



Highlights of the March 20, 2015 meeting of the Travel Forecasting Subcommittee

Held at the Metropolitan Washington Council of Governments from 9:30 AM to 12:00 PM

Status of highlights: Approved on 5/22/15

Meeting attendees

- Michael Eichler (WMATA)
- Dan Emerine (D.C. Office of Planning)
- John (Jay) Evans (Cambridge Systematics)
- Anthony Gallo (Kimley-Horn & Assoc.)
- Dan Goldfarb (VHB)
- Eric Graye (M-NCPPC, Montgomery Co.)
- Nathaniel Grier (VHB)
- Anthony Hofmann (Baker)
- Robert Josef (VDOT)
- Dial J. Keju (Frederick Co.)
- David Kline (Fairfax County DOT)
- Rich Kuzmyak (Renaissance Planning Group)
- Jaesup Lee (M-NCPPC, Montgomery Co.)
- Li Li (Whitman, Requardt & Assoc.)
- Yuanjun Li (M-NCPPC, Montgomery Co.)
- Feng Liu (Cambridge Systematics)
- Prasad Pulaguntla (Arlington Co. DES)
- Daniel Reese (FAMPO)
- Ryan Westrom (DDOT)

COG/TPB staff in attendance

- William Bacon
- Anant Choudhary
- Joe Davis
- Robert Griffiths
- Charlene Howard
- Hamid Humeida
- Martha Kile
- Andrew Meese
- Ron Milone
- Jessica Mirr
- Mark Moran
- Dzung Ngo
- Jane Posey
- Wenjing Pu
- Clara Reschovsky
- Rich Roisman
- Jon Schermann
- Meseret Seifu
- Daivamani Sivasailam (Siva)
- Dusan Vuksan
- Jim Yin
- C. Patrick Zilliacus

The meeting was chaired by Mr. Westrom.

1. Introductions and approval of highlights from the January 23 meeting

After introductions, the highlights from the January 23, 2015 meeting of the Travel Forecasting Subcommittee (TFS) were approved without change.

2. Accessibility as the lens for integrated land use and transportation planning?

Mr. Kuzmyak presented a GIS-based accessibility tool that can be used to calculate modal accessibility scores, which can then be used to estimate walk trips and to predict mode split. The tool is one of the

methods discussed in NCHRP Report 770 *Estimating Bicycle and Pedestrian Demand for Planning and Project Development* (2014). The tool uses land use data (employment); travel networks, such as an all-streets network from NAVTEQ; path building using ArcGIS Network Analyst; and travel behavior from the regional household travel survey. The accessibility score is a function of opportunities available, the travel time to reach those opportunities, and a decay function. Mr. Kuzmyak said that the scores could be used to 1) show patterns in accessibility by travel mode; 2) explain mode choice; and 3) predict mode choice from existing conditions or scenarios. The tool was tested in Arlington County and was then used in MDOT's MD-355/I-270 Pilot Study at the block level. Mr. Kuzmyak added that the tool would be applied for different projects, such as extending the Pilot Study to a larger area in central Maryland, several upcoming Bus Rapid Transit (BRT) purpose and needs studies, and some other studies in Virginia.

