

# Measuring Transportation Impacts in Sacramento

March 25<sup>th</sup>, 2025



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# Why do we use travel models?

RTP/SCS  
Analysis

Clean Air Act  
Analysis

SB 375  
Greenhouse  
Gas Reduction

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# Why do we use travel models?

## Development/evaluation of projects & plans

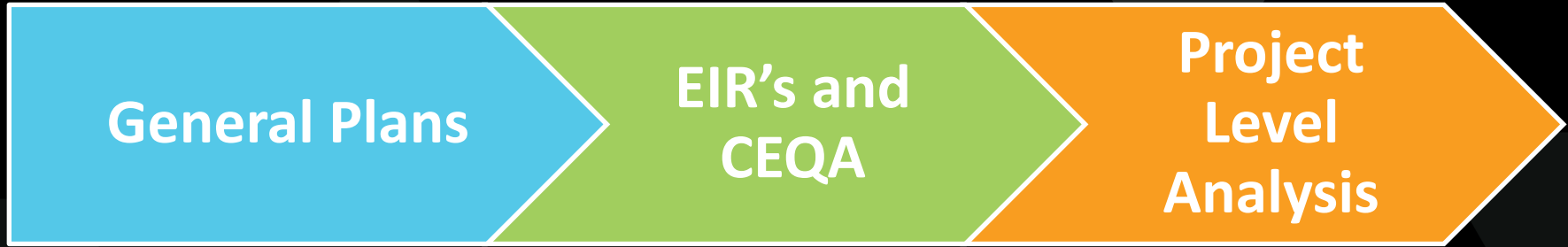
- Transportation improvements
- Land development projects
- System-wide packages of transportation improvements
- Area-wide changes in land use

## Filling in gaps in “real” data

- No agency counts or surveys enough to empirically know what is going on for a system or a large area.
- Models have been pressed into service to fill in this knowledge gap.

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# How do local cities and counties use the travel model?



