National Capital Region
Transportation Planning Board

TPB TRAVEL FORECASTING SUBCOMMITTEE

HIGHLIGHTS OF THE SEPTEMBER 23, 2016 MEETING

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

MEETING ATTENDEES

MEMBERS, ALTERNATES, AND PARTICIPANTS

- Robert Brown (Loudoun Co.) *
- Melissa Chow (WMATA)
- John (Jay) Evans (Cambridge Systematics)
- Nazneen Ferdous (CH2M HILL)
- Dan Goldfarb (NVTC)
- Eric Graye (M-NCPPC, Montgomery Co.)
- Bob Josef (VDOT)

- David Kline (Fairfax County DOT)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Sree Nampoothiri (NVTA)
- Steve Weller (CH2M HILL)
- Jongsun Won (PTV Group)

COG STAFF

- Andrew Austin
- William Bacon
- Anant Choudhary
- Wanda Hamlin
- Hamid Humeida
- Kenneth Joh
- Andy Meese

- Ron Milone
- Mark Moran
- Dzung Ngo
- Jinchul (JC) Park
- Jane Posey
- Rich Roisman
- Meseret Seifu

- Jon Schermann
- Dusan Vuksan
- Feng Xie
- Jim Yin
- C. Patrick Zilliacus

* Attended the meeting remotely via WebEx/teleconference

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

1. INTRODUCTIONS AND APPROVAL OF MEETING HIGHLIGHTS FROM THE JULY 22 MEETING

After introductions, the highlights from the July 22, 2016 meeting of the TFS were approved without change.

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

Regarding the FY 16 end-of-fiscal year report that was shared with the TFS at its July 22 meeting, Mr. Moran said that there were no comments received from the TFS within the 30-day review and comment period. Nonetheless, COG/TPB staff had some comments, which were shared with Cambridge Systematics, Inc. (CS). He said that CS had updated two sections of the report and added two other sections to the report (Task 9, Revise Bus Speed Linkage to Highway Speeds, and Task 13, Develop Census and Household Travel Survey Database). Mr. Evans indicated that these two sections/memos would be shared with the TFS today via the TFS webpage, with a 30-day review and comment period ending Oct. 22. After that, the entire FY 16 report would be finalized, incorporating any comments received. Regarding FY 17 activities, Mr. Moran and Mr. Milone briefed the subcommittee on the staff's recent work efforts. Finally, Mr. Moran reminded the subcommittee about the plan that Phase 1 of the Strategic Plan (i.e., updates to the trip-based model) would be completed by the end of FY 17. This phase would include three main areas: 1) Non-motorized enhancements; 2) Mode choice model enhancements; and 3) Managed-lane modeling. Since the scope of work concerning these enhancements was still being developed, he said that the TFS would be briefed on the details at the Nov. TFS meeting.

Regarding the graph (slide 9) showing daily counts (Average Annual Weekday Traffic, or AAWDT) versus hourly counts (summed to daily totals), Mr. Josef noted that it appears that as the volume increases, the volume difference also seems to increase. He wondered why such a pattern is appearing. Mr. Milone said that he did not have an immediate answer, so he would look into it.

Mr. Josef asked how quickly TRANSIMS ModeChoice runs. Mr. Moran said that it runs faster than the existing mode choice application program (AEMS).

Mr. Goldfarb voiced concern that, as far as he knew, there is only one software developer who knows and supports the TRANSIMS ModeChoice application program. Mr. Moran indicated that mode choice application software has always been complex. He noted that ModeChoice, unlike AEMS, is open-source software, which means that it is available for review by anyone. However, he noted that just because it is open source, does not necessarily mean that it actually gets widely reviewed. Mr. Milone said staff would take this concern into account in the future work. Mr. Moran explained that the main reason that the COG/TPB model uses a specially built program, written in a different language than Cube Voyager script, is to save run time. Mr. Moran said that a simpler mode choice process than that of the COG/TPB model may still give a reasonable run time when it is coded in Cube Voyager scripting.

Mr. Graye asked what are the benefits of the software migration from AEMS to ModeChoice. Mr. Moran noted some benefits and said that he could share the memo fully listing them.[1] Mr. Evans said that the proposed plan for mode choice is to move some complexity (e.g., transit sub-mode choice) from mode choice to transit path building. He said that this simpler mode choice model should be able to be coded in Cube Voyager script with acceptable run times. Mr. Liu said that the Baltimore Metropolitan Council (BMC) model, which is currently built, also uses Cube Voyager scripting to code its mode choice model.

Ms. Li indicated the desire to have better transit network coding at a finer, more granular level. Mr. Milone said that staff will continue improving the network coding, but he noted that the COG/TPB model is a regional model, which is often then used as a base for project-level planning studies (often with further refinement in the corridor of interest). The subcommittee had a further discussion on the topic.

