**National Capital Region
Transportation Planning Board**

TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE NOVEMBER 18, 2016 MEETING

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

MEETING ATTENDEES

MEMBERS, ALTERNATES, AND PARTICIPANTS

- Bill Allen (Citilabs)
- Melissa Chow (WMATA)
- Nobuhiko Daito (NVTC)
- John (Jay) Evans (Cambridge Systematics)
- Dan Goldfarb (NVTC)
- Eric Graye (M-NCPPC, Montgomery Co.)
- Bob Josef (VDOT)
- Li Li (Whitman, Requardt & Assoc.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Sree Nampoothiri (NVTA)
- Harun Rashid (NVTA)
- Jongsun Won (PTV Group)

COG STAFF

- William Bacon
- Anant Choudhary
- Joe Davis
- Wanda Hamlin
- Hamid Humeida
- Ken Joh
- Arianna Koudounas
- Ron Milone
- Jessica Mirr
- Mark Moran
- Dzung Ngo
- Jinchul (JC) Park
- Jane Posey
- Sergio Ritacco
- Rich Roisman
- Meseret Seifu
- Dusan Vuksan
- Feng Xie
- Lori Zeller
- C. Patrick Zilliacus

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

1. INTRODUCTIONS AND APPROVAL OF MEETING HIGHLIGHTS FROM THE SEPTEMBER 23 MEETING

After introductions, the highlights from the September 23, 2016 meeting of the TFS were approved without change.

2. STATUS REPORT ON COG/TPB'S TRAVEL DEMAND MODELING IMPROVEMENT EFFORTS

This presentation comprised two parts: First, Mr. Moran briefed the subcommittee on Task Order 17.2, Short-Term Model Improvements, including a status report on work conducted by COG/TPB staff as part of the task order. Second, Mr. Evans and Mr. Liu presented a status report on work performed by the consultant team on this task order. Also, Mr. Moran announced that Cambridge Systematics, Inc. (CS) had finalized the FY 16 report and that staff had uploaded the report to the TFS webpage.

Regarding COG/TPB staff work on Task Order 17.2, Mr. Moran said that staff had been preparing the model estimation database requested by CS and the year-2007 transportation network in Public Transport (PT) format. Staff planned to send the files and data sets to CS by the end of November.

Mr. Milone said that staff had identified two issues regarding Census Block geography. First, Census Blocks do not typically nest neatly within the TAZ geography. Second, TAZ boundaries do not completely conform to the street network. Mr. Josef asked whether this meant that TAZs would be split. The existing TAZ system will not be altered, but information developed at the finer Census Block geography may be considered in the modeling of non-motorized modes. Mr. Moran noted that when the TAZ boundaries were originally developed, they were not built from Census Blocks, so one should not expect the two zone systems to nest.

Mr. Josef commented that VMT had declined in the period from 2007, the model calibration year, to 2014, the model validation year of the upcoming model. He asked whether additional data is needed to reflect the VMT decline for both the validation and a better future forecast. Mr. Milone said that after doing a model calibration for the year 2007, the model would be applied for the forecast year, 2014, and would be compared to observed data, such as traffic counts. Then, depending on whether the differences were due to the model or due to conditions outside of the model, staff would decide the next steps. Mr. Moran commented that using empirical data has advantages and disadvantages. He also said that, although the new survey data would be useful for model calibration, the data would not be ready for two or three years. Mr. Evans reminded the subcommittee that Task Order 17.2 would update only some components of the model; others would be kept the same.

Mr. Milone noted that, although there has been a lot of discussion about Census Block-level data, the current TPB model is a TAZ-level model and the revised TPB model, which should be ready by the end FY 17, would also be a TAZ-level model. All the Census Block geography information that is being considered for this year's model update would ultimately be generalized to the TAZ level.

Regarding CS's presentation, Mr. Liu presented the sections discussing non-motorized model and mode choice model enhancements; and Mr. Evans presented the section discussing managed lane components.