# How does SACOG's Travel Model work?



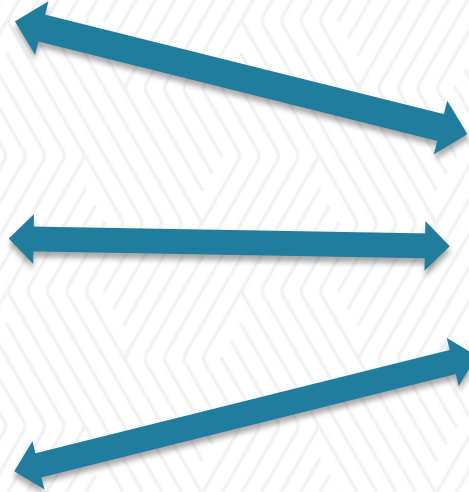
**LAND USE**



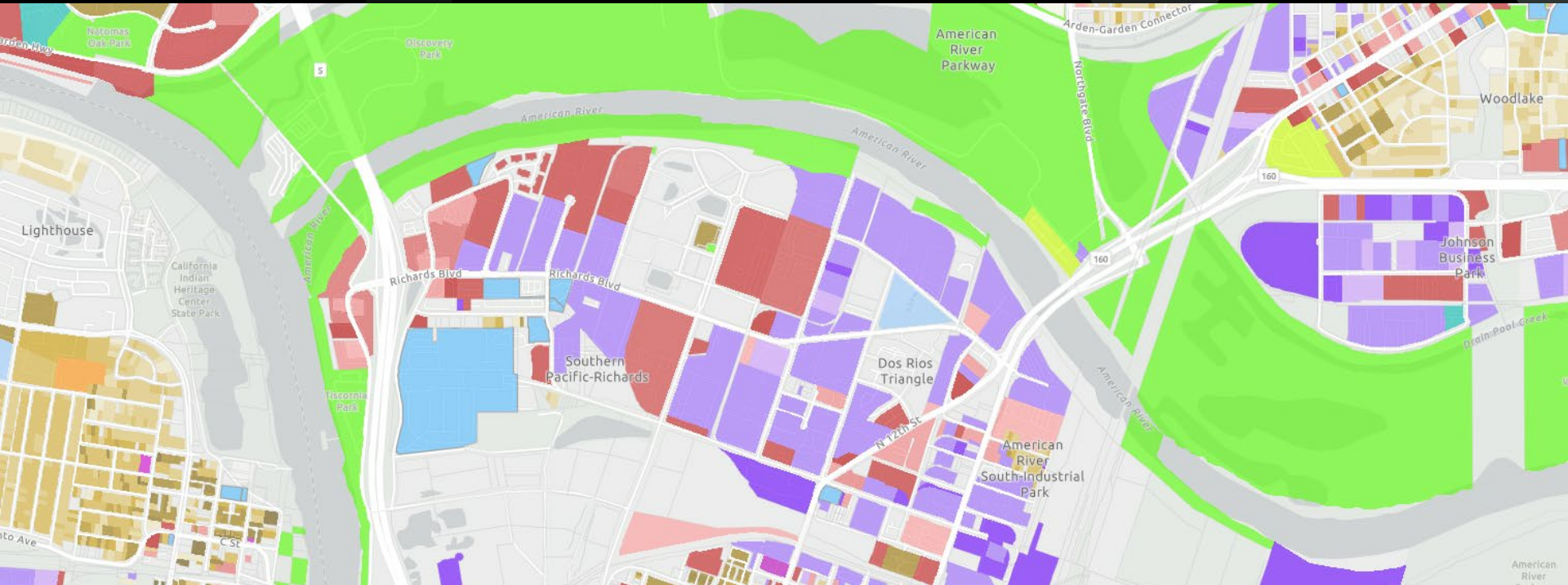
**POPULATION**



**NETWORK**



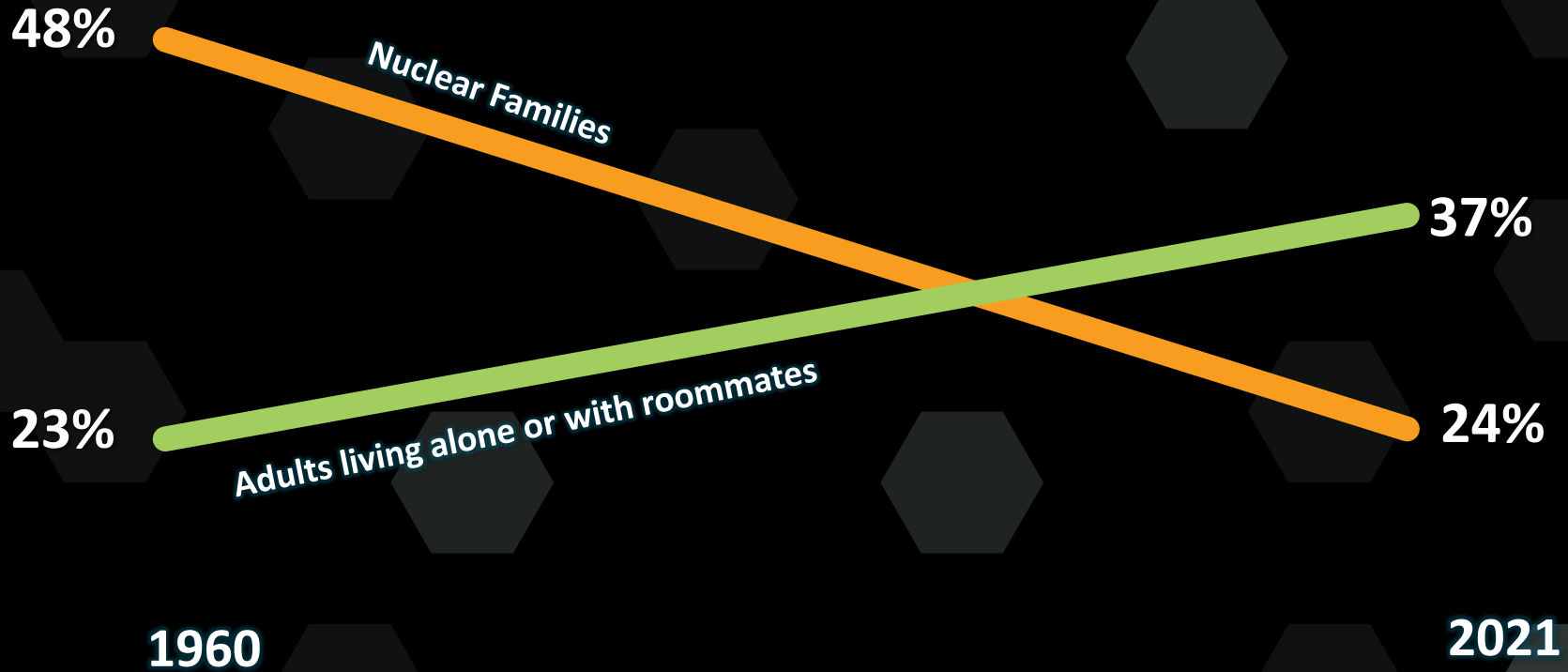
# Model Inputs - Land Use







# Household Composition Has Changed





