Association of Monterey Bay Area Governments
Regional Travel Demand Model Program

TAMC
Technical Advisory Committee
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OUTLINE

- AMBAG GIS Data and Modeling program
- Why Regional Travel Demand Model (RTDM)
- Objectives of RTDM upgrade (SB375 requirements, TPM and 2020 census)
- RTDM framework and brief overview
- Land Use Model
- Development Monitoring System
- Stakeholder’s participation and their stake
- Discussion

AMBAG GIS DATA AND MODELING PROGRAM

- Geographic Information Systems (GIS) data: great importance to land use, transportation, environment and policy planning
- AMBAG collects, analyzes, and maintains various GIS datasets for planning and policy purpose
  - Census data
  - Regional employment
  - Highway and transit network
  - Active transportation and complete street network
  - Regional economic data for population and housing forecast
  - Environmental data
  - Traffic/truck counts
  - Freight and goods movements
- Provide data support to all stakeholders of Monterey Bay region
- To solicit greater public participation and building consensus
- Better inform policy bodies

WHY REGIONAL TRAVEL DEMAND MODEL?

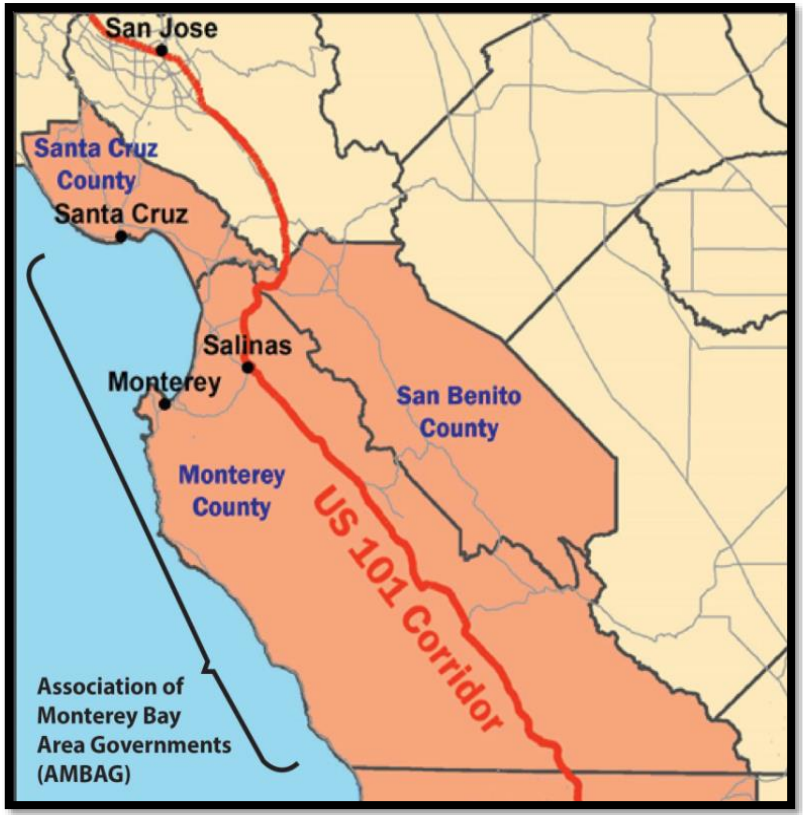
- Required under Federal Law to:
  - Estimate region's future travel demand and analyze alternative transportation scenarios
  - Develop region's Metropolitan Transportation Plan (MTP)
  - Carryout air quality conformity analysis
  - Receive federal funding for major transportation investment projects
- Under SB 375, MPO is required to:
  - Develop Sustainable Community Strategies (SCS) in conjunction with region's MTP
  - Conduct GHG analysis as recommended by California Air Resource Board (CARB)

