

# **Draft Environmental Justice Technical Report**

**Environmental Justice Working Group**

January 9, 2020



# Overview



- EJ Report Access Instruction
- EJ Toolbox Overview
- EJ Performance Indicators
- Draft EJ Results
- Jobs-Housing Balance
- Neighborhood Change and Displacement
- Aviation Noise Impacts
- Travel Time Savings and Distance Reductions

- [Connect SoCal](#)
- [About](#) ▾
- [Ready for 2020](#) ▾
- [Read the Plan](#) ▾
- [Share Your Feedback](#) ▾
- [Get Involved](#) ▾
- [Resources](#) ▾

- [Draft Connect SoCal Plan](#)
- [Draft Connect SoCal PEIR](#)

# Draft Connect SoCal Plan

## FOR PUBLIC REVIEW AND COMMENT

On November 7, 2019, SCAG's Regional Council approved the release of the Draft Connect SoCal plan (also known as the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy or RTP/SCS) for public review and comment. The comment period for the Draft Connect SoCal plan starts on November 14, 2019 and ends at 5:00 p.m. on January 24, 2020. The Draft Connect SoCal plan capped off more than three years of dialogue and consultation to capture the vision and aspiration of 19 million people that call this region home. To view the Draft Connect SoCal plan, please click on the linked documents below.

The Draft Connect SoCal plan is available for download by chapter or as one file. Some files are large and may take longer to download depending on individual connection speeds. We strongly recommend that you first download it onto your computer before opening the file. All files are in the PDF format.

\*Note: The Draft Project List Technical Report is intended to provide the public with a comprehensive list of projects anticipated to be initiated or completed through the Connect SoCal plan's horizon year of 2045. For the most updated and accurate information on Federal Transportation Improvement Program (FTIP) projects, please visit the SCAG FTIP website at <http://ftip.scag.ca.gov/Pages/2019/proposed.aspx>.

### IN THIS SECTION ▾

- [Plan Summary](#)
- [Downloads](#)
- [Technical Reports](#)
- [List of Libraries](#)

### UPCOMING MEETINGS ▾

[READ THE CONNECT SOCIAL PLAN SUMMARY](#)

## Downloads

[Draft Connect SoCal Plan \(Complete Report, 22 MB\)](#)

[Chapter 0: Making Connections](#)

[Chapter 1: About the Plan](#)

[Chapter 2: SoCal Today](#)

[Chapter 3: A Path to Greater Access, Mobility & Sustainability \(17 MB\)](#)

[Chapter 4: Paying Our Way Forward](#)

[Chapter 5: Measuring Our Progress](#)

[Chapter 6: Looking Ahead](#)

[Glossary](#)

## Technical Reports

[Active Transportation](#)

[Aviation & Airport Ground Access](#)

[Congestion Management](#)

- [Appendix 1 - TDM Toolbox of Strategies](#)

[Demographics & Growth Forecast](#)

[Economic and Job Creation Analysis](#)

[Emerging Technology](#)

[Environmental Justice \(20 MB\)](#)

[Goods Movement](#)

[Highways & Arterials](#)

[Natural & Farm Lands Conservation](#)

[Passenger Rail](#)

[Performance Measures](#)

[Project List\\*](#)

[Public Health](#)



## What is the EJ Toolbox?

- It is a dynamic resource document comprised of recommended practices and approaches to combat adverse environmental impacts on disadvantaged communities gathered with input from EJ stakeholders and staff research
- The EJ Toolbox will be continuously updated with relevant legislation requirements and best practices

# Purpose of EJ Toolbox



- Build in previous toolbox
- Provide recommended practices and approaches to address potential impacts to EJ communities
- Provide resources for local jurisdictions to help comply with SB1000 requirements
- Provide opportunity for SCAG EJ stakeholders to continuously provide input on potential policy and strategy recommendations

# EJ Toolbox Sections



- Healthy, Safe and Sanitary Housing
- Access to Essential Services and Facilities
- Active Living, Active Transportation and Physical Activity
- Climate Vulnerability and Resiliency
- Roadway and Aviation Noise Impacts
- Air Quality and Air Pollution Exposure Impacts
- Impacts of Road Pricing Mechanisms
- Community Outreach and Engagement
- Other Policy Recommendations for Environmental Justice Impacts

# Recommended Practices and Approaches



- Provide public education and/or materials to educate residents on potential hazards that can lead to unhealthy housing conditions and encourage residents to take action (Healthy, Safe and Sanitary Housing)
- Encourage the development of healthy food establishments in areas with high concentrations of fast food establishments, convenience stores and liquor stores (Active Living, Active Transportation and Physical Activity)
- Coordinate emergency response and transportation resources available to vulnerable communities and populations (Climate Vulnerability and Resiliency)

# Areas for Future Improvement



- Develop a funding guide/list of funding resources to help implement recommended strategies
- Consider different communities have different impacts (like rural communities)
- Develop an interactive application that makes this resource an asset

# Performance Indicators



## Connect SoCal EJ Report Performance Indicators

- CI = Circulation
- CO = Conservation
- H = Housing
- LU = Land Use
- N = Noise
- OS = Open Space
- S = Safety

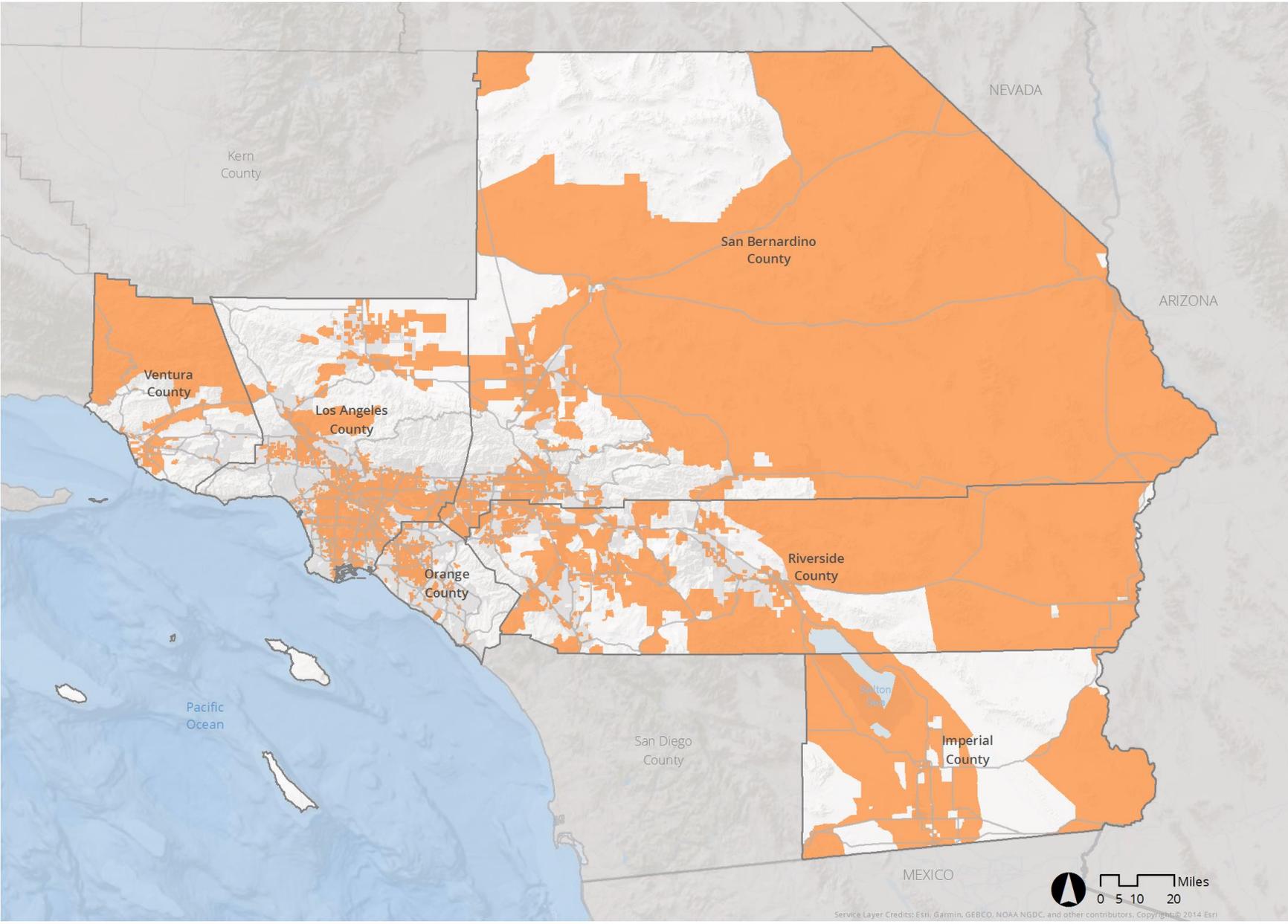
## Connect SoCal EJ Report Areas of Analysis

Region	SCAG region
EJ Areas (EJA)	Transportation Analysis Zones (TAZs) that have a higher concentration of minority population OR low-income households that is seen in the region as a whole
SB 535 Disadvantaged Communities (DAC)	Census tracts that have been identified by the California Environmental Protection Agency (Cal/EPA) as Disadvantaged Communities based on the requirements set forth in SB 535, which seek to identify disproportionately burdened by and vulnerable to multiple sources of pollution
Communities of Concern (COC)	Census Designated Places (CDPs) and City of Los Angeles Community Planning Areas (CPAs) that fall in the upper one-third of all communities in the SCAG region for having the highest concentration of minority population AND low-income households

How will this impact quality of life?	Jobs-Housing Imbalance <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: teal; border-radius: 50%; padding: 2px 6px; font-weight: bold;">H</span> Gentrification and Displacement <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: teal; border-radius: 50%; padding: 2px 6px; font-weight: bold;">H</span> Accessibility to Employment and Services <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> Accessibility to Parks and Natural Lands <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: orange; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CO</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: lightgreen; border-radius: 50%; padding: 2px 6px; font-weight: bold;">OS</span>
How will this impact health and safety?	Active Transportation Hazards <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: purple; border-radius: 50%; padding: 2px 6px; font-weight: bold;">S</span> Climate Vulnerability <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: purple; border-radius: 50%; padding: 2px 6px; font-weight: bold;">S</span> Public Health Analysis <span style="background-color: purple; border-radius: 50%; padding: 2px 6px; font-weight: bold;">S</span> Aviation Noise Impacts <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: pink; border-radius: 50%; padding: 2px 6px; font-weight: bold;">N</span> <span style="background-color: purple; border-radius: 50%; padding: 2px 6px; font-weight: bold;">S</span> Roadways Noise Impacts <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: pink; border-radius: 50%; padding: 2px 6px; font-weight: bold;">N</span> <span style="background-color: purple; border-radius: 50%; padding: 2px 6px; font-weight: bold;">S</span> Emissions Impacts Analysis <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: purple; border-radius: 50%; padding: 2px 6px; font-weight: bold;">S</span> Emissions Impacts Along Freeways <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> <span style="background-color: purple; border-radius: 50%; padding: 2px 6px; font-weight: bold;">S</span>
How will this impact the commute?	Travel Time & Travel Distance Savings <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> Rail-Related Impacts <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span>
How will this impact transportation cost?	Share of Transportation System Usage <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> Connect SoCal Revenue Sources in Terms of Tax Burdens <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> Connect SoCal Investments vs. Benefits <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> <span style="background-color: yellow; border-radius: 50%; padding: 2px 6px; font-weight: bold;">LU</span> Geographic Distribution of Transportation Investments <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span> Impacts from Funding Through Mileage-Based User Fees <span style="background-color: black; border-radius: 50%; padding: 2px 6px; font-weight: bold;">CI</span>



