



## TPB TRAVEL FORECASTING SUBCOMMITTEE

### HIGHLIGHTS OF THE JANUARY 27, 2023 MEETING

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

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### MEETING ATTENDEES

#### MEMBERS, ALTERNATES, AND PARTICIPANTS

- Vince Bernardin (Caliper)
- Jim Bunch (Mead & Hunt)
- Kayleigh Campbell (WMATA)
- Kevin Chai (Fairfax Co. DOT)
- Yucong Du (Jacobs)
- Joel Freedman (RSG, Inc.)
- Eric Graye (M-NCPPC, Montgomery Co.)
- Sydney Goldstein (WMATA)
- Fatemeh Janatabadi (George Mason University)
- Erik Jensen (WMATA)
- Teertha Kamireddi (George Mason University)
- Robert Kohler (AirSage)
- Feng Liu (Cambridge Systematics)
- Vahid Moshtagh (VDOT)
- Mark Radovic (Gannet Fleming)
- Roderick Radzikowski (George Mason University)
- Mushtaqur (Mushtaq) Rahman (Baseline Mobility Group)
- Harun Rashid (NVTA)
- Eric Reza (George Mason University)
- Andrew Rohne (RSG, Inc)
- Elham Shayanfar (MDOT)
- Tasnim Siddika (Baseline Mobility Group)
- Rafey Subhani (Mead & Hunt)
- Chris Wichman (AirSage)
- Jongsun Won (MITRE)
- Jim Yang (M-NCPPC, Prince George's Co.)
- Yi Zhao (DDOT)

## COG STAFF

- Tim Canan
- Anant Choudhary
- Nazneen Ferdous
- Yu Gao
- Pierre Gaunaurd
- Ken Joh
- Martha Kile
- Sanghyeon Ko
- Nicole McCall
- Mark Moran
- Ray Ngo
- Jinchul (JC) Park
- Jane Posey
- Dusan Vuksan
- Feng Xie
- Zhuo Yang
- Jim Yin

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

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

First, a roll call was conducted. Next, the highlights of the November 18, 2022 meeting of the TFS were approved.

### **2. USING LOCATION-BASED SERVICES DATA TO UNDERSTAND THE MOBILITY MARKET AND METRO'S PLACE IN THE MARKET**

This item was presented by Ms. Campbell and Ms. Goldstein, who spoke from a set of presentation slides and who presented how WMATA's Office of Planning is using location-based services (LBS) data to understand Metro's place in the regional mobility market. This work is based on 2019 data and serves as a proof-of-concept of how key findings can be used to inform future agency strategies. Ms. Campbell and Ms. Goldstein provided an overview of the LOCUS dataset and how it can fill gaps in Metro's data. Regarding slide 3, Mr. Harun asked how trips were defined. Ms. Campbell stated that a trip was defined as the travel from door to door, and a stop of 10 minutes, or a significant change in direction of the trip would signal the stop or start of a trip. In the second procurement of LOCUS LBS data, there were some adjustments made for defining trips. To make the data representative, it is scaled to Census data. Metro staff explored three definitions for Metro's market and then focused on the transit-accessible market to show when, how far, and why people are traveling. Mr. Xie asked if Metro had considered other Big Data products before procuring LOCUS. Ms. Campbell said that Metro staff evaluated a number of proposals (e.g., Replica, StreetLight Data) as part of the procurement process. LOCUS was chosen because it best fit Metro's needs. Of course, future procurements may have different needs.

Regarding slide 13, Mr. Vuksan asked some clarifying questions about how trip purpose was defined in the LBS data compared to its definition in Metro's customer surveys. Metro staff noted that the two data sets were not completely comparable, so differences would exist. Ms. Ferdous asked whether Metro staff had compared weekday and weekend LBS data, to see if the definition of home was consistent. Ms. Goldstein stated that they had done some exploration of how travel varies, weekday versus weekend. The Metro presenters were also asked about the representativeness of the sample, and they summarized their understanding about potential biases. For example, this dataset is likely to undercount youth and elderly individuals where smartphone penetration rates are low, as well as people not counted in the census since the data is scaled to census data products, but it is likely to perform reasonably well for low-income individuals since smartphone penetration rates are comparable to the rest of the population, and some validation has been performed for this group.

