



SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

Model Update and Validation for 2016 RTP/SCS Approach and progress to date

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Objectives

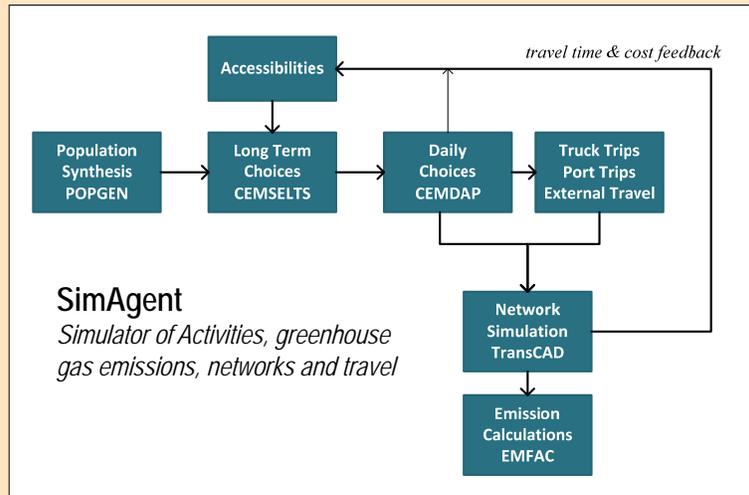


The purpose of year 2012 model update and validation program is to develop a base year model for the analysis of 2016 RTP and related programs, including conformity analysis (Title 40 CFR Part 93.122) and development of Sustainable Communities Strategy (SCS).

The model will be:

- specified based on observed data
- validated against observed data (CFR 93.122(b)(1)(i))
- sensitive to changes in the time(s), cost(s), and other factors affecting travel choices (CFR 93.122(b)(1)(vi))
- able to measure the benefits of land use strategies aimed at reducing GHG emissions

2016 RTP/SCS Regional Transportation Model

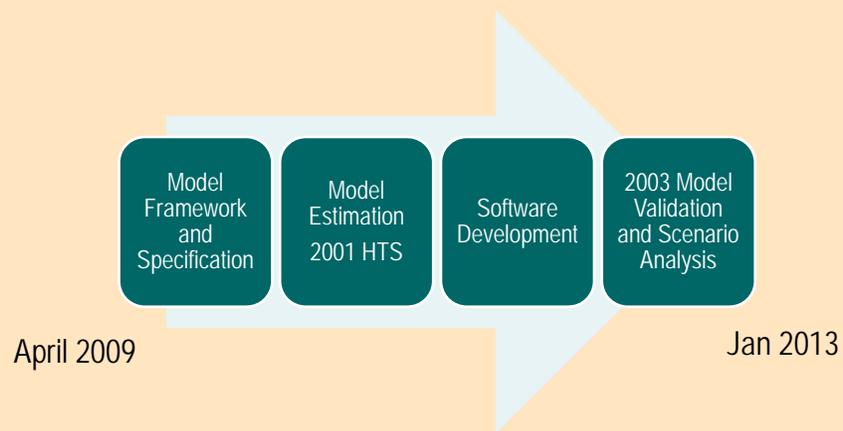


Model Concept



- SimAgent is an activity-based or agent-based model
- SimAgent simulates the entire weekday travel pattern of each person in the SCAG region (18+ million):
 - derives travel from activity participation decisions
 - explicitly accounts for within household interactions
 - incorporates spatial and temporal constraints and influences when predicting activity participation and travel
 - operates on a detailed representation of the region's population, land use and transportation networks

Stage 1 Model Development



Model Enhancement Goals



- Improve the representation of auto and transit choices and their attributes
- Improve the sensitivity to level of service attributes across all relevant sub-models, particularly in mode choice, destination choice, and trip scheduling
- Improve the representation of accessibility:
 - level of service dimension
 - activity dimension
 - decision-maker dimension
 - temporal dimension
- Improve the sensitivity to land use / built environment

Proposed Model Updates



- New sub-models:
 - occupation
 - work at home
 - primary destination choice (non-mandatory)
 - trip mode choice

Proposed Model Updates



- Re-estimate existing models:
 - tour mode choice
 - work location
 - non-mandatory tour frequency
 - intermediate stop frequency
 - home stay duration
 - travel time to stop

Proposed Model Updates



- Calibrate and validate the model to 2012 base year
 - preparation of model input data
 - development of calibration targets
 - preparation of model validation data