OBJECTIVES FOR RTDM UPGRADE

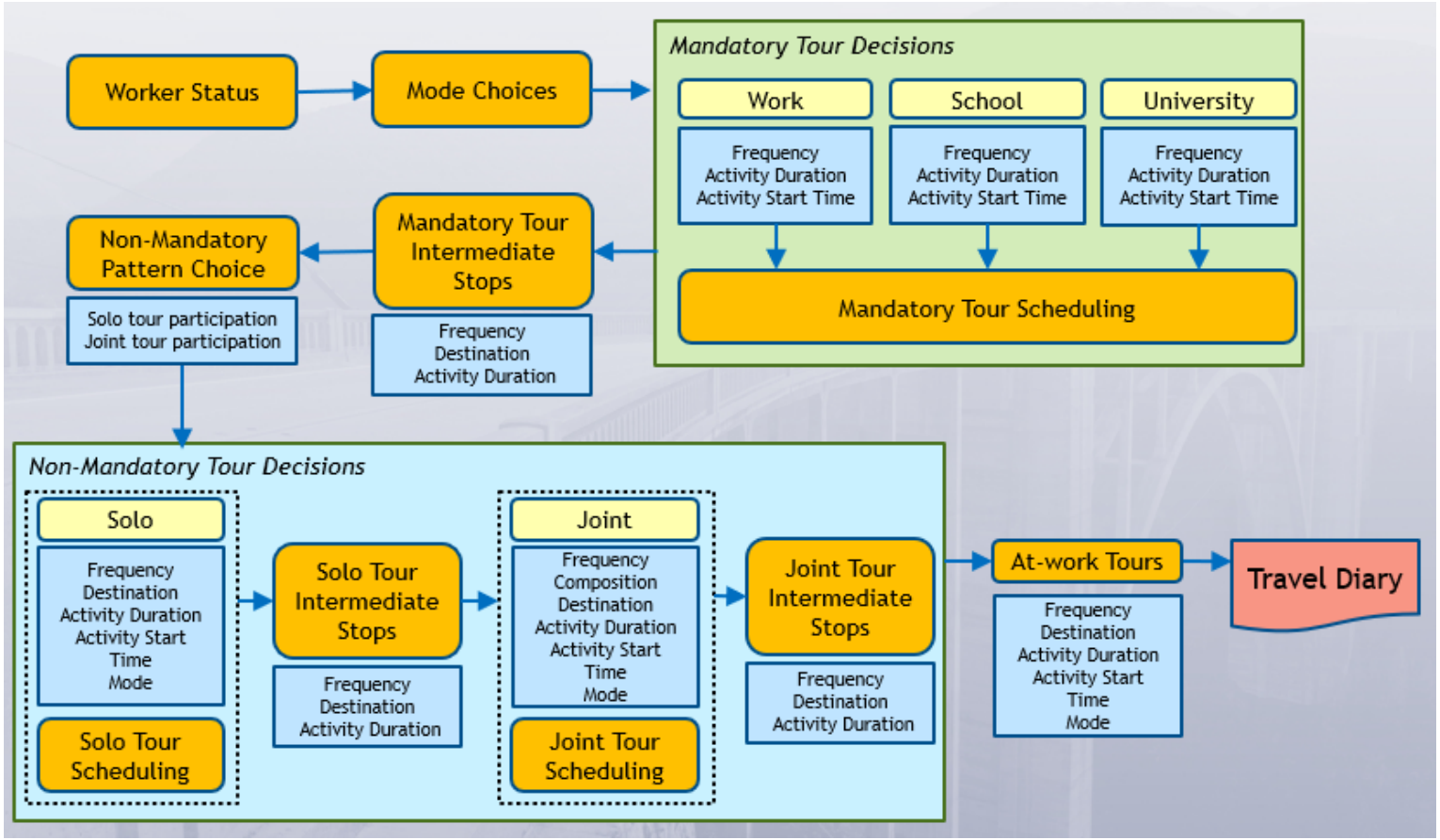
- Develop and apply an innovative modeling approach, ABM or Hybrid Model for AMBAG region:
  - Policy sensitive tools appropriate for Monterey Bay Area
  - More detailed representations of person level travel and activities pursued
  - More sensitive models of non-motorized modes
  - Built on a single software platform- easy to use, maintain and apply

