



TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE MARCH 17, 2017 MEETING

Meeting time & location: 9:30 AM to 12:00 noon, Metropolitan Washington Council of Governments

MEETING ATTENDEES

MEMBERS, ALTERNATES, AND PARTICIPANTS

- Trent Berger (Prince William County DOT)
- Melissa Chow (WMATA)
- John (Jay) Evans (Cambridge Systematics)
- Eric Jenkins (Loudoun Co. DTCI)
- Bob Josef (VDOT)
- Jaesup Lee (M-NCPPC, Montgomery Co.)
- Li Li (Whitman, Requardt & Assoc.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Krishna Patnam (AECOM)
- Maggie Qi (Fairfax County DOT) *
- Amir Shahpar (AECOM)
- Jiaxin Tong (Kimley-Horn & Assoc.) *
- Lihe Wang (Transurban)
- Jongsun Won (PTV Group)

COG STAFF

- William Bacon
- Anant Choudhary
- Charlene Howard
- Ken Joh
- Arianna Koudounas
- Ron Milone
- Jessica Mirr
- Mark Moran
- Dzung Ngo
- Jinchul (JC) Park
- Jane Posey
- Meseret Seifu
- Dusan Vuksan
- Feng Xie
- Jim Yin

* Attended the meeting remotely via WebEx/teleconference

This meeting of the Travel Forecasting Subcommittee (TFS) was chaired by Ms. Chow.

1. INTRODUCTIONS AND APPROVAL OF MEETING HIGHLIGHTS FROM THE JANUARY 27 MEETING

After introductions, the highlights from the January 27, 2017 meeting of the TFS were approved without change.

2. UPDATE ON FY 2017/18 UPWP ACTIVITIES

Mr. Milone informed the subcommittee that TPB staff will move forward with an “off-cycle” Air Quality Conformity (AQC) analysis in the current fiscal year. The analysis will be referred to as the “VDOT and MDOT Amendments to the 2016 CLRP” and will include a limited number of project updates. The off-cycle analysis will consider the same methods and planning assumptions used in the recently completed study of the 2016 CLRP, and will be completed in October of 2017. Mr. Milone said that initial phases of the quadrennial update of the FY 2018 CLRP have already begun and will continue through October 2018. The AQC analysis of the 2018 CLRP will involve a new set of land activity forecasts (Round 9.1) and possibly the use of a new travel demand model that is now in development.

Mr. Jenkins asked when the Round 9.1 would be available. Mr. Milone said that it would likely be available around April 2018.

3. 2016 CLRP NETWORK REPORT

Ms. Seifu announced that TPB staff had completed a draft report describing the currently adopted 2016 CLRP transportation networks, which are inputs to the regional travel demand model (Ver. 2.3.66). She highlighted the network report outline and some new components of the 2016 CLRP networks. Ms. Seifu presented summary tables showing end-to-end tolls and toll rates on Virginia managed lane facilities by year, time-of-day period, and direction. She welcomed feedback from the subcommittee on the draft report within a 30-day review and comment period. She noted that the draft report would be uploaded to the TFS webpage after the TFS meeting.

No questions were asked regarding the presentation.

4. FY 2017 SHORT TERM MODEL IMPROVEMENTS TASK ORDER: STATUS UPDATE

Mr. Evans presented the work plan and some key recent activities regarding Task Order 17.2 (short-term model improvements to the current TPB regional trip-based travel demand model). He reported that Cambridge Systematics (CS) had finished data processing and integration of the household travel survey (HTS), the two geographically focused HTSs, and three transit on-board surveys into one master calibration file. CS is now performing mode choice model estimation using the merged file. Mr. Evans discussed the value-of-time (VOT) segmentation, which is being proposed to be added to the model primarily to support managed-lane enhancements. He said that the next steps would be to complete the model estimation and then to conduct model implementation, model calibration and validation.

Mr. Patnam asked why the VOT was divided into three segments. Mr. Evans explained that the purpose was to keep the model’s run time reasonable when introducing VOT segmentation to the highway assignment. He noted that two segments are too broad, and more than three could increase the model run time significantly.

Mr. Patnam asked how the VOT segmentation would be passed on to the highway assignment. Mr. Evans said that this is done by segmenting the trip tables into the three VOT segments, as shown on slide 15. Mr. Evans noted that these improvements are an incremental improvement to the current regional trip-based model. He noted that, if, however, you are doing an investment-grade study on a corridor with managed lanes, you may want to do some sub-area modeling.

Ms. Yuanjun Li asked whether the VOT segmentation is used in only the highway assignment step. Mr. Evans and Mr. Liu said that it would also be used in the mode choice and skimming processes.

Ms. Yuanjun Li asked whether VOT is segmented only by income group, not by trip purpose. Mr. Evans said that the VOT segmentation is, in fact, done by trip purpose, but only two purposes are considered: HBW and Non-HBW. Mr. Evans noted that there is a technical memo on the subject, which could be released to the subcommittee for further clarification.