- Test model sensitivity to key inputs/parameters

- Optimize the model implementation
 - to reduce run time
 - for user friendliness

Schedule



TASK DESCRIPTION	2013						2014													
	Jan	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
MODEL ESTIMATION, ENHANCEMENT, EXPERT SUPPORT																				
Model development plan																				
Prepare household survey data																				
Model estimation																				
MODEL IMPLEMENTATION																				
Implementation of enhanced SimAgent																				
MODEL CALIBRATION, VALIDATION, PEER REVIEW																				
Prepare calibration targets																				
Base year model calibration																				
Base year model validation																				
Sensitivity tests																				

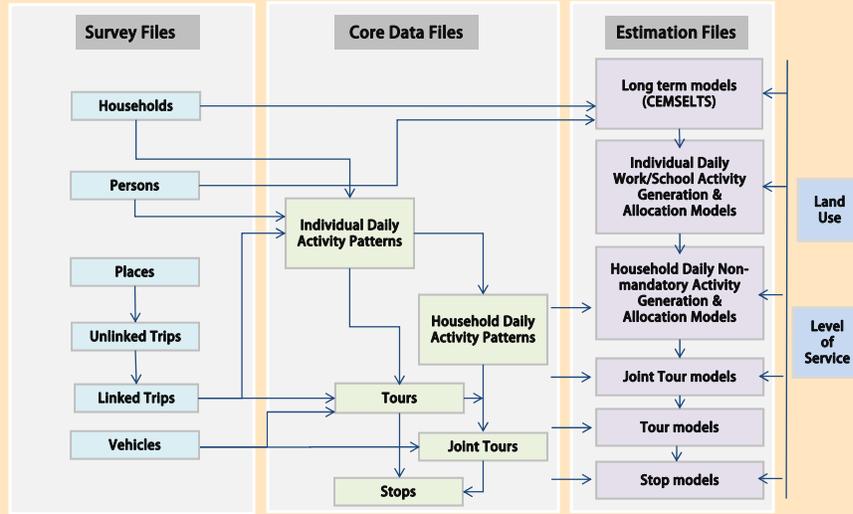
**Progress to date:
Analysis of the CA and SCAG Household
Travel Surveys**

CA & SCAG Household Travel Surveys

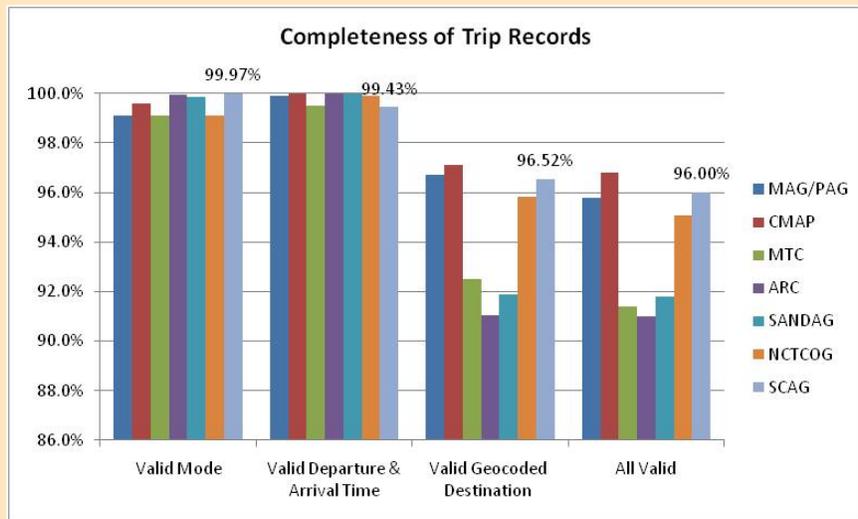


Sample Type	NuStats	SRBI	Total
All Households	24,486	10,563	35,049
Complete households	15,716	3,848	19,564
Partially complete households	45	479	524
Only recruit data	8,725	6,236	14,961
Complete and partially complete households	15,716	4,327	20,043
Weekday	67%	71%	68%
Weekend	33%	29%	32%