Regarding the distance-decay relationships in slide 13, Mr. Milone asked which geography level is used to calculate the travel time. Mr. Kuzmyak said that the travel times used in the decay functions are based on reported travel time from the COG/BMC household travel survey. Mr. Sivasailam asked whether the model accounts for the fact that walk distances vary by trip purposes. Mr. Kuzmyak responded that the model does make this distinction, since it distinguishes work trips from non-work trips. Regarding slide 16, Mr. Eichler asked if the calculation of the auto travel time is based on the free-flow or congested speed. Mr. Kuzmyak explained that the model was estimated using constrained speeds for work trips and free-flow speeds for non-work trips. With respect to the accessibility score's calculation, Mr. Gallo asked whether the parking cost is taken into account. Mr. Kuzmyak said that the current calculation uses only travel time, instead of a generalized cost, which Mr. Kuzmyak hopes to include in the future. Regarding the chart on slide 16 (employment reachable by mode), Mr. Westrom asked why the accessibility score for transit was so low for all three sample areas (Logan Circle, Clarendon, and McLean). Mr. Kuzmyak responded that since the travel time of a trip using Metrorail includes the in-vehicle travel time, the time to access Metrorail, and the time to egress from Metrorail, in the case where one or both of the ends is too far from Metro to walk, users have a higher probability of choosing other modes. Mr. Eichler noted that although Logan Circle is between four Metrorail stations, it is a half-mile away from each of them. Mr. Lee mentioned that there has been similar research from the University of California at Berkeley, which takes into account multiple factors, including the network, demographic, and environment data, to calculate walking accessibility scores. Mr. Kuzmyak said that in many such models, socio-demographic variation accounts for a large share of the travel variation, but, for this recent modeling work, he found that the socio-demographic factors had much less significance on the score, the accessibility was able to account for much of the variance. Mr. Milone and others thought that there might also be a measure of self-selection at play, i.e., certain locations attract a certain types of people (e.g., people who prefer to take transit and who prefer not to drive a car).

Regarding slide 18, Mr. Eichler asked whether the "walk score" shown was the Walk Score® walkability index developed by the company called Walk Score, which is now part of RedFin. Mr. Kuzmyak said that it was not – it is a walk score index developed by his research team.

Mr. Emerine noted that people are much more likely to bike if there is a protected bike lane, and he asked whether the new methodology could consider the effect of a facility's quality on mode choice. Mr.

Kuzmyak said that, though the current methodology does not include this effect, NCHRP Report 770 did discuss facility-related factors affecting walking and biking, such as the slope of a bike trail, in a study of the Puget Sound Regional Council (PSRC) in Seattle, Washington.

3. 2014 Freeway Congestion Monitoring Program

Mr. Sivasailam briefed the subcommittee about the recent congestion monitoring activities that are conducted using aerial photography, including the 2014 freeway peak-period survey and its report, the 1-second, time-lapse aerial photography (TLAP) pilot study, and a staff analysis of regional congestion. He said the draft 2014 report is available on COG's website¹ and the TLAP data is currently being compiled. Mr. Sivasailam added that staff is assembling comments, finalizing the report and will present the work to TPB in June or July. Also, staff will complete the TLAP pilot study and do some analysis in FY 2016. Mr. Eichler asked about the motivation behind using the 1-second, time-lapse, aerial photography. Mr. Sivasailam said that it provides a lot more detailed information, such as developing traffic counts and performing weaving and interchange analyses, but added that it is still in an exploration phase; hence it is a pilot program.

Mr. Roisman asked whether the DC portion of I-295 is monitored as a part of this work and asked whether Mr. Sivasailam had noticed any changes on I-295 between 2011 and 2014 due to new 11th Street Bridge. Mr. Sivasailam confirmed that this portion of I-295 is a component of the program, but he was unsure of the effect of the new bridge on congestion. Mr. Lee asked how often the picture is taken for the monitoring activity. Mr. Sivasailam said that three or four samples are taken every hour, during three non-consecutive weekdays in a season. Mr. Westrom asked whether staff has validated the data with historical data from the Regional Integrated Transportation Information System (RITIS). Mr. Sivasailam answered that the data matches well with Vehicle Probe Project (VPP), which is the source of the RITIS data. Mr. Milone commented that aerial photography as a congestion monitoring tool is popular with the TPB is because the visualization of congestion is easier for the public to relate to.

