National Capital Region
Transportation Planning Board

Approved
As of 9/24/2021

TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE JULY 16, 2021 MEETING

Meeting time & location: 9:30 A.M. to 12:00 noon, Web conferencing ONLY, due to COVID-19 precautions. There was no on-site meeting.

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MEETING ATTENDEES

MEMBERS, ALTERNATES, AND PARTICIPANTS

- Bill Allen (Bentley Systems Inc)
- Jonathan Avner (Whitman, Requardt & Assoc.)
- Christine Sherman Baker (Arlington Co. DES)
- Laura Castro (Arlington Co.)
- Kevin Chai (Fairfax Co. DOT)
- Oliver Charlesworth (Bentley Systems Inc)
- Filippo Contiero (Bentley Systems Inc)
- Zuxuan Deng (DDOT)Michael Eichler (WMATA)
- Dan Goldfarb (NVTC)
- Eric Graye (M-NCPPC, Montgomery Co.)
- Kyeongsu Kim (Connetics Transportation Group)
- David Kline (Fairfax County DOT)
- Li Li (Whitman, Requardt & Assoc.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Vahid Moshtagh (VDOT)
- Srikanth Neelisetty (Transurban)
- Tim Padgett (Kimley-Horn & Assoc.)
- Krishna Patnam (AECOM)
- Binny Paul (RSG Inc)
- Marie Pham (Loudoun Co.)
- Maggie Qi (Fairfax County DOT)
- Andres Rabinowicz (Caliper)
- Harun Rashid (NVTA)
- Rich Roisman (Arlington Co. DES)
- Amir Shahpar (VDOT)
- Howard Slavin (Caliper)
- Aichong Sun (AECOM)
- Jiaxin Tong (Kimley-Horn & Assoc.)
- Allan Yu (Prince William Co.)

COG STAFF

- William Bacon
- Tim Canan
- Joe Davis
- Yu Gao
- Ken Joh
- Martha Kile
- Sanghyeon Ko
- James Li
- Nicole McCall
- Mark Moran
- Ray Ngo
- Wanda Owens
- Jinchul (JC) Park
- Jane Posey
- Meseret Seifu
- Feng Xie
- Jim Yin

This meeting of the Travel Forecasting Subcommittee (TFS) was chaired by Mr. Eichler.

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

First, a roll call was conducted. Next, the highlights of the May 21, 2021 meeting of the TFS were approved without changes.

2. ARLINGTON COUNTY'S NEW TOUR-BASED TRAVEL MODEL

This item was presented by Ms. Baker and Mr. Allen, who both spoke from a set of presentation slides. Ms. Baker introduced the project and gave an overview of the progress and model status. Mr. Allen reviewed the main points of the simplified tour-based model structure and described some of the more interesting and innovative features of the new model, including use of true shape display of the highway network, simplified intersection control coding, an integrated bicycle network, and an autonomous vehicle function. Mr. Allen added that the transit highlights include using the highway network to model drive-access coding, adding transportation network company (TNC)/ride hailing service to the kiss-and-ride (KNR) access mode, and a new way of handling park-and-ride (PNR) lots. He indicated that transit modeling uses Cube's Public Transport (PT) module and makes use of multi-path processing. The model uses a flattened mode choice model structure, which is more common in Europe and Australia than in the U.S., and which uses a simpler definition of the major modes in mode choice, coupled with transit access/sub-mode split estimated as part of the transit assignment step. He stated that transit trips as well as bicycle trips are assigned in origin-destination (O-D) format by time period. The model has a user-friendly interface and takes 15 hours to run. Finally, Mr. Allen presented several validation statistics, which indicate that the model is well validated in Virginia.

Following the presentation, the following questions were asked. Mr. Shahpar asked whether the model allows backtracking when selecting PNR lots on a path. Mr. Allen replied, yes, it allows backtracking. Mr. Graye asked what Bentley's role was in developing Arlington County's new Tour-Based Travel Model. Mr. Allen replied that Bentley developed the new travel model. Mr. Ngo asked what program is used to apply the mode choice model, AEMS or Cube scripts. Mr. Allen said the new model uses only Cube scripts. Mr. Xie asked whether switching to multipathing helped with transit validation. Mr. Allen responded, yes, it does. Mr. Liu asked how much extra run time was involved by switching to Public Transport (vs. TRNBUILD). Mr. Allen indicated that the additional model run time is less than 30 minutes.

3. COG/TPB GEN3 TRAVEL MODEL: STATUS REPORT

This item was presented by Mr. Paul, who spoke from a set of presentation slides. Mr. Paul provided an update on the status of Gen3 Phase 1 Model development activities, including data development, ActivitySim deployment, and model estimation. He described the design and organization of the ABM Visualizer tool. He described the trip rate adjustments used in the South East Michigan Council of Governments (SEMCOG) travel survey, based on GPS data. The COG 2017-18 Regional Travel Survey (RTS) might be adjusted in a similar fashion as part of Phase 2. He also described how these adjustments relate to the outputs of the transferred ActivitySim model. Mr. Paul demonstrated the ABM Visualizer and discussed key results from the uncalibrated model. He explained the process to prepare estimation data using ActivitySim's estimation mode. Finally, Mr. Paul provided an update on

Phase 1 model estimations and outlined the next steps in Phase 1 of Gen3 Model development. No questions were asked.