RTDM & LU MODEL STATISTICS

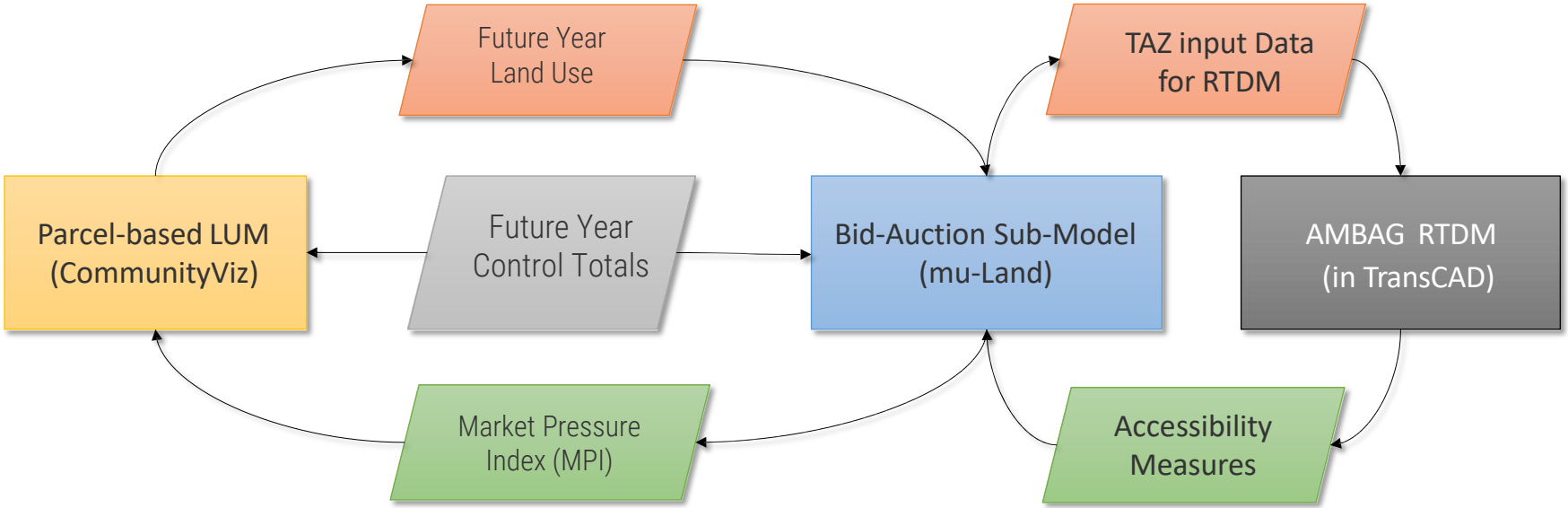
- Traffic Analysis Zones (TAZ)
- Parcels (County assessor)
- 2020 Census Geographies
  - 39,660 Blocks, 941 Block Groups
  - 298 Tracts, 10 PUMAs
- 2020 Base year network
- 2000 Households: ~503,000
- 2000 Population: ~1.47 million
- 2000 Employment: ~575,000
- 2000 Students (K-12): ~232,000
- 2000 College Students: ~117,000



