



## TPB TRAVEL FORECASTING SUBCOMMITTEE

### HIGHLIGHTS OF THE SEPTEMBER 22, 2023 MEETING, 9:30 AM TO 11:45 AM

Meeting was held virtually via web conferencing software. There was no on-site meeting.

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### MEETING ATTENDEES

#### MEMBERS, ALTERNATES, AND PARTICIPANTS

- Jonathan Avner (Whitman, Requardt & Assoc.)
- James Bunch (Mead & Hunt)
- Kevin Chai (Fairfax Co. DOT)
- Suzanne Childress (Puget Sound Regional Council)
- Anson Gock (Delaware DOT)
- Dan Goldfarb (ATCS)
- Tony Hoffman (Michael Baker, Inc)
- Ramgiridhar (Giri) Kilim (VDOT)
- Brian Lee (Puget Sound Regional Council)
- Li Li (Whitman, Requardt & Assoc.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Srikanth Neelisetty (Transurban)
- Marie Pham (Loudoun Co.)
- Mark Radovic (Gannet Fleming)
- Mushtaqur (Mushtaq) Rahman (Baseline Mobility Group)
- Harun Rashid (NVTA)
- Andrew Rohne (RSG, Inc.)
- Rana Shams (MDOT)
- Elham Shayanfar (MDOT)
- Malcolm Watson (Fairfax County DOT)
- Chris Wichman (AirSage)
- Jim Yang (M-NCPPC, Prince George's Co.)
- Yi Zhao (DDOT)
- Zhibo Zhang (DDOT)

#### COG STAFF

- Tim Canan
- Anant Choudhary
- Joe Davis
- Paul DesJardin
- Nazneen Ferdous
- Cristina Finch
- Charlene Howard
- James Li
- Mark Moran
- Ray Ngo
- Wanda Owens
- Jinchul (JC) Park
- Olga Perez
- Jane Posey
- Meseret Seifu
- Jessica Storck
- Dusan Vuksan
- Feng Xie
- Zhuo Yang
- Jim Yin

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This meeting of the Travel Forecasting Subcommittee (TFS) was chaired by Dr. Zhang

## **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 JULY 21 MEETING**

Dr. Zhang chaired the meeting. The highlights of the July 21, 2023, meeting of the TFS were approved without any changes.

## **3. ROUND 10 OF THE COOPERATIVE FORECASTS OF HOUSEHOLDS, POPULATION, AND EMPLOYMENT**

Mr. DesJardin briefed the subcommittee on the Round 10 Cooperative Forecasts, speaking from his presentation slides, noting that the COG Board approved the forecasts at its June meeting. Mr. DesJardin also stated that, prior to their adoption, staff had briefed the COG Board on Round 10 at both the April and May meetings. Regarding the new forecasts, Mr. DesJardin noted that the region was forecast to add about 1 million more jobs, 1.5 million more people, and 700,000 new households by 2050. Mr. DesJardin also noted that, compared to the prior Round 9.2 Forecasts, employment in each future year is forecast to be about 200,000 fewer jobs than previously anticipated, while population and household growth are equivalent to Round 9.2. Mr. DesJardin described many local and regional trends as shown in the presentation slides. Mr. DesJardin noted that staff was conducting final QC/QA on the data and that a public-release version would be available soon.

Mr. Watson asked if he could get a copy of the ICF report. Mr. Canan provided a link to the report in the WebEx chat.<sup>1</sup> Mr. Bunch asked, in the WebEx chat window, whether the final file would differ from the preliminary release shared with him earlier this month. Mr. DesJardin stated that any final updates to the TAZ-level land use forecasts should be limited to individual zones and should not affect regional or jurisdictional totals. Mr. Rashid asked whether the Planning Directors, in developing the land use forecasts, consider the interaction between land use and transportation, e.g., land use development spurred by transportation improvements. Mr. DesJardin said that we do not specifically look at the iterative feedback between land use and transportation but noted that each COG jurisdiction is provided with information about the new transportation facilities in the long-range transportation plan, and staff requests that the jurisdiction staff consider the impact of those projects, along with their knowledge of local transportation plans and investments, on the land use forecasts. Mr. DesJardin also noted that his group works closely with Mr. Canan and Mr. Moran to ensure that the transportation effects have been addressed. Mr. Rashid asked if COG land use planners plan to use a formal land use model, such as UrbanSim. Mr. DesJardin said that we do not use a formal land use model. He felt that the strength of the COG land use forecasting process, sometimes referred to as a modified Delphi process, is the fact that the COG/local government forecasts have local planning information that is based on permitting that is happening now, and it is guided by zoning and comprehensive plans.

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<sup>1</sup> ICF and Renaissance Planning Group, "COG Round 10.0 Cooperative Forecast Technical Assistance," Technical Memo, June 29, 2022, <https://www.mwcog.org/events/2022/7/12/cooperative-forecasting-and-data-subcommittee/>.

