

The background features a large white circle with a thin grey border, centered on a dark grey background. In the bottom-left corner, there are several overlapping triangles in grey, yellow, orange, and blue. The text is centered within the white circle.

# Land Use & Demographics Workshop

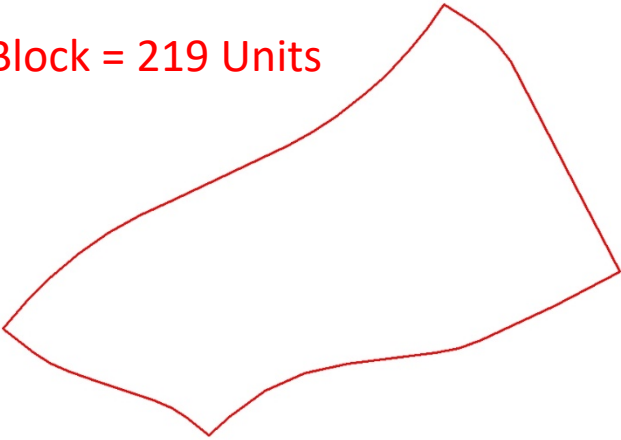
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# Land Use Forecasting for the MTP/SCS

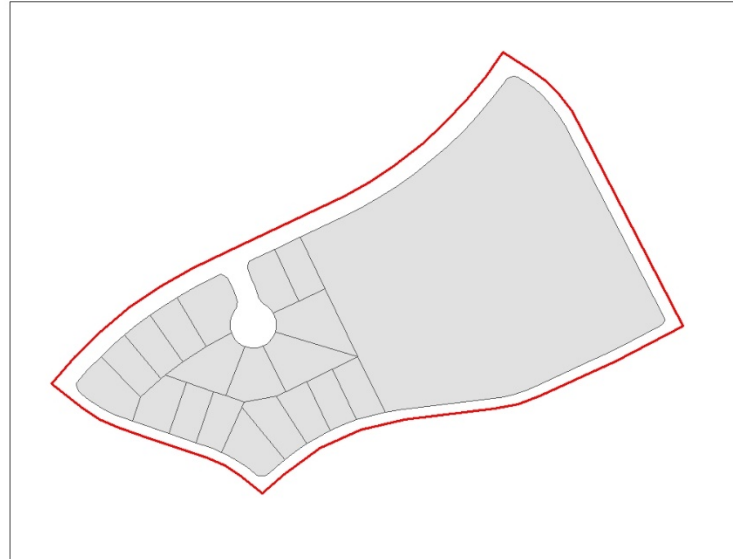
# Base Year Estimate

Unit counts by  
Census Block

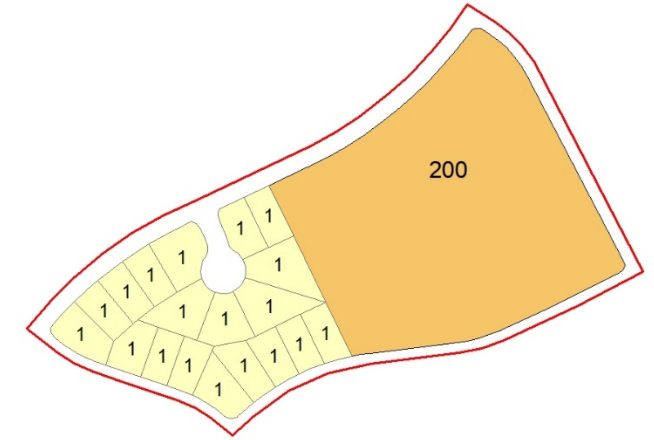
Block = 219 Units



Parcels

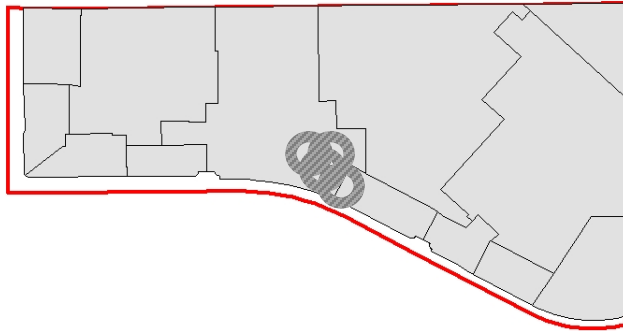


Parcel land use  
with housing units



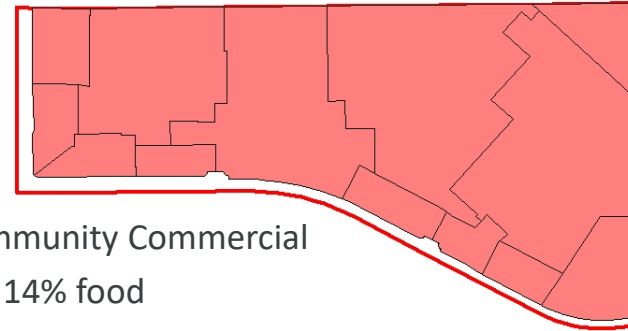
## 200 Employees (10 inventory points)

- 5 medical emp
- 20 food emp
- 20 service emp
- 75 office emp
- 80 retail emp



## 200 Employees (12 parcels)

- 0 medical emp
- 30 food emp
- 29 service emp
- 91 office emp
- 50 retail emp



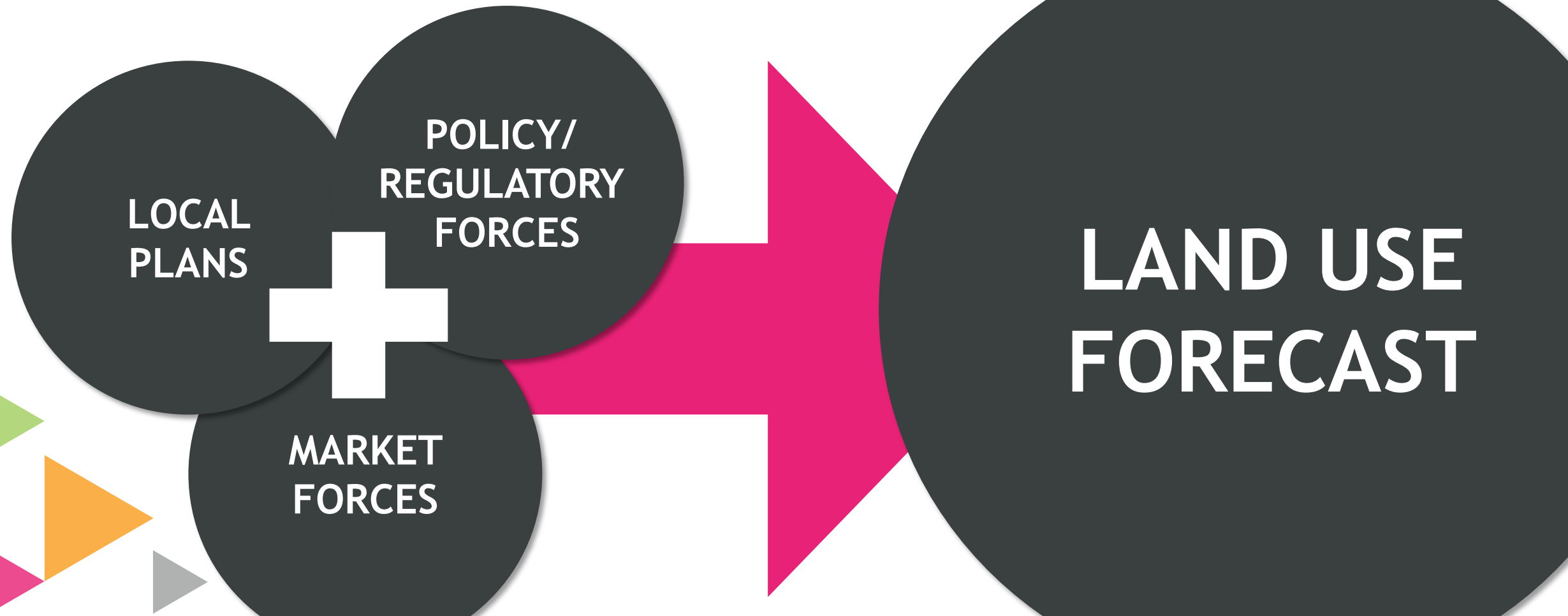
### Community Commercial

- 14% food
- 14% service
- 45% office
- 25% retail

# Supply & Demand in 2040

|       | SUPPLY       | DEMAND       | SURPLUS      |
|-------|--------------|--------------|--------------|
| Jobs  | 1.1 million  | 270 thousand | 860 thousand |
| Homes | 663 thousand | 260 thousand | 403 thousand |