Mr. Xie stated that he saw a presentation at the Transportation Research Board (TRB) Annual Meeting by the Southeastern Pennsylvania Transportation Authority (SEPTA, Philadelphia), which found that during Covid, the customer groups had significantly changed. Traditionally, transit trips had been focused in the morning and afternoon peak period, with an emphasis on getting people in and out of city centers. But during Covid, low-income and underserved groups accounted for a bigger portion of the ridership. This change, in turn, influenced how SEPTA planned for future ridership. So, Mr. Xie was interested in seeing how Metro's 2022 LBS data compared to its 2019 LBS data, including the effect this might have on the regional Better Bus network redesign. Ms. Campbell noted that the 2022 data is currently under procurement and that it will include a data sharing license that will make this resource more accessible to our regional partners. Ms. Campbell noted that they could come back to the TFS in the future to present the updated data and findings.

### **3. LASTING OR SHORT-LIVED: BIKE AND PEDESTRIAN VOLUMES ON TRAILS IN ARLINGTON COUNTY, BEFORE, DURING AND AFTER THE COVID PANDEMIC**

This item was presented by Mr. Gao, who spoke from a set of presentation slides. This presentation focused on the findings of trail volumes before, during, and after the COVID pandemic, based on the data from Arlington County's automatic counters of pedestrian and bicycle trips. Mr. Gao explained that, in the analysis, all trails were assigned into two groups: Primarily peak oriented and primarily off-peak oriented, based on pre-pandemic characteristics of each trail. For the primarily peak trail group, it was found that weekday use declined in 2020 and remains lower. For this group, weekend use initially increased in 2020 before returning to pre-pandemic levels. Weekday hourly volumes were more evenly distributed since 2020. Lastly, weekend hourly volumes in 2020 were higher than pre-2020 and post-2020 for most hours. By contrast, for the primarily off-peak trail group, it was found that both weekday and weekend use increased in 2020, before returning to pre-pandemic levels. In this same group, weekday hourly volumes post 2020 were more evenly distributed than pre-2020 and 2020 weekday hourly volumes. Lastly, weekend hourly volumes for 2020 were higher than pre-2020 and post-2020 for most hours of the day. Mr. Gao also shared some findings from counters located in other jurisdictions in the region and discussed their similarities to the Arlington data. Mr. Gao lastly emphasized the importance of maintaining the continuous counting equipment. There were no questions asked.

### **4. COG/TPB GEN3 TRAVEL MODE: STATUS REPORT**

This item was presented by Mr. Freedman, Mr. Xie, Mr. Ngo, and Ms. Ferdous, who spoke from a set of presentation slides. Mr. Freedman provided updates on the Gen3 Phase 2 Model development. Mr. Freedman first described work completed since the last Gen3 Model update presentation to the TFS. The new information included calibration of multiple model components (auto ownership, work location choice, joint tour frequency and composition, trip mode choice, coordinated daily activity patterns, non-mandatory tour frequency, and non-mandatory destination choice). Mr. Freedman also described updates to the implementation and progress made on model validation and documentation. Mr. Freedman provided an update on the Gen3 Phase 2 project schedule and concluded the presentation by describing the outline of the Gen3 Model user's guide.

Mr. Xie, Ms. Ferdous, and Mr. Ngo presented the results, findings and lessons learned from the Gen3, Phase 2 Model estimation work conducted by COG/TPB staff. At the beginning of the presentation, Mr. Xie provided an overview of the Gen3 Model structure as well as the estimation process. After Ms. Ferdous and Mr. Ngo presented their estimation work, Mr. Xie then talked about the main results and findings from the estimation of the Mandatory Tour Frequency (MTF) model. Mr. Xie concluded the presentation with some remarks and the next steps. There were no questions regarding Mr. Xie's portion of the presentation.