How do we know our travel model is reasonable?



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# What comes out of the travel model?

## System Performance

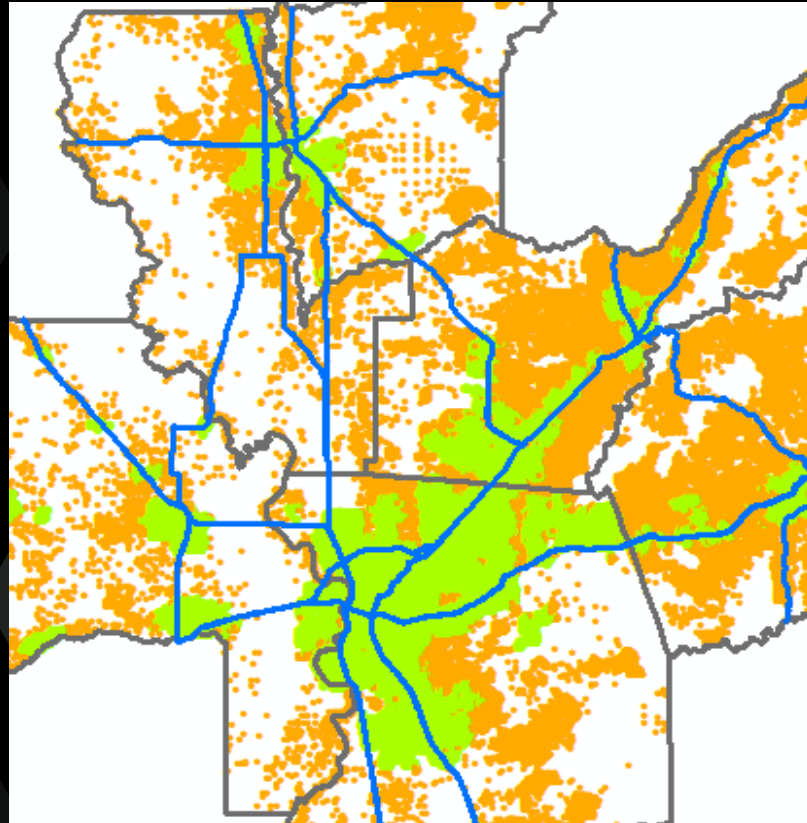
- Vehicle Miles Traveled
- Congested Vehicle Miles Traveled
- Accessibility