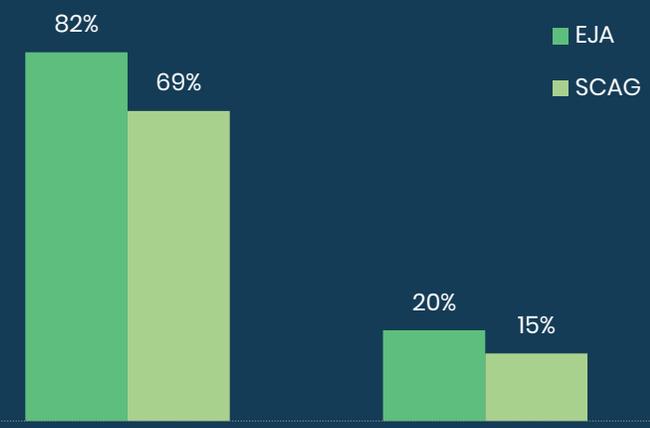
SCAG™



■ Environmental Justice Areas 
  County Boundaries 
  City Boundaries 
 — Freeway

Source: Census PUMS, SCAG, 2019

# 12.2 Million People 65% of Region

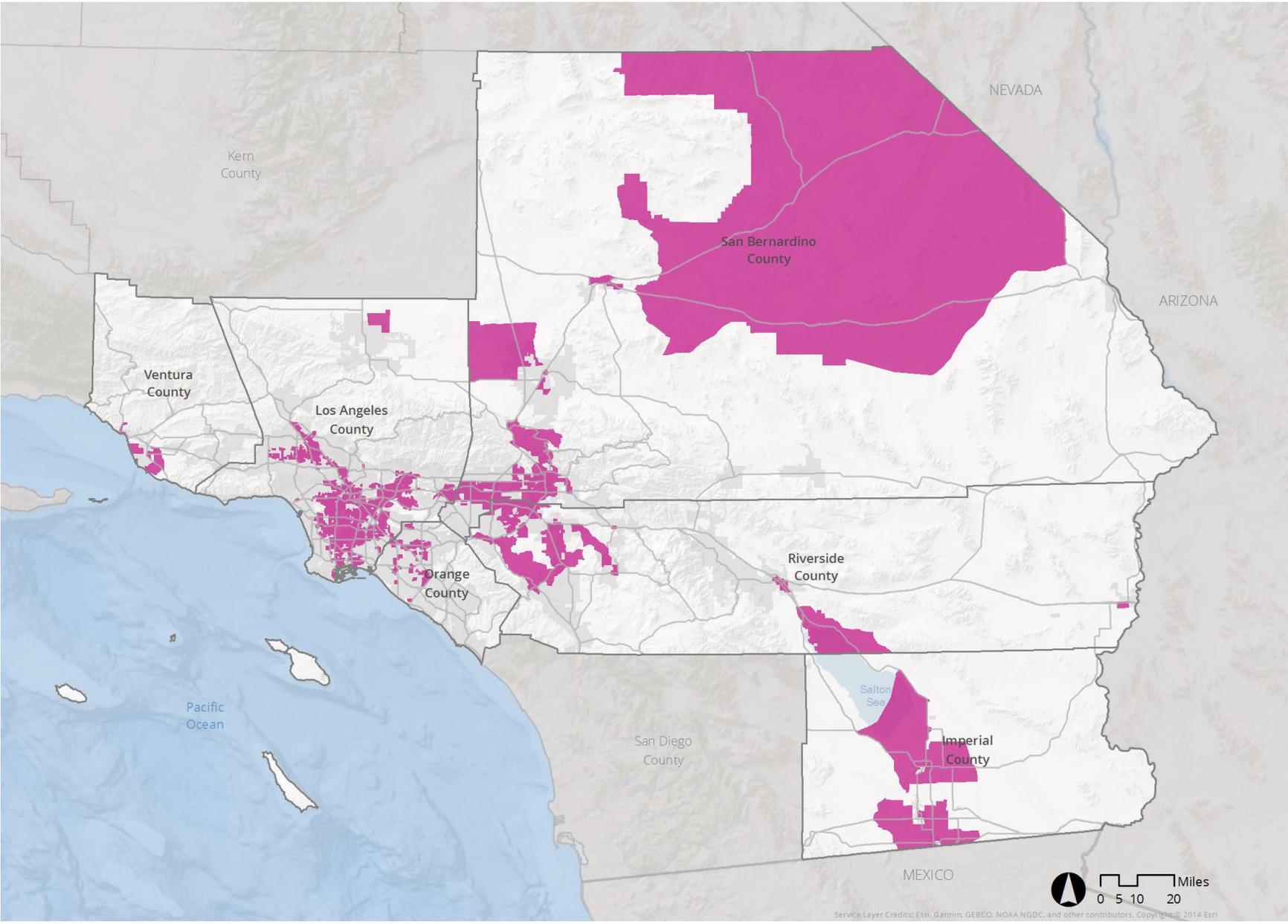


Minority Population      Households in Poverty 1\*

Source: SCAG, Census ACS 2013-2017 5-Year Estimates  
 \*In 2016, per Census, a family of three earning less than \$19,105 was classified as living in poverty.



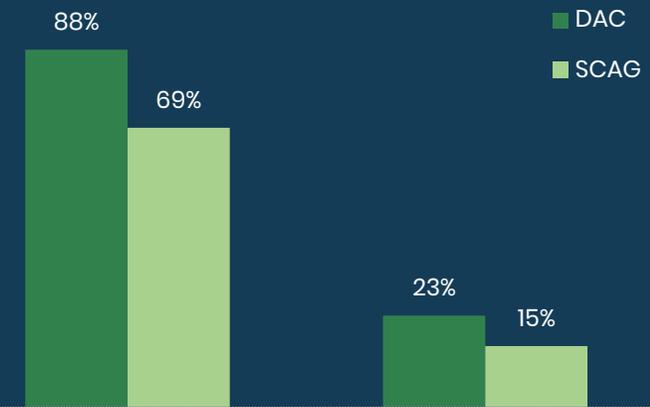
SCAG™



■ SB535 Disadvantaged Communities 
  County Boundaries 
  City Boundaries 
 — Freeway

Source: OEHHA, CalEPA, CalEnviroScreen Ver. 3.0, SCAG, 2019

# 6.4 Million People 34% of Region

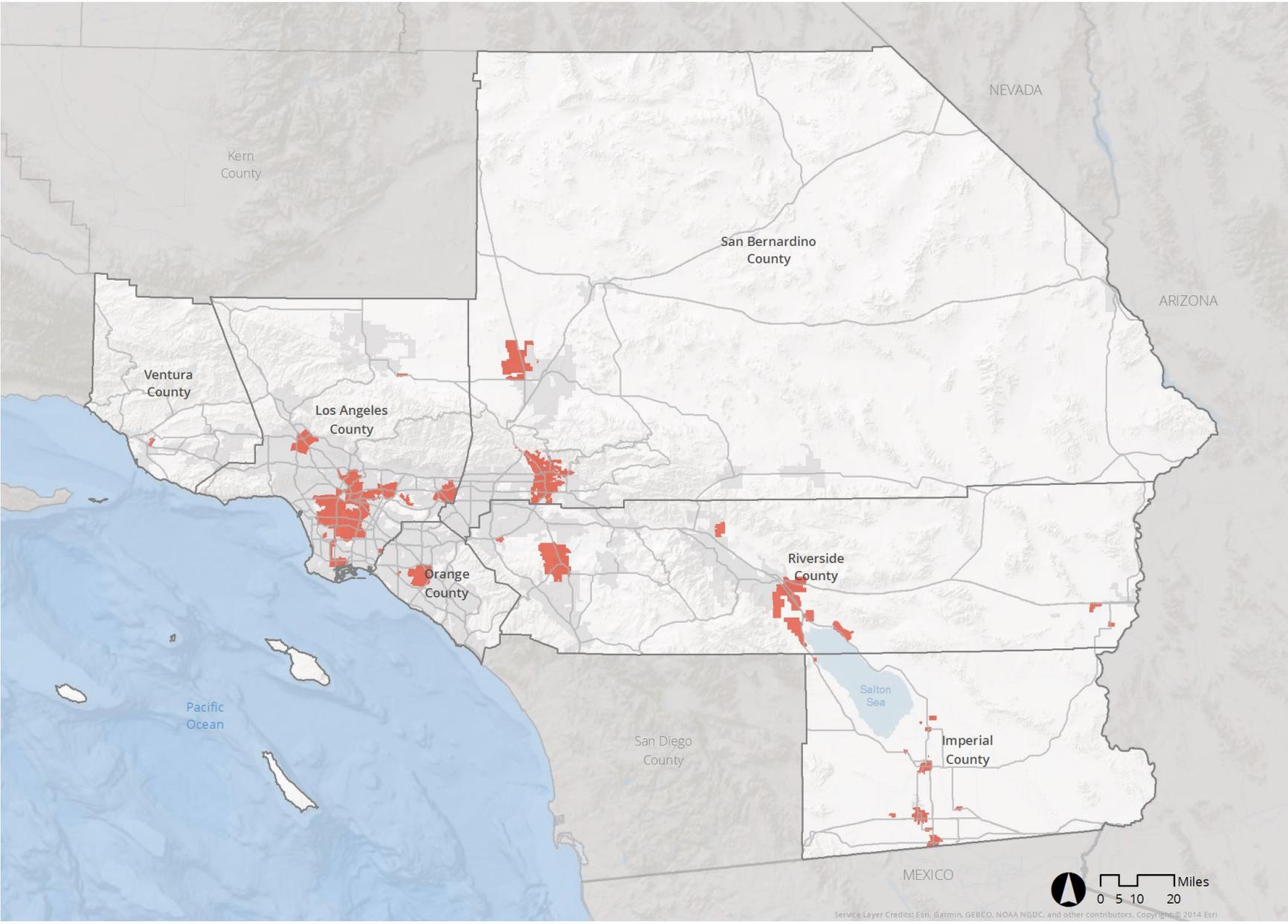


Minority Population      Households in Poverty 1\*

Source: SCAG, Census ACS 2013-2017 5-Year Estimates  
\*In 2016, per Census, a family of three earning less than \$19,105 was classified as living in poverty.



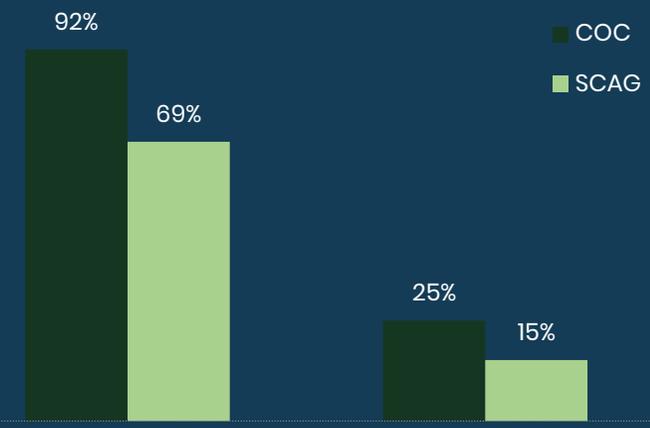
SCAG™



■ Communities of Concern 
  County Boundaries 
  City Boundaries 
 — Freeway

Source: 2013-2017 ACS 5 Year Estimates, City of Los Angeles Community Planning Area, SCAG, 2019

# 3.9 Million People 21% of Region



Minority Population      Households in Poverty 1\*

Source: SCAG, Census ACS 2013-2017 5-Year Estimates  
\*In 2016, per Census, a family of three earning less than \$19,105 was classified as living in poverty.