3. THE 2016 CLRP AMENDMENT

Mr. Austin briefed the subcommittee on the key network updates of the draft 2016 Amendment to the 2014 Constrained Long Range Transportation Plan (CLRP), which was the basis for networks used in the most recent air quality conformity work. According to the planned schedule, the 2016 CLRP Amendment, along with the associated air quality conformity analysis, would be presented to the TPB in October, with a likely adoption by the TPB in November.

Regarding the 16th Street Bus Priority project on page 6, Mr. Milone asked whether the project is to add a new bus service or enhance the current service. Staff did not have the project details at hand, so they were unable to answer Mr. Milone's question.

At the end of Mr. Austin's presentation, Ms. Posey noted a change to the way that HOV facilities will be coded in the regional transportation networks used by the model. In the past, it was assumed that all HOV2+ facilities in the region would be upgraded to HOV3+ facilities in the year 2020. However, this year, Maryland made a policy change that affected this assumption in Maryland. According to the new Maryland policy, all HOV2+ facilities will continue to be HOV2+ in the foreseeable future. By contrast, the policy assumption in Virginia will remain as it was in the past: all HOV2+ facilities are assumed to be upgraded to HOV3+ in the year 2020.

4. 2017-2018 REGIONAL HOUSEHOLD TRAVEL SURVEY

Mr. Roisman introduced COG's new senior statistical survey analyst, Dr. Joh. Mr. Roisman also noted that the survey contractor will be Resource Systems Group, Inc. (RSG). He reported that staff had tested two pieces of software developed by RSG for the retrieval of survey responses: rSurvey, which is web based, and rMove, which is smartphone based. Mr. Roisman said that the survey pre-test would be conducted in January 2017, the main survey would be conducted in late spring 2017, and all deliverables would be sent to COG staff by the end of 2018. He said that staff plans to report to the TFS at the November meeting.

Mr. Moran asked whether staff was considering other GPS data loggers, or only rMove. Mr. Roisman said that using smartphones is now considered state of the practice. Use of data loggers have issues with availability and battery life. For people who do not have a smartphone, they would make use of

---

[1] David Roden to Mark S. Moran, "Task Order 9 of COG Contract 12-006 – Public Transport Conversion: Advantages of Migrating from the AEMS Mode Choice Application Software to the ModeChoice Mode Choice Application Software," Memorandum, (February 1, 2013).

the web-based interface (rSurvey). Mr. Moran asked if there was any concern about the ability of smartphone batteries, on devices running rMove, to last an entire day. Mr. Roisman said that this is a concern, noting that staff has discussed the benefits of providing supplemental battery packs to survey respondents, but he said that most people would simply recharge their phones at some point during the day. He said that phones may run out of power during a long trip, but it would not be a problem to the survey since the number of those trips is small.

Mr. Milone noted that a major objective of the survey pre-testing is to figure out how well the rMove application is working and to determine the number of survey respondents. Mr. Roisman concurred and said that those were reasons why staff split the samples (to compare the results of rSurvey vs. rMove). He added that the pre-testing would help check whether the actual travel behavior reported by rMove replicates the results reported by traditional survey methods. The report on issues and performance of rMove would help evaluate how much rMove would be used in the survey.

Mr. Zilliacus asked whether the rMove app will consume a lot of mobile data. Mr. Roisman said that this should not be a big concern since most people nowadays have unlimited data plans.

Mr. Milone noted that, when he met earlier with the team developing the survey, he was asked what information the model development team needs from this survey. He told them that we need to make sure that we are asking the same types of questions as were asked in the 2007/2008 Household Travel Survey. Additionally, the new survey adds questions regarding shared mobility and ride hailing services (e.g., Uber and Lyft). He said that the survey should capture information regarding who is traveling with whom, and also information regarding travel substitution, such as shopping online and/or delivery of goods and services to the household. Staff is also interested in information regarding participation in special programs, such as a commute subsidy and transponder availability. Mr. Roisman noted that staff would make an effort to reach populations who are normally underrepresented in surveys, such as minority and low-income groups.

5. NATIONAL CAPITOL REGION STATE OF THE COMMUTE

Mr. Ramfos briefed the subcommittee on the 2016 survey of 6,000 randomly-selected employed residents in the Metropolitan Washington Region by the TPB's Commuter Connections Program. He noted that the survey was conducted via landline phones, cell phones, and the Internet. The findings include trends of commuting travel and behavior, such as commute travel distance and times, mode shares, telecommuting, and use of HOV and express lanes. Mr. Ramfos said that the technical report was being finalized and the general public report would be published in 2017.