Ms. Ferdous presented a set of slides on the Coordinated Daily Activity Pattern (CDAP) Model and the model estimation results. Ms. Ferdous provided an overview of the model, available patterns by person type, model structure and available alternatives, and observed frequency of DAP by person type. Ms. Ferdous also discussed model estimation results. In the interest of time, the discussion was confined to a handful of variables such as age, income, accessibility, telecommute frequency, and 2-way interactions terms. The attendees did not ask any questions.

Mr. Ngo presented the main findings from the estimation of the Auto Ownership Model. He said that the estimation results were reasonable and were, thus, used in Phase 2 of the Gen3 Model. Mr. Rashid asked about the differences between the Auto Ownership Models in a trip-based model and in the Gen3 Model, an activity-based model. Mr. Freedman pointed out one of the key differences is that auto versus transit accessibilities of work and school locations of persons in the household in the Gen3 Model affect the number of autos owned.

## **5. SHARING SESSION REGARDING THE 2023 TRANSPORTATION RESEARCH BOARD (TRB) ANNUAL MEETING**

This item was introduced by Mr. Moran, who noted that the 102nd Annual Meeting of the Transportation Research Board (TRB) was held, in person, January 8 to 12 in Washington, D.C. at the Walter E. Washington Convention Center and the Marriott Marquis Hotel. This year, there were more than 600 workshops, lectern sessions, committee sessions, and poster sessions. There were more than 200 exhibitors. He was not sure what the attendance total was this year, but pre-COVID, attendance at TRB had reached 10,000 people.

Twelve COG staff attended the TRB Annual Meeting. COG staff did not present any papers or posters this year, but Mr. Moran noted that COG staff had made presentations at TRB in the past. COG staff participated with about 10 standing committees and subcommittees, in the roles of “member,” “friend,” “secretary,” and “co-chair.” TRB standing committees typically meet during the Annual Meeting. Committee members and friends are responsible for conducting much of the work undertaken by TRB, such as reviewing papers and planning other conferences, although much of this work is typically done outside of the annual meeting. Example committees and subcommittees in which COG staff participated included the following:

- AEP30: Standing Committee on Traveler Behavior and Values
- AEP50: Standing Committee on Transportation Demand Forecasting
- AEP25: Standing Committee on Travel Survey Methods
- AEP25(1): Household Travel Survey Subcommittee
- AV020: Aviation System Planning Committee

Mr. Moran invited TFS participants to share their lessons learned. Mr. Rashid attended Session 2120 – “Is Automobile Congestion a Useful Measure of Transportation Performance? An Oxford-Style Debate,” which was organized by David Ory and included very spirited debate. At the beginning and end of the session there was an audience poll to see if the debate changed people’s minds. Ultimately, the debate caused most of participants to vote that automobile congestion was not a useful measure of transportation performance.

Dr. Zhao mentioned that many planners and engineers from DDOT attended TRB. He noted that DDOT made a presentation about bus priority projects (“District Department of Transportation Bus Priority Program Quick Build Projects,” P23-20945). He noted that the DC Mayor had this vision to put in place 51 bus priority projects in the city in only seven to eight years. He noted that, in light of all the bus priority projects and the repurposing of current roadways to accommodate multimodal

needs, DDOT and TPB staff should establish a process for incorporating these projects, and their potential impact on mode shift, into the regional travel demand model.

