

FSUTMS Standards Development

presented by
Thomas Rossi, Cambridge Systematics, Inc.

July 31, 2019





- Work Plan
 1. Position statement (complete)
 2. Recommendations for common data formats*
 3. Recommendations for file naming conventions*
 4. Model validation guidelines
 5. Standard trip purposes

* - To be done after modeling software is resolved

Model Validation Guidelines



- We've had FSUTMS validation guidelines for some time
- It's always good to review/update/refresh
- Not a rewrite of the comprehensive 2008 document
- But some guidelines from the 2008 report are updated

Sources



- *FSUTMS-Cube Framework Phase II: Model Calibration and Validation Standards* (2008)
- *FHWA Model Validation and Reasonableness Checking Manual, Second Edition* (2010)
- *NCHRP Report 716 - Travel Demand Forecasting: Parameters and Techniques* (2012)

Draft Report Complete



- 35 pages
- Outline
 - Validation process overview
 - Demand component validation
 - Trip generation
 - Trip distribution
 - Mode choice
 - Time of day
 - Activity based model components
 - Highway and transit assignment validation
 - Temporal validation and sensitivity testing
- Under review by Central Office

Examples of Guidelines



- Trip generation
 - Checks
 - Check number of trips per household for reasonableness
 - Check percentages of trips by purpose
 - Check number of HBW trips/employee for reasonableness
 - Guidelines
 - Total person trip productions per household:
 - 9 to 12 if non-motorized trips are included
 - 8 to 11 if non-motorized trips are excluded
 - Percentages of trips by purpose: As presented in table
 - HBW attractions per employee: 1.2 to 1.5

Examples of Guidelines (continued)



- Trip distribution
 - Checks
 - Compare modeled average trip lengths by trip purpose to observed
 - Compare trip length frequency distributions by trip purpose to observed, calculating coincidence ratios
 - Compare modeled and observed trip tables by purpose at a district level and check for reasonableness of match
 - Compare modeled and observed intrazonal trips by purpose
 - Guidelines
 - Average modeled trip lengths by trip purpose within five percent of observed
 - Coincidence ratios by trip purpose of at least 70 percent (lower values acceptable for trip purposes with relatively small numbers of trips)
 - Modeled percentages of intrazonal trips with three percentage points of observed percentages

Examples of Guidelines (continued)



- Highway assignment
 - Checks
 - Compare modeled VMT on links with counts to observed VMT, summarized by functional class
 - Compare volumes on screenlines and cutlines to observed
 - Compute RMSE between modeled and observed link volumes, summarizing by volume group
 - Guidelines
 - Percentage difference between modeled and observed VMT by functional class according to the guidelines in table
 - Percentage difference between modeled and observed screenline volumes according to the guidelines in table
 - Percentage RMSE by volume group according to the guidelines in table

Standard Trip Purposes



- Summarized in a brief memo (under review by Central Office)
- Recommendations for internal person trip purposes
 - **Required** trip purposes
 - Can be expanded to address the needs for particular regions
 - **Optional** trip purposes
 - Can be used in regions where their inclusion is appropriate

Standard Trip Purposes (continued)



- Recommendations based on
 - Review of operational FSUTMS models
 - Need to produce the information needed for a variety of types of planning analyses
 - Desire to change current practice as little as possible
 - Recognition that travel behavior differs by trip purpose
 - Data availability to support segmentation

Standard Trip Purposes (continued)



- Standard trip purposes (required)
 - Home based work (HBW)
 - Home based school (HBSc)
 - Home based shopping (HBSh)
 - Home based social-recreation (HBSR)
 - Home based other (HBO)
 - Non-home based work (NHBW)
 - Non-home based other (NHBO)
- Optional trip purposes
 - Home based university (HBU)
 - Airport



Questions?

Happy Hour!