4. 2017/2018 REGIONAL TRAVEL SURVEY IN-DEPTH ANALYSIS

This item was presented by Dr. Joh, Mr. Gao and Ms. Kile, who spoke from a set of presentation slides.

Dr. Joh stated that TPB staff conducted additional analysis on the 2017/18 Regional Travel Survey (RTS) and developed a series of responses to questions from regional stakeholders. He provided an overview of the in-depth analysis of stakeholder questions for the TPB Planning Region. He stated that this presentation is focused on selected questions pertaining to work start and end times, telework eligibility and proximity to high-capacity transit (HCT) stations, and dimensions of peak and off-peak travel.

Ms. Kile presented the findings of work start and end times based on the 2007/08 Household Travel Survey (HTS) and 2017/18 RTS. She pointed out that work start times were very similar in 2007/08 and 2017/18. A slight shift towards later shift start times was observed in 2017/18. Work start times for lower income households tend to be more spread out throughout the day while higher income households are more likely to begin work between 8:15 A.M. and 9:44 A.M. Ms. Kile indicated that there were no notable differences for work end times by income. Work start times for females were highly concentrated in a 90-minute time period, while the start times for males were more spread out in 2007/08 and became more concentrated in 2017/18. She noted that work shifts of federal employers took place during a narrower time frame in 2017/18 than in 2007/08.

Mr. Gao presented findings regarding temporal patterns of teleworking eligibility, frequency and proximity to HCT comparing data from the 2007/08 HTS and the 2017/18 RTS. He explained how proximity to HCT corresponds with telework activities. He stated that telework eligibility has increased in the TPB region by 17% (from 43% in 2007/08 to 57% in 2017/18), which shows how popular teleworking has become in the region. More workers are teleworking one or two days per week and fewer workers are teleworking full time in 2017/18. Workers living or working within a half-mile of HCT (or ten-minute walk) stations are more likely to telework (62%) than outside of a half-mile of HCT stations (32%). Workers living or working within a half-mile of HCT stations are more likely to telework one day per week than workers living outside of a half-mile of HCT stations who are more likely to telework five or more days per week.

Dr. Joh shared the findings of dimensions and characteristics of peak and off-peak travel from the 2017/18 RTS. He indicated that people are more likely to take rail, bus transit, school bus, and bike trips during peak hours. More people travel to and from work and school during peak hours. Trip lengths are generally longer during peak hours, and transit trips are further in distance than other travel modes. Dr. Joh stated that trips tend to be longer in duration during peak hours compared with off-peak hours. Lower income households are much more likely to take bus transit and taxi/ride-hailing trips for both peak and off-peak hours. He concluded the presentation by sharing the link to the in-depth analysis questions and other RTS resources on the RTS website (https://www.mwcog.org/transportation/data-and-tools/household-travel-survey/).

Mr. Liu asked what the average frequency of telework was. Mr. Gao responded that the average teleworking frequency is 2.1 times per week from the 2017/18 RTS, which is lower than the average teleworking frequency from 2007/08 HTS. Mr. Liu also asked to what extent the reduction of HBW trip rates per household can be attributed to the differences in survey questions on telework in the two surveys? Dr. Joh explained that during the development of the 2017/18 RTS survey instrument, the questions from the 2007/08 HTS were carefully reviewed and key survey questions on observed trips were retained from the travel diary. Although there were some differences in the survey instruments for HBW trips, there were only minor differences between the two surveys. Dr. Joh also

stated that the reduction in trips during the past ten years is not only a regional trend but is also reflected nationally.

5. ROUNDTABLE DISCUSSION OF CURRENT MODELING EFFORTS AROUND THE REGION

Mr. Allen stated that Prince William County has started recalibrating their countywide travel demand model to conduct updates to their comprehensive plan. Mr. Shahpar asked if the recalibration is done using the newer Transportation Analysis Zone (TAZ) system or the older TAZ. Mr. Allen responded that the recalibration is done based on the existing/older TAZ structure.

6. OTHER BUSINESS

A. Snapshots of effects of COVID-19 on travel available on COG website

Martha Kile reported that COG/TPB staff has developed the fifth in a series of snapshots to illustrate how the COVID-19 pandemic is impacting travel in the metropolitan Washington region. The intention is to update this report on a regular basis, adding additional travel modes as data become available. 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/. The charts show changes in roadway traffic and aircraft passenger boardings (enplanements) compared to pre-pandemic levels. The current snapshot shows traffic data through May 2021 and enplanements through April 2021. Ms. Kile noted that roadway traffic levels continue to experience a rebound with May 2021 levels almost 90% of 2019 levels region wide.

B. Upcoming guest presentations at TFS meetings in 2021

Mr. Moran discussed the planned guest presentation topics at upcoming TFS meetings:

- September 24: Integrating ActivitySim and Dynamic Traffic Assignment for a medium-sized city in Ohio, by Caliper Corporation.
- November 19: Overview of recent transportation modeling activities at the Prince George's County Planning Department at M-NCPPC (follow-up to an earlier presentation), by AECOM.
- Jan. 2022 (specific date to be determined): Modeling public transport in the Arlington Co. Travel Model, by Arlington Co. and/or Bentley Systems, Inc.

7. ADJOURN

The meeting adjourned at 11:37 A.M. The next meeting is scheduled for Friday, September 24, 2021 at 9:30 A.M.