Mr. Wang commented on the important role of the value of reliability (VOR) on managed lane modeling and asked whether CS had a plan to incorporate the VOR to the COG/TPB model. Mr. Evans said that such an enhancement is not planned as part of the current work.

Mr. Milone noted that, as part of the non-motorized modeling and mode choice modeling, staff is interested in the connection between transit accessibility and walk times, e.g., computing walk-access-to-transit times from finer zone-level information, such as what would be available from Census Blocks. Mr. Evans said that this interest should be addressed.

Mr. Patnam asked whether the deliverables would be a calibrated model which includes all three improvements. Mr. Evans said that it is correct, but he noted that COG staff would spend time to test the model before it is available for public use.

Noting that there are different software packages to apply a mode choice model, Mr. Patnam which package CS plans to use. Mr. Liu said that CS would implement a “shallow” mode choice structure, which is similar to the one that the Baltimore Metropolitan Council (BMC) is using in their activity-based model (ABM). Mr. Liu and Mr. Evans said that CS was considering four packages: AEMS, TRANSIMS ModeChoice, TourCast, or Cube Voyager. Mr. Evans and Mr. Milone noted that the current plan is to use a Cube Voyager script. While the scripting option involves higher computing times, the simpler choice set being used in the proposed mode choice model will presumably offset those increased running times. Mr. Liu noted that the CS recommendation in the FY 16 Task Order was to use Cube Voyager.

Mr. Shahpar asked whether the skims used in mode choice would be stratified by VOT segmentation. Mr. Evans said they would.

Mr. Shahpar asked about assumptions for initial wait times for commuter rail and asked about modeling the level of reliability with transit service. On the first issue, Mr. Evans noted that there are a couple of different approaches that can be taken, given the fact that most people using commuter rail know the schedule and plan their arrival time at the boarding station accordingly. On the second issue, Mr. Evans noted that it is difficult to forecast reliability in the future.

5. 2017-2018 REGIONAL HOUSEHOLD TRAVEL SURVEY: STATUS REPORT

Dr. Joh provided a status report on the survey pre-test, which is currently underway. He discussed the survey strata, their demographic and commuting characteristics, the pre-test of rMove (the mobile app) and rSurvey (the web-based interface), the survey pre-test status/response rates, and the updated project schedule. Regarding response rates, he reported that the current overall recruitment

rate for both smartphone and web only segments was 6%, though this could change slightly, since the pre-test will continue for another ten days (it ends on March 27). He said that the next step would be to wrap-up survey pre-test, analyze the pre-test results, make survey refinements, and follow-up the non-response cases of the pre-test. Dr. Joh said that he would report the findings to the TFS in the May TFS meeting.

Mr. Milone asked whether the five “Super Strata,” shown on slide 3, are mutually exclusive. Dr. Joh said they are. Mr. Milone asked how the geographic strata of a county were categorized into either “S3: Suburbs – High Density” or “S4: Suburbs – Low Density”. Dr. Joh explained that the “S3: Suburbs – High Density” strata is determined by the activity centers’ boundaries, which include the Rosslyn – Ballston corridor, Bethesda, and concentrated activity nodes that have higher rates of transit, bike, and pedestrian activity. Areas outside of those boundaries belong to the “S4: Suburbs – Low Density” strata.

Mr. Patnam asked whether the actual survey will require the user to respond electronically, i.e., with rMove or rSurvey. Dr. Joh said that an electronic response is preferred, but noted that survey respondents will be able to choose to complete the survey via telephone, if they do not have access to a computer or smartphone.

Ms. Li Li asked how the survey records travel information for children. Dr. Joh replied that both rMove and rSurvey would ask the adult of the household to record the travel for their children under 16 years old (this is known as proxy reporting). Trips that are made separately from a parent need to be added separately. Mr. Moran noted that the rMove app reminds respondents, at the end of each day, to remember to record any travel made by children in the household. Dr. Joh concurred.

Mr. Wang asked whether rMove would record paths and travel lanes of a trip. Dr. Joh responded that the app, which is developed by RSG, Inc., uses GPS to record the path, but it cannot distinguish different lanes. He noted that the paths of an auto trip are recorded quite accurately, but the paths of a transit trip, such as a Metrorail trip going through an underground segment, may not be traced correctly since GPS signal loss may occur. Dr. Joh mentioned that the app would ask users whether the trip uses a HOV-lane or a HOT-lane facility.

Mr. Milone asked how rMove distinguishes a stop as being either a temporary stop during a trip or the actual trip destination. Dr. Joh said the app has a tolerance setting of about three minutes. A stop longer than this threshold is considered a final destination for a trip, although the user can indicate in rMove that this was just a temporary stop during the trip. In the case of a temporary stop, for example, during a Metrorail trip with a transfer, rMove allows users to join the two trips together. He added that rMove also allows users to break a trip to smaller trips if the users stop for a purpose, such as to pick up a cup of coffee.