## Travel Choices

- Mode Share (drive, transit, walk, bike)
- Trip Distance & Purpose

## Transit Proximity VMT Comparison

**What  
comes  
out of  
the travel  
model?**



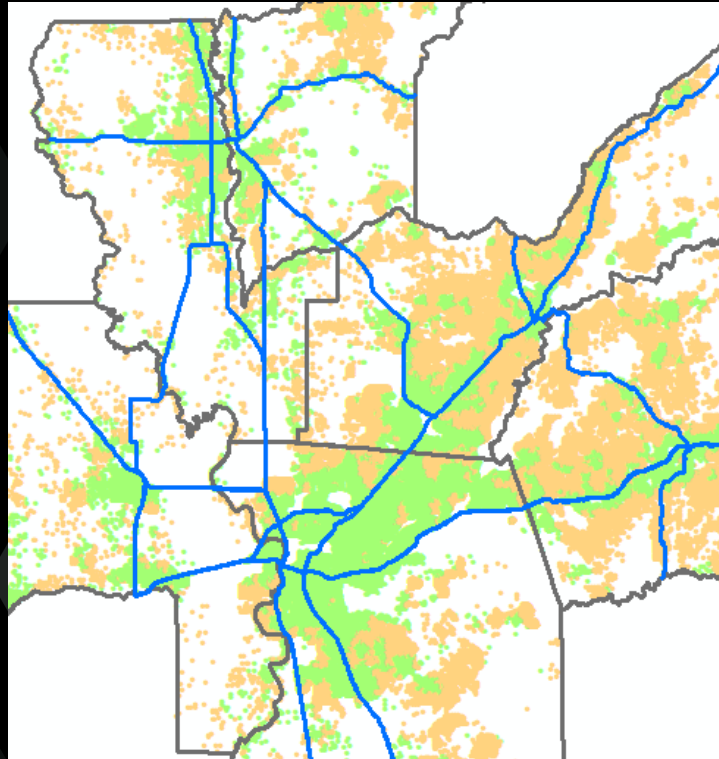
People live within 1 mile of a transit stop drive an average of 15 miles per weekday.

People live beyond 1 mile of a transit stop drive an average of 21 miles per weekday.

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Diversified/Mixed Land Use vs Primarily Residential areas  
VMT Comparison

**What  
comes  
out of  
the travel  
model?**



People live in mixed land use areas drive an average of 16 miles per weekday.

People live in areas with residential focus drive an average of 22 miles per weekday.

# How do we calculate emissions?

## Clean Air Act

- Tailpipe Emissions
  - Nitrogen oxides (Nox)
  - Reactive Organic Gases (ROG)
  - Particulate Matters (PM10, PM2.5)

## SB 375

- 19% reduction in GHG per capita by 2035 from 2005





**LAND USE**



**POPULATION**



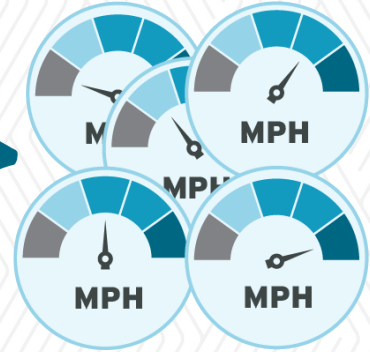
**NETWORK**



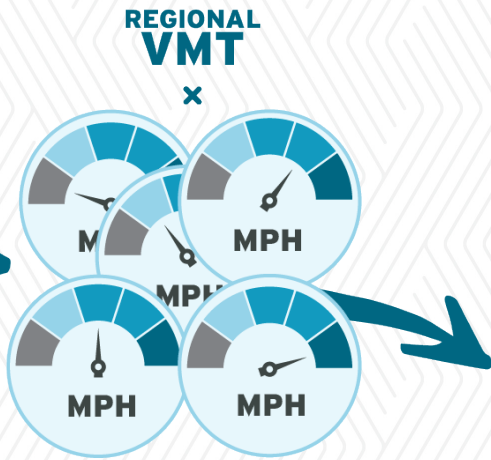
**TRAVEL MODEL**







**REGIONAL  
VMT**  
x

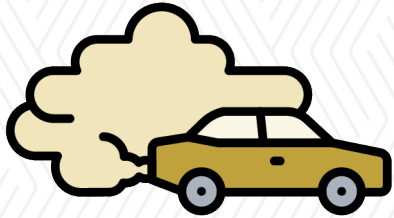








 × MPG  
 +  × MPG  
 MPG

  
ROG, GHG,  
PM2.5, PM10, NOX

  
EMISSIONS  
MODEL

GHG /   
POPULATION

=   
GHG/CAPITA

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# Not just for Emissions – Other Travel Model Performance Indicators