ABM FRAMEWORK

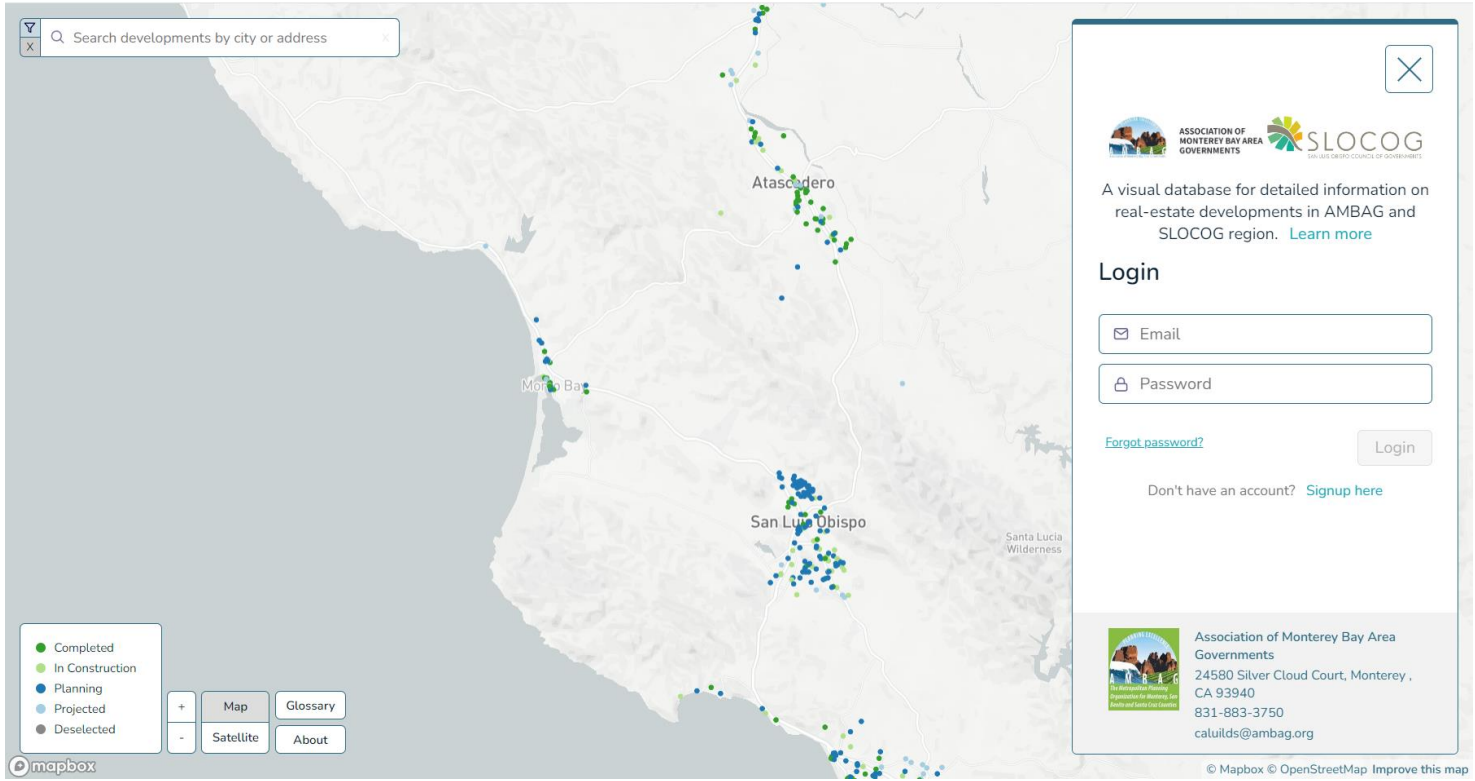


HIGH-LEVEL LAND USE MODEL ARCHITECTURE

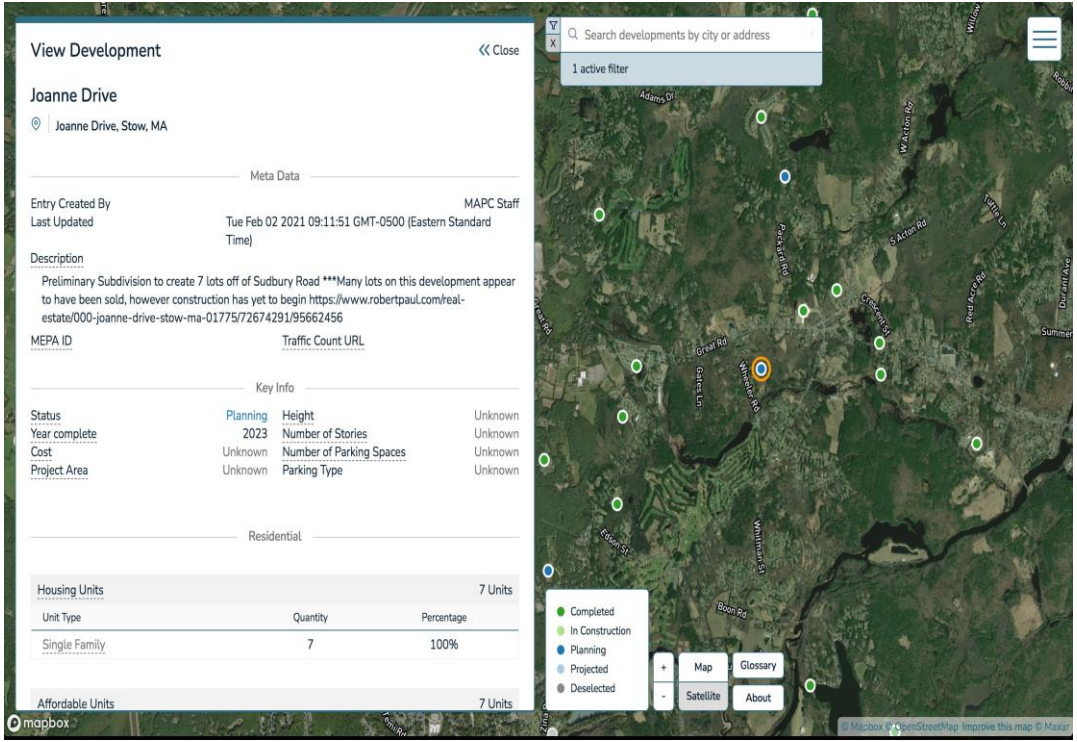


Data flows between the parcel-based LU Model and AMBAG RTDM

DEMO OF CALBUILDS TOOL

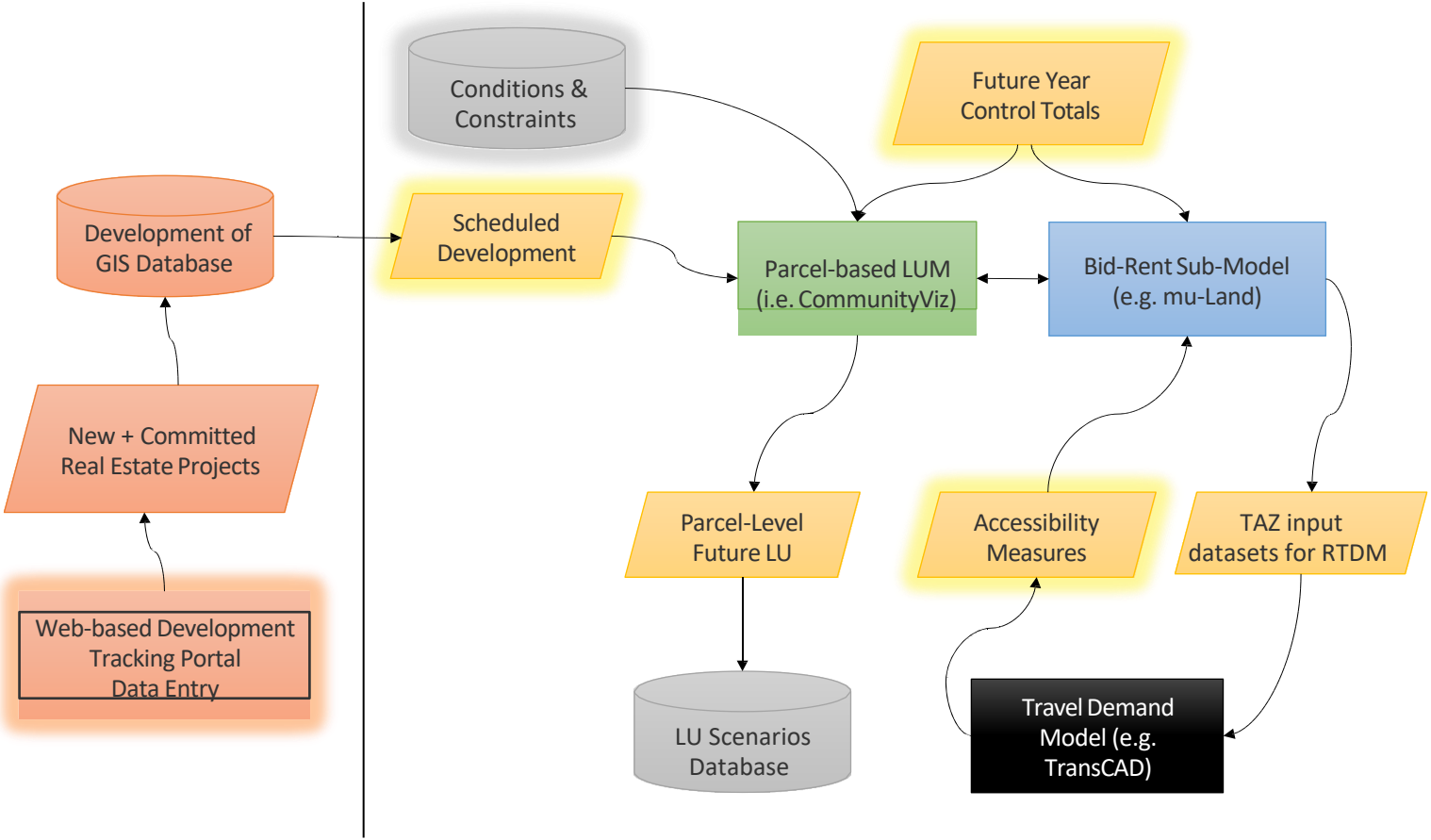


DEVELOPMENT MONITORING TOOL



- Web-based data entry portal open to local jurisdiction planners
- Open-source software customized for AMBAG's partner agencies
- Developing to gather info about upcoming development projects as well as current/completed projects

LU MODEL AND LAND USE TRACKING SYSTEM TOOL



MODEL SENSITIVITIES

Mandatory Choices

Variable	License	Status	Destination	Mode	Frequency	Duration	Start Time	Stop Frequency	Stop Destination	Stop Duration
Highway Time			X	X	X		X		X	X
Highway Distance			X					X	X	
Non Motorized Time				X						
Non Motorized Distance				X						
Transit Time				X						
Transit Fare				X						
Work Industry	X	X	X							
Age	X	X		X	X	X		X		X
Gender		X	X	X	X	X				
HH Size					X					
HH Income	X	X		X		X		X		
Auto Ownership		X		X				X		

Discretionary Choices

Variable	Pattern	Frequency & Purpose	Destination	Duration	StartTime	Mode	Stop Frequency	Stop Destination	Stop Duration	Composition (Joint)
Highway Time			X				X	X	X	
Highway Distance			X	X	X	X	X	X		
Non Motorized Time						X				
Non Motorized Distance						X				
Transit Time						X				
Age	X	X		X	X		X		X	X
Gender	X	X		X						
HH Income	X	X		X	X				X	X
HH Size	X									X
Auto Ownership	X					X	X			X
Work Status	X	X		X	X		X		X	X
License		X		X	X					

