

# Association of Monterey Bay Area Governments Regional Travel Demand Model Program

TAMC  
Technical Advisory Committee  
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# OUTLINE

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- 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

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- 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?

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- 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

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- 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

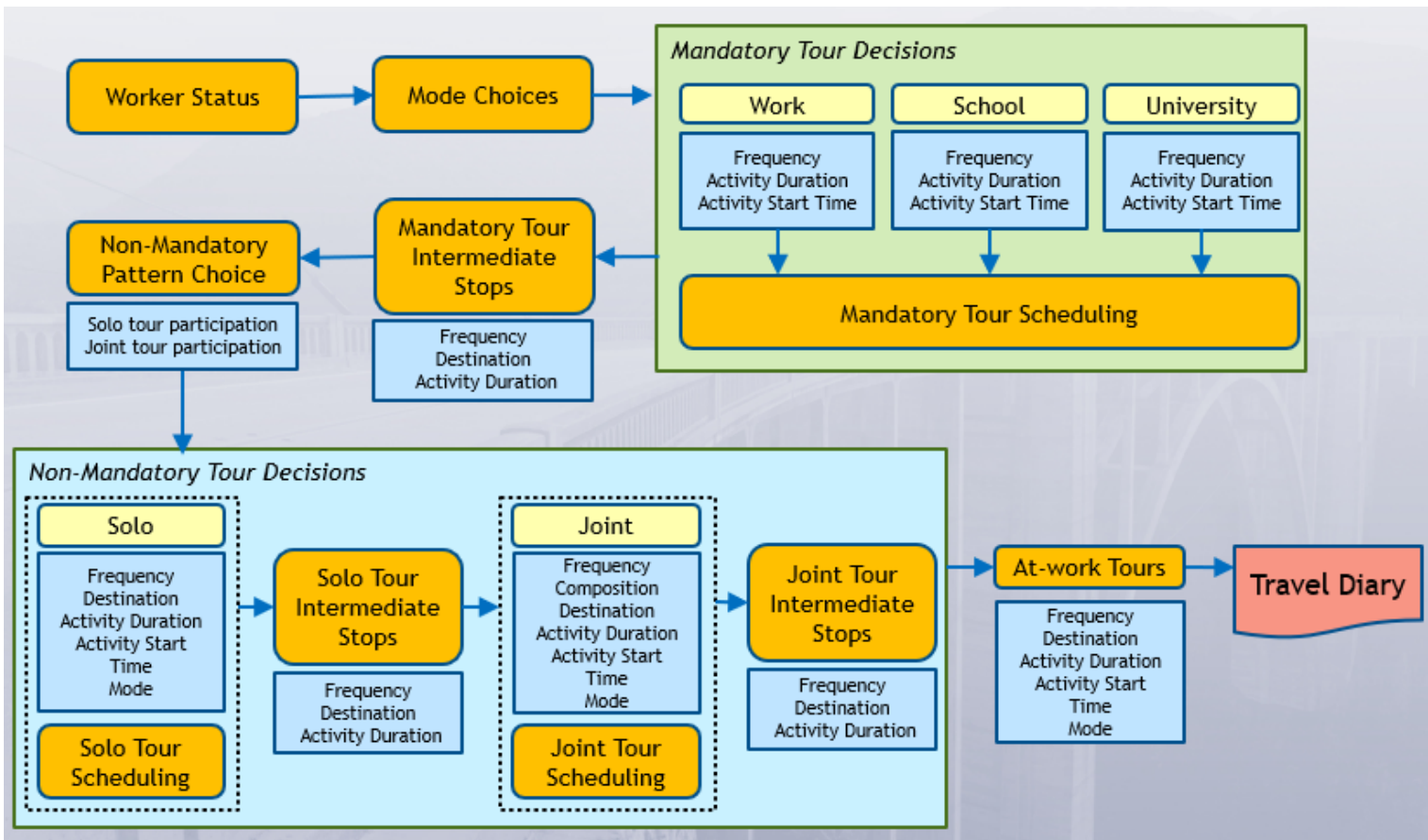
# RTDM & LU MODEL STATISTICS

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- 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