# Where and What Growth is Most Likely to Occur?

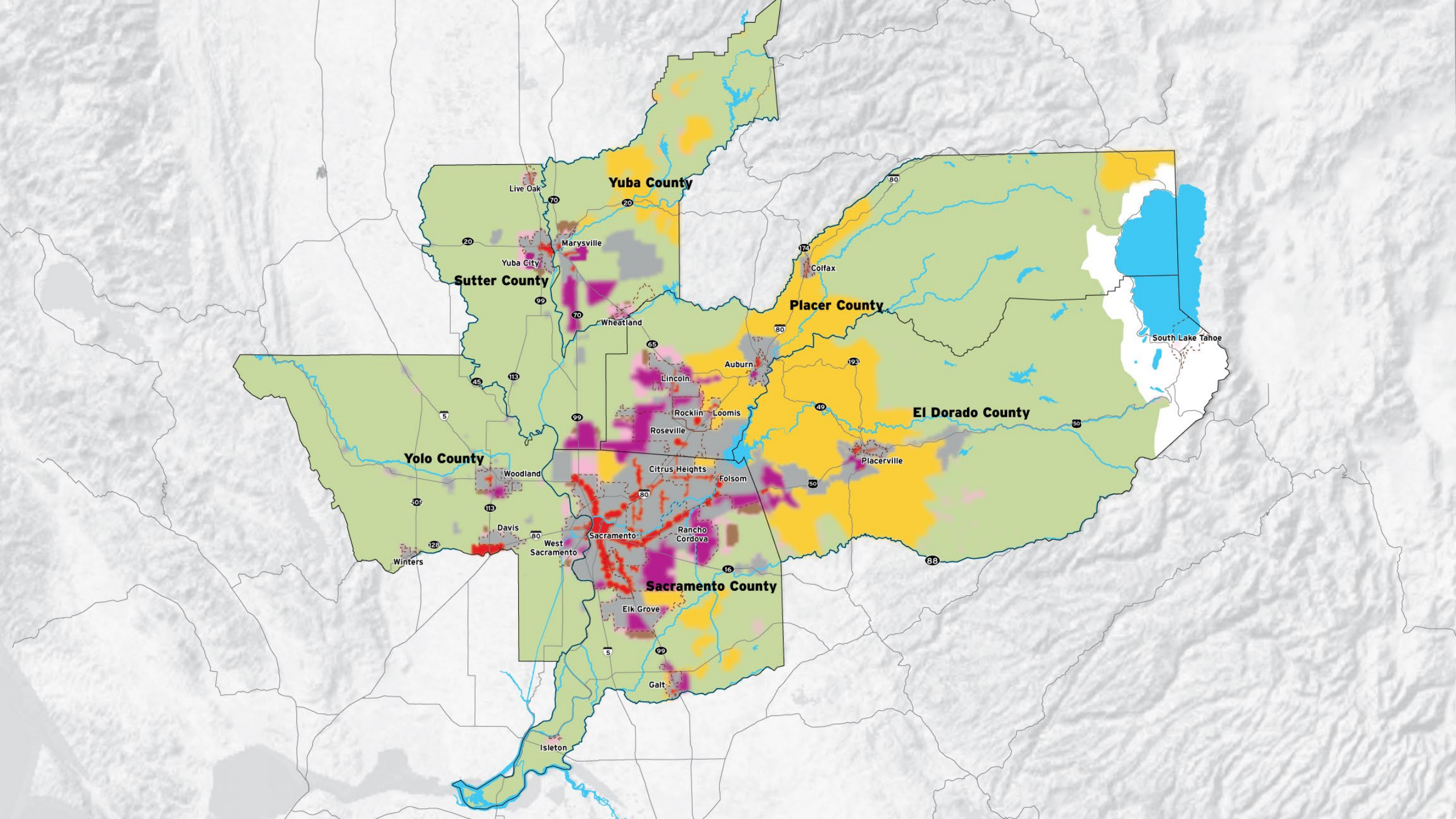


## Factors Considered in Updating the MTP/SCS Land Use Forecast

|            | Regulatory/Policy and Market Factors                    | Description of projects assumed to have the highest likelihood to build within 20 years                                                 | Middle range of conditions                                                                                                                                                                                                                                                                                                                                                                                                                                 | Description of projects assumed to have the lowest likelihood to build within 20 years                                   |
|------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| REGULATORY | Local Entitlements                                      | Specific Plan approved, Annexation complete (if required), Tentative Map(s) in process                                                  | Range of conditions includes: projects that are approved but still need annexation; projects approved but no tentative maps submitted; projects approved but have unsettled lawsuit; projects currently in process; projects in pre-application                                                                                                                                                                                                            | No current entitlement activity; identified by general plan or SOI as future growth area                                 |
|            | State/Federal Entitlements                              | Approved                                                                                                                                | Range of conditions includes: projects that are not yet approved but in process; projects participating in an HCP or NCCP; projects with no significant resource issues                                                                                                                                                                                                                                                                                    | Significant, unresolved resource issues                                                                                  |
| POLICY     | Air Quality                                             | In SCS with lower VMT than average for Developing Communities                                                                           | Range of conditions includes: projects that are in the SCS with average VMT; projects in the SCS with higher than average VMT; projects not in the SCS with lower than average VMT; projects not in the SCS with average VMT                                                                                                                                                                                                                               | Not in SCS with above average VMT for Developing Communities                                                             |
|            | Regional Plans and Policies                             | Consistent with 2012 MTP/SCS and Blueprint                                                                                              | Range of conditions includes: projects in MTP/SCS and partially consistent with Blueprint; projects in MTP/SCS and not consistent with Blueprint; projects consistent with Blueprint and not MTP/SCS; projects partially consistent with Blueprint and not in MTP/SCS                                                                                                                                                                                      | Not consistent with 2012 MTP/SCS or Blueprint                                                                            |
| MARKET     | Proximity to Job Centers                                | Close proximity to a regional jobs center                                                                                               | Range of conditions includes: projects partially within 4 miles of a regional job center; projects within 4 miles of a secondary job center; partially within 4 miles of a secondary job center                                                                                                                                                                                                                                                            | Significant distance from any job center(s)                                                                              |
|            | Housing Mix                                             | Mix of housing types including mostly small-lot and attached                                                                            | Range of conditions includes: projects that have a mix of housing types including small-lot and attached housing at varying amounts; projects that are primarily large-lot residential because they are in more rural areas                                                                                                                                                                                                                                | All large-lot single-family where higher densities could be supported (i.e more urban or suburban locations)             |
|            | Market Area Saturation                                  | Historically high market demand and limited number of approved or pending projects in market area                                       | Range of conditions includes: projects in areas with high market demand and high number of approved or pending projects in market area; projects in areas with average market demand and a high number of approved or pending projects in market area; projects in area with lower market demand and a high number of approved or pending projects in market area, but have a unique factor that could significantly change the market demand for the area | Historically low market demand and a high number of approved or pending projects in market area                          |
|            | Adjacency                                               | Adjacent to existing urban development or has significant borders with a city boundary or areas designated for future urban development | Range of conditions includes: projects that are adjacent to existing development at varying rates                                                                                                                                                                                                                                                                                                                                                          | Less than 10% adjacent with existing urban development, a city boundary or areas designated for future urban development |
|            | Developer Activity                                      | Very active, single ownership or experienced ownership partnerships, multiple completed projects in region                              | Range of conditions includes: very active to active, single or multiple ownerships with no development history; single or multiple ownerships with varying levels of activity and some projects completed in the region; single or multiple ownerships with varying levels of activity and no history of completed projects in or outside the region                                                                                                       | Not active, single or multiple ownership, no completed projects in the region                                            |
|            | Transportation Infrastructure                           | No major or regional infrastructure needed or infrastructure is fully funded                                                            | Range of conditions includes: projects that have some infrastructure, but need more; projects that can build some before significant infrastructure investment is needed; projects that need significant infrastructure and have funding                                                                                                                                                                                                                   | Significant infrastructure needed and not funded or not yet defined                                                      |
|            | Other Infrastructure (sewer, water, flood control, etc) | No major or regional infrastructure needed or infrastructure is fully funded                                                            | Range of conditions includes: projects that have some infrastructure, but need more; projects that can build some before significant infrastructure investment is needed; projects that need significant infrastructure and have funding                                                                                                                                                                                                                   | Significant infrastructure needed and not funded or not yet defined                                                      |

# Employee Type $\neq$ Land Use Form





# Centers & Corridors



# Centers & Corridors

Land uses in Center and Corridor Communities are typically higher density and more mixed than surrounding land uses. Centers and Corridors are identified in local plans as historic downtowns, main streets, suburban or urban commercial corridors, rail station areas, central business districts, or town centers. They typically have more compact development patterns, a greater mix of uses, and a wider variety of transportation infrastructure compared to the communities surrounding them. Some have frequent transit service, either bus or rail, and all have pedestrian and bicycling infrastructure that is more supportive of walking and bicycling than other Community Types.



# Established Communities



# Established Communities

Established Communities are typically the areas adjacent to, or surrounding, Center and Corridor Communities. Many are characterized as “first tier,” “inner ring,” or mature suburban communities. Local land use plans aim to maintain the existing character and land use pattern in these areas. Land uses in Established Communities are typically made up of existing low-to medium-density residential neighborhoods, office and industrial parks, or commercial strip centers. Depending on the density of existing land uses, some Established Communities have bus service; others may have commuter bus service or very little service. The majority of the region’s roads are in Established Communities in 2012 and in 2036.