# Draft EJ Results



[https://www.connectsocal.org/Documents/Draft/dConnectSoCal\\_Environmental-Justice.pdf](https://www.connectsocal.org/Documents/Draft/dConnectSoCal_Environmental-Justice.pdf)

TABLE 1 Comparison of EJ Performance Measures between 2045 Plan and 2045 Baseline					
(1) HOW WILL THIS IMPACT QUALITY OF LIFE?					
EJ Topics	EJ Performance Measures	SCAG	EJA	DAC	COC
<b>Jobs-Housing Imbalance</b>  	Jobs-Housing Imbalance	<p>Current Conditions Analysis</p> <p>Historical and current results show that higher wage workers tend to commute longer distances than lower wage workers. The median commute distance grew in all six counties between 2002 and 2016, especially more rapidly in the Inland counties where there is a lower job-to-worker ratio than coastal counties. Coastal counties have a substantial concentration of low-wage jobs, but lack an adequate number of affordable rental units, while Inland counties have a substantial concentration of affordable rental units and workers, relative to the number of low-wage jobs that match their skills. The Plan will contribute to improvements in jobs-housing balance throughout the region, and especially in inland counties.</p>			
<b>Neighborhood Change and Displacement</b>  	Neighborhood Change and Displacement	<p>Current Conditions Analysis</p> <p>Establishing that gentrification and displacement result from transportation investment is challenging on a region-wide basis. Recent studies of LA County have shown that the opening and continued presence of LA Metro rail stations can increase neighborhood outflow rates up to 10% above baseline levels; however, most of the observed moves are for middle and upper income groups. More broadly, recent research shows that wholesale displacement is not the result of changing neighborhoods, but attention should instead be given on a project-by-project basis to carefully understand local neighborhood dynamics and ensure equitable access to the benefits of improved infrastructure. Local analysis can also facilitate better monitoring of related outcomes which may not rise to the level of displacement such as household overpayment or overcrowding, in addition to the possibility of decreased accessibility if minority or EJ populations suburbanize. SCAG's analysis of neighborhood change across the region identifies 40 census tracts which have been persistently changing across recent decades; however, these tracts are not disproportionately located in EJAs, DACs, or COCs.</p>			



<b>Accessibility to Employment and Services</b> CI LU	Accessibility to Employment (time-based) by 30 Minute Auto	Improve	Improve	Improve	Improve
	Accessibility to Employment (time-based) by 45 Minute All Transit	Improve	Improve	Improve	Improve
	Accessibility to Employment (time-based) by 45 Minute Local Bus	Improve	Improve	Improve	Improve
	Accessibility to Shopping (time-based) by 30 Minute Auto	Improve	Improve	Improve	Improve
	Accessibility to Shopping (time-based) by 45 Minute All Transit	Improve	Improve	Improve	Improve
	Accessibility to Shopping (time-based) by 45 Minute Local Bus	Improve	Improve	Improve	Improve
<b>Accessibility to Parks and Educational Facilities</b> CI CO LU OS	Accessibility to Local Parks by 30 Minute Auto	Improve	Improve	Improve	Improve
	Accessibility to Local Parks by 45 Minute All Transit	Improve	Improve	Improve	Improve
	Accessibility to Local Parks by 45 Minute Local Bus	Improve	Improve	Improve	Improve
	Accessibility to Natural Lands by 30 Minute Auto	Improve	Improve	Improve	Improve
	Accessibility to Natural Lands by 45 Minute All Transit	Improve	Improve	Improve	Improve
	Accessibility to Natural Lands by 45 Minute Local Bus	Improve	Improve	Improve	Improve

## (2) HOW WILL THIS IMPACT HEALTH AND SAFETY?

EJ Topics	EJ Performance Measures	SCAG	EJA	DAC	COC
<b>Active Transportation Hazards</b> CI LU S	Active Transportation Hazards	Current Conditions Analysis The 2016 traffic collisions analysis have shown that low-income and minority communities incur a higher rate of bicycle and pedestrian risk. Improvements in active transportation infrastructure and complete streets measures, such as those proposed in the Plan (e.g. Toward Zero Death, GoHuman, etc.), have been shown to reduce hazard to cyclists and pedestrians. The EJ Toolbox, available at the end of this report, lists potential strategies to reduce risk at the local level.			
<b>Climate Vulnerability</b> LU S	Climate Adaptation	Current Conditions Analysis Existing conditions show that minority and low income population are at a greater risk for experiencing negative impacts from Climate Change, like extreme heat, flooding, and other extreme events. These populations have fewer resources to cope climate consequences. Lack of resources like air conditioning and automobiles may constrain people to become stranded in heat prone areas and may not be able to go to cooling centers. In addition, minority and low people may be greater impacted by the disruption to their place of work and the local economy, since many may have			



		the disruption to their place of work and the local economy, since many may have fewer financial savings to sustain themselves. Please refer to the EJ Toolbox section for potential strategies to reduce harms at the local level.			
Public Health Analysis <b>S</b>	Public Health Analysis	<p>Current Conditions Analysis</p> <p>Recent trends indicate that air quality is improving throughout the region. For areas that show less improvement of air quality, there is sometimes a higher proportion of minority and low income population. When examining public health indicators from the CalEnviroScreen tool, it appears that areas with the highest concentrations of minority and low income population incur some of the highest risks throughout the region.</p>			
Noise Impact Analysis <b>CI LU N S</b>	Aviation Noise Impacts	<p>Current Conditions Analysis</p> <p>Although the air passenger demand in the SCAG region might raise concerns about aviation noise, the increased passenger activity did not translate to increased aircraft operations. Therefore, by reducing the number of aircraft operations, the newer technology and practices being employed by the airlines is also affecting overall noise impacts. In summary, the areas around the airports experiencing significant sounds levels have been reduced through the following: the FAA noise certification standards; the development of new technology by aircraft and engine manufacturers; investments by U.S. airlines in newer, quieter aircraft; and mandates by the FAA and the U.S. Congress to retire older, noisier aircraft. However, concerned communities and individuals should monitor aviation noise levels and impacts, including viewing the noise contour maps and visiting the noise abatement websites of the airports within their vicinity.</p>			
	Roadway Noise Impacts	Improve	Improve	Does Not Improve	Does Not Improve
Emissions Impact Analysis <b>CI LU S</b>	Emissions Impact Analysis (PM2.5)	Improve	Improve	Improve	Improve
	Emissions Impact Analysis (CO)	Improve	Improve	Improve	Improve

**(3) HOW WILL THIS IMPACT THE COMMUTE?**

EJ Topics	EJ Performance Measures	SCAG	EJA	DAC	COC
Travel Time and Travel Disance Savings <b>CI</b>	Distribution of Travel Distance (30 Minute Auto)	Improve	Improve	Improve	Improve
	Distribution of Travel Time (30 Minute Auto)	Improve	Improve	Improve	Improve
	Distribution of Travel Distance (45 Minute All Transit)	Improve	Improve	Improve	Improve
EJ Topics	EJ Performance Measures	Railroad Adjacent Areas		Areas Adjacent to Grade Separation Projects	
Rail-related impacts	Rail-Related Impacts (Percentage of Minority Population*)	Improve		Improve	

**CI**

Rail-Related Impacts (Percentage of Low-Income Households\*\*)

Improve

Does Not Improve

**(4) HOW WILL THIS IMPACT TRANSPORTATION COSTS?**

EJ Topics	EJ Performance Measures	SCAG	EJA	DAC	COC
<b>Connect SoCal Revenue Sources In Terms of Tax Burdens</b> <b>CI LU</b>	Share of Transportation System Usage	Improve			
	RTP/SCS Revenue Sources In Terms of Tax Burdens				
	RTP/SCS Investments vs. Benefits				
<b>Geographic Distribution of Transportation Investments</b> <b>CI</b>	Transportation Investments in Bicycle (by lanemile) - Existing vs Plan	Improve	Improve	Improve	Improve
	Transportation Investments in Highway (by lanemile) - Existing vs Plan	Improve	Improve	Improve	Improve
	Transportation Investments in Transit (by lanemile) - Existing vs Plan	Improve	Improve	Improve	Improve
<b>Impacts from Mileage-Based User Fee</b> <b>CI</b>	Impacts from Funding Through Mileage Based User Fee	<p>There is no disproportionate impact. The proposed mileage-based user fee system is deemed more equitable to low income groups than both the gasoline tax and sales tax, which are highly regressive. Under the current structure, low income households pay more per mile in gasoline tax than their higher earning counterparts due to their lower adoption rates of new (more fuel efficient) vehicles. With the mileage-based user fee system, all households will pay in proportion to their usage of the transportation system.</p>			





# Job-Housing Balance Analysis

Jung Seo

Research and Analysis Department

[www.scag.ca.gov](http://www.scag.ca.gov)



- Jobs-Housing Imbalance/Mismatch Analysis for Connect SoCal
  1. Median wages for workers by place of residence and place of work
  2. Median commute distance by wage
  3. Job-to-worker ratio by wage
  4. Jobs-housing ratio and low-wage jobs-housing fit (JHFIT)
- Data Sources:
  - 2013-2017 American Community Survey (ACS) 5-year Public Use Microdata Samples (PUMS)
  - Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES 7.4)
  - Census Bureau's American Community Survey 5-Year Estimates

# Jobs-Housing Balance

## Median Wages for Workers by Place of Residence and Place of Work



- To identify median wages for inter-county and intra-county commuters
- Source: 2013-2017 American Community Survey (ACS) 5-year Public Use Microdata Samples (PUMS)
- Most inter-county commuters command much higher wages than those commuters who work and live in the same county

**TABLE 12** Median Wage for Workers by Place of Residence and Place of Work, 2017 Dollars

Place of Residence	Place of Work						
	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	San Diego
Imperial	25,834	-	-	26,936	-	-	25,731
Los Angeles	36,403	30,336	36,582	33,446	30,878	39,368	42,479
Orange	-	56,284	32,936	45,504	47,789	51,799	60,621
Riverside	41,808	52,260	43,898	25,487	37,169	35,224	53,099
San Bernardino	-	42,479	42,479	34,987	26,130	15,168	45,504
Ventura	-	60,671	92,633	58,531	53,099	29,008	82,879
San Diego	55,580	51,571	63,757	41,808	56,979	62,159	34,583

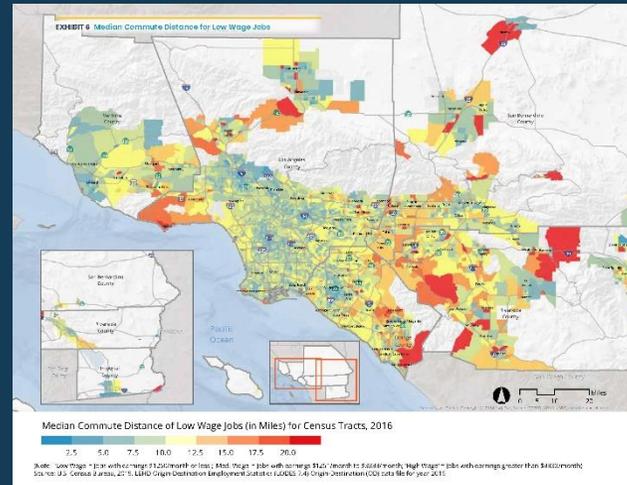
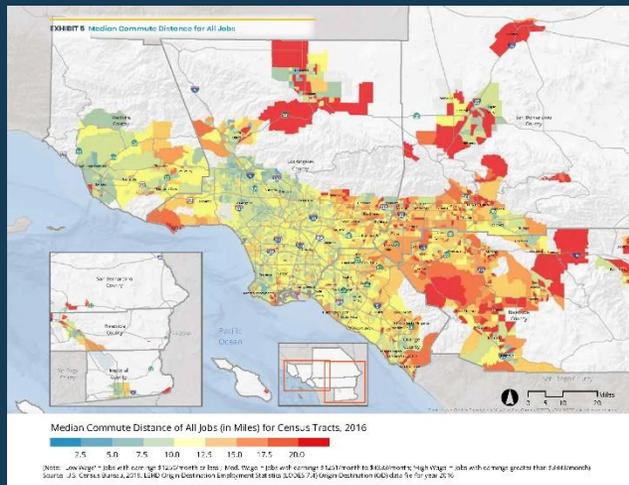
Note: CPI adjusted to \$ in 2017; '-' indicates sample size is too small for the analysis.

Sources: 2013-2017 American Community Survey (ACS) 5-year Public Use Microdata Samples (PUMS)

# Jobs-Housing Balance

## Median Commute Distance by Wage

- To examine the historical trend in median commute distance between origin and destination tracts by wage in each county
- Source: LODES 7.4 Origin-Destination (OD) data file for the years 2002-2016
- Higher wage workers tend to commute longer distances than lower wage workers.
- The commute distance of workers in inland counties grew more rapidly than in coastal counties.