Mr. Jenkins asked whether rMove would detect the travel modes of a trip. Dr. Joh said it would not automatically do this, so users need to manually enter this information.

Mr. Milone asked what feedback and inquiries had been received so far about the survey. Dr. Joh said that the number one question is, “What do I get for participating in this survey?” He noted that the survey does provide a financial incentive to complete the survey. For a household that completes the survey using the rSurvey web-based interface, a \$10 gift card is offered (\$20 gift card for a household with a lower than \$50k household income). For a household that completes the survey using the rMove mobile phone app, a \$20 incentive per qualifying household member (16+ years of age with a smartphone) is offered, since rMove requires more time to input trip information and lasts for a longer data collection period (7 days for rMove, 1 day for rSurvey). Dr. Joh added that other

feedback included questions asking how to register for the survey and an inquiry from a local government official regarding the precision of the paths recorded by rMove.

For the survey pre-test, 16,020 households were randomly selected and invited to participate. Of these, 50% were selected to use the rMove mobile app (although not all households in this segment were eligible to participate in rMove) and 50% were selected to use the rSurvey web-based interface (slide 7). Mr. Lee asked which proportion would result in the highest response rate, given the differing retrieval rates of the two segments (slide 8). Dr. Joh said that we have not made a final decision on what split to use, but he noted that the differences of the retrieval rates between two survey methods would be considered when choosing the split to use for the main survey. He also noted that a household cannot choose one survey method over the other; they are selected by COG to be in one of the two samples, to avoid self-selection bias.

Ms. Yuanjun Li indicated an interest to see response rates by age when analyzing the survey results. Dr. Joh replied that staff would do that along with analyzing the effects of other socio-economic attributes.

6. FAIRFAX COUNTY TRAVEL DEMAND FORECASTING UPDATE

This presentation was made by Mr. Liu (David Kline, Fairfax County DOT, was unable to attend today's meeting). The presentation focused on the use of the Fairfax County Travel Demand Forecasting Model, including supporting software, to conduct several studies in Fairfax County. Mr. Liu discussed the background, enhancements of the model, and some model applications, including Tysons/Reston Plan Updates, Route 1 BRT Study, Fairfax County Parkway Corridor Study, Dulles Suburban Center Study, and Huntington Area Transportation Study.

In the Dulles Suburban Center Study, various land use scenarios were tested (slide 14). Mr. Josef asked whether making such tests resulted in a full re-run of the travel model. Mr. Liu said that it did, adding that the land use data, which was developed by Fairfax County's Department of Planning and Zoning, was aggregated to the TAZs of the COG/TPB model.

Regarding the Fairfax County Model (slide 10), Mr. Vuksan asked whether they had made any changes to mode choice or transit. Mr. Liu confirmed that the COG mode choice model is not changed since the Fairfax County model is just a highway-assignment post process of the COG/TPB model (it includes no transit component). Mr. Vuksan also asked which model was used for the Route 1 BRT Study. Mr. Shahpar said that Version 2.3.57a of the COG/TPB model was used to get trip tables, which were the inputs for Fairfax County Model. Mr. Shahpar noted that Fairfax County Model has more details and a finer zonal level than the COG/TPB model.

Mr. Milone asked whether Fairfax County used specific performance goals for the validation of the subarea studies. Mr. Liu said that the subarea studies were validated with the traffic counts in the study areas. Mr. Liu noted that the procedures were based on Virginia Department of Transportation's Travel Demand Modeling Policies and Procedures, developed by CS.

Mr. Tong commented that some of the effects being studied may have impacts beyond the subarea. He asked whether a more integrated, multi-resolution model might be considered for these studies. Mr. Liu said that a multi-resolution model could be an incremental solution to addressing these issues and had been implemented in some subarea studies. He noted that, for some subarea studies, it was assumed that all impacts would be local to the areas, when considering mitigation measures.

The subcommittee discussed the benefits of using microscopic, mesoscopic, and macroscopic models for various transportation planning studies.

Mr. Patnam asked how the trip tables of the base and future scenarios were generated. Mr. Liu said that, regarding the Huntington Area Transportation Study, origin-destination matrix estimation (ODME) was conducted for the base year, which was then used as a “seed” table to create the future-year trip table. For the Fairfax County Parkway Study, Kimley-Horn & Associates used both macro and mesoscopic models to generate the ODME for the subarea of the base year, which was then taken as a “seed” OD table to grow for the future year. This procedure follows the guideline of NCHRP Report 765. The subcommittee then discussed the methodology.

A member asked how long the study took. Mr. Liu said that Fairfax County Parkway Corridor Study was a two-year project, which involved multiple parties and phases.

7. NEXT MEETING DATE AND OTHER BUSINESS

The next scheduled meeting of the TFS is Friday, May 19, 2017 from 9:30 AM to 12:00 noon. There was no other business. The meeting adjourned around noon.

*** The meeting highlights were prepared by Dzung Ngo, Mark Moran, and Ron Milone ***

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