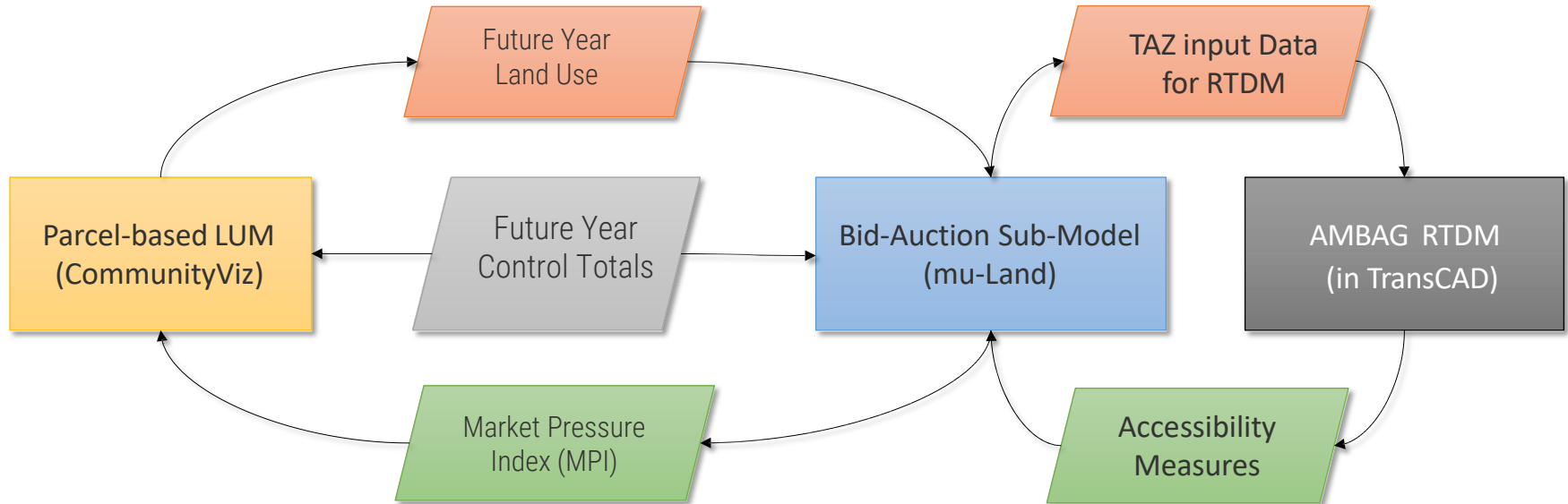


# ABM FRAMEWORK



# HIGH-LEVEL LAND USE MODEL ARCHITECTURE

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



# DEMO OF CALBUILDS TOOL

The screenshot displays the CALBUILDS tool interface. At the top left, there is a search bar with the placeholder text "Search developments by city or address". The main map area shows a topographic view of the Monterey Bay region, with numerous colored dots representing real-estate developments. The dots are color-coded according to their status: green for "Completed", light green for "In Construction", blue for "Planning", light blue for "Projected", and grey for "Deselected". Labels on the map include "Atascadero", "Moraga Bay", "San Luis Obispo", and "Santa Lucia Wilderness".

In the bottom left corner, there is a legend with five entries: "Completed" (green dot), "In Construction" (light green dot), "Planning" (blue dot), "Projected" (light blue dot), and "Deselected" (grey dot). Below the legend are navigation controls: a "+" button for "Map", a "-" button for "Satellite", and buttons for "Glossary" and "About". The Mapbox logo is visible in the bottom left corner.

On the right side, there is a sidebar with a close button (X) in the top right corner. The sidebar contains the following information:

- Logos for the "ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS" and "SLOCOG" (SLOCOG: SANTA LUCIA COASTAL COUNCIL OF GOVERNMENTS).
- A description: "A visual database for detailed information on real-estate developments in AMBAG and SLOCOG region. [Learn more](#)".
- A "Login" section with an "Email" input field, a "Password" input field, a "Forgot password?" link, and a "Login" button.
- A link: "Don't have an account? [Signup here](#)".
- Contact information for the Association of Monterey Bay Area Governments: "24580 Silver Cloud Court, Monterey, CA 93940", "831-883-3750", and "caluilds@ambag.org".
- A small logo for "MONTEREY BAY AREA GOVERNMENTS" with the text "The Monterey Bay Area Governments are committed to protecting the Ecology and Scenic Coast Values".

