

**Highlights of the TPB Travel Forecasting Subcommittee Meeting
Held on November 18, 2005**

Item 1: Approval of the July 22, 2005 and September 23, 2005 Meeting Highlights

The meeting highlights were approved as written.

Item 2: Census Update

Mr. Griffiths discussed in detail the latest revised draft adjustment factors for the Part 3 - Census Transportation Planning Package (CTPP). He explained that the CTPP – Part 3 data was a tabulation of workers and not a tabulation of average weekday Home-Based Work (HBW) trips. He further explained that adjustment factors to account for (1) workers not making a trip to work on a particular day (daily worker absenteeism), (2) workers making multiple HBW trips on a particular day (multiple job holders), (3) workers making intermediate stops on their commute to and from work (trip chaining) and (4) workers not using their usual travel mode to work on a particular day (occasional mode shifts), were needed to convert the CTPP – Part 3 data into HBW trips comparable to those used in our travel demand models.

Mr. Griffiths explained that he used data from the 2001 National Household Travel Survey (NHTS) for the Washington PMSA, the combined Washington-Baltimore CMSA and for all for metropolitan areas with a regional rail system and a population greater than 3 million to calculate daily worker absenteeism, multiple job holder, and occasional mode shift adjustment factors. He used data from the 1994 COG/TPB Household Travel Survey (1994 HTS) to calculate adjustment factors to account for trip chaining because our travel demand model was based on the trip linking procedures developed from the 1994 HTS data, and the data from 2001 NHTS used a slightly different trip linking procedure.

Mr. Griffiths reported that the revised draft adjustment factors looked very reasonable to him, but when he applied these factors to the CTPP – Part 3 data he was surprised to find that the estimate of regional HBW transit commuting trips generated by the factors was approximately 30% below estimates of HBW transit commuting trips based on WMATA bus and rail ridership statistics and surveys. Mr. Griffiths stated that while estimates of transit commuting modal shares based the adjusted CTPP data looked reasonable for the region as a whole and for major jurisdictions within the region, the estimate of the total number of transit commuting trips was still low. Mr. Griffiths speculated that the 2000 Census may have underestimated the total number of workers in the region and this may explain why the modal shares looked reasonable, but the total number of trips was low. He added that he had read an evaluation of the 2000 Census data that showed the Census results had underestimated the total number of workers by 5.3% nationally, by about 10% in the District of Columbia, by about 3% in both in Maryland and Virginia.

Mr. Griffiths concluded by stating that he wanted to look into this issue a little further and would report back to the Subcommittee at their next meeting.

Questions and Comments

Mr. Milone asked if a total transit trip rate could be extracted from the Census total work trip data. Mr. Griffiths replied that the Census is not a HTS, thus a total transit trip rate could not be extracted.

Mr. Kirby asked if workers who work from home are counted in the Census worker totals. Mr. Griffiths responded that work at home is a separate category in the Census tabulations and that these workers are included in the overall worker totals, but not in the commuting data. Work from home means there is no usual commuting mode, thus they are excluded from the Part 3 data.

Mr. Mann asked if the overall CTPP adjustment factor for 2000 was within ten percent of the final CTPP adjustment factor used in 1990. Mr. Griffiths replied that the difference was greater than 10 percent.

Mr. Kirby asked if the Census questions are identical to what they were in 1990. Mr. Griffiths responded that there were only some very minor changes between the questions asked in 1990 and 2000 and that he did not believe this accounted for the differences.

Mr. Harrington expressed concern about chained trips. All these factors will produce home based work trips which are becoming an increasingly smaller share of the total travel market.

Mr. Kirby commented that because of the significant differences between Census Journey to Work data and HTS HBW trips, it may be best not to try to convert the CTPP data into something it is not.

Mr. Griffiths responded that he did not think we should completely throw out the Census data. The CTPP data is based on data collected from hundreds of thousands of households in the Washington region and that even the best household travel surveys are based on data collected from only 10,000 to 15,000 households. He stated that he believed that Census data provided important information on household and worker characteristics by small area Transportation Analysis Zones (TAZ) and on TAZ-to-TAZ work trip origin and destinations. He added that a HTS could not provide this type of TAZ level detail because of sample size constraints.

Mr. Noble suggested that Census journey to work O-D information could be used in conjunction with modal use and other information collected in a HTS. Mr. Griffiths agreed that it could.

