

California Statewide PECAS: Production Model

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Quick Facts

- Funder: California Department of Transportation
- Model development period: 2010 - 2012
- Project team
 - UC Davis
 - PI: Mike McCoy
 - 2 full time researchers and 1 full time student
 - HBA Specto
 - Site visits and on call
- Current status
 - AA setup: finished
 - SD setup: 75% finished
- Integrated travel model
 - Tour based short distance travel
 - Tour based long distance travel
 - Tour based short distance commercial travel
 - Tour based long distance commercial travel
 - Gateway trips
 - Expected delivery date: Sept. 30, 2010

Activities and Commodities in AA Module

- Activities
 - Industries: 63 (electricity utilities emphasized)
 - Households: 25, including 5 all seniors household types
- Commodities
 - Goods and services: 60 (including fuel, electricity, GHG permit, agriculture water use, etc.)
 - Labor: 19
 - Space: 38 (14 residential types; 24 non-residential types)
- Zone system
 - Land use zone: 526
 - Floorspace zone (TAZ): 5191

AA Inputs and Data Sources

- Aggregate economic flow: IMPLAN
 - Demargined for wholesale and retail
- Synthetic households by TAZ
 - Census PUMS
 - Census SF 3 summary files
 - Automated in Python
- Synthetic employment (by industry and occupation)
 - CTPP
 - InfoUSA
 - Automated in Python
- Technology options
 - Aggregate economic flow; Census PUMS; cluster analysis

AA Inputs and Data Sources, cont'd

- Floorspace inventory
 - EIA Space use survey
 - Synthetic employment
 - Existing land use
- Transport costs
 - BTS commodity flow survey
 - Midday skims from the travel model
 - Logsum of mode choice by trip purpose
- Rent
 - DataQuick transactions in 2000 (residential and non-residential)
 - CoStar (non-residential)

AA Inputs and Data Sources, cont'd

- Vacancy rate
 - Census SF 3 summary files
 - CoStar data
- Imports and exports
 - BTS commodity flow survey
 - IMPLAN
 - TradeView™, zepol

SD Inputs and Data Sources

- General land use plan
 - Generalized city/county general land use plans
 - 35 land use types
- Base parcel database
 - Existing land use type
 - Zoning
 - Year built
- Rent modifier
 - Distance to freeways
 - Distance to ramps
 - Distance to highways
 - Distance to beaches
 - Distance to parks
 - Distance to schools
 - Distance to rail roads

SD Inputs and Data Sources, cont'd

- Construction cost
 - RSMeans data
- Maintenance cost
- Typical FAR
- Density rent discount
- Demolition costs
- Age discount
 - Multiple sources

SD Inputs and Data Sources, cont'd

- Maximum/minimum intensity
 - Zoning ordinance
- Development fees
 - HCD database

AA Calibration Targets

- Buying and selling choice
 - Distance to buy or sell
 - CFS survey
- Technology choice
 - Synthetic population
 - PUMS
 - Cluster analysis
- Location choice
 - Synthetic population
 - Synthetic employment

SD Calibration Targets

- Transition constant
 - Building permit
 - Parcel data at two time points
- Dispersion parameter
 - Existing land use

Model Validation

- Time period
 - 2000 to 2006
- Targets
 - Multiple sources

Challenges in Model Development

- Data collection
 - Availability
 - Price
 - Quality
 - Consistency
- Lack of local knowledge
 - Judge of data quality
 - Judge of calibration targets
 - Output analysis