Mr. Milone said that working with a network in PT format seemed more challenging than working with a network in TRNBUILD format. Staff plans to share its experiences with CS.

3. **A COMPARISON OF RECENT HOUSEHOLD TRAVEL SURVEYS: 2007/08 HH TRAVEL SURVEY (HTS) VERSUS THE 2011/2012 GEOGRAPHICALLY-FOCUSED HH TRAVEL SURVEYS (GFHTS)**

Mr. Milone briefed the subcommittee on data comparisons between the 2007/08 HTS and 2011/2012 GFHTS, which include the comparisons on household demographic attributes and trip-making attributes. The household attributes included size, income, and vehicle availability. Trip attributes included trip purpose distribution, travel mode distribution, daily trip rates, and daily trip rates by household size, vehicles available and income group. He concluded that three surveys are reasonable and comparable for use in model development activities.

No questions were asked regarding the presentation.

4. **2017-2018 REGIONAL HOUSEHOLD TRAVEL SURVEY: STATUS REPORT #3**

Dr. Joh announced that the official name of COG/TPB Household Travel Survey is the Regional Travel Survey (RTS). He noted that the official name does not contain the word "Washington" since some parts of the surveyed area are so far from Washington, D.C. that the name "Washington" could actually dampen the response rate. He discussed the survey questionnaire and other materials; survey sampling plan; and project schedule. Dr. Joh said that the next steps would include the procurement of an address-based sample, testing of the latest version of rMove (a smartphone app), and developing the project website and mailing schedule.

Regarding a two-week-long pretest (slide 6), Mr. Milone asked whether the survey would include weekend days. Dr. Joh said that it would. Mr. Milone asked whether the household participants of the pretest would get incentives. Dr. Joh said they would. He noted that higher incentives would go to households that are more difficult to reach and/or are using the smartphone app survey, which requires more work than the traditional survey approach.

Ms. Li asked whether the survey would consist of a one-day household travel diary, noting that many surveys used for development of activity-based models rely on multi-day surveys. Dr. Joh said it would be a single-day survey.

Ms. Li noted that slide 8 implied that the survey would be conducted in May and June, which is a period where many schools are out of session, which would thus not reflect a typical travel day. She commented that the travel pattern would be different in summer time due to the school break when the survey would be conducted. Mr. Roisman noted that the May/June period is simply the planned beginning of the data collection, which would run for 12 months, so the seasonal variation of the summer should not cause any problems.

Mr. Allen shared his experience working with the survey conducted by the City of Charlotte, NC. He said that the income question in the 2002 survey included 10-12 income categories, which resulted in a response rate of only 50-60%. By contrast, the income question of the 2012 survey was revised to have only four income categories, which resulted in a 95% response rate. Mr. Allen noted that an income question requires respondents to sum up all the incomes of all household members. If the income ranges in the response are small, the respondents have difficulty figuring out which income range is the correct one to choose. By having only four income categories, the question was easier for the respondents to answer. Mr. Roisman said that staff is looking at a number of strategies to minimize item non-response for the survey question.

Mr. Evans noted that the last HTS had about 30 geographic strata, but the plan for this survey was to have 50 to 60 geographic strata (slide 7). He noted that many of the recent HTSs have only a few

strata, targeted more around household characteristics, not geography, so he wondered why the COG team was planning to use so many strata. Dr. Joh said that the baseline was the 2007 HTS. He noted that it was the TPB staff, not the survey contractor, who was designing the new strata. In the 2007 HTS, the geographic strata were based on jurisdiction (DC, Montgomery Co., etc.).[1] This time around, the plan was to include a population density component as well, but Dr. Joh noted that the survey instrument has not been finalized yet. Mr. Evans said that sometimes it's more challenging to meet the targets for a large number of strata. He noted that, in some other surveys, people appeared to be reluctant to participate, which makes it difficult to achieve the sample quotas. Regarding hard-to-reach populations, one example would be large households, since these tend to have a low response rate and also different travel patterns, and many transit dependents. Dr. Joh thanked Mr. Evans for the suggestions. Mr. Milone added that the use of density as a basis to identify geographic strata was driven largely by the desire to have a good representation of under-represented travel modes, such as walk or transit in the suburbs. Mr. Evans said that an alternative approach to the geography-based method would be to sample the ACS or Census Block geographies that have high predominance of the characteristic of interest. Mr. Evans suggested that TPB staff discuss the issue with the survey consultant.