**TABLE 13 Median Commute Distance (in Miles) by Wage in the SCAG Region, 2002-2016**

2016					
Origin	Destination	All Jobs	Low Wage	Med. Wage	High Wage
SCAG	SCAG	10.0	9.0	9.5	11.1
Imperial	SCAG	8.4	6.7	8.4	10.0
Los Angeles	SCAG	9.1	8.2	8.7	10.0
Orange	SCAG	9.6	8.8	8.8	10.5
Riverside	SCAG	15.8	14.0	14.0	18.3
San Bernardino	SCAG	15.4	14.0	14.2	17.4
Ventura	SCAG	11.1	11.6	10.0	11.8
2012					
Origin	Destination	All Jobs	Low Wage	Med. Wage	High Wage
SCAG	SCAG	10.1	9.0	9.7	11.3
Imperial	SCAG	8.5	6.3	9.1	9.6
Los Angeles	SCAG	9.1	8.1	8.9	10.1
Orange	SCAG	9.8	8.9	8.9	10.8
Riverside	SCAG	16.6	14.8	14.9	19.3
San Bernardino	SCAG	16.2	14.7	15.1	18.2
Ventura	SCAG	11.2	11.7	10.0	12.0
2002					
Origin	Destination	All Jobs	Low Wage	Med. Wage	High Wage
SCAG	SCAG	9.4	8.6	8.8	11.0
Imperial	SCAG	7.5	8.1	7.2	5.7
Los Angeles	SCAG	8.8	8.2	8.4	10.2
Orange	SCAG	9.0	8.0	8.1	10.6
Riverside	SCAG	13.4	11.8	12.2	17.6
San Bernardino	SCAG	13.3	12.1	12.4	16.0
Ventura	SCAG	9.4	8.6	8.4	11.5

(Note: 'Low Wage' = Jobs with earnings \$1250/month or less; 'Med. Wage' = Jobs with earnings \$1251/month to \$3333/month; 'High Wage' = Jobs with earnings greater than \$3333/month)  
Source: U.S. Census Bureau, 2019, LEHD Origin-Destination Employment Statistics (LODES) 7.4

# Jobs-Housing Balance

## Job-to-Worker Ratio by Wage



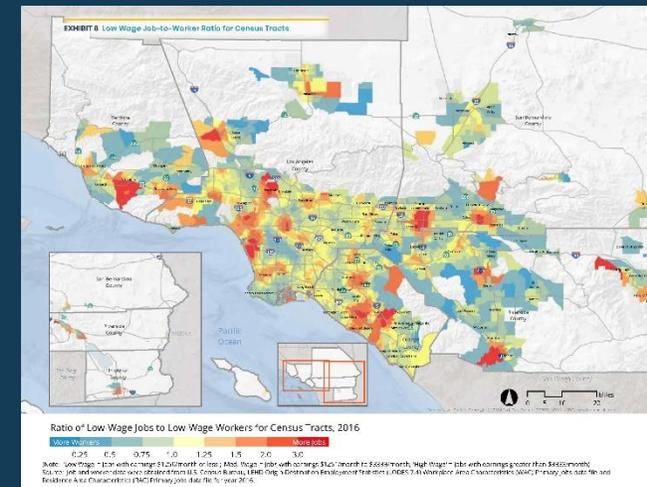
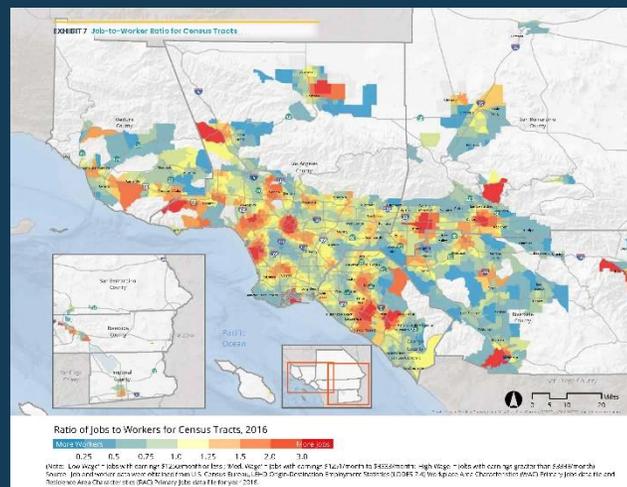
- To examine whether jobs and workers are relatively balanced at the neighborhood level and county level by wage
- Source: Job estimates from LODES 7.4 Workplace Area Characteristics (WAC) data files and workers estimates from LODES 7.4 Residence Area Characteristics (RAC) data files for the year 2016
- Inland counties show a lower job-to-worker ratio than coastal counties. A higher job-to-worker ratio means more jobs while a lower job-to-worker ratio means more workers.

**TABLE 14 Job-to-Worker Ratio by Wage in the SCAG Region, 2016**

County	All Jobs	Low Wage	Med. Wage	High Wage
Imperial	0.85	0.87	0.79	0.91
Los Angeles	1.05	1.04	1.02	1.09
Orange	1.12	1.13	1.19	1.07
Riverside	0.77	0.83	0.82	0.70
San Bernardino	0.87	0.89	0.90	0.84
Ventura	0.81	0.84	0.89	0.74

(Note: 'Low Wage' = Jobs with earnings \$1250/month or less; 'Med. Wage' = Jobs with earnings \$1251/month to \$3333/month; 'High Wage' = Jobs with earnings greater than \$3333/month)

Source: U.S. Census Bureau, 2019. LEHD Origin-Destination Employment Statistics (LODES) 7.4



# Jobs-Housing Balance

## Jobs-Housing Ratio and Low-Wage Jobs-Housing Fit (JHFIT)

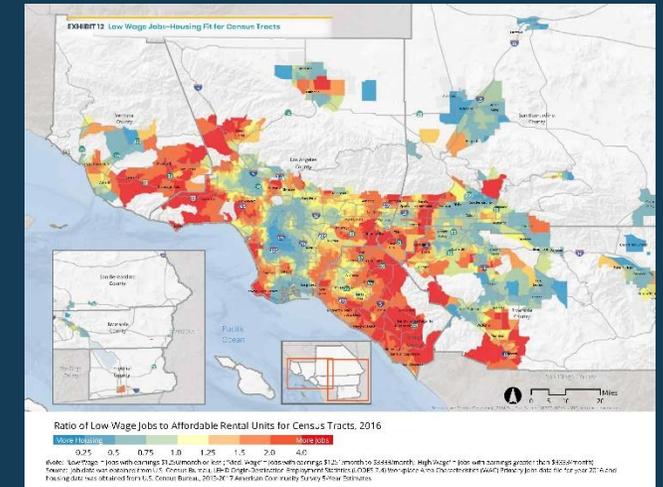
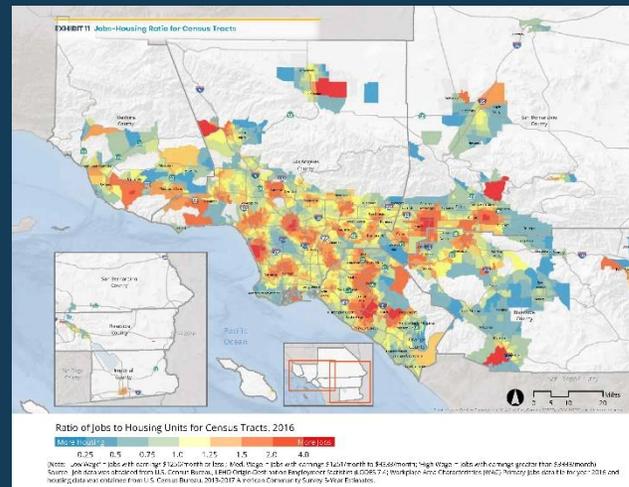


- To examine the Jobs-Housing Fit (JHFIT) between available housing types and the income level of residents at both a neighborhood and jurisdiction scale
- Source: Job estimates from LODES 7.4 WAC data files for the years 2010 and 2016 and housing unit estimates from 2012 and 2017 ACS 5-Year Estimates
- Jobs-housing ratio increased between 2010 and 2016, while low wage jobs-housing fit decreased during the same period.
- Coastal counties have a substantial concentration of low-wage jobs, but lack an adequate number of affordable rental units, while Inland counties have a substantial concentration of affordable rental units and workers, relative to the number of low-wage jobs.

TABLE 15 Jobs-Housing Ratio and Low-Wage Jobs-Housing Fit in the SCAG Region

County	2012 ACS 5 YEAR & 2010 LODES			2017 ACS 5 YEAR & 2016 LODES		
	Jobs-Housing Ratio	Low-Wage Jobs-Housing Fit	Difference	Jobs-Housing Ratio	Low-Wage Jobs-Housing Fit	Difference
Imperial	1.13	0.84	0.29	1.16	0.81	0.35
Los Angeles	1.15	0.79	0.35	1.22	0.77	0.46
Orange	1.33	2.10	-0.78	1.44	2.16	-0.72
Riverside	0.77	0.90	-0.14	0.88	0.81	0.07
San Bernardino	0.95	0.84	0.11	1.04	0.72	0.32
Ventura	0.98	1.59	-0.60	1.03	1.62	-0.59
SCAG	1.10	0.94	0.17	1.19	0.89	0.30

Sources:  
 1. Jobs and housing projections for years 2020 and 2030 are based on SCAG growth forecast projections for the Connect SoCal, the 2020 RTP/SCS  
 2. Job estimates are based on U.S. Census Bureau's LEHD Origin-Destination Employment Statistics Data (LODES version 7.4) Workplace Characteristics (WAC) Primary Jobs data files for years 2010 and 2016.  
 3. Housing unit estimates are based on U.S. Census Bureau's 2008-2012 American Community Survey 5-Year Estimates and 2013-2017 American Community Survey 5-Year Estimates.



# Jobs-Housing Balance

## Highlights from Jobs-Housing Imbalance/Mismatch Analysis



- Higher wage workers tend to commute longer distances than lower wage workers.
- The commute distance of workers in inland counties grew more rapidly than in coastal counties, especially in low wage workers in inland counties.
- Inland counties show a lower job-to-worker ratio than coastal counties, which indicates there are more long-distance commuters in inland counties.
- Coastal counties have a substantial concentration of low-wage jobs, but lack an adequate number of affordable rental units, while Inland counties have a substantial concentration of affordable rental units and workers, relative to the number of low-wage jobs that match their skills.
- Job-housing balance in the SCAG region may be improved due to the faster growth of employment over population in the Inland Counties through 2045. Improvements in job-housing balance may result in a reduction of transportation congestion and related air quality problems.



# Neighborhood Change and Displacement Analysis

John Cho, Ph.D.

Research and Analysis Department

[www.scag.ca.gov](http://www.scag.ca.gov)



# Neighborhood Change and Displacement



Transportation infrastructure development can bring

- Positive effects by providing public service upgrades and new commercial venues
- Negative effects by causing involuntary residential displacement resulting from upward pressure on housing rents and property values

Therefore planners and policy makers must be prepared to address the potential negative consequences associated with transit investment and expansion

Gentrification is defined as the transformation that takes place when a neighborhood moves from low value to high value. In this report, we use 'neighborhood change' interchangeably with 'gentrification.'

# Neighborhood Change and Displacement: Method, Data



Previous studies used changes in population, racial/ethnic composition, housing value/rent, income, education.