At the bottom right of the sidebar, there is a copyright notice: "© Mapbox © OpenStreetMap Improve this map".

# DEVELOPMENT MONITORING TOOL

The screenshot displays the 'View Development' interface for 'Joanne Drive' in Stow, MA. The interface is divided into a left-hand panel with metadata and a right-hand map view.

**View Development** (Close)

**Joanne Drive**  
Joanne Drive, Stow, MA

**Meta Data**

Entry Created By: MAPC Staff  
Last Updated: Tue Feb 02 2021 09:11:51 GMT-0500 (Eastern Standard Time)

**Description**  
Preliminary Subdivision to create 7 lots off of Sudbury Road \*\*\*Many lots on this development appear to have been sold, however construction has yet to begin <https://www.robertpaul.com/real-estate/00-joanne-drive-stow-ma-01775/72674291/95662456>

MEPA ID: \_\_\_\_\_ Traffic Count URL: \_\_\_\_\_

**Key Info**

Status	Planning	Height	Unknown
Year complete	2023	Number of Stories	Unknown
Cost	Unknown	Number of Parking Spaces	Unknown
Project Area	Unknown	Parking Type	Unknown

**Residential**

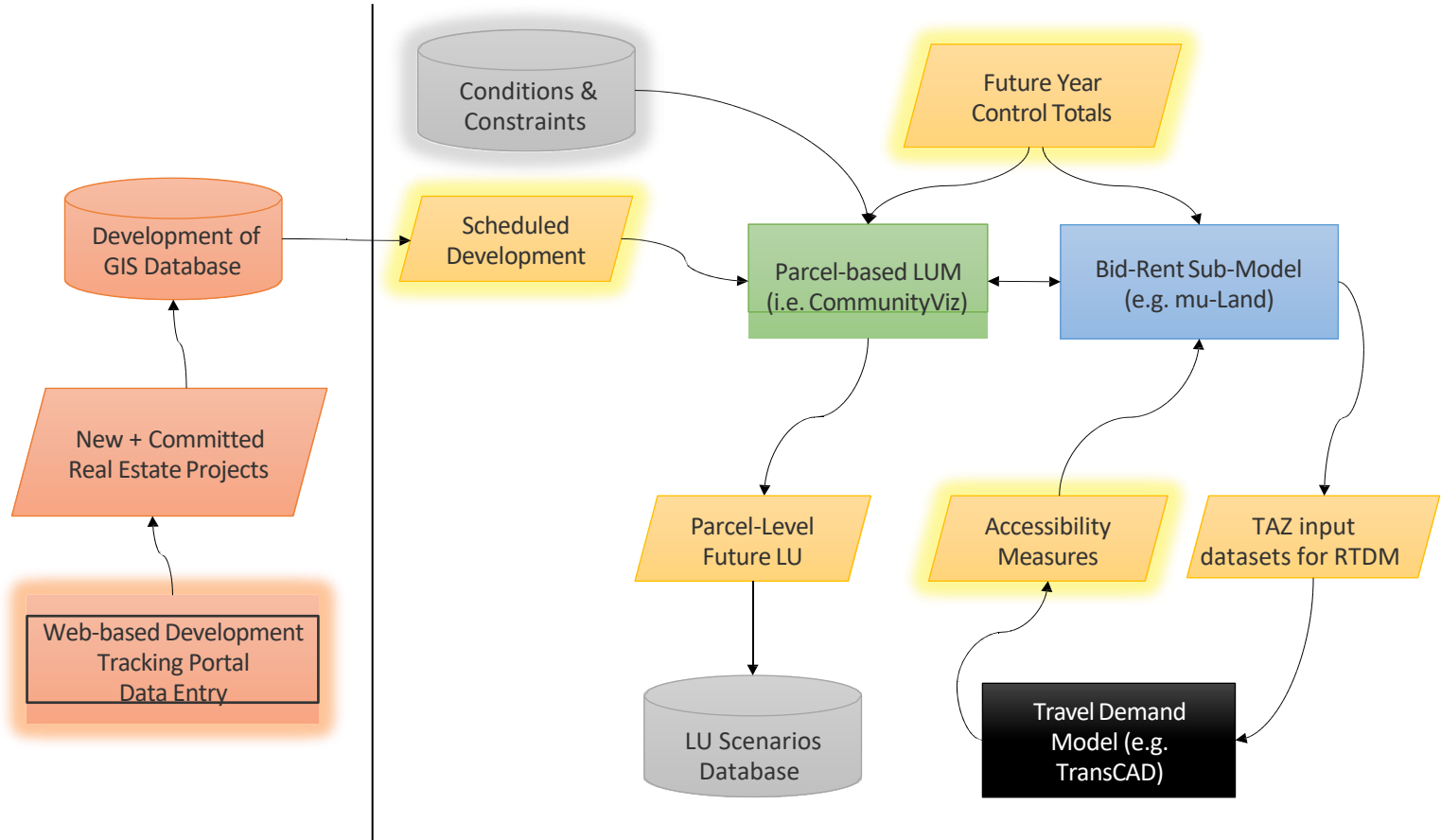
Housing Units		7 Units
Unit Type	Quantity	Percentage
Single Family	7	100%