Item 3. Household Travel Survey

Mr. Griffiths stated that current plans for the new regional household travel survey will include 10,000 households in the TPB modeled region. The 1994 HTS survey included only 5,000 households in the Washington region and efforts to splice this data together with similar data collected for Anne Arundel, Howard and Carroll counties in BMC's 1993 household travel survey was problematic. With the planned new household travel survey, an effort will be made to meet with BMC to encourage them to conduct a similar survey because our modeled regions overlap. The new HTS will be a methodologically enhanced activity-based survey which will include (1) development of an addressed-based sample frame, (2) a multi-modal data collection process that will permit household recruitment and diary retrieval by mail, telephone, Internet, and in-person contacts, (3) a GPS vehicle tracking add-on sub-sample, and (4) a follow-up survey on non-responding households and household members.

Mr. Moran commented that the survey contractor obtained to do the survey should be familiar with activity based surveys. You cannot take a traditional HTS and develop tour based models. The key question is what exactly is different about the survey instrument and what is the activity based model going to be.

Mr. Griffiths responded that it is necessary to have two different skills to design a successful activity-based survey. The contractor should be someone familiar with activity-based transportation models, how they are used and the specific type of data needed for their development. The contractor must also be someone who clearly understands the relationship between respondent burden and the need to obtain a very high survey response that is truly representative of the population being surveyed. He continued that it is important to do the survey the right way or you will end up with non-representative data that is not useable, no matter how good the questions are for activity-based travel model development. Mr. Griffiths commented that he thought that Atlanta had conducted a very good activity-based travel survey and made good compromises between the volume and detail of the information collected and the overall survey response rate.

Mr. Mann expressed concern about socioeconomic biases. The survey should be designed to address these biases. Mr. Griffiths responded that he agreed with Mr. Mann's statement.

Mr. Harrington commented that he liked the idea of auto-based GPS units. He also stated that it would be a good idea to track travel behaviors through Smart Trip cards. Mr. Griffiths agreed.

Item 4. Aerial Freeway Monitoring

Mr. Sivasailam distributed a handout entitled "Major Trends and Changes in Traffic Conditions between 1993 and 2005". The handout identifies locations on the highway system where major trends or changes in traffic conditions were found since the first aerial survey in 1993. On some highways, the absence or presence of construction contributed to the changed conditions. On other highways, added capacity contributed to improved flow; in some cases, no apparent cause could be attributed to the improvement or degradation of traffic flow.

Mr. Sivasailam discussed several major highways:

- US 50 Maryland (Westbound between the Anne Arundel/Prince George's County Line and the Church Road overpass, 7:30-8:30 a.m.)
- I-95 Virginia (Southbound between Dale Blvd. and the Rappahannock River, Evening)
- VA 267 Dulles Toll Road (Eastbound between VA 28 and the Capital Beltway, 7:00-8:00 a.m.)
- D.C. 295/ MD 295 (Southbound MD 295 between MD 450 and Pennsylvania Avenue, Morning)
- D.C. 295 (Northbound between Pennsylvania Avenue and US 50, Evening)
- Capital Beltway Outer Loop (Eastbound and westbound approaches to I-95, Evening)

Questions and Comments

Ms. Erickson asked if congestion increased or decreased on the Dulles Toll Road after the toll increase. Mr. Sivasailam replied that congestion did not decrease because of the toll increase.

Mr. Jenkins asked when this data would be available. Mr. Sivasailam replied that the briefing on the results of this data gathering will go to the TPB in the near future, and the data should be available shortly after that .

Item 5. Status Report on Nested Logit Mode Choice Model

Mr. Milone distributed a handout entitled “Status Report: Implementation of a Nested Logit Model”. He said the TPB is preparing to implement a Nested Logit (NL) model as one of two key modeling improvements in the FY-2006 Models Development program (the other improvement is the implementation of a Commercial Vehicle Model which is also currently underway). He further explained that there are several maintenance activities in motion which will be folded in with the NL model work, including:

- Moving to real/decimal processing
- Converting many pre-existing Fortran routines to TP+ scripts
- Re-estimation of demographic models with the 2000 CTPP
- Inserting a post traffic assignment step to address link overloading
- Automated ‘mechanism’ for developing HOT lane tolls
- Updating external files, airport auto passenger files

He added that AECOM Consulting is under contract to provide ‘over-the-shoulder’ assistance to TPB staff. TPB will be adopting the model structure developed by AECOM as part of their recent alternatives analysis work for WMATA. At present staff is examining the network development procedures used to support the NL calibration and validation effort. Staff is also assembling observed data necessary for development work, which will include the 1994 COG/TPB Household Travel Survey, the WMATA 2000 Bus On-board Survey, the 1994 and 2002 WMATA Metrorail Surveys, and possibly the CTPP worker flow data (if viable). Mr. Milone stated that the NL work will most likely be completed by the end of FY-2007 (i.e., by June 30, 2007).