To identify changed neighborhood, we applied the following four criteria (Chapple et al. 2017). A tract is defined as gentrified if it meets all four criteria:

- Change in percent of college educated > county (percentage points)
- Change in percent of non-Hispanic white > county (percentage points)
- Change in median household income > county (absolute value)
- Change in Median Gross Rent > Change County Median Gross Rent (absolute value)

Data:

- 1980, 1990, 2000 Census
- 2008-2012, 2013-2017 American Community Survey

# Criteria for Neighborhood Changes in Counties in the SCAG Region

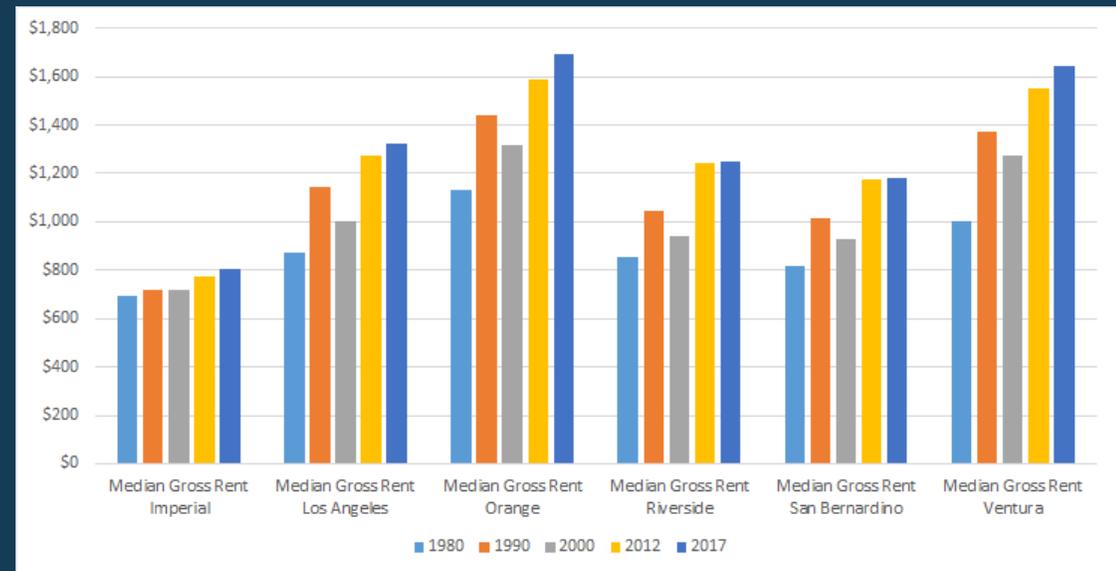
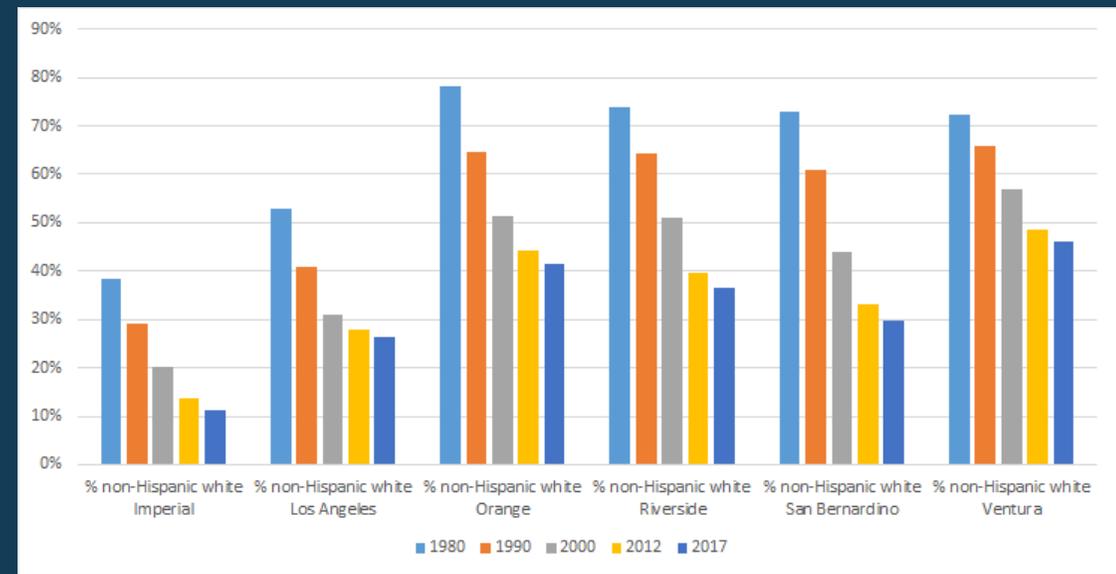
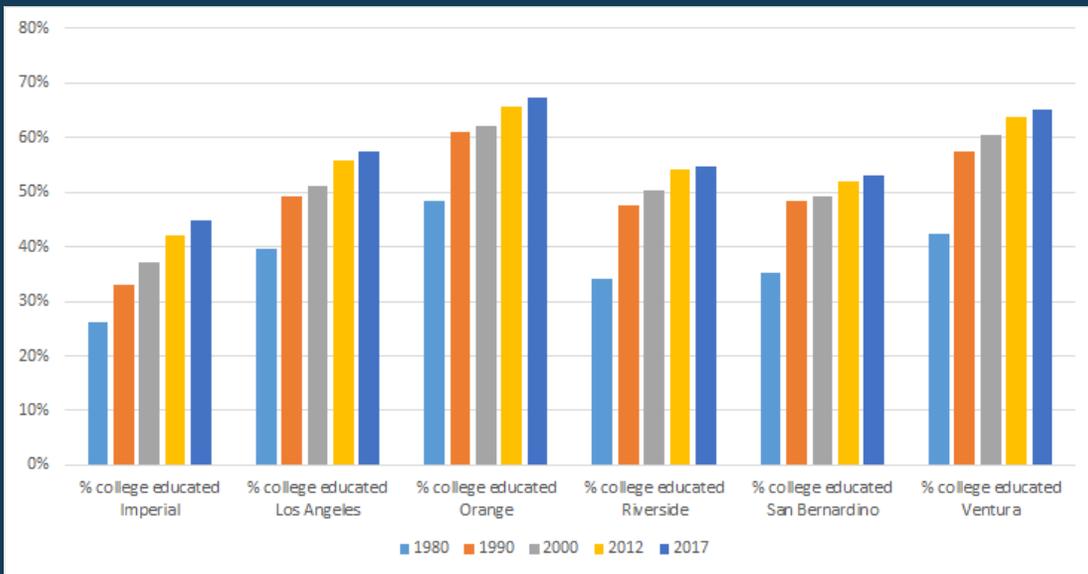


**TABLE 16** Criteria for Neighborhood Changes in Counties in the SCAG Region

	1980	1990	2000	2012	2017	Δ1980–1990	Δ1990–2000	Δ2000–2012	Δ2012–2017
<b>Imperial</b>									
% College Educated	26%	33%	37%	42%	45%	7%	4%	5%	3%
% Non-Hispanic White	38%	29%	20%	14%	11%	-9%	-9%	-6%	-2%
Median Household Income	\$46,302	\$42,956	\$47,017	\$44,167	\$44,779	-\$3,346	\$4,061	-\$2,850	\$612
Median Gross Rent	\$691	\$718	\$719	\$776	\$805	\$27	\$1	\$57	\$29
<b>Los Angeles</b>									
% College Educated	40%	49%	51%	56%	57%	10%	2%	5%	2%
% Non-Hispanic White	53%	41%	31%	28%	26%	-12%	-10%	-3%	-1%
Median Household Income	\$55,384	\$66,927	\$62,240	\$60,211	\$61,015	\$11,543	-\$4,687	-\$2,029	\$804
Median Gross Rent	\$874	\$1,141	\$1,005	\$1,271	\$1,322	\$267	-\$136	\$266	\$51
<b>Orange</b>									
% College Educated	48%	61%	62%	66%	67%	13%	1%	4%	2%
% Non-Hispanic White	78%	64%	51%	44%	41%	-14%	-13%	-7%	-3%
Median Household Income	\$71,181	\$87,899	\$86,776	\$80,900	\$81,851	\$16,718	-\$1,123	-\$5,876	\$951
Median Gross Rent	\$1,130	\$1,440	\$1,318	\$1,587	\$1,693	\$310	-\$122	\$269	\$106
<b>Riverside</b>									
% College Educated	34%	48%	50%	54%	55%	13%	3%	4%	1%
% Non-Hispanic White	74%	64%	51%	40%	37%	-9%	-13%	-11%	-3%
Median Household Income	\$50,606	\$63,320	\$63,270	\$61,126	\$60,807	\$12,714	-\$50	-\$2,144	-\$319
Median Gross Rent	\$852	\$1,043	\$942	\$1,245	\$1,251	\$191	-\$101	\$303	\$6
<b>San Bernardino</b>									
% College Educated	35%	48%	49%	52%	53%	13%	1%	3%	1%
% Non-Hispanic White	73%	61%	44%	33%	30%	-12%	-17%	-11%	-3%
Median Household Income	\$55,106	\$64,013	\$62,059	\$58,614	\$57,156	\$8,907	-\$1,954	-\$3,445	-\$1,458
Median Gross Rent	\$820	\$1,014	\$925	\$1,177	\$1,182	\$194	-\$89	\$252	\$5
<b>Ventura</b>									
% College Educated	42%	57%	60%	64%	65%	15%	3%	3%	1%
% Non-Hispanic White	72%	66%	57%	49%	46%	-7%	-9%	-8%	-3%
Median Household Income	\$67,012	\$87,306	\$88,024	\$81,881	\$81,972	\$20,294	\$718	-\$6,143	\$91
Median Gross Rent	\$1,000	\$1,375	\$1,273	\$1,549	\$1,643	\$375	-\$102	\$276	\$94

Source: 1980, 1990, 2000 Decennial Census, 2008–2012, 2013–2017 5 year ACS

# Criteria for Neighborhood Changes in Counties in the SCAG Region



# Number of Changed Neighborhoods in SCAG Region



**TABLE 17** Number of Changed Neighborhoods in SCAG Region

	1980–1990		1990–2000		2000–2012		2012–2017	
	# of Census Tract	% Out of Total Census Tract	# of Census Tract	% Out of Total Census Tract	# of Census Tract	% Out of Total Census Tract	# of Census Tract	% Out of Total
Imperial	4	12.9%	2	6.5%	2	6.5%	1	3.2%
Los Angeles	288	12.3%	469	20.0%	293	12.5%	231	9.8%
Orange	85	14.6%	139	23.8%	29	5.0%	41	7.0%
Riverside	2	0.4%	110	24.3%	54	11.9%	28	6.2%
San Bernardino	34	9.2%	59	16.0%	59	16.0%	31	8.4%
Ventura	17	9.8%	40	23.0%	19	10.9%	17	9.8%
SCAG	430	10.9%	819	20.7%	456	11.5%	349	8.8%

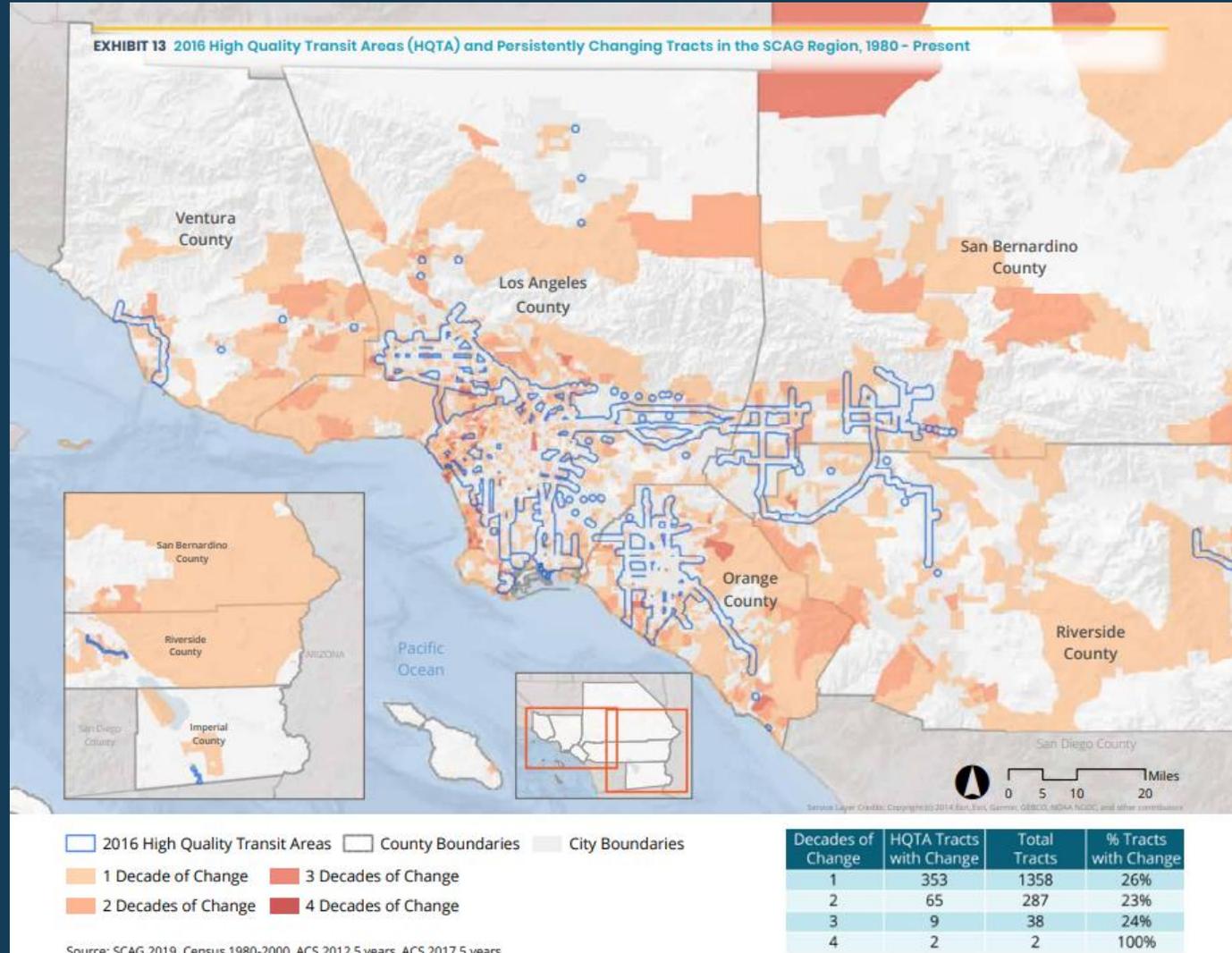
# Summary of Census tracts that Persistently Changing