4. Peak car travel: An analysis of trends in the National Capital Region

Tim Garceau was the primary author on the research described in this presentation, but the presentation was made by Mr. Westrom since Mr. Garceau was unable to attend today's meeting. Mr. Westrom began by noting that, nationally, VMT per capita has been increasing since 1935, but, in the early 2000s, VMT per capita began to level off and even decline (i.e., "peak car travel"). Next, he presented trends in statewide VMT per capita, both across the U.S. and in the National Capital Region. Washington State was the first state to peak in per-capita VMT, which occurred in 1992. By 1999, seven states had peaked in terms of per-capita VMT. By 2010, all states but two had peaked. By 2011, 41 states had peaked in per-capita VMT and then continued to decline following the peak, and this group included DC, MD, and VA. Based on several factors, including an analysis of the correlation between per-

¹ Skycomp, Inc., *Traffic Quality on the Metropolitan Washington Area Freeway System, Spring 2014 Report*, Draft Report (Washington, D.C.: National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, November 18, 2014), <http://www.mwcog.org/uploads/committee-documents/YF1XV1db20150227142340.pdf>.

capita VMT and per-capita GDP, Mr. Westrom concluded that the per-capita VMT decrease would most likely continue. Mr. Westrom noted that possible causes for this decrease include the economic recession of 2008, the expansion of information communication technologies, the behavior of the young generation, and transit-oriented and mixed-use development. Mr. Eichler noted another cause of VMT leveling could be the building of the Interstate Highway System, which started in 1956 and continued for 35 years, at which point construction of new freeways nearly halted. Regarding VMT per capita at the state level, Mr. Eichler asked which VMT gets included. Mr. Westrom said that the VMT for a given state includes all the VMT within that state (even if it is from vehicles from another state) and does not include VMT that occurs outside of the state (even if it is from vehicles originating in the given state). Staff asked for clarification about the regression charts on slides 19 to 24. Mr. Westrom replied that the charts show the relationship between VMT per capita (vertical axis) and GDP per capita (horizontal axis). Regarding the causes of peak car travel, Mr. Grier suggested that another possible explanation for the peaking was the shift of the economy from manufacturing and industrial sectors to the knowledge-based economy in states such as Washington and Oregon in the 1990s. Mr. Griffiths thought that a better measure to use than per-capita GDP would be wage and salary employment, since labor productivity affects GDP, but does not affect the number of workers that are needed. He felt that the relationship between VMT and employment was more direct than the relationship between VMT and GDP.

Mr. Goldfarb asked if Mr. Garceau had considered congestion as a possible factor in the in the drop in VMT. Mr. Westrom was not sure whether Mr. Garceau had investigated congestion as a source of the peaking of VMT, but he noted that the congestion seems to be decreasing, not increasing. Mr. Josef asked whether vehicle types, specifically cars versus trucks, had been considered. Mr. Westrom said they had not. Subcommittee members noted that there has been an increase of freight, and Mr. Milone commented that the opening of Panama Canal would have a global effect on freight travel. Mr. Griffiths recommended, for future analyses, breaking out the urban and the rural. He also mentioned that the latest FHWA Traffic Volume Trends report shows that, nationally, total VMT is starting to go up again (perhaps in response to low gas prices). Regarding using the travel demand model to estimate VMT, Mr. Evans said that since VMT is an output of the model, there is no direct way to adjust the VMT levels predicted by the model, but, when constructing the next travel model, today's research could provide us information about which variables the model should be sensitive to. Mr. Milone said that to make the model better forecast VMT, it is important to continue our data collection efforts, such as the upcoming household travel survey.

5. Final 2014 CLRP network report

Ms. Seifu informed the subcommittee that staff did not receive substantive comments on the draft report documenting the 2014 CLRP network inputs for the currently adopted Version 2.3.57 Travel Demand Model. Consequently, the draft stamp has been removed and the final report is dated February 23, 2015. Some hard copies were distributed to the subcommittee, and electronic copies have been uploaded to the TFS webpage. No questions were asked.

6. Status report on the COG/TPB travel demand modeling consultant-assistance work program

The presentation focused on some components to support Task Order 15.2: Develop a strategic plan for COG/TPB models development; and Task Order 15.3: Review of transit modeling with respect to FTA guidance. The presentation was divided into three parts: 1) Introductory remarks, by Mr. Moran; 2) Findings of the stakeholder survey, by Mr. Evans; and 3) Review of transit modeling, by Mr. Evans and Mr. Liu.

