to implement Sharrow in the Gen3 Model (code that pre-compiles ActivitySim for runtime improvements), and a task to support COG staff testing of the Gen3 Model.

Mr. Rashid asked, when setting bridge penalties and adjusting highway capacities on DC screenlines, do you lose any model sensitivity. Mr. Freedman said that it is hard to say. He stated that the travel time penalties were necessary to allow the model to reflect cut through traffic that we could not address with district-level penalties in destination choice. Mr. Freedman noted that the sensitivity of the model is certainly affected by such variables, but he noted that the effect that they have depends on what policies one is testing and whether various O-D pairs "see" the penalties or not. Based on the sensitivity of testing that we did, there was consistency across the Phase 1 and Phase 2 models.

In the chat window, regarding slide 6 ("VMT by facility type"), Ms. Li noted that the Gen3 Model shows better performance than the Gen2 Model for collectors and expressways. By contrast, for minor arterials, the Gen3 Model performance was slightly worse than the Gen2 Model performance. She wondered whether there we updates made to the link attributes, such as facility type. Mr. Freedman said that we did not make any changes to the network. But the models were calibrated to new survey data and they are completely new models compared to the Gen2 Model. In past presentations, we talked about some of the differences between the Gen2 (trip-based) and Gen3 (activity-based) models. For example, for the Gen3 Model, there is more detail on zonal variables, such as school enrollment. Many of the traffic counts have been updated. He also noted that the Gen3 Model includes some external-to-internal transit trips, which were not part of the Gen2 Model. Mr. Freedman concluded, noting that there are many different facets to the new model, so it is hard to say why one facility or facility type got better and one got worse. Mr. Xie agreed with Mr. Freedman. Mr. Xie added that the limited number of network adjustments were listed on slide 4 of the presentation, and he said that he did not think those network updates can be attributed to the changes seen in the estimated-to-observed ratios for traffic by facility type.

5. THANK OUTGOING CHAIRS AND ANNOUNCEMENT OF NEW CHAIR FOR 2024

Mr. Moran stated that the chair of the COG/TPB Travel Forecasting Subcommittee rotates on a calendar-year basis between four entities: The District of Columbia, Maryland (state or local agency), Virginia (state or local agency) and a transit or regional agency (e.g., WMATA, VRE, MARC, and/or a regional or sub-regional agency). Based on the recent rotation order, the upcoming chair should be a representative from Virginia. This year was District's turn to chair the TFS. Dr. Yi Zhao, DDOT, served as chair from January to June at which point, he changed jobs and now works for TRB. And to finish out the calendar year, Dr. Zhibo Zhang, DDOT, served as TFS chair from September through December. Mr. Moran thanked the two outgoing chairs for their service and presented a signed certificate of appreciation from Ruben Collins, the chairman of the TPB, to DDOT chairs.

Next, Mr. Moran introduced the new chair, who was to be a person representing a Virginia: Mr. Harun Rashid, Planning Analytics Manager from the Northern Virginia Transportation Authority (NVTA) Mr. Harun is an accredited certified planner (AICP). He has more than twenty years of experience in

regional transportation planning, travel modeling, data analytics and related topics in the MPO context. He is passionate about his work to understand the built environments impact on travel behavior and choices with regards to multimodal transportation planning program and innovation. At NVTA, Mr. Rashid is in charge of planning analytics.

Mr. Moran and the subcommittee then welcomed Mr. Rashid as the 2024 chair and Mr. Rashid made sone brief remarks.

6.   ROUNDTABLE DISCUSSION OF CURRENT MODELING EFFORTS AROUND THE REGION

Mr. Moran noted that the subcommittee has not heard recently on the status of modeling work being done by Prince George's County Planning Department, which is part of the Maryland-National Capital Park and Planning Commission (M-NCPPC). Mr. Moran plans to follow up with Manfredo Davilla regarding Prince George's County modeling work. Mr. Harun thought that Prince George's County was working with TransCAD on a model with some characteristics of an activity-based model.

Mr. Rashid mention that NVTA is launching their preliminary deployment plan for BRT in Northern Virginia. As a part of that, they will be enhancing their model set to incorporate better bus runtimes. Additionally, NVTA is implementing dynamic traffic assignment (DTALite), with a goal to streamline the data flow between DTALite and the Cube traffic assignment model.

7.   OTHER BUSINESS

Mr. Xie reported that COG's Department of Community Planning and Services (DCPS) recently released the draft, TAZ-level Round 10.0 Cooperative Forecast land use data. Following that release, COG's Department of Transportation Planning (DTP), then processes the data and prepares the TAZ-level land use input files for travel demand modeling. Mr. Xie said that, in the past, these files have been released to the public underline the completion of the Air Quality Conformity Analysis (AQC) of the Long-Range Transportation Plan (LRTP). But, in this case, the draft Round 10.0 land use data had been developed well before the expected date for completion of the AQC (expected to be adopted by the TPB in June 2025). Therefore, COG staff decided to release the draft data, for travel demand modeling, as soon as it was ready. Over the past few months, several agencies received the draft land use input files from COG via data request. However, some errors have been identified in the draft, TAZ-level Round 10.0 Cooperative Forecast land use data. Specifically, DCPS is looking into a very limited number of potential anomalies in the 2020 data. Currently, an internal investigation is underway, and COG staff will consult with the appropriate local jurisdictions staff to determine if or when the adjustments might need to be made. We plan to notify the recipients of the draft land use data and recommend that they postpone any use of this data. We will report back to the TFS when the revised draft input landuse data becomes available. Mr. Moran stated that we regret the inconvenience caused to any agencies that received that draft data.

Mr. Moran announced that the next TFS meeting would take place on January 26, 2024. The TRB Annual Meeting is scheduled for January 7-11, 2024, so, there should not be a meeting conflict.

In terms of the upcoming presentation for next year's TFS meetings, the only item we currently have scheduled for the January 26 meeting is an update of the Gen3 Model, so we are open to anyone who would like the opportunity to present to TFS.

8   ADJOURN

The meeting was adjourned at about 11:10 AM.