MODEL SENSITIVITIES

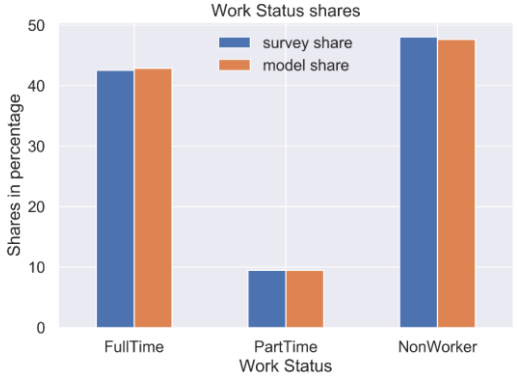
Mandatory Choices

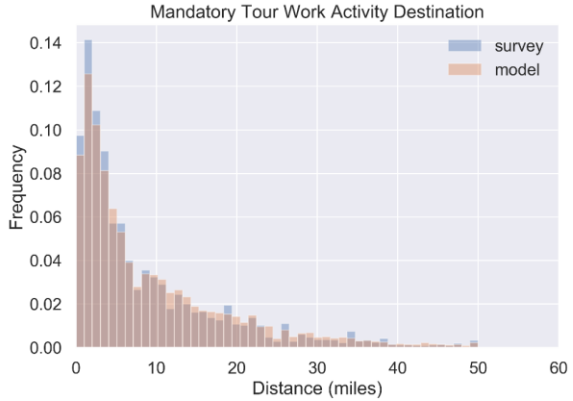
Variable	Destination	Stop Destination
Total Employment Density	X	
Job Mix Diversity	X	
Intersection Density		X
Transit Stop Density		X
Transit Accessibility to Retail		X
Retail and Service Employment Density		X
Household Density		X
Non Motorized Accessibility		X
Employment Data @ Workplace	X	
Population		X
School Enrollment	X	
Daycare Capacity		X

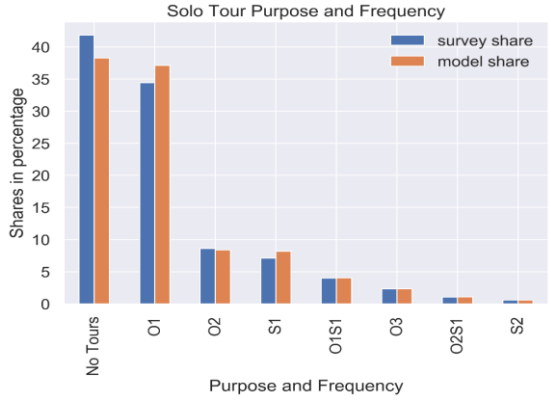
Discretionary Choices

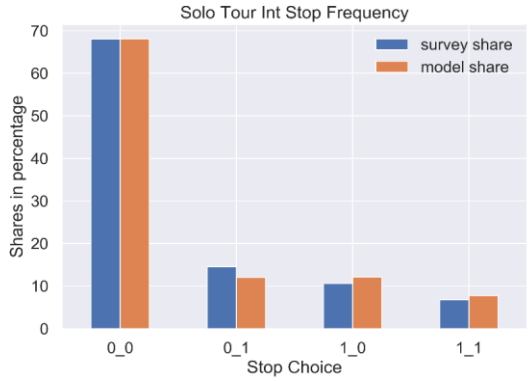
Variable	Pattern	Frequency & Purpose	Destination	Stop Destination
Total Employment Density			X	
Job Mix Diversity				
Intersection Density	X		X	X
Transit Stop Density			X	X
Transit Accessibility to Retail			X	X
Transit Accessibility to Jobs			X	
Retail Employment Density			X	
Retail and Service Employment Density	X		X	X
Household Density			X	X
Non Motorized Accessibility			X	X
Number of Local Intersections			X	
Population			X	X
Employment Data @ Workplace			X	X
Daycare Capacity				X
Destination Logsums		X		