Regarding the second part of the presentation, Mr. Evans reported that a total of 53 respondents participated in the survey. The largest share of respondents was from consultants (40%). The second largest share of respondents was from state DOTs, and all three states (DC, MD, and VA) were represented. Mr. Evans discussed some findings of the stakeholder survey. For example, the survey indicates that users of the COG/TPB model were most satisfied with documentation, model inputs, and overall level of comfort, while they were least satisfied with model run time, model adaptability, and the model's ease of use. Regarding the schedule, Mr. Evans said that the development of the report identifying potential opportunities for improvement is a little bit behind schedule. He announced that there would be a high-level meeting between COG/TPB staff and CS on April 16th.

Regarding the third part of the presentation, a review of transit modeling, Mr. Evans and Mr. Liu reviewed FTA guidance on ridership forecasting, the COG/TPB model for transit modeling, and an FTA-approved ridership forecasting method called Simplified Trips-on-Project Software (STOPS), which is also used by FTA for the quality control. They said that STOPS uses CTPP 2000 data and GTFS as the inputs and is nationally calibrated in 24 different projects (though none are from the DC area). Discussing findings, CS staff said that the coefficient values in mode choice of COG/TPB model are consistent with weights used in path building, which is required by FTA. CS staff also discussed some draft recommendations on transit modeling to COG/TPB.

Mr. Westrom asked whether CS staff has spoken to any local users of STOPS for local projects, such as the DC streetcar project. Mr. Liu said that CS staff has done some testing of STOPS for a BRT study in Montgomery County for MTA and SHA. Mr. Evans said that regardless of any advantages of using STOPS, a lot of care need to be taken in setting up the run, such as for zone splitting. Mr. Vuksan asked whether there is a trend of using STOPS, regardless of the availability of a regional travel demand model, with the reasoning that it is easier and less time consuming to use STOPS. Mr. Evans thought that the FTA might be in a better position to judge whether such a trend is occurring, but, from the consultant perspective, Mr. Evans has seen a trend in more interest in using STOPS, even in areas with regional travel/transit models. Mr. Moran announced that the FTA is scheduled to make a presentation to the TFS at its May meeting. Ms. Yuanjun Li commented that BMC has been assigning drive-access transit trips to the highway network for over ten years. Mr. Evans added that Fairfax County has done similar work in its sub-area model.

7. Updates to the TPB Regional Transportation Data Clearinghouse (RTDC)

Ms. Howard noted that the current RTDC uses a software development platform called Flex, but the new RTDC will make use of ArcGIS Online. She also noted that datasets are being refreshed, e.g., transit counts are being updated with FY 2014 data, and traffic counts now include data up through 2013. She announced that the new RTDC web page using ArcGIS Online is easier to access, even on mobile devices, adding that ArcGIS Online allows users the flexibility to download the data from RTDC, then create and share derived maps. Ms. Howard showed the new RTDC project page and demonstrated some tool functions. She welcomed any feedback and said that more datasets would be added to the RTDC.

Mr. Zilliacus mentioned that VDOT has now published online a shapefile containing statewide traffic counts for its primary highway network, and he suggested that we could add this Virginia data to the RTDC. Ms. Kile thought that the VDOT data consisted of Virginia's HPMS submission and she noted that COG/TPB staff has developed a regional HPMS file. Ms. Howard noted that all the HPMS data should eventually make it into the RTDC. Mr. Lee asked whether all the data in the RTDC is accessible to the public. Ms. Howard confirmed the core datasets will be available for everyone, but she added that in the future, some subsets, for example INRIX data, may be protected and only available for a specific group of users. Mr. Lee also asked whom to contact if one finds an error in the RTDC. Ms. Howard said to contact her. Mr. Prasad asked about the data sources for data in the RTDC. Ms. Howard responded that staff collected data from a large number of sources, including state DOTs, WMATA, and local jurisdictions.

8. Next meeting date and other business

The next scheduled meeting of the TFS is Friday, May 22, 2015 from 9:30 AM to 12:00 noon. The meeting adjourned around 12:15 PM.

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