# Developing Communities

Developing Communities are typically, though not always, situated on vacant land at the edge of existing urban or suburban development; they are the next increment of urban expansion. Developing Communities are identified in local plans as special plan areas, specific plans, or master plans and may be residential-only, employment-only, or a mix of residential and employment uses. Transportation options in Developing Communities often depend, to a great extent, on the timing of development. Bus service, for example, may be infrequent or unavailable today, but may be available every 30 minutes or less once a community builds out. Walking and bicycling environments vary widely though many Developing Communities are designed with dedicated pedestrian and bicycle trails.



# Rural Residential



# Rural Residential

Rural Residential Communities are typically located outside of urbanized areas and designated in local land use plans for rural residential development. Rural Residential Communities are predominantly residential with some small-scale hobby or commercial farming. Travel occurs almost exclusively by automobile and transit service is minimal or nonexistent.



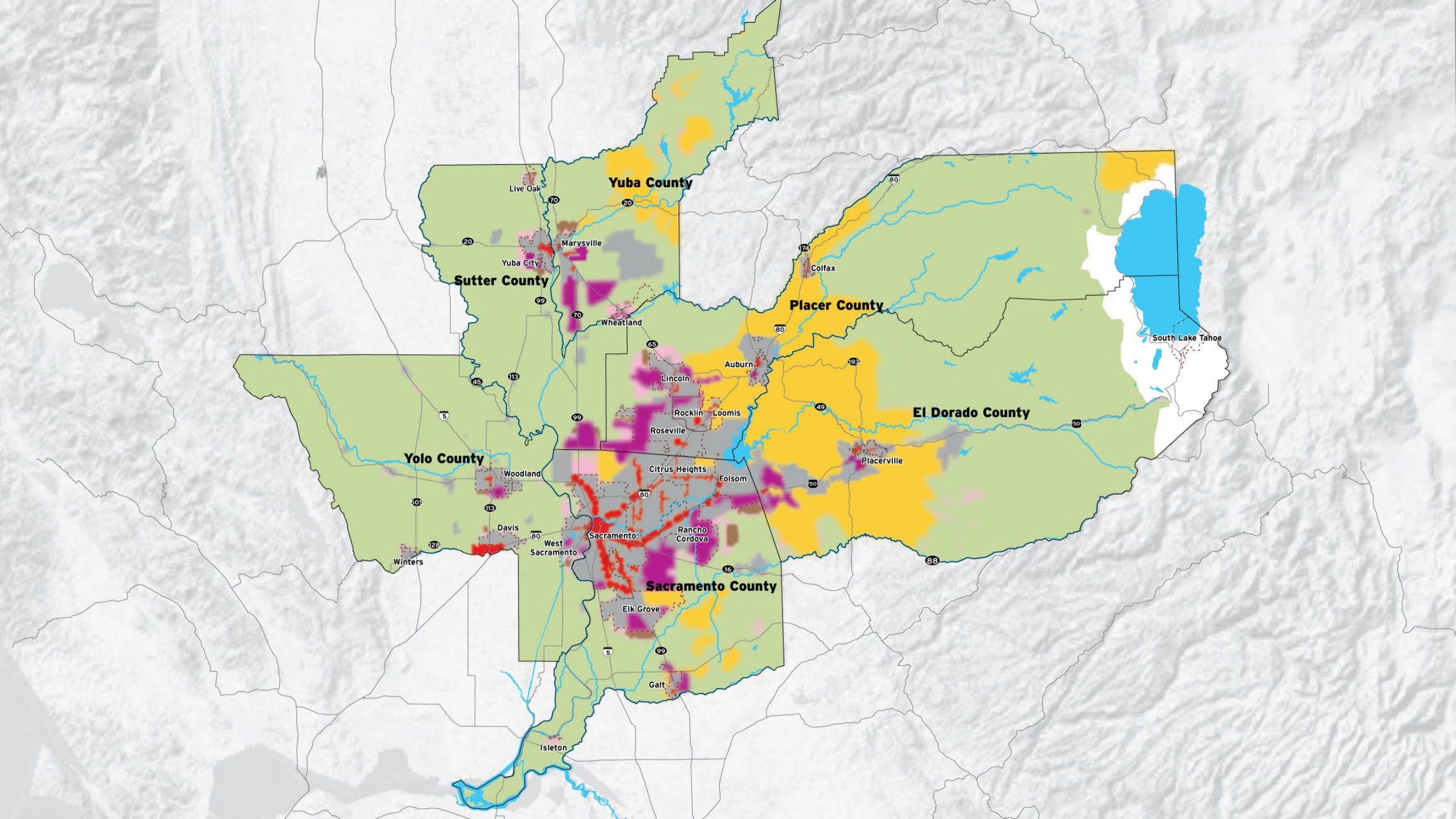
# Lands Not Identified for Development



# Lands Not Identified for Development

These areas of the region are not expected to develop to urban levels during the MTP/SCS planning period. Today, these areas are dominated by commercial agriculture, forestry, resource conservation, mining, flood protection, or a combination of these uses. Some have long-term plans and policies to preserve or maintain the existing “non-urban” uses; however, some are covered under adopted or proposed plans that allow urban development and/or are included in the adopted Blueprint vision for future growth.





# Key Land Use & Transportation Characteristics of the MTP/SCS

| Land Use/ Transportation Factor               | Community Area Type |             |            |                   |                  |
|-----------------------------------------------|---------------------|-------------|------------|-------------------|------------------|
|                                               | Center and Corridor | Established | Developing | Rural Residential | Regional Average |
| Year 2016                                     |                     |             |            |                   |                  |
| Regional Accessibility <sup>1</sup> (Auto)    | 595,581             | 409,636     | 208,180    | 113,976           | 377,257          |
| Regional Accessibility <sup>1</sup> (Transit) | 26,864              | 2,767       | 137        | 462               | 4,829            |
| Street Pattern/Urban Design <sup>2</sup>      | 132                 | 88          | 47         | 14                | 91               |
| Mix of Use <sup>3</sup>                       | 33                  | 29          | 9          | 8                 | 28               |
| Distance to Nearest Transit <sup>4</sup>      | 0.20                | 0.71        | 1.54       | 5.67              | 0.91             |
| Residential Density <sup>5</sup>              | 11.0                | 4.5         | 1.8        | 0.2               | 1.2              |
| 2040 MTP/SCS                                  |                     |             |            |                   |                  |
| Regional Accessibility <sup>1</sup>           | 762,200             | 518,317     | 317,573    | 163,729           | 486,796          |
| Regional Accessibility <sup>1</sup> (Transit) | 86,163              | 17,239      | 2,684      | 1,180             | 22,362           |
| Street Pattern/Urban Design <sup>2</sup>      | 170                 | 102         | 111        | 15                | 113              |
| Mix of Use <sup>3</sup>                       | 37                  | 31          | 22         | 8                 | 30               |
| Distance to Nearest Transit <sup>4</sup>      | 0.20                | 0.65        | 1.22       | 5.97              | 0.85             |
| Residential Density <sup>5</sup>              | 14.0                | 4.7         | 3.2        | 0.2               | 2.0              |
| Change from 2016                              |                     |             |            |                   |                  |
| Regional Accessibility <sup>1</sup> (Auto)    | 28%                 | 27%         | 53%        | 44%               | 29%              |
| Regional Accessibility <sup>1</sup> (Transit) | 221%                | 523%        | 1861%      | 155%              | 363%             |
| Street Pattern/Urban Design <sup>2</sup>      | 29%                 | 16%         | 136%       | 8%                | 24%              |
| Mix of Use <sup>3</sup>                       | 12%                 | 5%          | 154%       | 9%                | 7%               |
| Distance to Nearest Transit <sup>4</sup>      | 0%                  | -9%         | -21%       | 5%                | -7%              |
| Residential Density <sup>5</sup>              | 27%                 | 5%          | 76%        | 1%                | 60%              |

# Key Land Use & Transportation Characteristics of the MTP/SCS

| Land Use/ Transportation Factor               | Community Area Type |             |            |                   |                  |
|-----------------------------------------------|---------------------|-------------|------------|-------------------|------------------|
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# Developing the Parcel file for SACSIM

## Parcel land use table in Daysim

- Parcel level: Household, EMP by 9 categories, school enrollments, Parking etc.
- Buffers: two levels (old: quarter/half miles, new: buffer1/buffer2 with weighting in contents)
- Distance: Bus and LRT stations

# Variables in Parcel File

|          |                                                                                                                 |
|----------|-----------------------------------------------------------------------------------------------------------------|
| lotype_p | The land use type code (housing density class)                                                                  |
| hh_p     | The number of households residing on the parcel                                                                 |
| stugrd_p | The number of grade school (K-8) students enrolled at the parcel                                                |
| stuhgh_p | The number of high school students enrolled at the parcel                                                       |
| stuuni_p | The number of college students enrolled at the parcel                                                           |
| empedu_p | The number of educational employees working at the parcel                                                       |
| empfoo_p | The number of food service employees working at the parcel                                                      |
| empgov_p | The number of government employees working at the parcel                                                        |
| empind_p | The number of industrial employees working at the parcel                                                        |
| empmed_p | The number of medical employees working at the parcel                                                           |
| empofc_p | The number of (other) office employees working at the parcel                                                    |
| empret_p | The number of retail employees working at the parcel                                                            |
| empsvc_p | The number of (other) service employees working at the parcel                                                   |
| empoth_p | The number of other sector employees working at the parcel (typically agriculture, mining - not used for SACOG) |
| emptot_p | The total number of employees working at the parcel (equals the sum of the previous 9 values)                   |
| parkdy_p | The number of paid off street parking spaces on the parcel with per day pricing                                 |
| parkhr_p | The number of paid off street parking spaces on the parcel with per hour pricing                                |
| ppricdyp | The average price per day for paid off street parking spaces on the parcel                                      |
| pprichrp | The average price per hour for paid off street parking spaces on the parcel                                     |

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# Generating a Representative Population

# Generating a Representative Population

- ACS Data
  - Controls Used
  - Occupancy Rates by Tract
- PUMS Data
  - Sample data
- Household Travel Survey Comparisons
- Employment Sub Categories
- Students
- Senior Facilities
- Creating Marginal Files
  - Going from Dueling units to Households to person

Corresponding Sample Categories with Marginal Variables

a. Do you wish to match distributions of both Persons and Household attributes of interest?