Affordable Units: 7 Units

**Map View:** A satellite map showing the development location. A search bar at the top left contains 'Search developments by city or address' and shows '1 active filter'. A legend at the bottom left identifies development stages: Completed (green circle), In Construction (yellow circle), Planning (blue circle), Projected (light blue circle), and Deselected (grey circle). Map controls for zooming and switching views (Map, Satellite) are visible at the bottom.

- 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

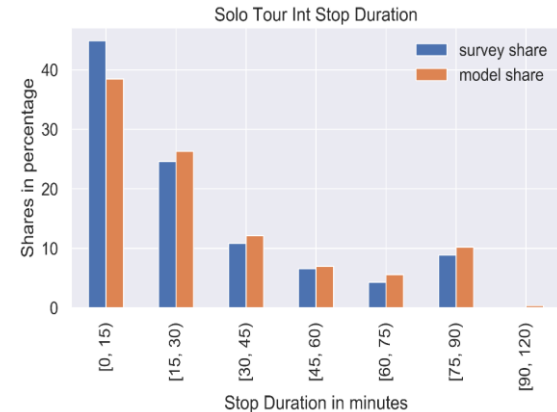
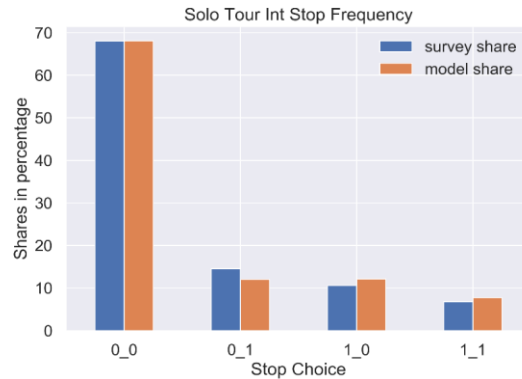
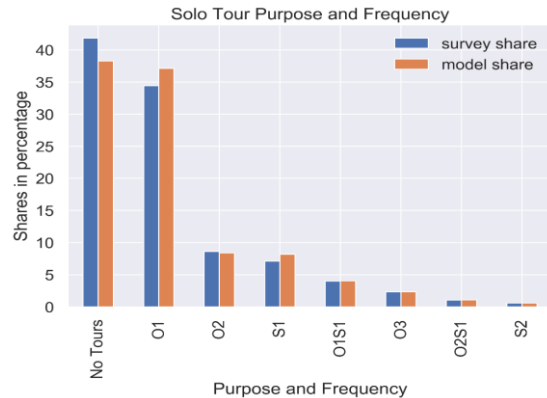
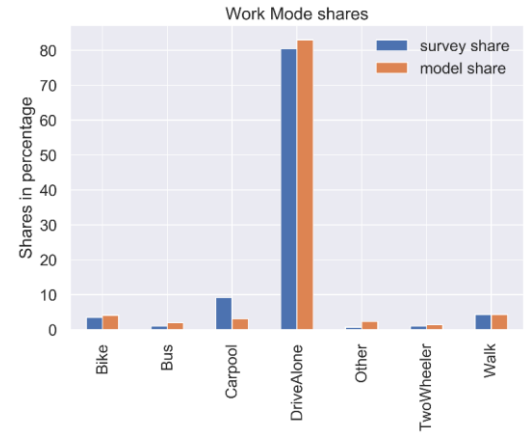
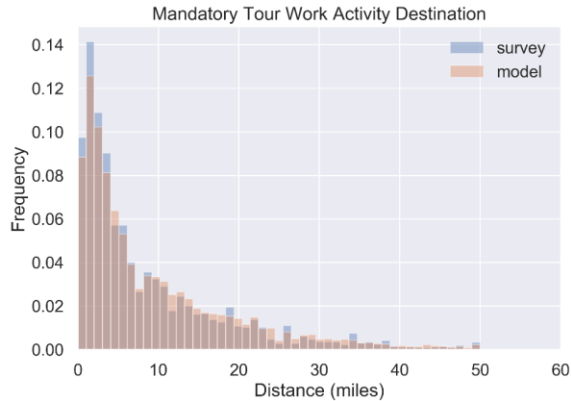
## Mandatory Choices