# Regional Plan Travel Model Performance Indicators

	Metric	2020	Draft Final Scenario			
			By 2035	% Change	By 2050	% Change
Transit Access	Homes near (half mile) high-frequency transit in region	106,000	<b>518,000</b>	<b>+389%</b>	<b>587,000</b>	<b>+454%</b>
	Homes near (half mile) high-frequency transit in environmental justice areas	71,000	<b>285,000</b>	<b>+303%</b>	<b>321,000</b>	<b>+353%</b>
Access to Employment	Jobs within 30-minute drive of workers homes	413,000	<b>469,000</b>	<b>+14%</b>	<b>495,000</b>	<b>+20%</b>
	Jobs within 30-minute transit ride of workers homes	6,800	<b>28,000</b>	<b>+314%</b>	<b>32,000</b>	<b>+371%</b>
	Jobs within 30-minute drive of workers homes in environmental justice areas	506,000	<b>590,000</b>	<b>+17%</b>	<b>606,000</b>	<b>+20%</b>
	Jobs within 30-minute transit ride of homes in environmental justice areas	7,600	<b>35,000</b>	<b>+356%</b>	<b>39,000</b>	<b>+418%</b>
Health	Total walk and bike minutes per capita	11.91	<b>12.17</b>	<b>+2%</b>	<b>12.37</b>	<b>+4%</b>
Climate Resilience	Lane miles in extreme heat zone, flood, fire and delta surge	3,400	<b>3,500</b>	<b>+4%</b>	<b>3,600</b>	<b>+5%</b>
VMT	Household VMT per capita	17.37	<b>16.40</b>	<b>-6%</b>	<b>16.25</b>	<b>-6%</b>
	Share of congested roadway VMT over total roadway VMT	5.5%	<b>6.2%</b>	<b>+1%</b>	<b>7.5%</b>	<b>+2%</b>

# SACOG Travel Model Resources

The screenshot shows the SACOG website's navigation menu and a sidebar with various resource categories. The main content area is titled "Travel Model Documentation" and includes a breadcrumb trail: "Planning > Data Resource Center > Travel Demand Model". Below the title, there are social media sharing options and a "Font Size" selector. The main text states: "The links below provide SACOG's travel model documentation, updated to reflect the SACSIM19 travel demand model used for the 2020 MTP-SCS. Please send any questions or comments to [sacsim@sacog.org](mailto:sacsim@sacog.org)". A section titled "Full Model Documentation" contains a list of expandable menu items: "Overview and Introduction", "Model Structure", "Land Use", "Networks", "Auto Operating Cost, Fares, and Pricing", "Calibration and Validation", and "Appendices".

Jobs Contact Request Data

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SACOG

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  - Open Data Portal
  - Project Performance Assessment Tool
  - Regional Progress Report
  - SB 743 Technical Assistance
  - Data & Modeling User Conference
  - Travel Demand Model
  - Travel Model Documentation**
  - 2018 Regional Household Travel Survey
- Planning Resources

Planning > Data Resource Center > Travel Demand Model

## Travel Model Documentation

Font Size: Share & Bookmark Feedback Print

The links below provide SACOG's travel model documentation, updated to reflect the SACSIM19 travel demand model used for the 2020 MTP-SCS.

Please send any questions or comments to [sacsim@sacog.org](mailto:sacsim@sacog.org)

[Full Model Documentation](#)

- Overview and Introduction +
- Model Structure +
- Land Use +
- Networks +
- Auto Operating Cost, Fares, and Pricing +
- Calibration and Validation +
- Appendices +

The screenshot shows a YouTube video player for a conference. The video title is "SACOG Data & Modeling User Conference: Day 1 (9/24/24)". The video thumbnail features the SACOG logo and the text "September 24 & 25, 2024 Data and Modeling User Conference". The video player interface includes a search bar, a play button, a progress bar showing 0:00 / 5:29:45, and various control icons. Below the video player, there is a channel name "SacramentoAreaCOG" with 164 subscribers and a "Subscribe" button. Social media sharing options for Like, Share, Clip, and Save are also visible.

YouTube

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September 24 & 25, 2024  
Data and Modeling  
User Conference

SACOG

0:00 / 5:29:45 • Welcome, Overview and Introductions >

SACOG Data & Modeling User Conference: Day 1 (9/24/24)

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