☒ Yes

☐ No

b. Set the correspondence between the sample variable categories and the columns in the Marginals table

Household VariablesPerson VariablesGroupquarters Variables

Do you wish to modify the household size marginal distribution?

☐ Yes

☒ No

Select the household size variable name

Enter the average value for the last household size category

Select the person variable to obtain the person total

hsize

agec

Sample Table

hhld\_sample

Marginal Table

hhld\_marginals

Sample Variable

np  
nworker  
hincp  
wif  
age\_owner  
seri\_old

Select>>

<<Deselect

Selected Variable

hsize  
worker  
income  
hher  
univ

Selected Variable Categories

worker, Category 4  
income, Category 1  
income, Category 2  
income, Category 3  
income, Category 4  
income, Category 5  
hher, Category 1  
hher, Category 2  
hher, Category 3  
univ, Category 1  
univ, Category 2

Marginal Variables

worker3  
income1  
income2  
income3  
income4  
income5  
hher1  
hher2  
hher3  
uni1  
uni2

Correspondence between the Sample Variable Categories and the Marginal Variables

hsize, Category 1 - size1  
hsize, Category 2 - size2  
hsize, Category 3 - size3  
hsize, Category 4 - size4  
worker, Category 1 - worker0  
worker, Category 2 - worker1  
worker, Category 3 - worker2  
worker, Category 4 - worker3  
income, Category 1 - income1  
income, Category 2 - income2  
income, Category 3 - income3

Add Correspondence

Delete Correspondence

Note: Select household/person/groupquarter variables of interest from the 'Sample Variable' that you wish to control. Once these have been selected, create appropriate mapping between the categories of the selected variables and the columns in the marginal tables. To do this, highlight a category from the 'Selected Variable Categories' and the corresponding column name under the 'Marginal Variables' and click on 'Add Correspondence'.

OK

Cancel

# Population/Demographic Inputs



Based on input from the expert panel and stakeholders, CCSCE developed a final set of regional growth projections for the SACOG region.

Table 7 SACOG Region  
Final Projections  
(Thousands)

|            | 1990    | 2016    | 2025    | 2040    | 2050    |
|------------|---------|---------|---------|---------|---------|
| Jobs       | 736.2   | 1,087.8 | 1,197.9 | 1,347.7 | 1,459.7 |
| Population | 1,614.3 | 2,458.1 | 2,721.3 | 3,086.4 | 3,276.9 |
| Households | 712.9   | 863.7   | 973.1   | 1,139.7 | 1,225.6 |

CENTER FOR CONTINUING STUDY OF THE CALIFORNIA ECONOMY

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www.ccsce.com

December 2017

SACOG Growth Forecast 2016-2050

Final Report

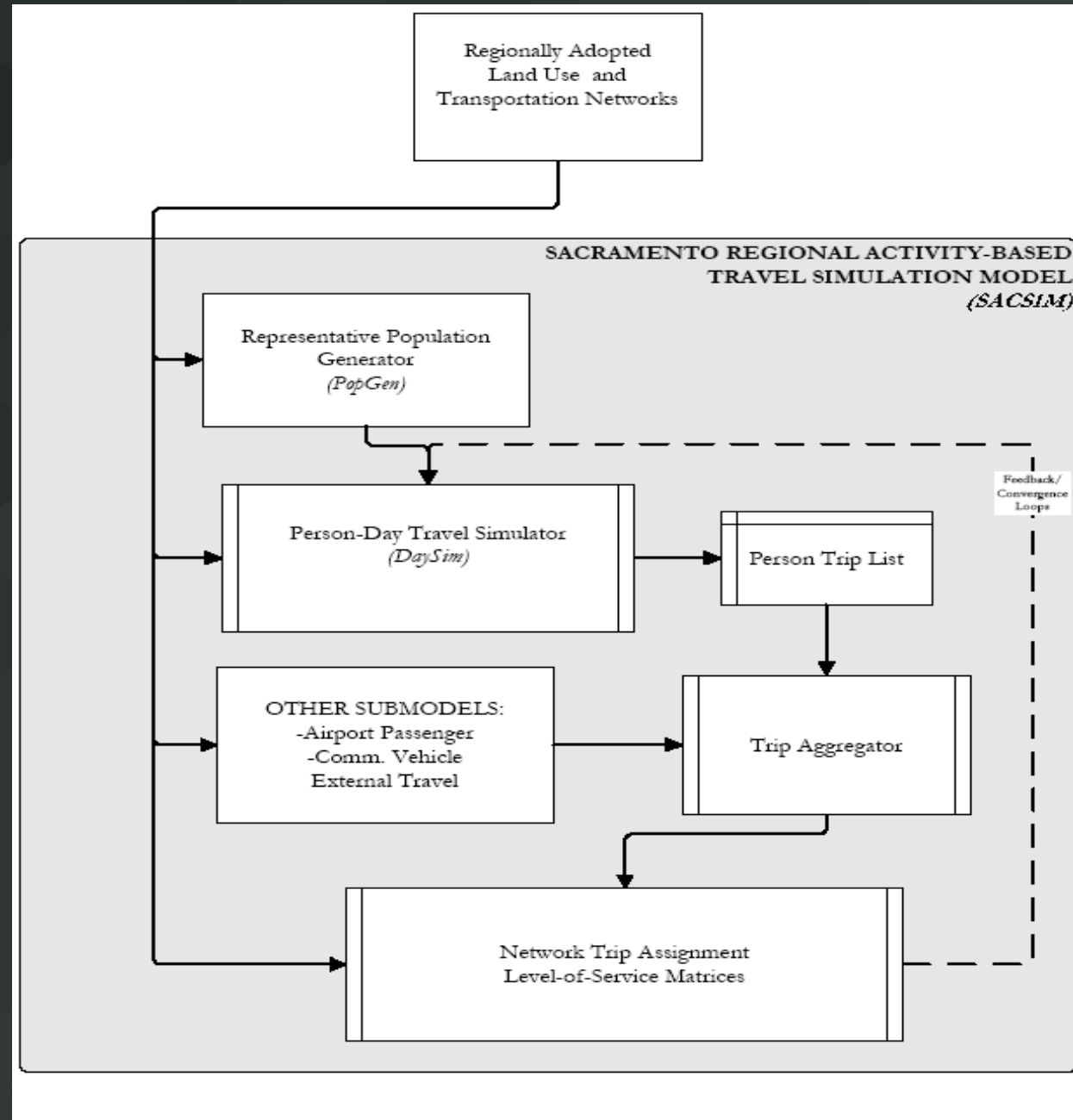
|                  | 2035 Growth |         |           |              |
|------------------|-------------|---------|-----------|--------------|
| from parcel file | 12748       | 220,491 | 1,087,831 | (867,340.38) |
| tr_cm_code       | size1       | size2   | size3     | size4        |
| 10101_Corridor_1 | 470.88      | 205.28  | 72.65     | 99.32        |
| 10101_Corridor_2 | 40.42       | 37.93   | 16.18     | 22.13        |
| 10101_Corridor_3 | 0.82        | 0.74    | 0.28      | 0.40         |
| 10101_Corridor_6 | 487.33      | 167.25  | 41.25     | 43.49        |
| 10101_Dev_Est_1  | 60.93       | 31.01   | 13.89     | 23.38        |
| 10101_Dev_Est_2  | 26.89       | 27.22   | 11.91     | 17.94        |
| 10101_Dev_Est_3  | 70.82       | 75.37   | 31.48     | 59.66        |
| 10101_Dev_Est_4  | 0.36        | 0.58    | 0.32      | 0.55         |
| 10101_Dev_Est_5  | 3.58        | 7.48    | 3.84      | 5.80         |
| 10101_Dev_Est_6  | 228.41      | 110.40  | 43.78     | 97.71        |
| 10102_Dev_Est_3  | 4.10        | 4.36    | 1.82      | 3.45         |
| 10102_Dev_Est_4  | 12.27       | 19.55   | 10.74     | 18.67        |