Mr. Freedman mentioned three main themes that he found interesting at TRB this year. First, was the idea of the shift in commuter patterns and telecommuting that occurred during and post-Covid. One paper looked at the changes in telecommute patterns during and after Covid in the metropolitan Toronto area.<sup>1</sup> There was also a paper by some University of Texas students about telecommuting and the finding that telecommuting is positively correlated to the distance to one's primary place of work. So, we would expect models calibrated to current conditions to have relatively shorter work tour lengths, since people with longer commutes will tend to opt in to telecommuting. Mr. Freedman noted that such findings corroborate our current activity-based models, where we see a similar pattern. Nonetheless, our industry still seems to be struggling to define what telecommuting is. For example, none of the papers that Mr. Freedman saw differentiated between people who work out of the home but telecommute one to four days a week and people who always work from home or work remotely on a full-time basis. He noted that you cannot use variables that describe your commute for someone who does not actually commute. Mr. Freedman thinks that our industry needs to be more careful about making this distinction. Second, a general theme of the conference was around the electrification of the vehicle fleet. There were a lot of presentations and papers about that, such as how to choose locations for electric vehicle charging stations. This increasing interest in electric vehicles was one of the motivations that drove RSG to develop the vehicle availability model that is now part of ActivitySim and the Gen3 Travel Model. Third, there were a lot of sessions and papers about passively collected origin-destination (O-D) data. There were concerns about transparency, e.g., what is in the passive data and how was it processed? There were also concerns about increasing privacy requirements, and how that affects developing passive data. For example, on iPhone, you must opt in to allow sharing of location information, which reduced the volume of LBS data. Android phones may roll out similar changes. Congress has been investigating into the use of LBS data for medical visits, which was related to the recent decision by the U.S. Supreme Court in 2022 to overrule *Roe v. Wade* (1973). So, Mr. Freeman concluded, there are a lot of interesting questions about LBS data and what might replace these data streams if they dry up.

Dr. Joh noted that he is the secretary of the Standing Committee on Travel Survey Methods (AEP25) and co-chair of the Household Travel Survey Subcommittee (AEP25(1)). He noted that two of the biggest challenges that we face in the survey industry are declining response rates and obtaining statistically valid samples that are representative of the population across demographic groups, particularly hard-to-reach groups. Thus, the two committees discussed the current state of the practice for travel surveys. For decades, we have relied on a traditional method of conducting large-scale household travel surveys every 10 years or so, with an address-based sampling method. However, that traditional practice is becoming more difficult, so more agencies are switching to more continuous travel surveys, including the National Household Travel Survey (NHTS). Additionally, a number of MPOs have adopted the approach of more continuous approach for household travel surveys. This latter finding is borne out by research that Nicole McCall and Dr. Joh have conducted recently, which we plan to share with the TFS in March.

Mr. Bunch noted in the chat and spoke about the huge focus at the conference on equity. There were many papers on this topic. However, his impression was that many papers focused on studies of distributional impacts and branded that as equity research, but he thought that this highlighted

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<sup>1</sup> Kaili Wang, Sk Md Mashrur, and Khandker Habib, "Developing a Flexible Activity Scheduling Model to Investigate Post-Pandemic Work Arrangement Choice Induced Daily Activity Travel Demands (TRBAM-23-02164)" (Poster, Transportation Research Board 102nd Annual Meeting, January 8-12, 2023; Session 2102, Travel Forecasting Methodological Advances and Insights, Washington, D.C., January 9, 2023).

the need for the transportation planning community to develop a state-of-the-practice view of what an equity study should entail, versus simply conducting a distributional analysis, and how to bring equity studies, constructively, into the overall planning process. Mr. Moran agreed that there were many sessions on equity, but he noted that he had not attended any equity sessions where there were presentations about using activity-based travel models (ABMs) for equity analyses. Mr. Bunch noted that equity analyses will be a requirement, so we need to make sure that our tools provide the quantitative output that would allow planners to do substantive analyses on equity. Mr. Freedman noted, in the chat window, that, at TRB and other venues, there has been a healthy debate about whether to include ethnicity and gender variables in travel models. Mr. Freedman also noted, in the chat window that RSG has included ethnicity as a control in population synthesis for the Gen3 Model but noted that RSG had not included it as an explanatory variable, so as not to precondition model results on a variable that may be affected by systemic racism. Mr. Freedman added in the chat window that it will be possible to perform cost benefit analysis for communities of concern with the model. Mr. Bunch noted that the new Bipartisan Infrastructure Law (BIL) makes studying impacts on underserved communities a requirement. Dr. Zhao noted that DDOT currently studies equity impacts for every new transportation project. Mr. Moran noted that the same applies to COG studies, noting that both COG and TPB had passed resolutions in 2020 on this topic. Lastly, Mr. Xie noted that he did see one TRB poster about an equity analysis using an ABM (“Equity analysis of freight transportation in Atlanta,” TRBAM-23-05062), but the poster does not seem to be posted on the TRB’s website yet.