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

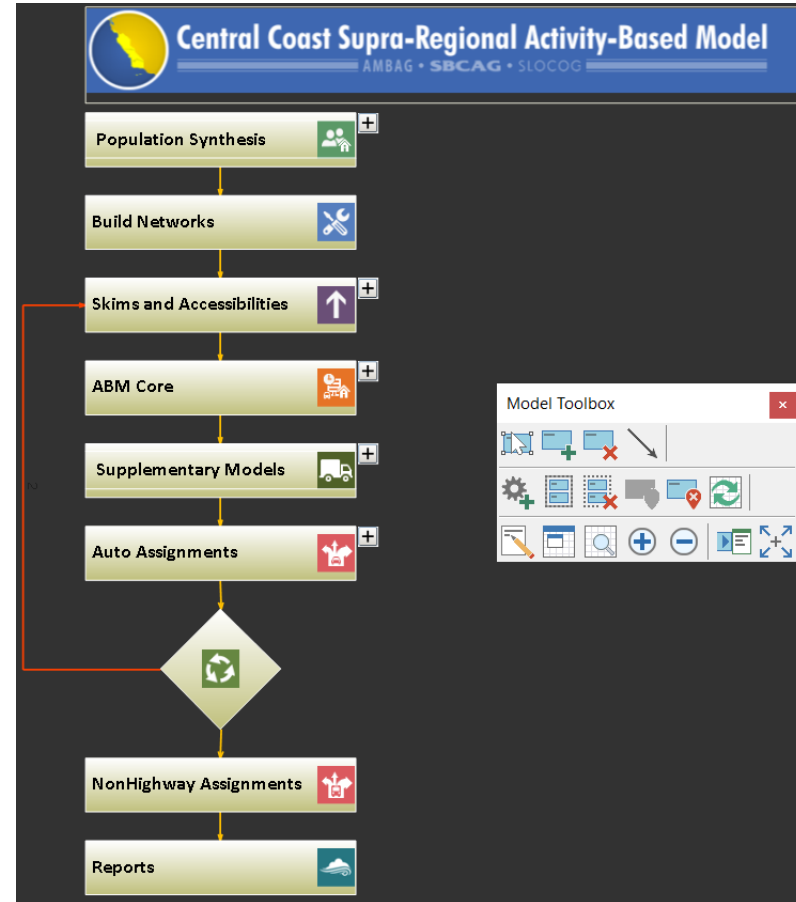
Variable	Pattern	Frequency & Purpose	Destination	Stop Destination
Total Employment Density			X	
Job Mix Diversity				
Intersection Density	X		X	X
Transit Stop Density			X	X
Transit Accessibility to Retail			X	X
Transit Accessibility to Jobs			X	
Retail Employment Density			X	
Retail and Service Employment 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