|            | comtype_2 | type_code | HH_TOT_P | POP    | size1 | size2 | size3 | size4 | worker0 | worker1 | worker2 | worker3 |
|------------|-----------|-----------|----------|--------|-------|-------|-------|-------|---------|---------|---------|---------|
| AG_Rural_1 | AG_Rural  | 1         | 110      | 281    | 45%   | 18%   | 11%   | 26%   | 51%     | 32%     | 11%     | 6%      |
| AG_Rural_2 | AG_Rural  | 2         | 647      | 1584   | 33%   | 29%   | 20%   | 19%   | 44%     | 37%     | 15%     | 4%      |
| AG_Rural_3 | AG_Rural  | 3         | 2696     | 6021   | 36%   | 37%   | 12%   | 15%   | 45%     | 35%     | 17%     | 3%      |
| AG_Rural_4 | AG_Rural  | 4         | 4333     | 11451  | 24%   | 38%   | 14%   | 24%   | 30%     | 37%     | 27%     | 6%      |
| AG_Rural_5 | AG_Rural  | 5         | 58947    | 155700 | 21%   | 41%   | 16%   | 22%   | 29%     | 37%     | 29%     | 5%      |
| AG_Rural_6 | AG_Rural  | 6         | 15       | 49     | 33%   | 7%    | 20%   | 40%   | 47%     | 33%     | 20%     | 0%      |
| Corridor_1 | Corridor  | 1         | 22963    | 43419  | 56%   | 24%   | 9%    | 12%   | 41%     | 41%     | 15%     | 3%      |
| Corridor_2 | Corridor  | 2         | 34066    | 80722  | 35%   | 33%   | 14%   | 19%   | 37%     | 41%     | 18%     | 4%      |
| Corridor_3 | Corridor  | 3         | 20332    | 47010  | 36%   | 33%   | 12%   | 18%   | 41%     | 33%     | 21%     | 4%      |
| Corridor_4 | Corridor  | 4         | 23643    | 66228  | 23%   | 32%   | 17%   | 27%   | 21%     | 41%     | 31%     | 6%      |
| Corridor_5 | Corridor  | 5         | 2702     | 8214   | 18%   | 30%   | 21%   | 32%   | 21%     | 43%     | 30%     | 6%      |
| Corridor_6 | Corridor  | 6         | 2975     | 4664   | 66%   | 23%   | 6%    | 6%    | 38%     | 46%     | 14%     | 2%      |
| Dev_Est_1  | Dev_Est   | 1         | 29674    | 65303  | 47%   | 24%   | 11%   | 18%   | 48%     | 34%     | 14%     | 4%      |
| Dev_Est_2  | Dev_Est   | 2         | 127094   | 316231 | 32%   | 32%   | 14%   | 21%   | 39%     | 39%     | 18%     | 5%      |
| Dev_Est_3  | Dev_Est   | 3         | 106432   | 279551 | 30%   | 32%   | 13%   | 25%   | 36%     | 34%     | 24%     | 6%      |
| Dev_Est_4  | Dev_Est   | 4         | 336491   | 982970 | 20%   | 32%   | 18%   | 30%   | 22%     | 38%     | 33%     | 7%      |
| Dev_Est_5  | Dev_Est   | 5         | 99521    | 284491 | 17%   | 36%   | 19%   | 28%   | 21%     | 39%     | 35%     | 6%      |
| Dev_Est_6  | Dev_Est   | 6         | 1514     | 3452   | 48%   | 23%   | 9%    | 20%   | 56%     | 29%     | 12%     | 4%      |



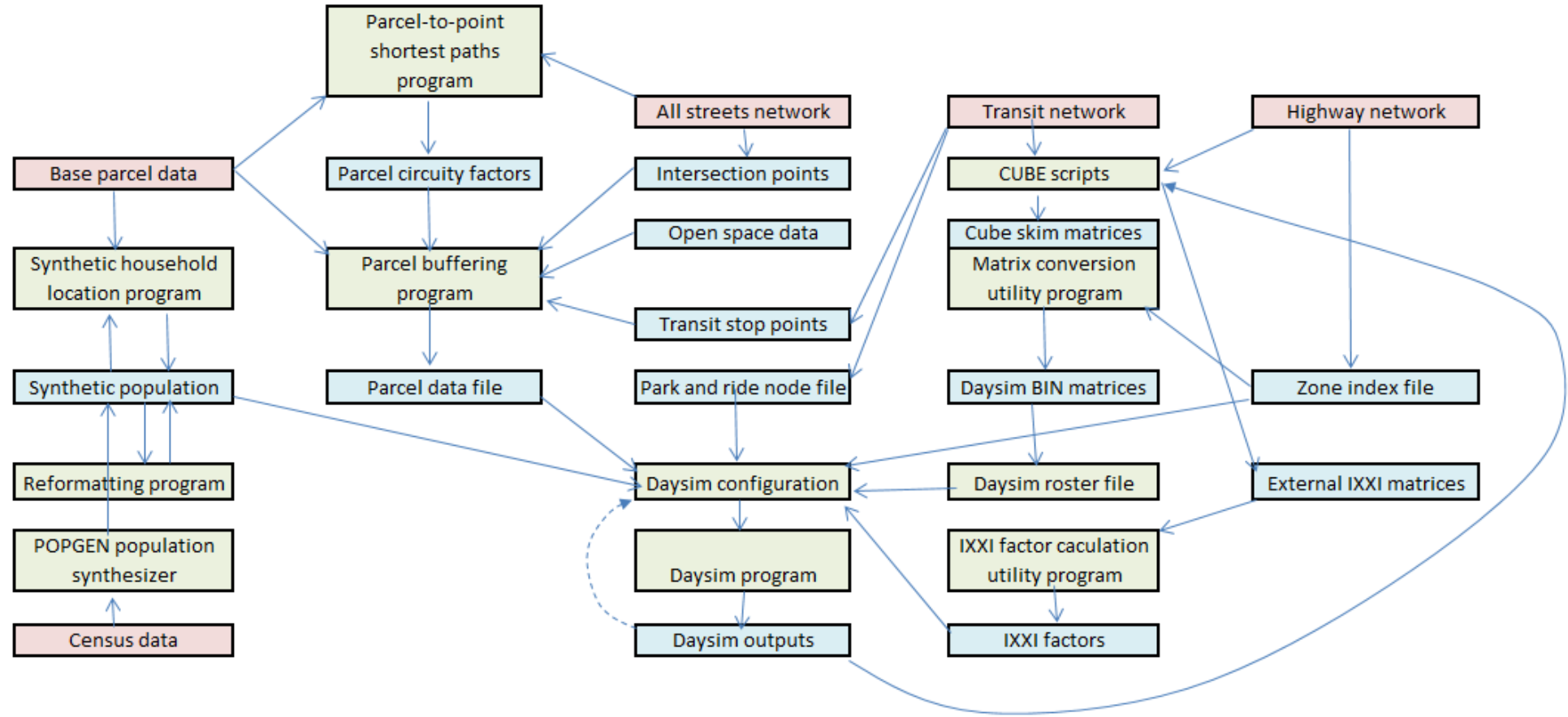
How do we forecast future  
demographics?

# SACSIM Model System



The flowchart illustrates the integrated modeling framework, organized into three main categories on the left: Land Use (blue), Population (dark grey), and Transportation System (orange). The process flow is as follows:

- Land Use:**
  - Base parcel data (pink) feeds into the Parcel-to-point shortest paths program (green) and the Parcel buffering program (green).
  - Parcel circuitry factors (blue) feed into the Parcel buffering program.
  - Open space data (blue) feeds into the Parcel buffering program.
  - Transit stop points (blue) feed into the Parcel buffering program.
  - Parcel buffering program (green) outputs the Parcel data file (blue).
- Population:**
  - Census data (pink) feeds into the POPGEN population synthesizer (green).
  - POPGEN population synthesizer (green) outputs the Synthetic population (blue).
  - Reformatting program (blue) feeds into the Synthetic population (blue).
  - Synthetic population (blue) feeds into the Synthetic household location program (green) and the Daysim configuration (yellow).
  - Synthetic household location program (green) outputs the Synthetic population (blue).
- Transportation System:**
  - All streets network (pink) feeds into the Intersection points (blue) and the Daysim configuration (yellow).
  - Transit network (pink) feeds into the CUBE scripts (green), the Daysim configuration (yellow), and the Daysim roster file (green).
  - Highway network (pink) feeds into the Zone index file (blue) and the Daysim configuration (yellow).
  - CUBE scripts (green) output the Cube skim matrices (blue).
  - Cube skim matrices (blue) feed into the Matrix conversion utility program (green).
  - Matrix conversion utility program (green) outputs the Daysim BIN matrices (blue).
  - Park and ride node file (blue) feeds into the Daysim configuration (yellow).
  - Daysim configuration (yellow) feeds into the Daysim program (green).
  - Daysim program (green) outputs the Daysim outputs (blue).
  - Daysim roster file (green) feeds into the Daysim configuration (yellow).
  - IXXI factor calculation utility program (green) feeds into the Daysim configuration (yellow).
  - IXXI factor calculation utility program (green) outputs the IXXI factors (blue).
  - External IXXI matrices (blue) feed into the Daysim configuration (yellow).
  - Daysim outputs (blue) feed into the Daysim configuration (yellow).
  - Daysim configuration (yellow) feeds into the Daysim roster file (green).
  - Daysim roster file (green) feeds into the IXXI factor calculation utility program (green).
  - IXXI factors (blue) feed into the Daysim configuration (yellow).