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

There were no updates from Maryland. From Virginia, Mr. Rashid mentioned that the Northern Virginia Transportation Authority (NVTA) was planning to hold an NVTA Travel Model Workshop on March 10 to discuss its new travel model, which makes use of the Gen2/Ver. 2.4 Travel Model and a dynamic traffic assignment (DTA) model, implemented in DTALite. In November 2021, NVTA and its consultant had presented the model calibration results. At the March 10 meeting, NVTA planned to present its lessons learned and new research that it is conducting. NVTA will send an invitation to the travel modeling community. There were no updates from the District of Columbia.

## **7. OTHER BUSINESS**

a) The next meeting of the TFS is scheduled for Friday, March 24, 2023, at 9:30 AM.

b) Ms. Kile announced that snapshots for Covid 19 for December will be available next week. She posted a link in the chat box (<https://www.mwcog.org/documents/2022/05/10/covid-19-travel-monitoring-snapshot-covid19-featured-publications-traffic-monitoring/>). Ms. Kile shared that the preliminary results show overall traffic levels in the region for the past three months are now at about 95 percent of pre-Covid levels. Passenger boardings (“enplanements”) at the region’s three commercial airports in October were over 95 percent of the 2019 levels. Enplanements for Reagan National Airport have been over 2019 levels since April 2022. Ms. Kile indicated that she expects that this would be the last Covid snapshot and maybe we will revisit this in six months or so. With traffic and enplanements inching closer to pre-pandemic levels, we thought it would be a good time to close this out. Also, there has been a decrease in the amount and quality of data available. So, it’s becoming increasingly difficult to do comparisons with 2019 data. Ms. Kile hoped to give a final presentation of this data at a future TFS meeting.

c) Mr. Swanson announced that the TPB is now accepting applications for two technical assistance programs for local governments— the Transportation Land-Use Connections (TLC) Program and the Regional Roadway Safety Program (RRSP). For the next round of funding – for FY 2024 – applicants will have the opportunity to fill out one joint application for both programs. He said the TLC Program provides short-term consultant services to local jurisdictions for small planning projects that promote



mixed-use, walkable communities and support a variety of transportation alternatives. The RRSP provides short-term consultant services to local jurisdictions for small planning and preliminary engineering projects that focus on roadway safety. He said the deadline for applications is March 3, 2023. For more information, and to submit an online application, go to: [www.mwcog.org/tlc](http://www.mwcog.org/tlc) or [www.mwcog.org/rrsp](http://www.mwcog.org/rrsp)

d) Mr. Moran provided an update on planned presentations at upcoming TFS meetings:

- Mar. 24 TFS meeting
  - Integration of ActivitySim and PTV Visum software (PTV staff)
  - Survey of peer MPOs: State of the practice in conducting regional household travel surveys (Ken Joh and Nicole McCall)
  - COVID snapshots: Summary analysis (Martha Kile)
  - Gen3 Model, status update (RSG staff)

TPB staff strives to have at least one external/non-COG presenter at each TFS meeting. Mr. Moran requested that people interested in making presentations to the TFS please contact him, so that he can schedule the presentation.

## **8. ADJOURN**

The meeting adjourned at about 12:00 noon.