Mr. Moran noted that he was not a fan of the generic name chosen for the survey, which does not include the phrase "Washington, D.C." Mr. Roisman said that the reason the generic name was chosen was to get a higher response from areas outside of D.C.

Mr. Milone mentioned the difference between linked and unlinked trips, noting that the current model is calibrated with linked trips. He asked, however, whether one needs the unlinked trip information to develop an activity-based model (ABM). Mr. Liu said that the 2007/08 HTS data should work well for developing either a trip-based model or an ABM, as was done for the Baltimore ABM. He noted that if one has more detailed trip chaining information, that could be useful for model calibration and validation. Mr. Milone asked whether the validation would be conducted for trip segments. Mr. Liu said that the transit assignment would be still at an aggregate level. Mr. Moran asked whether an ABM needs the unlinked trips for path-building validation. Mr. Liu said that the unlinked trip information could be helpful for further validation.

Mr. Liu asked whether there had been any recent developments with using GPS-enabled smartphones for data collection, noting that a GPS signal can be lost when a survey respondent is on a Metrorail train that goes underground. Dr. Joh said that that was one of the big issues identified during the beta testing. Dr. Joh noted that RSG, the survey contractor, is working to make improvements in this area.

Mr. Allen commented that when calibrating an ABM, one needs to have information about all trips that are part of a tour, which is different from a trip-based model. Since a complete tour for each respondent is necessary for model calibration, the smartphone survey application may be helpful by checking and asking the respondent to complete the missing information. By contrast, it would be much more challenging to fix the missing information if the survey is conducted via the mail, since the respondent may forget the information after a few days. He suggested having process that sends survey respondents reminders if they appear to report only a subset of the trips in their tours. Mr. Roisman said that staff expects about 95% of the responses would be collected using the smartphone application or web retrieval. Nonetheless, COG would offer the option of completing the survey via mail or telephone for those who cannot or will not select the smartphone app or web-

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[1] See, for example, NuStats, "2007/2008 COG/TPB Household Travel Survey: Draft Report of Methods" (Metropolitan Washington Council of Governments, July 15, 2008), 68.

based application. He noted that some logic would be built into the application or the web retrieval survey options to improve the quality of the survey data.

Regarding the GPS loss when using Metrorail, Mr. Moran note that there are plans by WMATA to have cell phone service and Wi-Fi in underground stations and tunnels at some point, and he wondered if that could help with the loss of GPS signals. He asked about the status of WMATA's efforts to add cell phone and Wi-Fi coverage in underground areas. Ms. Chow said that she did not have any updates on the status of this WMATA work program. Mr. Roisman noted that GPS coverage in the underground sections of Metrorail are not mandatory, as long as the GPS system can capture your position as you go into the Metrorail system and as you leave it. However, in the beta tests, they found that, because it takes a while to establish the GPS signal, it was hard to determine precisely which Metrorail stations were being used, particularly in the downtown area.

Mr. Liu asked whether there was any concern that there would be survey bias in terms of the elderly using the web-based retrieval option. Mr. Roisman said that COG would offered alternative retrieval methods (e.g., mail or telephone) for those who want it.

Ms. Li noted in the multi-day travel survey data she worked with in Oregon, there were problems when a tour did not start or end at home. In these cases, it was sometimes necessary to throw out the incomplete survey data. Dr. Joh noted that our survey contractor has a lot of experience and has built in survey validation checks to help ensure that survey respondents provide complete information.