# Population/Demographic Inputs

Based on input from the expert panel and stakeholders, CCSCE developed a final set of regional growth projections for the SACOG region.



Table 7 SACOG Region  
Final Projections  
(Thousands)

|            | 1990    | 2016    | 2025    | 2040    | 2050    |
|------------|---------|---------|---------|---------|---------|
| Jobs       | 736.2   | 1,087.8 | 1,197.9 | 1,347.7 | 1,459.7 |
| Population | 1,614.3 | 2,458.1 | 2,721.3 | 3,086.4 | 3,276.9 |
| Households | 712.9   | 863.7   | 973.1   | 1,139.7 | 1,225.6 |

CENTER FOR CONTINUING STUDY OF THE CALIFORNIA ECONOMY

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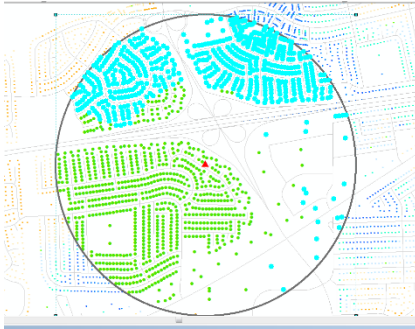
## SACOG Growth Forecast 2016-2050

Final Report

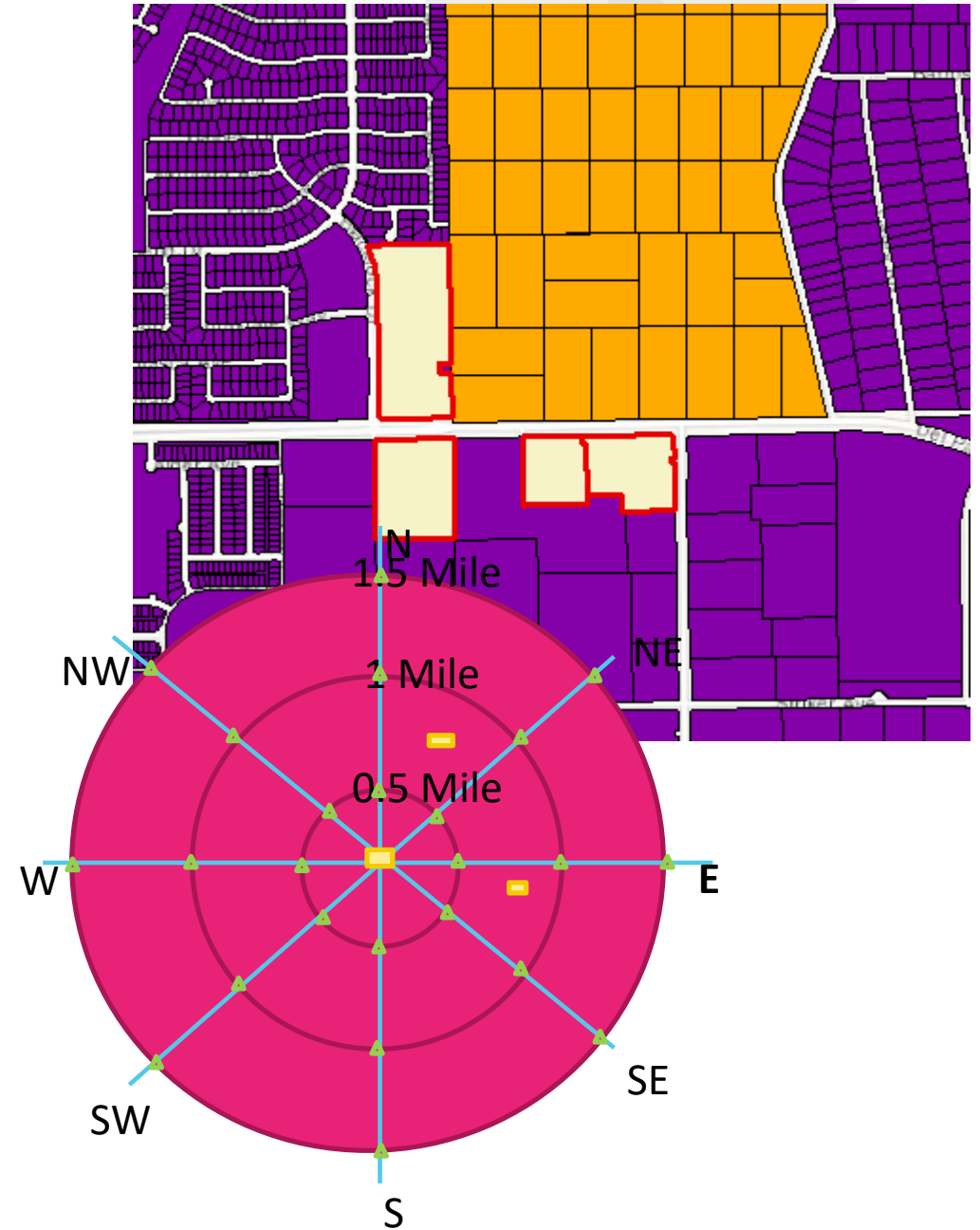
|                  | 2035 Growth |         |           |              |
|------------------|-------------|---------|-----------|--------------|
| from parcel file | 12748       | 220,491 | 1,087,831 | (867,340.38) |
| tr_cm_code       | size1       | size2   | size3     | size4        |
| 10101_Corridor_1 | 470.88      | 205.28  | 72.65     | 99.32        |
| 10101_Corridor_2 | 40.42       | 37.93   | 16.18     | 22.13        |
| 10101_Corridor_3 | 0.82        | 0.74    | 0.28      | 0.40         |
| 10101_Corridor_6 | 487.33      | 167.25  | 41.25     | 43.49        |
| 10101_Dev_Est_1  | 60.93       | 31.01   | 13.89     | 23.38        |
| 10101_Dev_Est_2  | 26.89       | 27.22   | 11.91     | 17.94        |
| 10101_Dev_Est_3  | 70.82       | 75.37   | 31.48     | 59.66        |
| 10101_Dev_Est_4  | 0.36        | 0.58    | 0.32      | 0.55         |
| 10101_Dev_Est_5  | 3.58        | 7.48    | 3.84      | 5.80         |
| 10101_Dev_Est_6  | 228.41      | 110.40  | 43.78     | 97.71        |
| 10102_Dev_Est_3  | 4.10        | 4.36    | 1.82      | 3.45         |
| 10102_Dev_Est_4  | 12.27       | 19.55   | 10.74     | 18.67        |

|            | comtype_2 | type_code | HH_TOT_P | POP    | size1 | size2 | size3 | size4 | worker0 | worker1 | worker2 | worker3 |
|------------|-----------|-----------|----------|--------|-------|-------|-------|-------|---------|---------|---------|---------|
| AG_Rural_1 | AG_Rural  | 1         | 110      | 281    | 45%   | 18%   | 11%   | 26%   | 51%     | 32%     | 11%     | 6%      |
| AG_Rural_2 | AG_Rural  | 2         | 647      | 1584   | 33%   | 29%   | 20%   | 19%   | 44%     | 37%     | 15%     | 4%      |
| AG_Rural_3 | AG_Rural  | 3         | 2696     | 6021   | 36%   | 37%   | 12%   | 15%   | 45%     | 35%     | 17%     | 3%      |
| AG_Rural_4 | AG_Rural  | 4         | 4333     | 11451  | 24%   | 38%   | 14%   | 24%   | 30%     | 37%     | 27%     | 6%      |
| AG_Rural_5 | AG_Rural  | 5         | 58947    | 155700 | 21%   | 41%   | 16%   | 22%   | 29%     | 37%     | 29%     | 5%      |
| AG_Rural_6 | AG_Rural  | 6         | 15       | 49     | 33%   | 7%    | 20%   | 40%   | 47%     | 33%     | 20%     | 0%      |
| Corridor_1 | Corridor  | 1         | 22963    | 43419  | 56%   | 24%   | 9%    | 12%   | 41%     | 41%     | 15%     | 3%      |
| Corridor_2 | Corridor  | 2         | 34066    | 80722  | 35%   | 33%   | 14%   | 19%   | 37%     | 41%     | 18%     | 4%      |
| Corridor_3 | Corridor  | 3         | 20332    | 47010  | 36%   | 33%   | 12%   | 18%   | 41%     | 33%     | 21%     | 4%      |
| Corridor_4 | Corridor  | 4         | 23643    | 66228  | 23%   | 32%   | 17%   | 27%   | 21%     | 41%     | 31%     | 6%      |
| Corridor_5 | Corridor  | 5         | 2702     | 8214   | 18%   | 30%   | 21%   | 32%   | 21%     | 43%     | 30%     | 6%      |
| Corridor_6 | Corridor  | 6         | 2975     | 4664   | 66%   | 23%   | 6%    | 6%    | 38%     | 46%     | 14%     | 2%      |
| Dev_Est_1  | Dev_Est   | 1         | 29674    | 65303  | 47%   | 24%   | 11%   | 18%   | 48%     | 34%     | 14%     | 4%      |
| Dev_Est_2  | Dev_Est   | 2         | 127094   | 316231 | 32%   | 32%   | 14%   | 21%   | 39%     | 39%     | 18%     | 5%      |
| Dev_Est_3  | Dev_Est   | 3         | 106432   | 279551 | 30%   | 32%   | 13%   | 25%   | 36%     | 34%     | 24%     | 6%      |
| Dev_Est_4  | Dev_Est   | 4         | 336491   | 982970 | 20%   | 32%   | 18%   | 30%   | 22%     | 38%     | 33%     | 7%      |
| Dev_Est_5  | Dev_Est   | 5         | 99521    | 284491 | 17%   | 36%   | 19%   | 28%   | 21%     | 39%     | 35%     | 6%      |
| Dev_Est_6  | Dev_Est   | 6         | 1514     | 3452   | 48%   | 23%   | 9%    | 20%   | 56%     | 29%     | 12%     | 4%      |