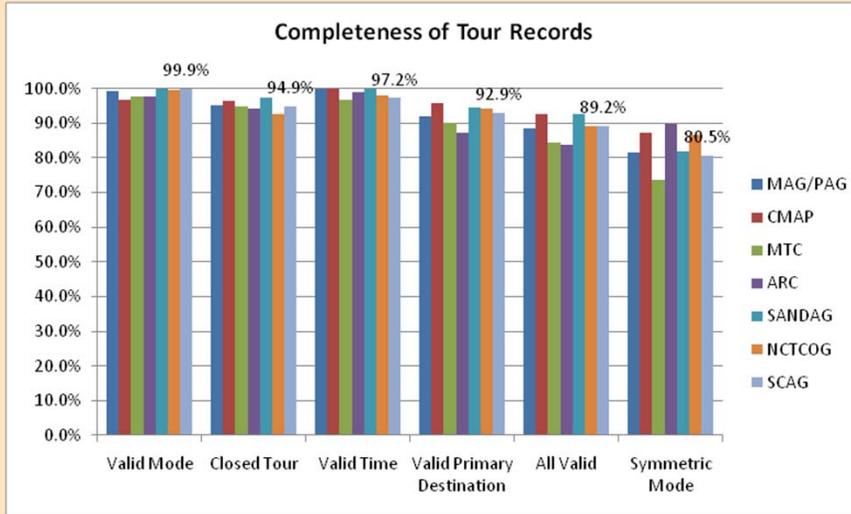
Household Travel Data Preparation



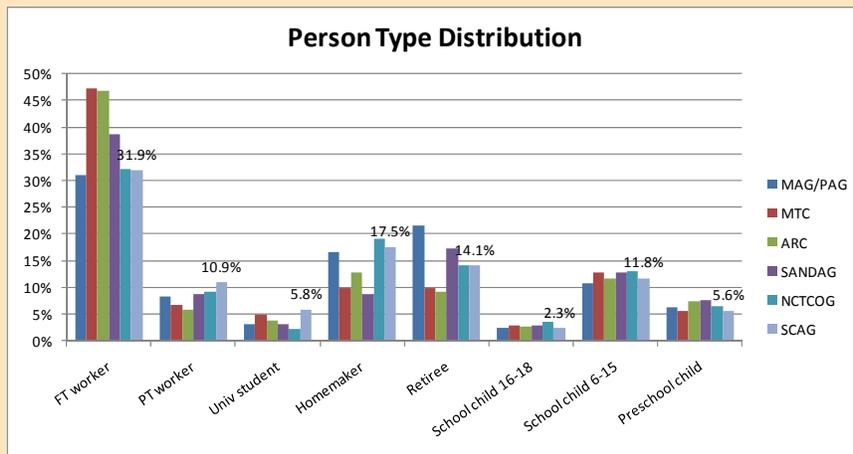
Data Quality Checks



Data Quality Checks

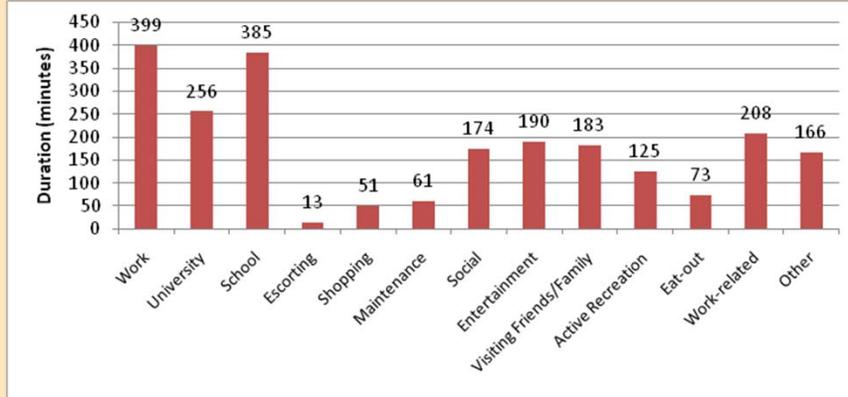


Data Quality Checks



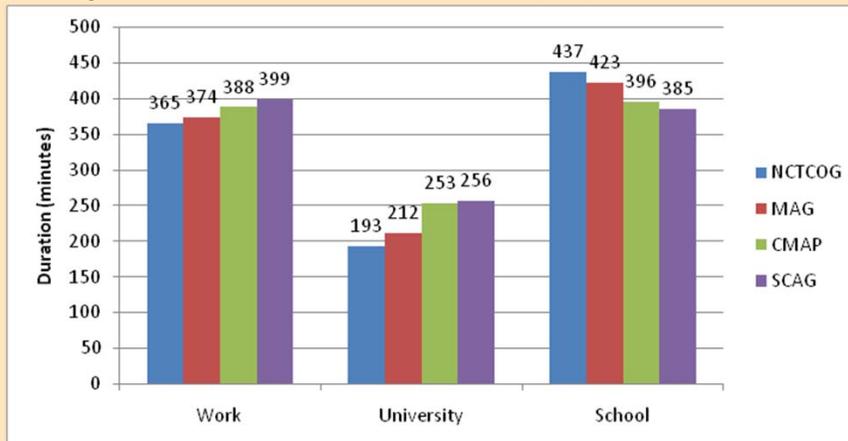
Data Quality Checks

Average Time Allocation, SCAG (min)

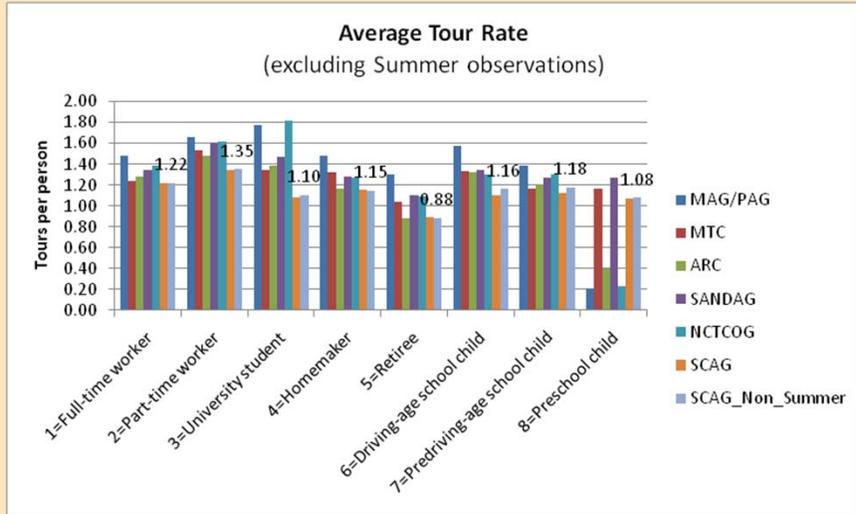


Data Quality Checks

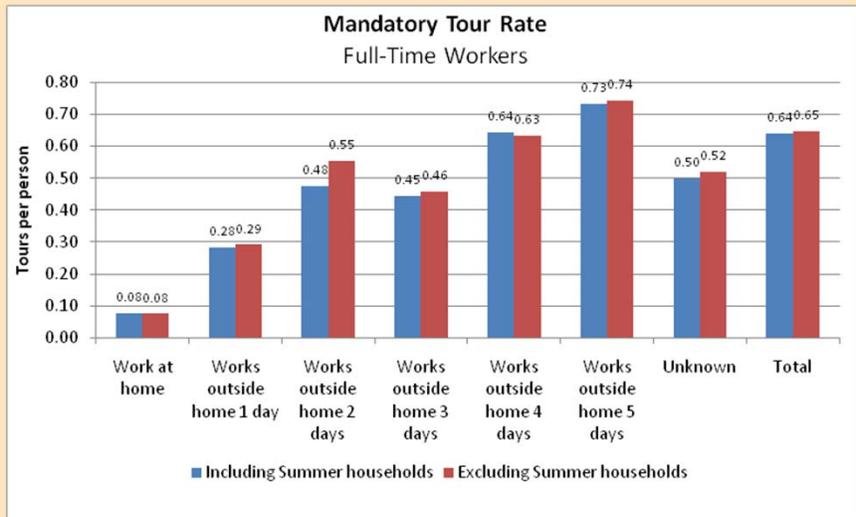
Average Time Allocation, U.S. Metro Areas (min)



Data Quality Checks



Data Quality Checks



Survey Expansion



- Survey control totals developed for approximately 100 clusters of TAZs, covering the entire SCAG region
- Control variables:
 - Total households
 - Households by number of workers (0, 1, 2, 3+)
 - Households by size (1, 2, 3, 4, 5+)
 - Single-family, multi-family household
 - Household income (4 classes)
 - Population age (6 classes)
 - Person type (region-level control)



More information:

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