#### **4. STATUS REPORT ON THE COG/TPB DEVELOPMENTAL DISAGGREGATE, ACTIVITY-BASED TRAVEL DEMAND FORECASTING MODEL, KNOWN AS THE GEN3 TRAVEL MODEL**

Mr. Rohne briefed the subcommittee with a slide presentation. He provided an update of the Gen3 Model validation, which focused on highway and transit validation compared to the Gen2/Ver. 2.4 Model. Andrew also presented an update on the sensitivity tests on the Gen3 Phase 2 Model.

In the chat window, Mr. Bunch noted that, historically the travel model's traffic estimates have been high or low inside the District of Columbia depending on the quadrant (e.g., NW, NE, SE). For example, in one study we focused on Connecticut Ave, estimated traffic for NW DC was low. Mr. Bunch wondered whether RSG had looked at where along the DC screenlines the overestimates are occurring (e.g., NW, south, SE)?

Mr. Rohne stated that, for regional studies, the model's traffic estimates are validated to screenlines and jurisdictions, but not sub-jurisdictional areas, such as quadrants. Of course, consultants working on sub-area studies may want to use more fine-grained model validation. RSG and COG have made some adjustments of the number of lanes on some roads in DC where there was more street parking, which restricted road capacities. RST has done some comparisons of traffic assignment results, but there was often no clear pattern, so some areas showed overestimates and others showed underestimates. Regarding screenlines in the outer jurisdictions, we noticed overestimation in the northern part of the region. By contrast, for screenlines in the inner jurisdictions, we noticed that more variability, e.g., traffic on two roads were well estimated, but traffic on another road was overestimated. We did not notice that the issues were confined to a specific single direction.

In the chat window, Mr. Gock asked why doubling high-capacity transit resulted in a decrease in school bus travel (slide 24, 364 fewer person trips, 0.08% drop). Mr. Rohne stated that this was a very small change and noted that the mode choice model allows students to choose other transit modes, and many metropolitan areas do allow students to use transit to get to school. The decrease in school bus mode is likely students choosing transit, such as walk to Metrorail.

In the chat window, Mr. Neelisetty noted that I-495 in Maryland, between the Woodrow Wilson Bridge and US-50, has been historically underestimated in the Gen2 Model, and wondered whether that was the case also for the Gen3 Model. Mr. Rohne noted that, based on the screenline map on slide 6, traffic estimates for roads crossing the Beltway seem to be fine (green color), however, for actual estimated traffic loadings on the Beltway itself, that would require more investigation.

#### **5. PRESENTATIONS FROM THE TRANSPORTATION RESEARCH BOARD INNOVATIONS IN TRAVEL ANALYSIS AND PLANNING CONFERENCE, INDIANAPOLIS, INDIANA, JUNE 2023: "MEASURING RACIAL EQUITY GEOGRAPHICALLY: WHAT WORKS AND WHAT NEEDS WORK" (IN SESSIONS B1: CAPTURING THE IMPACTS OF TRANSPORTATION PROJECTS ON DISADVANTAGED POPULATIONS)**

This item was presented by Mr. Lee, who spoke from a set of presentation slides. Puget Sound Regional Council (PSRC) staff are experimenting with different approaches to measure equity and identify trends in disparity gaps. Mr. Lee discussed both person- and place-based measures as well as recent explorations using a synthetic population to measure current conditions. Mr. Lee mentioned questions about incorporating some techniques into forecasting models. At the end of the presentation, Mr. Lee acknowledged both Suzanne Childress, who was attending today's virtual meeting, and Mr. Lee's other collaborators, Brice Nichols and Stefan Coe.

Mr. Xie stated that COG is developing an activity-based model (ABM), called the Gen3 Model. He noted that COG is doing an experiment to use the synthetic population or the disaggregate data for

equity analyses. Mr. Xie noted that it appeared that PSRC’s current person-based equity measures are based on survey data (PUMS), not modeled data. For a future year, however, if we want to compare the base year and future year, we would need to rely on only the modeled data. So, it’s only natural to make use of the synthetic population from a future year for equity analyses, so that one would be comparing apples to apples. However, has PSRC considered a measure that combines both the person-based and place-based measures?

Mr. Lee said that that was a good question. He said that, as far as he knew, PSRC had not combined the data in that way. He added that it could be very useful for us to make a direct comparison between the survey data and the synthetic population, which is based on the census survey data.

Ms. Childress added that PSRC has been wanting to do those comparisons. She said that we have done some limited comparisons, including a summary about transportation accessibility by racial group. We also did a comparison of the population-synthesizer-based method (a.k.a. the person-based method) and the place-based method, but we did not see a big difference. We documented this comparison in a blog post.<sup>2</sup>

Mr. Xie noted that we use PopulationSim to generate the synthetic population for our model, and we used race and income as control variables, though we are not certain whether that will give us more confidence in using the synthetic population for equity analyses. He noted that it seems like the equity measures need to be tailored to the equity policies. For example, the regional transit agency, WMATA is proposing reduced fares for low-income people, but in order to measure the effects, it would seem that the person-based measure would be the most suitable. However, there are many policies that are focused on equity-focused geographies, such as COG’s Equity Emphasis Areas (EEAs), which are geography based. So, in that case, we want to measure how those place-based policies impact people. So, in that case, we may want to develop a measure that considers both person-based and place-based measures.