5. TPB REGIONAL TRANSPORTATION DATA CLEARINGHOUSE

Ms. Howard briefed the subcommittee on updates to the Regional Transportation Data Clearinghouse (RTDC). Two data sets were updated: 1) Metrorail average weekday ridership from March 2016 to October 2016 and 2) joining the Round 9.0 Cooperative Forecasts to TPB TAZs. Four new data sets were added: a TPB freight-significant network, managed lanes, truck restrictions, and the 2015 highway performance monitoring system (HPMS) data.

Regarding managed lanes spatial data, Mr. Milone asked whether it includes the access and egress ramps. Ms. Howard said that access and egress ramps are not currently part of the spatial data, but she added that this could be added to the database in the future. Mr. Milone asked whether the HOT-lane links are aligned with the HERE streets layer. Ms. Howard said that they are.

6. 2016 CLRP ADMENDMENT: PERFORMANCE ANALYSIS OF THE DRAFT 2016 CLRP ADMENDMENT

Mr. Milone announced that Transportation Planning Board (TPB) approved Air Quality Conformity Analysis of the 2016 Constrained Long-Range Plan (CLRP) Amendment and the 2017-2022 Transportation Improvement Plan (TIP) at the TPB meeting on November 16. Staff will prepare a transmittal package including regional networks and model input and data files which will be ready by the end of the calendar year.

This presentation comprised two parts: 1) Ms. Zeller presented an overview of the CLRP, some key inputs to the 2016 CLRP Performance Analysis, and a description of how the CLRP promotes the objectives of the TPB's Regional Transportation Priorities Plan (RTPP); 2) Mr. Ritacco presented an analysis of the 2016 CLRP Amendment in a number of key areas: transit accessibility and connectivity, people's travel mode choice at the regional and sub-regional level, roadway congestion, job accessibility, and motor vehicle emissions.

Regarding slide 24, Mr. Nampoothiri asked whether the activity centers used in the base year (2016) would be the same as those in the future year (2040). Mr. Ritacco said there would be no change in the definition of the activity centers.

At the conclusion of the presentation, Mr. Milone commented that this presentation is useful for those who will be requesting the regional model, so that they will know what to expect. For example, congestion is increasing over time, despite the new transportation projects in the CLRP, due, in part, to an increase in both population and households.

Mr. Allen commented that, since it is expected that by 2040, the region will add 1.2 million people (slide 4) and 940,000 jobs (slide 5), this implies that there will be an increase in in-commuting. Mr. Allen asked whether the forecasted traffic volumes at the external stations reflect this assumption.[2] Mr. Milone agreed, noting that the growth rates for traffic at the external stations are relatively consistent with the growth in employment. Mr. Milone also agreed that the region will see a higher degree of in-commuting

7. ANNOUNCEMENT OF NEW CHAIR FOR 2017

Mr. Moran said that the chair of the TFS rotates on a calendar-year basis between four entities: Maryland, the District of Columbia, Virginia, and WMATA. Since this was the last meeting of the calendar year for the TFS, Mr. Moran noted that it was time to announce the new chair of the TFS for 2017. First, he thanked Mr. Josef of VDOT, the current/outgoing chair, and presented him with a certificate of appreciation, signed by the chair of the TPB. Next, Mr. Moran announced that the new chair for 2017 would be Ms. Chow, who represents WMATA. Her term would begin on January 1.

8. NEXT MEETING DATE AND OTHER BUSINESS

Mr. Josef said that he had recently attended a TMIP webinar called "Dynamic traffic assignment (DTA): A practical approach" and suggested that other subcommittee members might find it useful. Ms. Li said that Montgomery County is working with its consultant to incorporate DTA in the county's modeling process for project planning studies.

The next scheduled meeting of the TFS is Friday, January 27, 2017 from 9:30 AM to 12:00 noon. That meeting is a week later than normal due to the Presidential Inauguration on January 20. The meeting adjourned around noon.

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

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[2] "In commuting" refers to people who live outside the planning or modeled area, but commute to a job within the planning or modeled area. The statistics for today's presentation pertain to the TPB planning area. However, the external stations, referred to in Mr. Allen's subsequent question, are located on the boundary of the modeled area.