

Status report on COG/TPB's travel demand modeling improvement efforts

Recent COG/TPB staff work

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Model improvement overview

- Three phases over seven years

	Description	Fiscal Years
1	Updates to the existing FSM	2016-2017
2	Development of an ABM with existing data	2018-2020
3	Development of an ABM with new data *	2021-2022

* New household travel survey to be conducted in FY 17; ready for use in FY 20



Recent development activities

- FY 16 end-of-fiscal year report
- FY 17 activities: Updating the trip-based model
 - Data plans for calibration & validation
 - Surveys: Adding finer geography
 - Assembling validation data
 - Traffic counts
 - Transit counts
 - Migration of mode choice application software
 - Census American Community Survey (ACS) data
 - Developing Task Order 17.2



FY 16 end-of-fiscal year report

- Presented to TFS on 7/22/16
 - 30-day review and comment period concluded 8/22/16
 - No comments received from beyond COG/TPB staff
 - COG/TPB staff comments submitted to consultant
- Changes to the report
 - Updates to two sections of the report
 - T.O. 16.2, Task 12: Develop Parcel-Level Development Database
 - T.O. 16.2, Task 14: Prepare Non-Motorized GIS Database
 - Two sections added:
 - T.O. 16.2, Task 9: Revise Bus Speed Linkage to Highway Speeds
 - T.O. 16.2, Task 13: Develop Census and Household Travel Survey Database



FY 17 activities

Updating the trip-based model



Data plans for calibration & validation

- Calibration year 2007/2008
 - 2007/2008 COG/TPB Household Travel Survey
 - Transit on-board surveys, e.g., 2008 Metrorail Passenger Survey, 2008 Regional Bus Survey
- Validation year: 2014
 - Traffic counts
 - Transit counts
- Non-motorized enhancements
 - In addition to other surveys, use 2011/2012 Geographically Focused Household Travel Surveys (GF HTSs)



Surveys: Adding finer geography

- Current household travel surveys (both 2007/2008 HTS and 2011/2012 GF HTS) are geocoded to TAZ
- As per consultant suggestions, these are being re-geocoded to Census block level
- Finer geography will inform motorized/non-motorized split and transit walk-access links
- Transit on-board surveys?



Assembling validation data: 2014 traffic counts

- Differing units
 - AADT for DC
 - AAWDT for MD, VA, WV
- Daily counts vs. hourly counts
- Permanent count stations vs. program counts
 - Program count defined as < 1000 hours per year

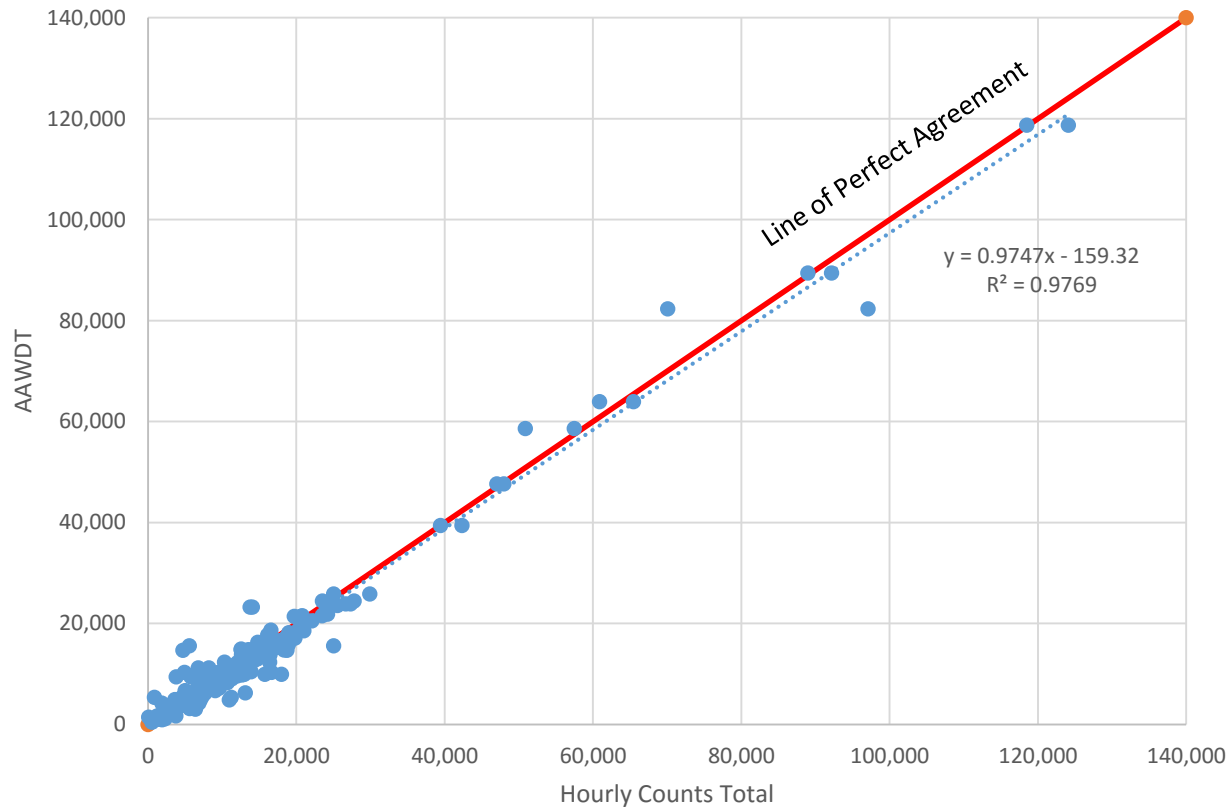
State	Program	Permanent	Total
DC	1,150	22	1,172
MD	2,777	30	2,807
VA	2,781	78	2,859
Total	6,708	130	6,838