Mr. Lee stated that those were good points. He noted that he recently reviewed a TRB paper that was looking at a Transportation Improvement Program and those are necessarily geographic based. Mr. Lee agreed with Mr. Xie: It makes sense to look at the policies that will be evaluated and then choose the right metrics to fit those policies.

Ms. Childress stated that this discussion reminded her of something from the PSRC household travel survey, where there was a focus on getting information from certain types of households. In the case of the household travel survey, many times we oversample certain hard-to-reach populations. But both PSRC and Met Council (Twin Cities) found that we still did not end up getting the households that we wanted. So, the geographic-based sampling approach does not always work out the way one had hoped.

## **6. ROUNDTABLE DISCUSSION OF CURRENT MODELING EFFORTS AROUND THE REGION**

Dr. Zhang mentioned that DDOT is working on a corridor-level study of Connecticut Avenue. DDOT is also analyzing bus priority projects on many corridors in the city. DDOT is also studying bike lane enhancements in many areas. DDOT is also using Synchro and VISSIM to analyze many road intersections throughout the city.

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<sup>2</sup> “Looking at Equity in Transportation Access,” *Puget Sound Regional Council* (blog), August 18, 2022, <https://www.psrc.org/about-us/media-hub/looking-equity-transportation-access>.

Mr. Moran mentioned work that COG/TPB staff have been doing to review and update road capacities in DC where the number of lanes has been reduced recently due to on-street parking and “road diets,” where added bike lanes and/or sidewalks results in are fewer traffic lanes.

Mr. Rashid shared that NVTA will be launching a regional BRT planning study over the next two years. As a part of the study, NVTA will update its model framework. NVTA uses the TPB model as a macro input, and in Northern Virginia, we plan to use dynamic traffic assignment (DTA), specifically, DTALite. As a part of the study, we will strive to integrate DTALite with Cube. NVTA also plans to contact COG to request a copy of the Round 10, TAZ-level land use data that is suitable for travel demand modeling. In the future, NVTA would be open to presenting its study findings to the TFS.

Mr. Kilim noted that VDOT has a few planning studies going on now, such as corridor-level projects. For many of these studies, VDOT uses the COG/TPB Travel Model, Most of these projects will focus on multi-Model elements. VDOT is working on a study of the I-95 Express Lanes project, looking at a contra-flow option, where a non-peak direction lane is opened during the peak hour. VDOT will let COG staff know if any issues are found with the model or its transportation networks. Mr. Moran stated that COG staff welcomes any feedback. Mr. Kilim mentioned that the I-495 Southside Express Lane study, from the Springfield Area to the American Legion Bridge, continues to be a major effort. VDOT is looking at different options that may work, which will be documented in a NEPA study. Lastly, Mr. Kilim indicated that he noticed that DC is going through speed limit changes on many local streets in certain corridors. He recommended that other agencies be alert to this.

Mr. Bunch indicated that Mead & Hunt is doing some work for the Maryland Department of Transportation, Maryland Transit Administration (MTA) compiling a list of examples that were carried out in the region of FTA STOPS model development. He asked if any regional agencies have used STOPS in the last five years, please let him know. Mr. Moran asked that Mr. Bunch place his email address in the chat window.

Mr. Kilim also noted that DC is making a lot of changes to its speed limits on local roads. So, people may want to keep an eye on that. Mr. Moran said that that was good to keep in mind, but he also noted that, in the COG/TPB regional travel demand model, we have a speed look up table for free-flow speeds based on area type and facility type. So, we do not explicitly code speed limits on links. The free-flow speed is one of the inputs to the traffic assignment, which then results in a congested speed, after the model iterates through a “pump-prime” assignment and then four more iterations of traffic assignment.

## **7. OTHER BUSINESS**

Dr. Zhang announced that the next TFS meeting is scheduled for Friday, November 17, 2023 at 9:30 AM, which is planned to be the last TFS meeting for the year.

Mr. Moran stated TPB staff strives to have at least one external/non-COG presenter at each TFS meeting. Thus far we do not have any external/non-COG presenters currently scheduled for our November meeting. [Update, as of early November, Arlington County plans to make a presentation on their tour-based model.] If you would like to present or have a suggestion for a topic, please email Mr. Moran. Mr. Moran also indicated we will have our normal update on the Gen3 Model. Mr. Moran noted that once we get the final model from RSG, COG/TPB staff will do usability testing at COG to make sure that the model is performing the way we expect and to make sure the new model is ready for production use. At the conclusion of the usability testing, COG/TPB staff will let people know whether the Gen3 Model is ready for production use.

## **8 ADJOURN**

The meeting was adjourned at about 11:45 AM.