# Run Circuity Buffer



- Update Input Files (new jobs)
  - sacog\_parcelbase\_<scenario>.dbf
  - sacog\_intersections\_<scenario>.dbf
  - sacog\_transitstops\_<scenario>.dbf
  - sacog\_openspace\_<scenario>.dbf
  - sacog\_parcel\_<scenario>\_circuity.dat
- Run
  - DaySimParcelBufferingV3.exe
  - sacogbuffering2016\_cir\_decay\_v3.ctf



# Variables in Parcel File

|          |                                                                                                                 |
|----------|-----------------------------------------------------------------------------------------------------------------|
| lotype_p | The land use type code (housing density class)                                                                  |
| hh_p     | The number of households residing on the parcel                                                                 |
| stugrd_p | The number of grade school (K-8) students enrolled at the parcel                                                |
| stuhgh_p | The number of high school students enrolled at the parcel                                                       |
| stuuni_p | The number of college students enrolled at the parcel                                                           |
| empedu_p | The number of educational employees working at the parcel                                                       |
| empfoo_p | The number of food service employees working at the parcel                                                      |
| empgov_p | The number of government employees working at the parcel                                                        |
| empind_p | The number of industrial employees working at the parcel                                                        |
| empmed_p | The number of medical employees working at the parcel                                                           |
| empofc_p | The number of (other) office employees working at the parcel                                                    |
| empret_p | The number of retail employees working at the parcel                                                            |
| empsvc_p | The number of (other) service employees working at the parcel                                                   |
| empoth_p | The number of other sector employees working at the parcel (typically agriculture, mining - not used for SACOG) |
| emptot_p | The total number of employees working at the parcel (equals the sum of the previous 9 values)                   |
| parkdy_p | The number of paid off street parking spaces on the parcel with per day pricing                                 |
| parkhr_p | The number of paid off street parking spaces on the parcel with per hour pricing                                |
| ppricdyp | The average price per day for paid off street parking spaces on the parcel                                      |
| pprichrp | The average price per hour for paid off street parking spaces on the parcel                                     |

# Variables in Parcel file (2)

|          |                                                                                                               |
|----------|---------------------------------------------------------------------------------------------------------------|
| hh_1     | The number of households residing in Buffer 1                                                                 |
| stugrd_1 | The number of grade school (K-8) students enrolled in Buffer 1                                                |
| stuhgh_1 | The number of high school students enrolled in Buffer 1                                                       |
| stuuni_1 | The number of college students enrolled in Buffer 1                                                           |
| empedu_1 | The number of educational employees working in Buffer 1                                                       |
| empfoo_1 | The number of food service employees working in Buffer 1                                                      |
| empgov_1 | The number of government employees working in Buffer 1                                                        |
| empind_1 | The number of industrial employees working in Buffer 1                                                        |
| empmed_1 | The number of medical employees working in Buffer 1                                                           |
| empofc_1 | The number of (other) office employees working in Buffer 1                                                    |
| empret_1 | The number of retail employees working in Buffer 1                                                            |
| empsvc_1 | The number of (other) service employees working in Buffer 1                                                   |
| empoth_1 | The number of other sector employees working in Buffer 1 (typically agriculture, mining - not used for SACOG) |
| emptot_1 | The total number of employees working in Buffer 1 (equals the sum of the previous 9 values)                   |
| parkdy_1 | The number of paid off street parking spaces in Buffer 1 with per day pricing                                 |
| parkhr_1 | The number of paid off street parking spaces in Buffer 1 with per hour pricing                                |
| ppricdy1 | The average price per day for paid off street parking spaces in Buffer 1                                      |
| pprichr1 | The average price per hour for paid off street parking spaces in Buffer 1                                     |
| nodes1_1 | The number of 1-node intersections (dead-ends, cul-de-sacs) in Buffer 1                                       |
| nodes3_1 | The number of 3-node intersections (T junctions) in Buffer 1                                                  |
| nodes4_1 | The number of 4+ node intersections in Buffer 1                                                               |
| tstops_1 | The number of transit stops (of all types) in Buffer 1                                                        |
| nparks_1 | The number of publicly accessible open space areas in Buffer 1                                                |
| aparks_1 | The average area (sq feet) of publicly accessible open space areas in Buffer 1                                |

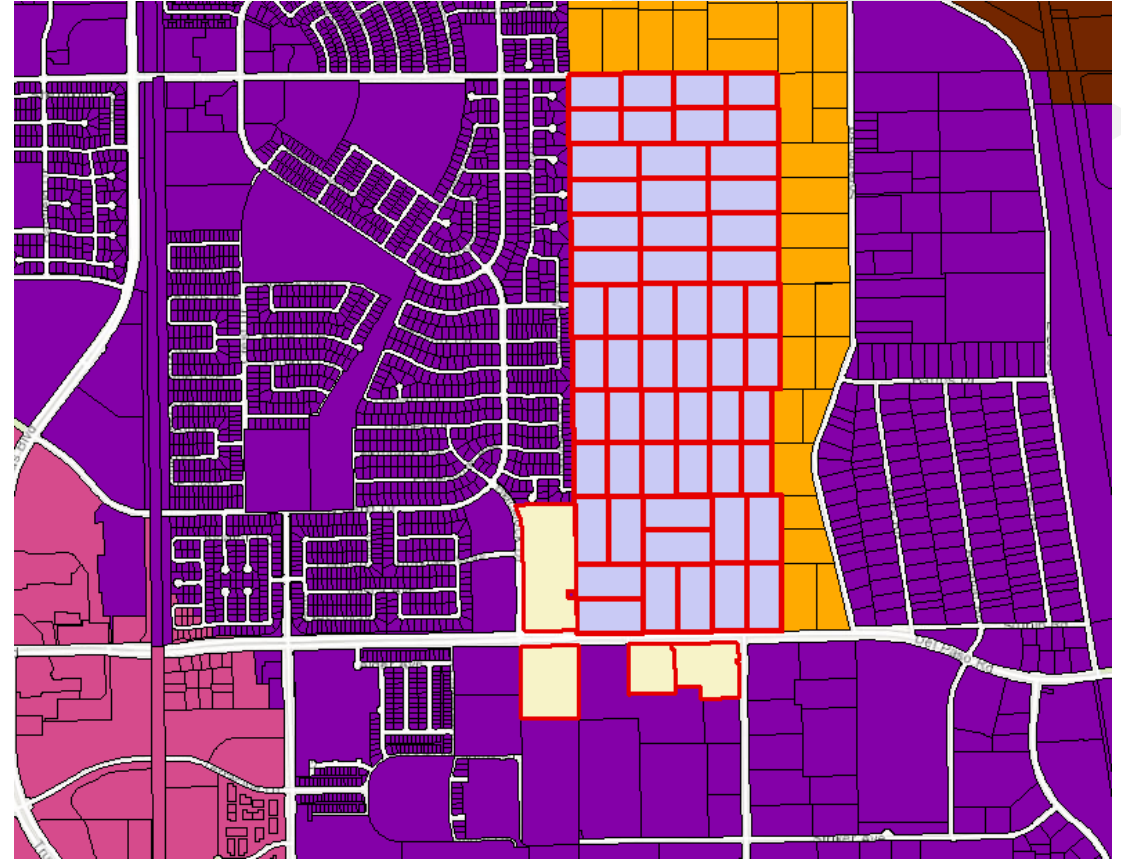
# Variables in Parcel file (3)