**TABLE 18 Summary of Census Tracts that Persistently Changing (Changed in Three or More Time Periods), 1980 - Present**

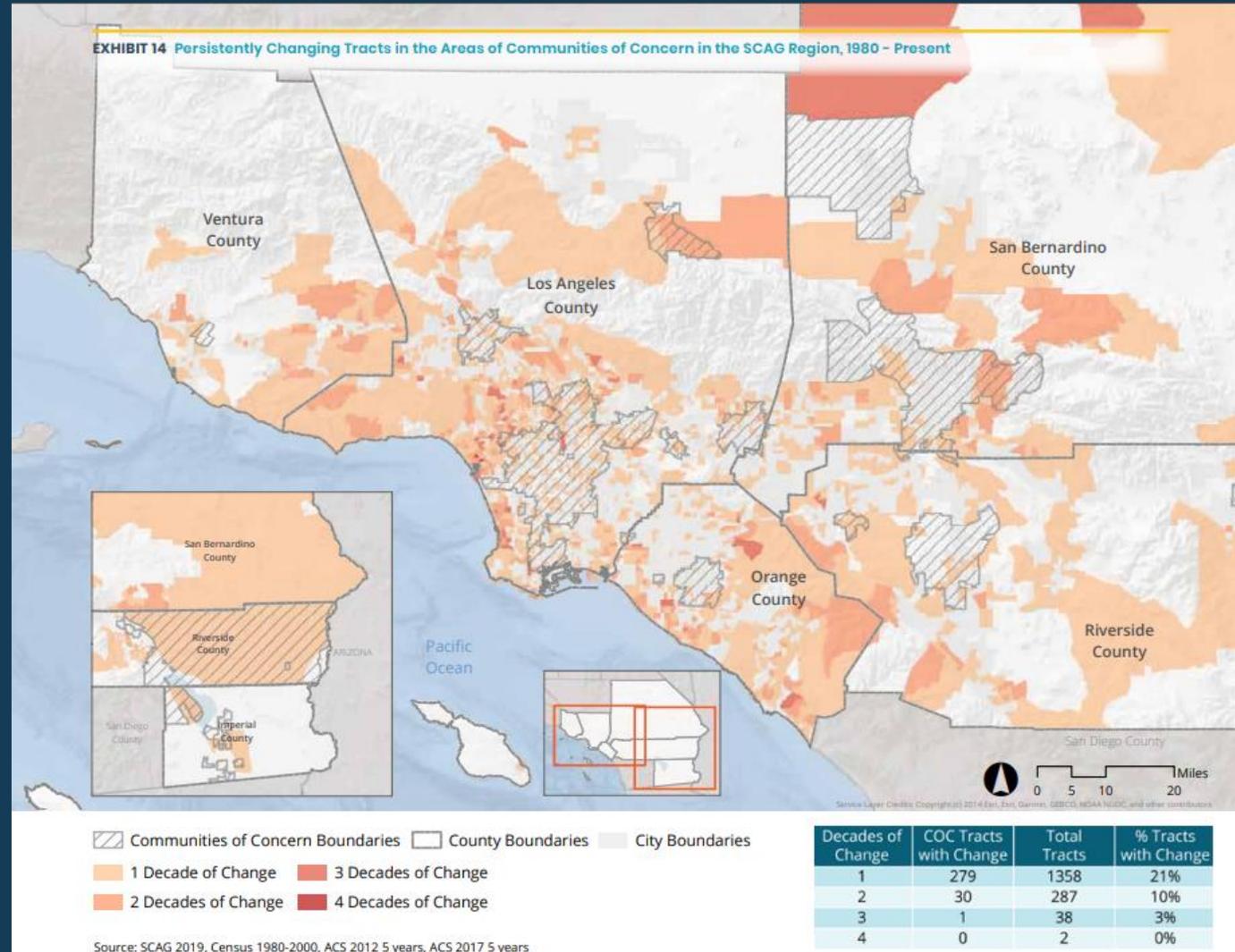
	# of Census Tract		1980	1990	2000	2012	2017	Δ1980-1990	Δ1990-2000	Δ2000-2012	Δ2012-2017
Los Angeles	30	% College Educated	52%	67%	75%	82%	85%	15%	8%	7%	3%
		% Non-Hispanic White	71%	68.0%	64%	62.0%	63%	-3.0%	-4%	-2%	1%
		Median Household Income	\$70,299	\$93,801	\$98,631	\$98,990	\$109,357	\$23,502	\$4,829	\$359	\$10,367
		Median Gross Rent	\$1,052	\$1,498	\$1,508	\$1,696	\$2,080	\$446	\$10	\$188	\$384
Orange	8	% College Educated	54%	72.0%	77%	80.0%	81%	18.0%	5%	3%	2%
		% Non-Hispanic White	87%	82.0%	76%	66.0%	66%	-4.0%	-7%	-10%	-1%
		Median Household Income	\$64,513	\$110,941	\$115,238	\$103,008	\$108,876	\$46,427	\$4,297	-\$12,230	\$5,868
		Median Gross Rent	\$1,078	\$1,726	\$1,920	\$1,896	\$2,573	\$648	\$194	-\$24	\$677
Riverside	1	% College Educated	38%	52%	55%	52%	65%	14%	3%	-3%	13%
		% Non-Hispanic White	86%	79%	74%	59%	68%	-7%	-5%	-15%	8%
		Median Household Income	\$76,203	\$93,050	\$116,091	\$86,897	\$103,641	\$16,847	\$23,041	-\$29,194	\$16,744
		Median Gross Rent	\$1,270	\$1,539	\$1,585	\$2,143	\$2,105	\$269	\$47	\$558	-\$38
San Bernardino	1	% College Educated	28%	47%	61%	68%	71%	19%	14%	8%	3%
		% Non-Hispanic White	81%	81%	78%	77%	64%	1%	-3%	-1%	-13%
		Median Household Income	\$46,912	\$62,226	\$64,987	\$70,489	\$72,832	\$15,314	\$2,761	\$5,502	\$2,343
		Median Gross Rent	\$608	\$942	\$1,068	\$1,498	\$1,191	\$333	\$126	\$430	-\$307

Income and rents are inflation adjusted to 2017

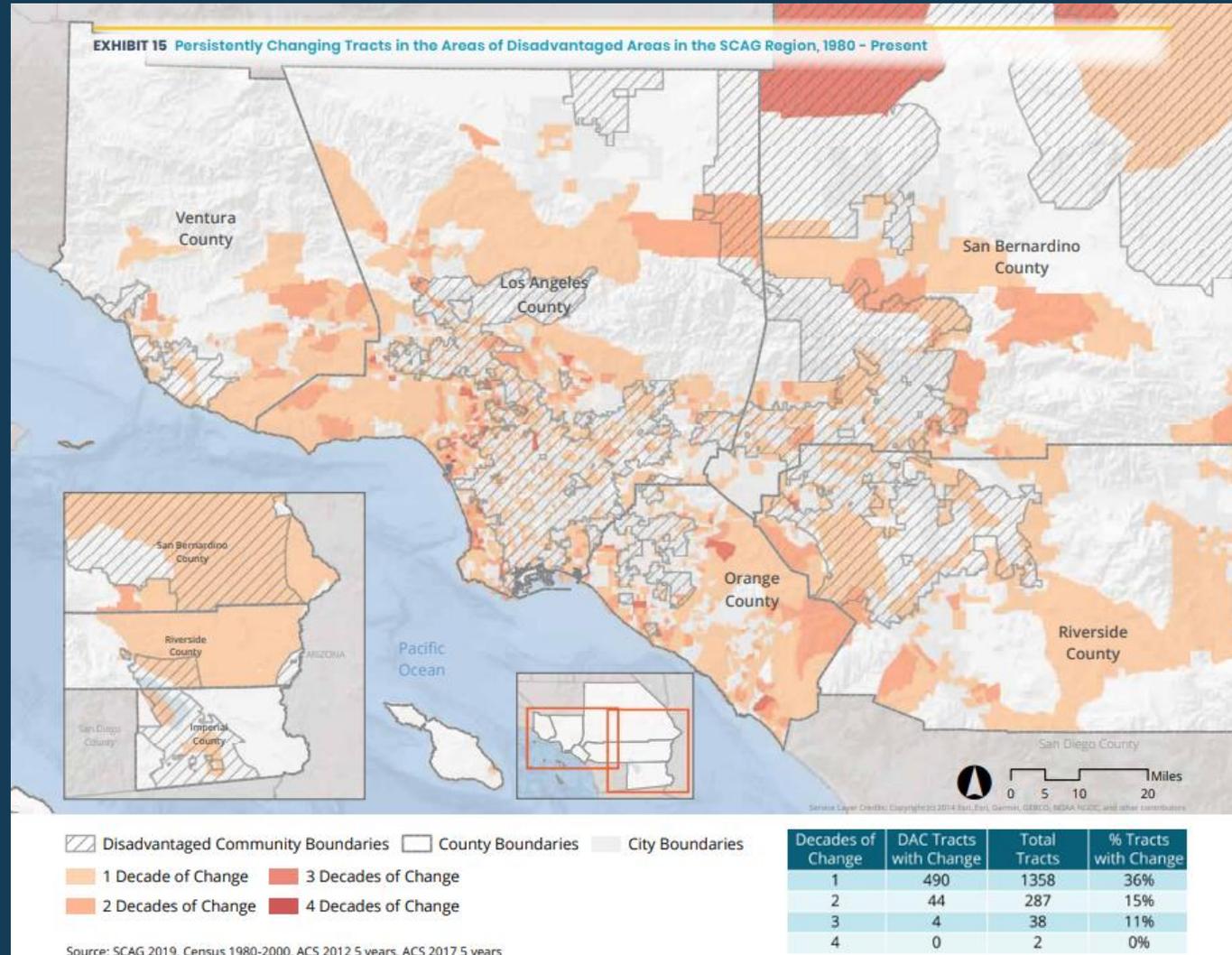
# High Quality Transit Areas (HQTA) and Changing Tracts