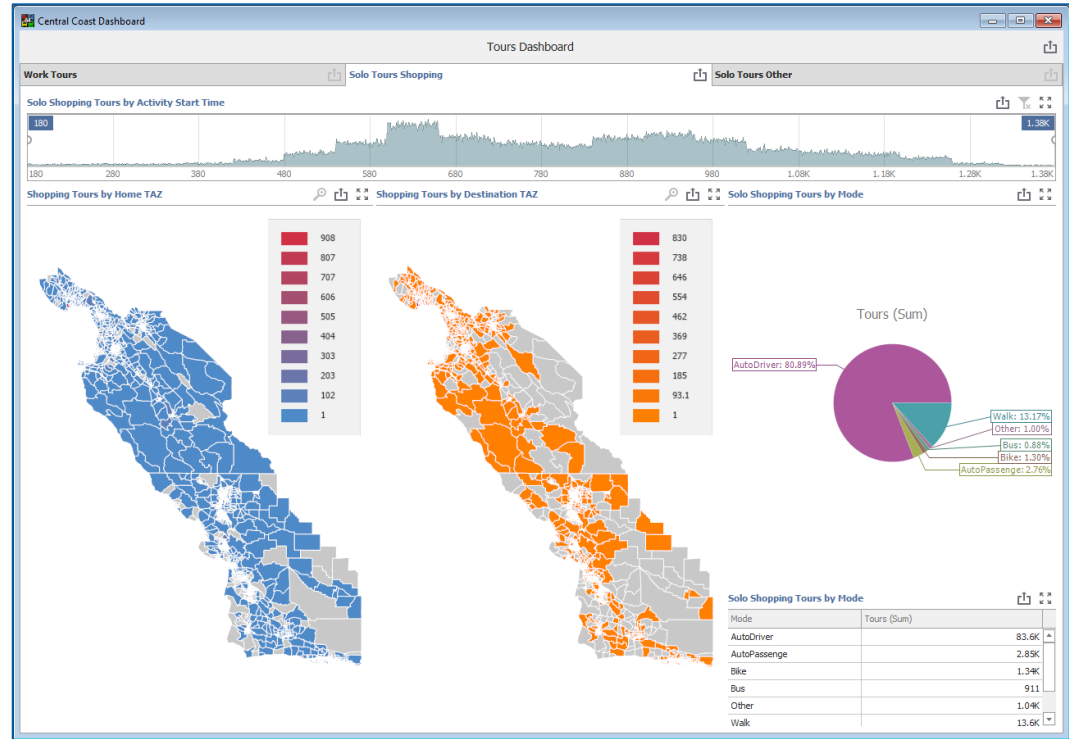
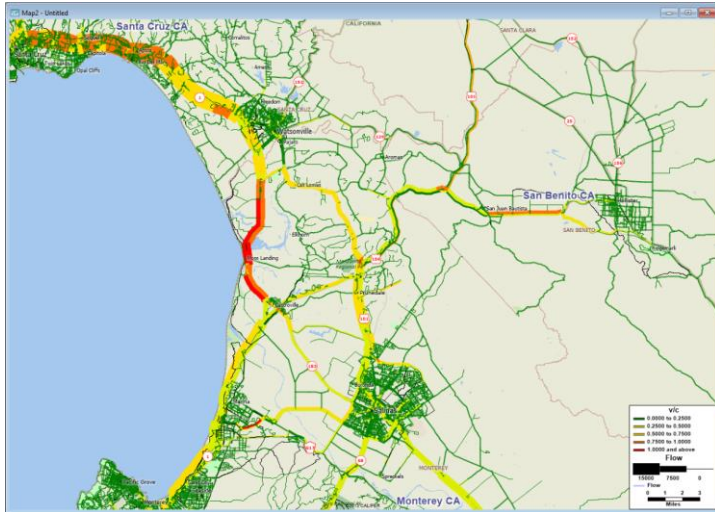
# GRAPHICAL INTERFACE IN TRANSCAD

- 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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