|           |                                                                                                               |
|-----------|---------------------------------------------------------------------------------------------------------------|
| hh_2      | The number of households residing in Buffer 2                                                                 |
| stugrd_2  | The number of grade school (K-8) students enrolled in Buffer 2                                                |
| stuhgh_2  | The number of high school students enrolled in Buffer 2                                                       |
| stuuni_2  | The number of college students enrolled in Buffer 2                                                           |
| empedu_2  | The number of educational employees working in Buffer 2                                                       |
| empfoo_2  | The number of food service employees working in Buffer 2                                                      |
| empgov_2  | The number of government employees working in Buffer 2                                                        |
| empind_2  | The number of industrial employees working in Buffer 2                                                        |
| empmed_2  | The number of medical employees working in Buffer 2                                                           |
| empofc_2  | The number of (other) office employees working in Buffer 2                                                    |
| empret_2  | The number of retail employees working in Buffer 2                                                            |
| empsvc_2  | The number of (other) service employees working in Buffer 2                                                   |
| empoth_2  | The number of other sector employees working in Buffer 2 (typically agriculture, mining - not used for SACOG) |
| emptot_2  | The total number of employees working in Buffer 2 (equals the sum of the previous 9 values)                   |
| parkdy_2  | The number of paid off street parking spaces in Buffer 2 with per day pricing                                 |
| parkhr_2  | The number of paid off street parking spaces in Buffer 2 with per hour pricing                                |
| ppridy2   | The average price per day for paid off street parking spaces in Buffer 2                                      |
| pprichr2  | The average price per hour for paid off street parking spaces in Buffer 2                                     |
| nodes1_2  | The number of 1-node intersections (dead-ends, cul-de-sacs) in Buffer 2                                       |
| nodes3_2  | The number of 3-node intersections (T junctions) in Buffer 2                                                  |
| nodes4_2  | The number of 4+ node intersections in Buffer 2                                                               |
| tstops_2  | The number of transit stops (of all types) in Buffer 2                                                        |
| nparks_2  | The number of publicly accessible open space areas in Buffer 2                                                |
| aparks_2  | The average area (sq feet) of publicly accessible open space areas in Buffer 2                                |
| dist_lbus | The distance (miles) to the nearest local bus stop (999 if beyond 3 miles)                                    |
| dist_ebus | The distance (miles) to the nearest premium bus stop (999 if beyond 3 miles)                                  |
| dist_crt  | The distance (miles) to the nearest commuter rail stop/station (999 if beyond 3 miles)                        |
| dist_fry  | The distance (miles) to the nearest passenger ferry terminal (999 if beyond 3 miles)                          |
| dist_lrt  | The distance (miles) to the nearest light rail stop/station (999 if beyond 3 miles)                           |
| dist_park | The distance (miles) to the edge of the nearest publicly accessible open space area (999 if beyond 3 miles)   |

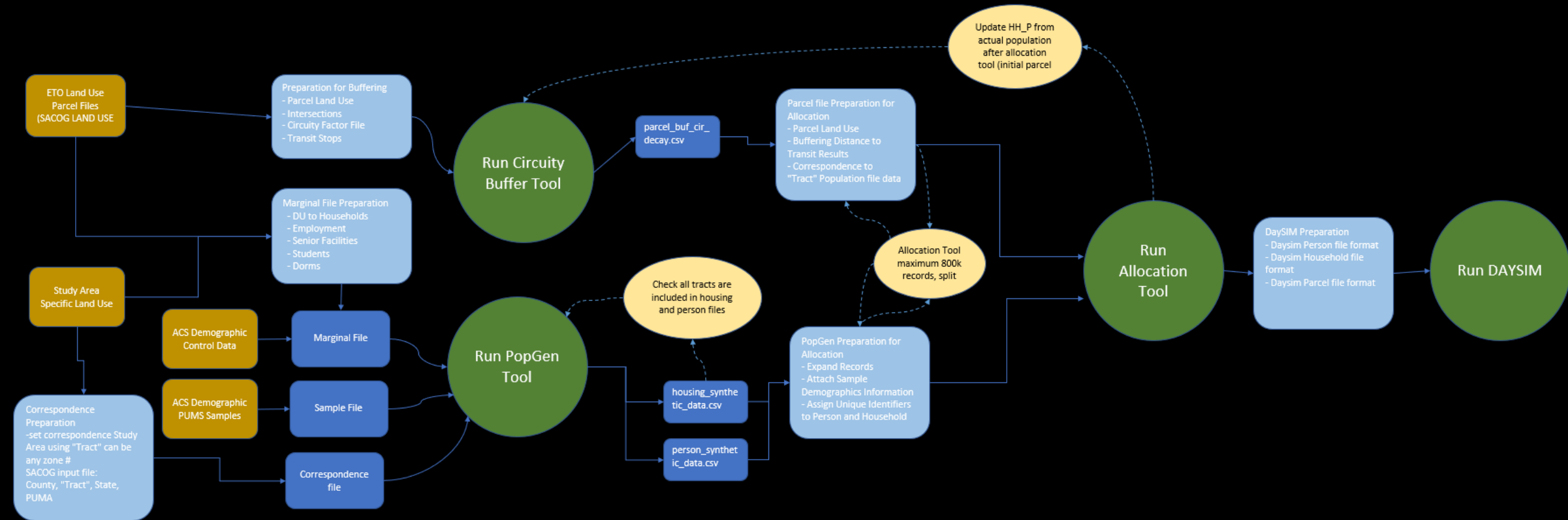
# Project Example

## Mixed Use

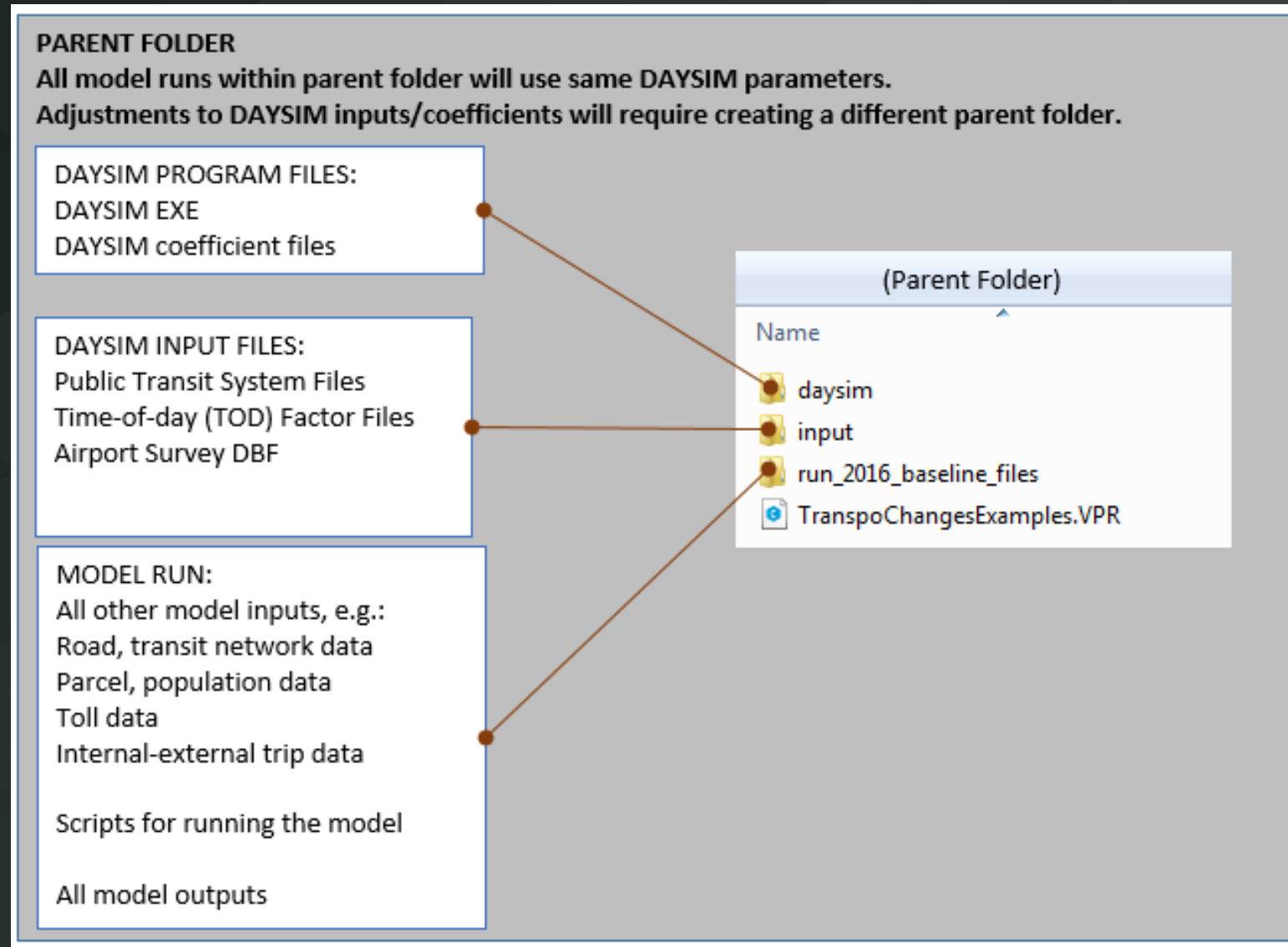
- Identify parcels in the project area
- Define new land use code
- Run POPGEN
- Run Circuity Buffer



# Update Parcel & Population File Flow Chart



# Model run folder structure





Next Steps

# Committed Parcel & Population

SACSIM Model Documentation

SACSIM Parcel & Population User Guide

4 year base year updates

Project Level Parcel & Population Technical Support



# Under Consideration Parcel & Population Support

SACSIM streamlining 1: parcel file preparation

SACSIM streamlining 2: population file preparation

SACSIM streamlining 3: user interface & performance  
(run speed)

Less than 4 year base year updates

SACMET: bring back into maintenance

# Thank You

For more information on SACSIM contact

[sacsim@sacog.org](mailto:sacsim@sacog.org) or visit  
<https://www.sacog.org/modeling>