# Areas of Communities of Concern and Changing Tracts

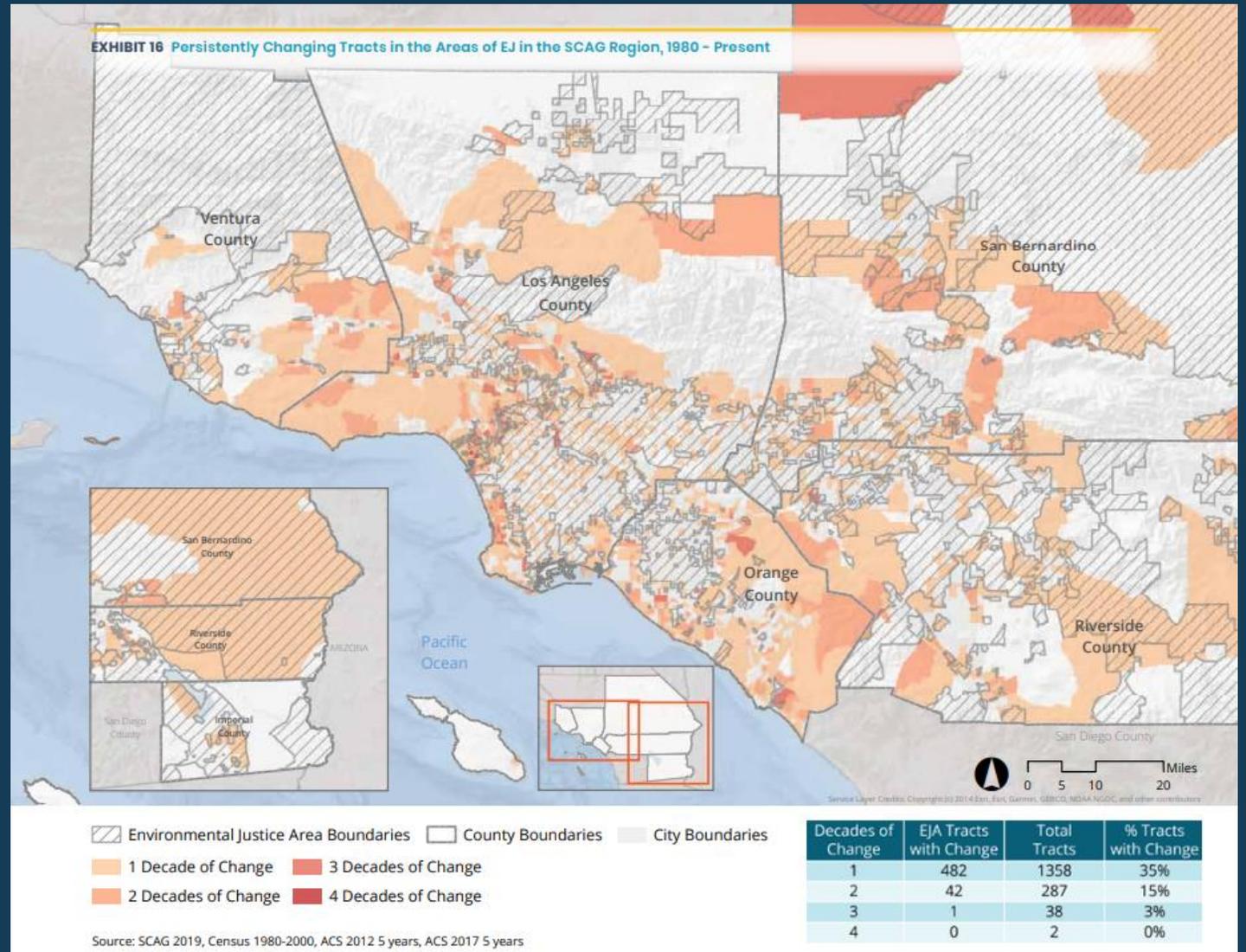


# Disadvantaged Areas and Changing Tracts



# Areas of EJ and Changing Tracts

As the share of the region's population in each of these areas is higher than these percentages, this analysis does not suggest that persistently changing tracts are disproportionately found here



# Neighborhood Change and Displacement



Analyzing displacement, even in the context of neighborhood change, requires understanding mobility and moving.

Researchers have noted there is a wide range of reasons people move. Aging and changing life stages are a top driver of moves, e.g. young adults forming a household or retirees downsizing. Relocation for a job is another key driver of mobility, and tends to be more closely associated with longer-distance moves. Increasingly, movers out of the region are citing housing costs

To analyze moving patterns, we rely on ACS PUMS 2013-2017 data

12.3 percent of the SCAG region population changes residence each year. Most of these moves – 9.9 percent of the population – occur within the region, and 8.4 percent of them are within the same county . While these data indicate whether or not people moved, and if they moved across county lines, specific data on where short-distance movers go is far less available.

# Neighborhood Change and Displacement



Recently, USC researchers conducted an extensive study on move dynamics in Los Angeles County using franchise tax board data, allowing for a more detailed analysis than at the county scale (Rodnyansky 2018, Boarnet et al. 2017, Boarnet et al. 2017).

Specifically, he analyzed the magnitude and characteristics of those who moved to or from neighborhoods with recent transit expansions, controlling for numerous other factors which affect moving

He found that renters and lower-income households are much more likely to move. Since neighborhoods near LA Metro rail service have substantially higher proportions of renters, fundamentally they are at a higher risk of displacement.

# Neighborhood Change and Displacement



The research also finds that the opening and continued presence of rail transit stations increases neighborhood outflow rates by up to 10% annually above baseline levels.

While this differs based on many factors, rail effects increase mobility rates for middle- and upper-income groups (>80% AMI) most often, whereas only limited evidence in two corridors is found that rail station openings increase move rates for below 50% AMI households.

This research indicates that displacement is not experienced wholesale in changing neighborhoods, thus specific attention should be given on a case-by-case basis to ensure equitable access to the benefits of improved infrastructure.



# Aviation Sound and Noise

SCAG Aviation Program

Hiroshi John Ishikawa, Ph.D.

Aviation Program

Thursday, January 9, 2020

[www.scag.ca.gov](http://www.scag.ca.gov)



# Today's Meeting

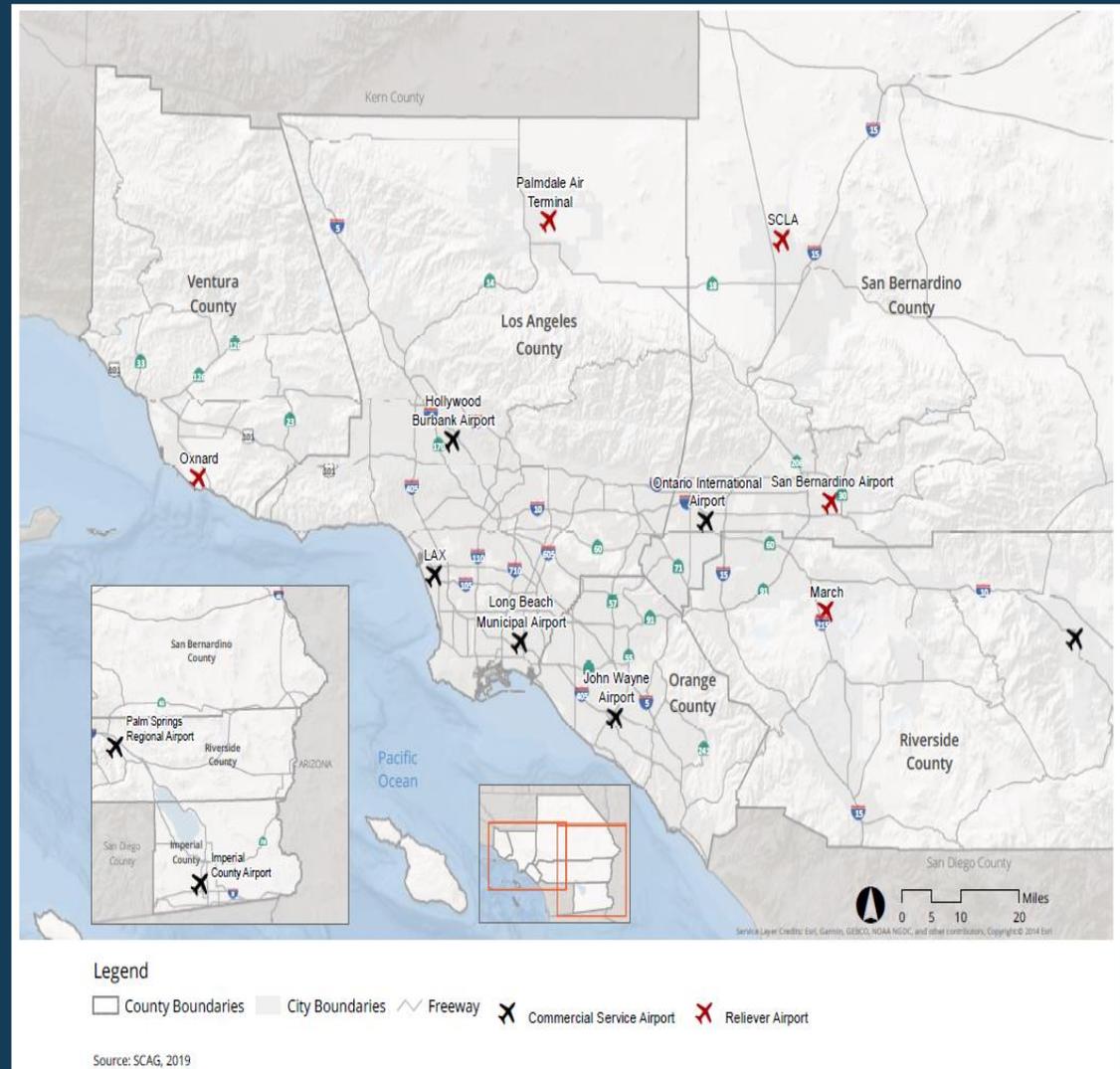
- SCAG Region's aviation system
- SCAG's role in regional aviation systems planning
- Sound and Noise Fundamentals
- Noise regulation and requirements
- SCAG region aircraft operations decreasing and flattening
- FAA and airport contacts and resources (e.g. noise data and maps, board meeting schedules)



# SCAG Region Aviation System

The SCAG Region is home to...

- Seven commercial airports with scheduled passenger service
- Seven government/military airfields
- Over 30 reliever and general aviation airports
- Over 60,000 employees onsite
- One of the most active and fastest growing regional aviation systems (passenger and cargo) in the world



# SCAG/ATAC has no authority over airports



- As a metropolitan planning organization (MPO), SCAG is primarily a surface transportation planning agency (not an aviation agency)
- State law requires that regions that contain a primary air carrier airport (at least 10,000 annual scheduled passenger boardings) include airport ground access improvement projects within the MPO RTP/SCS
- Moreover, federal law encourages MPOs to consult with officials responsible for other types of planning activities that are affected by transportation in the area, including airport operations
- Beyond maintaining the list of ground access projects and a consultative relationship with airport officials, **SCAG has no regulatory, planning, operational, or developmental authority over the region's airports**
- **The planning conducted by MPOs, including SCAG, is designed to complement, rather than guide or regulate, the planning conducted by the FAA, states, and individual airports.**

# Sound and Noise Fundamentals



- Noise is defined as unexpected or unwanted sound.
- Sound is measured in decibels on a logarithmic scale (versus linear, such as weight and time)
- Therefore, doubling a source of sound does not double the decibels, but rather increases the resultant sound level by 3 dB (conversely, reducing sound in half results in a 3 dB decrease)
- Aviation noise is associated with aircraft operations within the vicinity of runways and flight paths.
- The challenge is that different individuals and communities perceive and respond to sound, including aircraft, differently.