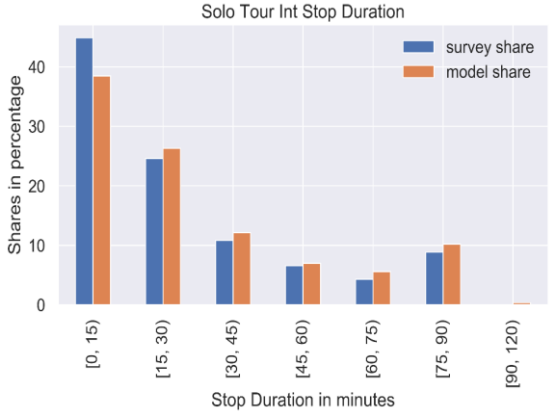
CALIBRATION RESULTS









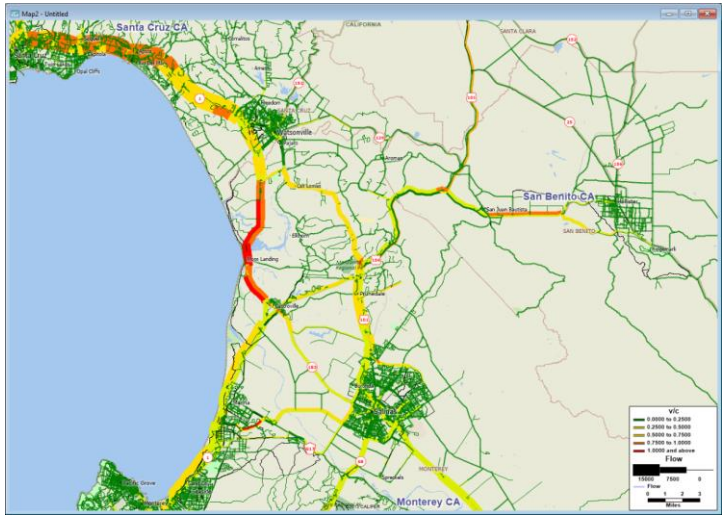


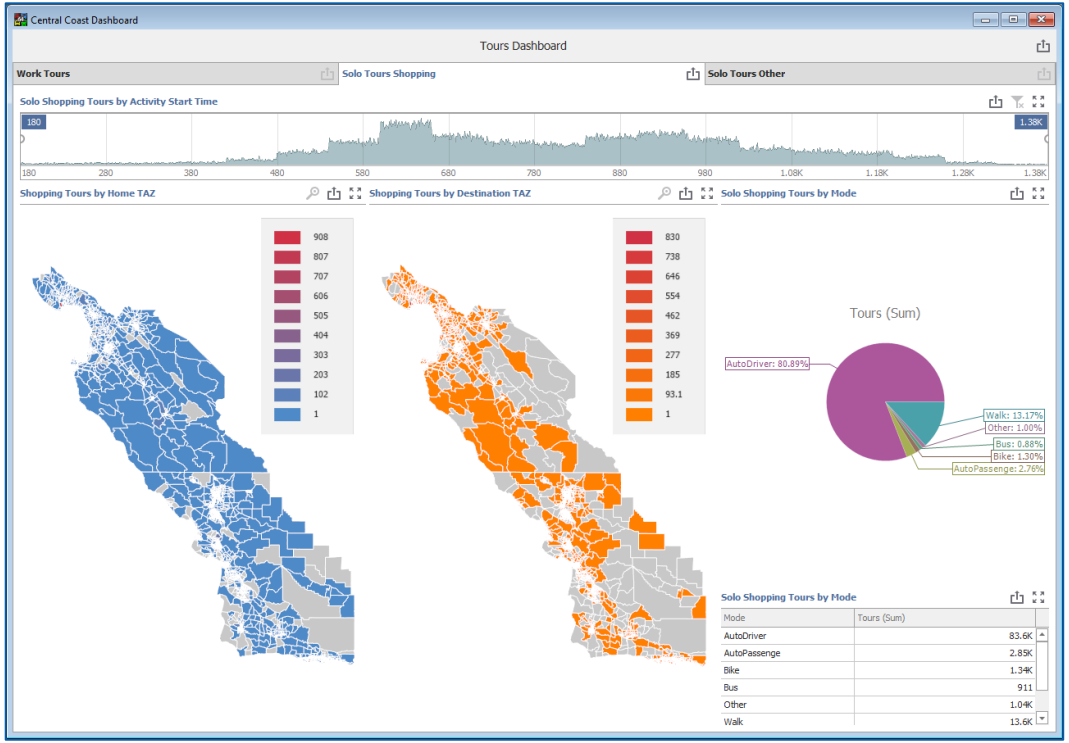
GRAPHICAL INTERFACE IN TRANSCAD

- Modern flowchart interface
- One-stop shop for entire model specification
- Streamlined, efficient ABM components
- Custom visualization dashboards
- Geographic Information System (GIS)
- Compatible with variety of network models
  - ➢ Static, dynamic traffic assignment (DTA)

MODEL VISUALIZATION

- Custom dashboards, maps and reports to utilize ABM outputs
  - ➢Leverages TransCAD's GIS capabilities





QUESTIONS?

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