- Documentation in progress



Assembling validation data: 2014 traffic counts: Example: DC

DC: Year 2014 AAWDT and Total Hourly Counts



Assembling validation data: 2014 transit counts

- 2014 average weekday transit ridership from the Regional Transportation Data Clearinghouse (RTDC)
 - Includes all transit modes, except for Metrorail
- Data was merged with 2015 transit network from 2015 CLRP
 - Some missing data
 - 2015 network included about 250 bus or commuter rail routes that did not have ridership data in RTDC (about 14% of peak period and 12% of off-peak period)



Assembling validation data: 2014 transit counts

- Next steps
 - Assemble 2014 Metrorail ridership data
 - Decide how data will be used in validation, e.g., screenline summaries, modal summaries
 - Consult with other TPB staff regarding data gaps



Migration of MC appl. software: AEMS to TRANSIMS ModeChoice

- AECOM delivered ModeChoice setups on 6/30/14
- TPB staff
 - Incorporated deliverables into the TPB model
 - Conducted a test. Findings:
 - Although regional VMT closely matched the VMT when using AEMS, total regional transit and transit shares by trip purpose showed some differences
- We are following up with AECOM
- Rounding may be one cause
 - AEMS uses 2 decimal places
 - ModeChoice uses 4



Census American Community Survey (ACS) data

- 5-year data: 2006-2010
- We have processed the data and prepared county-level profiles of work commuting and county-to-county worker flows
- Currently working on documentation



Developing Task Order 17.2

- FY 17: End of Phase 1 of Strategic Plan (Updates to trip-based model)
- Non-motorized enhancements
- Mode choice model enhancements
- Managed-lane modeling



Next steps

- Staff will finalize details of T.O. 17.2 with CS
- Staff will forward survey files to CS
- Staff will begin preparation of 2007 & 2014 networks after mode choice model specs are finalized
- Staff will prepare GIS variables for non-motorized modeling



Challenges

- Meeting the schedule (concluding trip-based improvements by end of FY 2017)
- Ensuring model performance is as good as currently adopted model
- Ensuring that improvements address targeted issues better than the existing model
- Maintaining reasonable model run times



Acknowledgements

- Enhancing surveys with finer geography: Bob Griffiths and Dzung Ngo
- 2014 validation data
 - Traffic count analysis: Meseret Seifu & Joe Davis
 - Transit counts: Wanda Hamlin
- Migration of mode choice application software: Dzung Ngo
- 2006-2010 ACS: Hamid Humeida

