



TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE SEPTEMBER 18, 2020 MEETING

Meeting time & location: 9:30 AM 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

- Kevin Chai (Fairfax Co. DOT)
- Zuxuan Deng (DDOT)
- Michael Eichler (WMATA)
- Nazneen Ferdous (Jacobs)
- Joel Freedman (RSG)
- Dan Goldfarb (NVTC)
- Eric Graye (M-NCPPC, Montgomery Co.)
- Adam Groves (PTV Group)
- Chetan Joshi (PTV Group)
- David Kline (Fairfax Co. DOT)
- Ria Kulkarni (NVTA)
- Betsy LaRue (PTV)
- Jaesup Lee (M-NCPPC, Montgomery Co.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Atabak Mardan (C&M Associates)
- Vahid Moshtagh (AECOM)
- Krishna Patnam (AECOM)
- Marie Pham (Loudoun Co.)
- Maggie Qi (Fairfax County DOT)
- Harun Rashid (NVTA)
- Amir Shahpar (VDOT)
- Lisa Shemer (MDOT-SHA)
- Aichong Sun (AECOM)
- Malcolm Watson (Fairfax Co. DOT)
- Jongsun Won (PTV Group)

COG STAFF

- Tim Canan
- Anant Choudhary
- Joe Davis
- Yu Gao
- Ken Joh
- Martha Kile
- Sanghyeon Ko
- James Li
- Andrew Meese
- Mark Moran
- Ray Ngo
- Wanda Owens
- Jinchul (JC) Park
- Jane Posey
- Meseret Seifu
- Jackie Sellman
- Dusan Vuksan
- Feng Xie
- C. Patrick Zilliacus

* All meeting participants attended the meeting remotely via WebEx.

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

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

The highlights of the July 17, 2020 meeting of the TFS were approved without changes.

2. TRANSPORTATION IMPACTS OF THE COVID-19 PANDEMIC IN THE NATIONAL CAPITAL REGION

This item was presented by Mr. Meese, who spoke from a set of presentation slides. He also had a memorandum, which was shared with the subcommittee. The presentation was structured as snapshots serving as insights, not definitive conclusions, on the impacts that the COVID-19 pandemic has had on regional transportation since March 2020. Examined were travel and roadway volume impacts; transit and walking impacts; and safety, speeds, and other impacts.

Numerous indicators, such as regional traffic volumes and vehicle miles of travel (VMT), dipped most dramatically in April, but by July had recovered significantly. By contrast, transit ridership, in many cases, had not recovered to the same degree. However, the raw numbers do not tell the stories of utilization as a function of reduced capacity due to social distancing requirements, as well as how important transit, particularly bus transit, remains as a lifeline for critical workers.

Starting in March 2020, regional roadway speeds generally were at free-flow levels, with only a slight reduction since then. But the higher speeds may have contributed to numbers of fatal crashes and major incidents remaining at or above pre-pandemic levels, even with reductions in traffic volumes, according to incident information reported by the Metropolitan Area Transportation Operations Coordination (MATOC) program and VDOT (for the Northern Virginia portion of the region).

Mr. Meese noted some additional considerations. Staff was looking into the long-run availability and timeliness of data sources for this kind of analysis, because there are calls periodically for quick analyses of transportation impacts of events (such as the Pope's 2015 visit to Washington). Challenges also include comparability among data sources, such as geography, time periods studied, and when the "before" condition was defined. Considerations also include ability to query, verify, or "cross-examine" information, and replicability over time.

Mr. Shahpar asked, with teleworking at an all-time high, whether post-pandemic congestion will worsen. Mr. Meese replied that only a fraction of travel is work/commute travel; non-work trips have continued at similar levels; thus, post-pandemic congestion may not end up being significantly higher than historic norms.

In response to a comment about speed limits from Mr. Mardan, Mr. Meese noted that congested urban roads historically have had lower fatal crash rates, due to slower speeds, than rural roads. This could help explain why recent decreases in congestion may have contributed to an apparent increase in fatal crash rates in the region.

3. REGIONAL TRAVEL SURVEY BRIEFING: INITIAL FINDINGS OF OBSERVED DAILY TRIPS

This item was presented by Dr. Joh, who spoke from a set of presentation slides. He provided an update on the 2017/2018 Regional Travel Survey (RTS), a once-in-a-decade household travel survey for the National Capital Region. As part of its ongoing presentations on the findings from the RTS, Dr.

Joh's presentation shared initial key findings from the trip file, focusing on weekday trip rates, trip purpose, mode share, and trip destinations for commute and non-work trips in the region.

Ms. Yuanjun Li asked if work trips are home-based work or simply any work-related trips. Dr. Joh responded that they are home-based work trips.

4. INVESTIGATION OF CUBE VOYAGER PUBLIC TRANSPORT (PT) TRANSIT MODELING SOFTWARE WITH THE TPB'S GEN2/VER. 2.3 TRAVEL MODEL: PROPOSED FARE SYSTEMS

This item was presented by Mr. Xie, who spoke from a set of presentation slides. Mr. Xie presented the proposed fare specifications as part of the recent staff investigation of Cube Public Transport (PT) in the TPB Version 2.3 Model. Mr. Xie started with an overview of transit providers and their various fare structures in metropolitan Washington. He then introduced the proposed representation of fare structures and fare discounts using a PT fare system, and talked about the implementation of the proposed 2018 fare specifications in a developmental Ver. 2.3 Model and the subsequent quality control/quality assurance (QC/QA) checks based on model outputs. He concluded the presentation with general remarks and next steps.