Mr. Milone asked how telework is defined in the survey. Mr. Ramfos said that an employee working a full-day at home is doing telework for that day. Although the survey found that 32% of the workforce telecommutes at least occasionally, the figure for an average weekday is about 10%.

Mr. Milone asked whether the survey covers all the TPB's member jurisdictions. Mr. Ramfos said that it covered the 11 jurisdictions in the Air Quality Non-Attainment Area (8-hour Ozone), which is equal to the TPB member area, plus Calvert Co., minus the urbanized portion of Fauquier Co.

Regarding the commuter's proximity to a transit station in slide 15, Mr. Moran asked whether the distance was self-reported or calculated from the home location. Mr. Ramfos said it was the former.

Slide 17 notes that commuters who used HOV/express lanes saved an average of 20 minutes on their commutes. Mr. Weller asked about the methodology for this finding. Mr. Ramfos said it was self-reported. Staff expressed concern over the accuracy of self-reported travel times. Mr. Weller said that there was literature suggesting that people have a hard time estimating travel time savings.

In summary, Mr. Milone commented on the usefulness of the survey for travel demand modeling.

6. REGIONAL TRANSPORTATION DATA CLEARINGHOUSE (RTDC): RECENT UPDATES

Ms. Mirr briefed the subcommittee on new datasets added to TPB's RTDC, including 2007-2014 annual average traffic counts, 2007-2014 annual average external station counts, and new data from the Census Transportation Planning Products (CTPP).

7. TRUCK SPEEDS USING BLUETOOTH TECHNOLOGY

Mr. Zilliacus presented some initial findings from a June 2016 data collection effort using Bluetooth technology to monitor speeds of truck traffic around the region. He said that this work serves as a proof of concept for a low-cost method. He highlighted that truck speed, travel time index (TTI), and planning time index (PTI) vary by time of day.[2]

Regarding slide 4, Mr. Moran asked why O-D pairs with fewer than 5 records in a time period were deleted. Mr. Zilliacus said that it was due to their small sample size.

Mr. Evans asked whether the truck Bluetooth data was collected solely at weigh stations. Mr. Zilliacus said that weigh stations are used for the effort when possible, but he noted that weigh stations are limited in the area and not all trucks need to be weighed at the stations, but even trucks not needing to be weighed must generally slow-down to use the scale bypass lanes. He said that most Bluetooth detectors to collect the data were set along roadsides.

Regarding the bar charts showing PTI and TTI values, Mr. Vuksan suggested that, since PTI and TTI cannot be less than one, perhaps it would be good to add a dashed line to the bar chart showing where the index value equals one. Mr. Zilliacus said that that was a good idea and noted that, when the index values are calculated, if the calculated value is less than one, it is set to one.

Regarding slide 10, Mr. Joh commented that the PTI of the I-270 section from Hyattstown to I-70 in the AM peak is very large (above 10). Staff thought it could be due to stops or deliveries made by trucks along the way. Mr. Meese commented that it may be useful to cross-check the Bluetooth data with different data resources, such as vehicle probe data.

8. ROUNDTABLE DISCUSSION ABOUT CURRENT MODELING PROJECTS IN THE REGION

Mr. Nampoothiri discussed some of the updates with NVTA and its work with TransAction, the long-range plan for Northern Virginia. Modeling work is now being conducted, including needs assessment. There are about 500 projects, many of which are only at the conceptual level. Mr. Nampoothiri said that NVTA is working on the modeling methodology and has sought review from modelers at peer agencies.

Mr. Josef said that the HB 2 project has been renamed to Smart Scale. There are about 410 projects that have been submitted this year in Virginia. VDOT will use the COG/TPB model to evaluate 17 projects, based on the 6-years plan network. The networks are then submitted to the VDOT Central Office for the post processing. VDOT will meet with AECOM next week to understand more about the TRANSIMS modeling process that is being used. Mr. Milone asked about the performance of the COG/TPB travel demand model for the project. Mr. Josef said that the model showed generally

---

[2] Travel Time Index (TTI) is the ratio of the peak-period travel time to the free-flow travel time. Planning Time Index (PTI) is a reliability measure equal to the ratio of the 95th percentile travel time to the free-flow travel time.

reasonable impacts. Mr. Vuksan asked why the modeling methodology of HB 2 and HB 599 is different. Mr. Josef said that the two studies are focused on different metrics. HB 599 is focused on Northern Virginia and the ratings are to be based on the project's ability to reduce congestion and improve mobility during emergency evacuations. By contrast, HB 2 covers the entire state. Also, HB 599 makes use of TRANSIMS, but HB 2 does not.

9. NEXT MEETING DATE AND OTHER BUSINESS

The next scheduled meeting of the TFS is Friday, November 18, 2016 from 9:30 AM to 12:00 noon. There was no other business. The meeting adjourned around 11:45 AM.

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