Questions and Comments

Mr. Noble asked if a non-motorized choice was being considered in the model structure, given that a sizable walking and bicycling market exists in the District. Mr. Milone stated that the non-motorized choice is not being considered at this time. This particular travel market is not easily represented in a regional context, since the majority of walking trips occur within traffic analysis zones, or between adjacent zones. A much finer level of resolution is necessary to fairly evaluate non-motorized modes. This is something to be considered as a new household travel survey is completed and geocoding is developed for a more refined zone structure in the region.

Item 6. Proposed Changes to FY2006 UPWP

Mr. Hogan distributed a handout entitled “Briefing on Proposed Amendments to FY2006 Unified Planning Work Program (UPWP) to Address Requirements in the Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU). With the passage of the SAFETEA-LU, there will be a substantial increase in funding, the same as occurred in the original ISTEA.

Mr. Hogan briefly explained changes to the work program for network development, models development and cordon counts

Network Development - an additional analysis year depicting 2009. Tasks involved are as follows:

- Receive and organize project inputs to the FY2007-2012 TIP and amended CLRP;
- Code, edit, and finalize networks for highway, HOV, and transit; and
- Develop transit fair matrices consistent with these networks.

Models Development

- More fully fund the models development staff in undertaking all activities in the FY2006 work program;
- Obtaining consultant assistance to provide technical support on a task order basis for an ongoing assessment of the performance of the TPB travel demand models; and
- Procuring micro-simulation software to aid in the development of more detailed simulation of travel patterns.

Cordon Counts

- In the first half of FY2006, staff will complete data collection for the regional classification counts of commercial vehicles, trucks, and buses. The task includes processing and checking of all data collected in the spring and summer of 2005, and the preparation of a technical memorandum documenting the methodology. This work has entailed using more staff resources than was originally anticipated.

Mr. Griffiths briefly explained changes to the work program for GIS technical support, travel surveys and analysis, and the Regional Transportation Data Clearinghouse.

GIS Technical Support

- Develop GIS software application to enable DTP staff, state and local government transportation planners, and others to more easily generate transit walk sheds for use with the COG/TPB Version 2.1D #50 travel demand model.

Travel Surveys and Analysis

- Household Travel Survey
 - Complete the design of a large-sample, methodologically enhanced, activity-based regional household travel survey.
 - Conduct pre-test of methodologically enhanced household travel survey.
 - Begin travel survey data collection for approximately 10,000 households in the TPB modeled region as time and funding permit.

Regional Transportation Data Clearinghouse

- Work with DDOT, MDOT and VDOT to design and develop an enhanced Highway Performance Monitoring System (HPMS) sample of traffic counting locations in the TPB modeled region.
- Plan supplemental traffic count data collection for enhanced HPMS sample.
- Develop methodology to improve annual estimates of regional Vehicle Miles of Travel (VMT) and traffic volumes on major segments of the regional highway network based on the enhanced HPMS sample.

Mr. Clifford briefly explained changes to the work program for mobile emissions analysis and congestion monitoring and analysis.

Mobile Emissions Analysis

- Inventory the number and location of non-road vehicles and engines (heavy duty retrofit candidates) used in transportation construction projects eligible for use of FHWA Congestion Mitigation and Air Quality (CMAQ) funds.
- Implement the requirement to analyze PM2.5 mobile source emissions for immediate use in assessing air quality conformity to address direct PM2.5 and NOx precursor emissions on a yearly total emissions basis:
 - Develop a draft approach for the analysis,
 - Coordinate with MWAQC committees and develop inputs to the Mobile6.2 model,
 - Issue task orders to consultant to update software to accommodate new methods,
 - Test software to quality assure it and apply in production mode,
 - Summarize and document results,
 - Update emissions post-processor to accommodate the estimation of direct PM2.5 emissions and NOx precursors, reading revised Mobile6.2 outputs and producing emissions results for yearly totals, and
 - Test software, quality assure results, and document new methods.

Air Quality Conformity

- Execute the new technical methods for the estimation of PM2.5 direct emissions and NOx precursor emissions, being developed under the Mobile Emissions Analysis work program, to assess air quality conformity of the 2005 CLRP and FY 2006-11 TIP.
- Apply the technical procedures to the conformity milestone years (2002, 2010, 2020 and 2030); and quality assure results.
- Document methods and results in a technical report.
- Present to TPB committees, for public comment, for TPB action, and for federal approval.

Congestion Monitoring and Analysis

- For arterial highways, conduct a pilot test of new travel time monitoring technologies and data collection methods such as utilizing cell phone signals or volunteer drivers with GPS monitors.

The next meeting of the TFS will be held on January 20, 2006.

**COG/TPB Travel Forecasting Subcommittee
Sign-In Sheet
Meeting of November 18, 2005**

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