Mr. Moran asked about the advantages and limitations of the PT software relative to TRNBUILD. Mr. Xie responded that PT provides a wide spectrum of fare functions specific to mode, operator or line, thereby enabling a more realistic representation of the various fare structures seen in this region; However, it also increases the complexity of transit modeling and model runtime.

5. COG/TPB GEN3 TRAVEL MODEL: STATUS REPORT

This item was presented by Mr. Freedman, who spoke from a set of presentation slides. Mr. Freedman provided an update on Gen3 Phase 1 Model development activities, including population synthesis and a review of transit on-board survey data. Mr. Freedman described the purpose of population synthesis, the tool used for MWCOC Gen3 population synthesis (PopulationSim), the data used in the procedure, an initial set of population controls, and how the synthetic population procedure will be validated. Mr. Freedman identified the uses of transit on-board surveys in travel model development and provided some examples of well-designed sample plans and survey instruments. Mr. Freedman identified the transit on-board surveys available for Gen3 Model development and shortcomings with data availability and/or quality with respect to model development.

6. CAPACITY-CONSTRAINED PUBLIC TRANSIT ASSIGNMENT ON A MODEL OF THE WMATA METRORAIL SYSTEM

This item was presented by Mr. Joshi and Mr. Groves, who spoke from a set of presentation slides. Mr. Joshi spoke first, discussing capacity constraints models in transit assignment, with the goal of considering the effect of crowding on routes and connection choice in modeling of transit network flows within a travel demand model. The scope of the presentation covered capacity constrained transit assignment methods implemented in Visum. Two such methods, soft and hard capacity constraint were discussed. A greater focus was given to soft capacity constrained transit assignment as it is more in line with the concept of traffic assignment that relies upon volume-delay functions. The key strength of the capacity constrained transit assignment methods in Visum is the consideration of explicit vehicle capacities at a journey level and modeling of time dynamics. The outputs (congested skims) resulting from the transit assignment can be fed into the mode choice model to further influence transit ridership outcomes.

Mr. Groves conducted a demonstration using a test Visum network developed by importing the WMATA transit routes in GTFS format (network) and ticket gate data (passenger flows). The purpose for the demo was to demonstrate transit assignment algorithm implementation and outputs.

Mr. Freedman asked about the possibility of shadow price feedback in exponential form and the possibility of using a non-linear delay function to model capacity. Mr. Joshi said that shadow pricing is possible by selecting the logit form for the overall impedance (generalized cost) function as well as by using matrix operations on the discomfort skim output. For a non-linear delay form, PTV currently has a non-linear function implemented for Swiss Rail (SBB) that can be used to model non-linear penalties for oversaturation.

Mr. Freedman asked about the application of delay/penalties at the stop boarding level in addition to the penalty applied at the journey level (e.g., discomfort within the vehicle). PTV staff noted that boarding penalties can be modeled as an additional delay in Visum by activating and specifying the option for extended impedance. This allows a custom formula specification for modeling stop boarding delay. Note that this option is not applied as a default.

Mr. Eichler asked about a column chart output from Visum extending to greater than one hour. PTV clarified that the output was not for travel time, but rather stop- and line-level boardings by time-slice. Since the data was passenger flow (for the AM period), it encompassed multiple hours. Since the transit assignment considers time dynamics, this was reflected in the output that spanned multiple hours over 15-minute time slices.

Mr. Eichler asked about the possible increase in the runtime of the transit assignment calculation due to capacity constraint. PTV noted that the runtime for the WMATA test network did not see a significant increase in runtime due to capacity constraint. The runtime for the test (i.e., network with soft capacity constraint) was a little over one minute.

7. OTHER BUSINESS

A. Big Data Evaluation

Mr. Canan said that the consultant for the Big Data Evaluation has delivered the final report to COG staff. Review is currently underway. Also, a contract amendment has been made to extend the contract and determine the next steps.

B. Planned Review of Transportation Surveys Measuring Short- and Long-Term Impacts to Travel Behavior from COVID-19 that Inform Regional Transportation Planning

Dr. Joh noted that COG's Planning Data and Research (PDR) Team plans to conduct a review of transportation surveys to determine the short- and long-term impacts of COVID-19. A literature review will be conducted of transportation surveys throughout the U.S. One of the deliverables will be a list of transportation surveys focusing on COVID-19.

C. Snapshots of traffic during the COVID-19 pandemic

Ms. Kile announced that COG will post monthly traffic snapshot during the COVID-19 pandemic on the COG website in the coming months. Source data includes the continuous traffic count data from the state DOTs. Other data should be added over time.

D. Scheduling TFS presentations for CY 2020

Mr. Moran noted that TPB staff try to schedule at least one external/non-COG presentation at each TFS meeting. People interested in scheduling a presentation at a future TFS meeting are urged to contact Mr. Moran.

E. Next scheduled meeting

The next meeting is scheduled for Friday, November 20, 2020 at 9:30 A.M. Eastern/6:30 A.M. Pacific

8. ADJOURN

The meeting adjourned around 12:00 noon.