# Federal Noise Regulations and Requirements

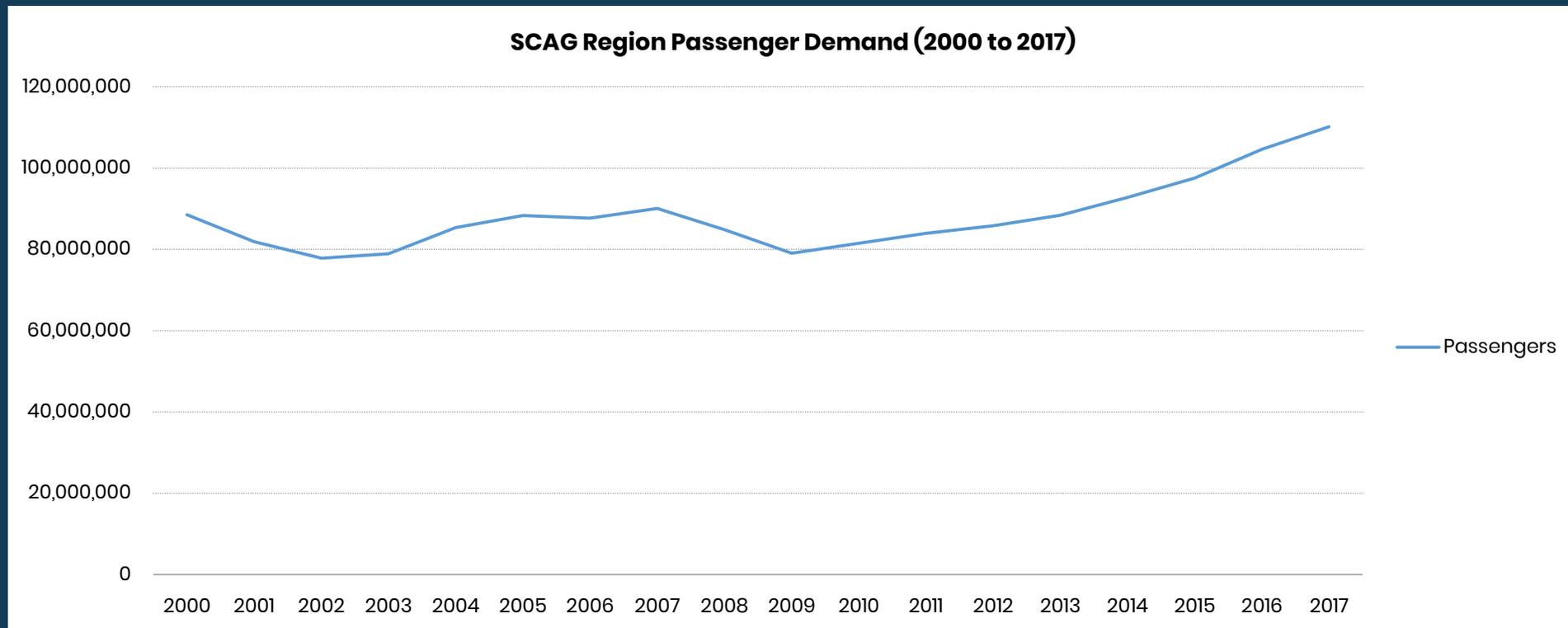


- The Aviation Noise Abatement Policy (ANAP) (1976) defined aircraft “noise” (e.g. 65 to 75 dB in residential areas as “significant” and 75 or more as “severe”, Community Noise Equivalency Level 24-hour threshold of 65)
- The Aviation Safety and Noise Abatement Act of 1979 (ANSA) established uniform systems for determining noise exposure and land use policies for communities surrounding airports.
- The Vision 100-Century Aviation Reauthorization Act (2003) required airports to produce airport-level noise contour maps using Integrated Noise Model (INM) or Aviation Environmental Design Tool (AEDT) data.

# SCAG Region Aviation Trends



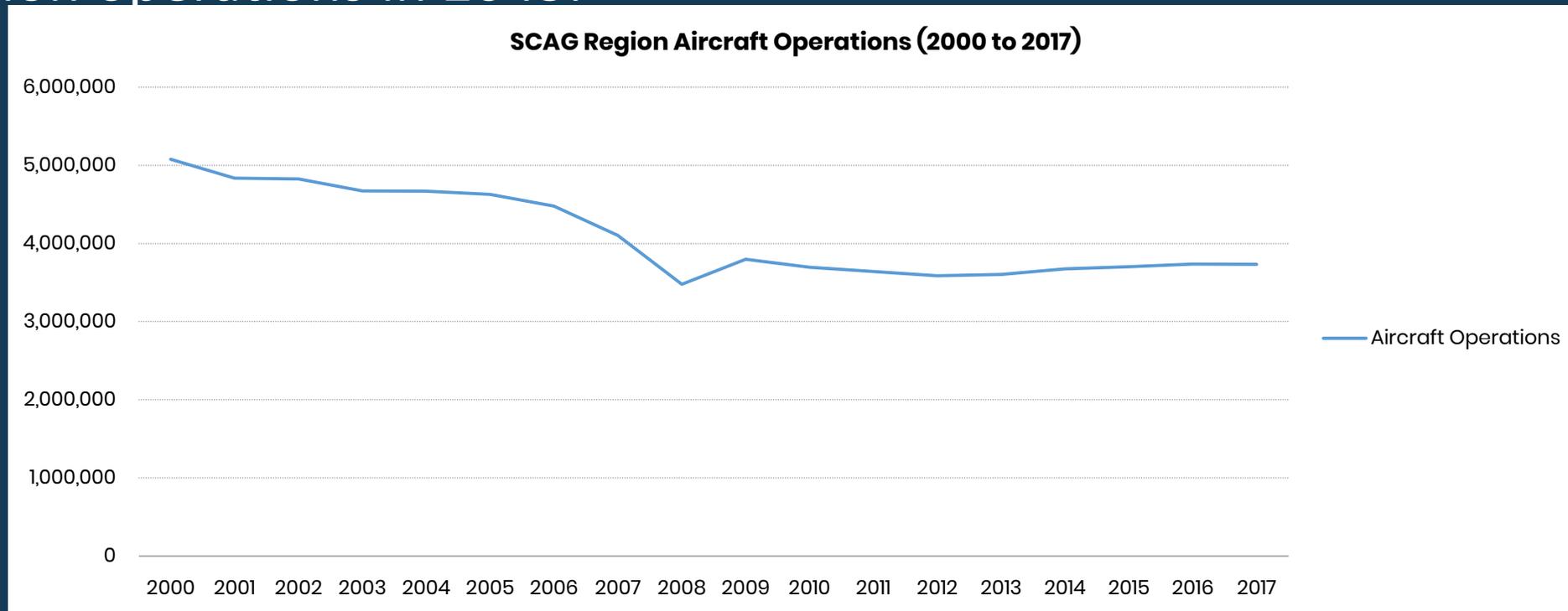
Although air passenger demand increased annually at 1.3% from 2000 (2.8 million annual passengers) to 2017 (3.14 million annual passengers), and is forecasted to grow annually at 2.1% to 197.14 million annual passengers in 2045.



# SCAG Region Aviation Trends



Aircraft operations (take-offs and landings) decreased annually at -1.8% per year from 2000 (5.1 million operations) to 2017 (3.7 million operations), and operations are forecasted to grow at a relatively flat rate of .74% annual to 4.6 million operations in 2045.



Why has there been more passenger arrivals and departures yet reduced and flattening aircraft operations?

- Airlines have shrunk seats and added rows, leading to more seats per aircraft (e.g. 120 seats to 150 seats).
- Airlines operate at higher load factors (e.g. 90 percent or more full versus 80 percent).



# Final Thoughts

- Aircraft operations have been declining/flattening due to bigger planes with more seats, operating at higher load factors
- Newer plane technology has led to reduced noise (e.g. reduced drag on approach) and emissions, but not all airlines have been as fast to bring new planes into the fleet.
- Importance of collaboration and communication when addressing matters of environmental and land use planning.



Federal Aviation Administration (FAA): Airport Noise and Land Use Information, including Noise Exposure Maps (NEMs)

[https://www.faa.gov/airports/environmental/airport\\_noise/noise\\_exposure\\_maps/](https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps/)

FAA: Aircraft Noise Issues

[https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/noise\\_emissions/airport\\_aircraft\\_noise\\_issues/](https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/airport_aircraft_noise_issues/)

# Airport Resources (Noise Contour Maps)



Hollywood Burbank Airport (BUR): Noise Monitoring

<https://hollywoodburbankairport.com/noise-issues/noise-monitoring/>

John Wayne Airport (SNA): Access and Noise

<https://www.ocair.com/aboutjwa/accessandnoise/default>

Long Beach Airport (LGB): Noise Abatement website

[http://www.lgb.org/information/noise\\_abatement/default.asp](http://www.lgb.org/information/noise_abatement/default.asp)

Los Angeles International Airport (LAX): Noise Management

<https://www.lawa.org/en/lawa-environment/noise-management/lawa-noise-management-lax>

Ontario International Airport (ONT): Noise Management

<https://www.flyontario.com/corporate/environment/noise-management>



Aloha 'Oe and Happy New Year!



Hiroshi John Ishikawa, Ph.D.

Ishikawa@scag.ca.gov

213-236-1838

[www.scag.ca.gov](http://www.scag.ca.gov)





# Travel Time and Distance Savings

Tom Vo

Research and Analysis Department

[www.scag.ca.gov](http://www.scag.ca.gov)



# Travel Time Savings and Distance Reductions (1)

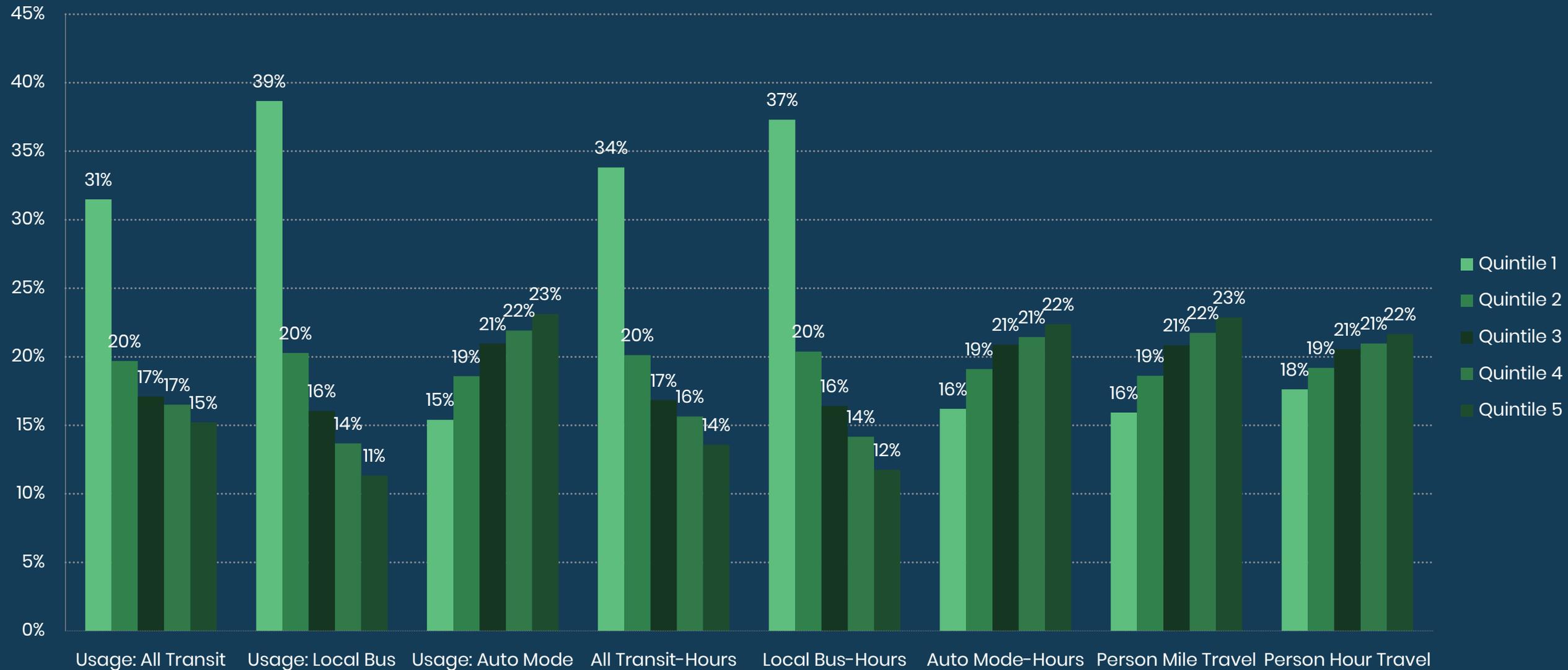


- What is it?
  - Person-hour-traveled (PHT) and person-mile-traveled (PMT) based on different scenarios (i.e. base year, baseline, and plan)
  - Has positive correlation with stress level
  - Has impacts on air quality and infrastructures
- How is it analyzed?
  - Generated from SCAG's regional travel demand model for each demographic groups. GIS was utilized to spatially analyze in each EJ communities
- What is the result?
  - Positive results due to Connect SoCal's plan scenario

# Travel Time Savings and Distance Reductions (2)



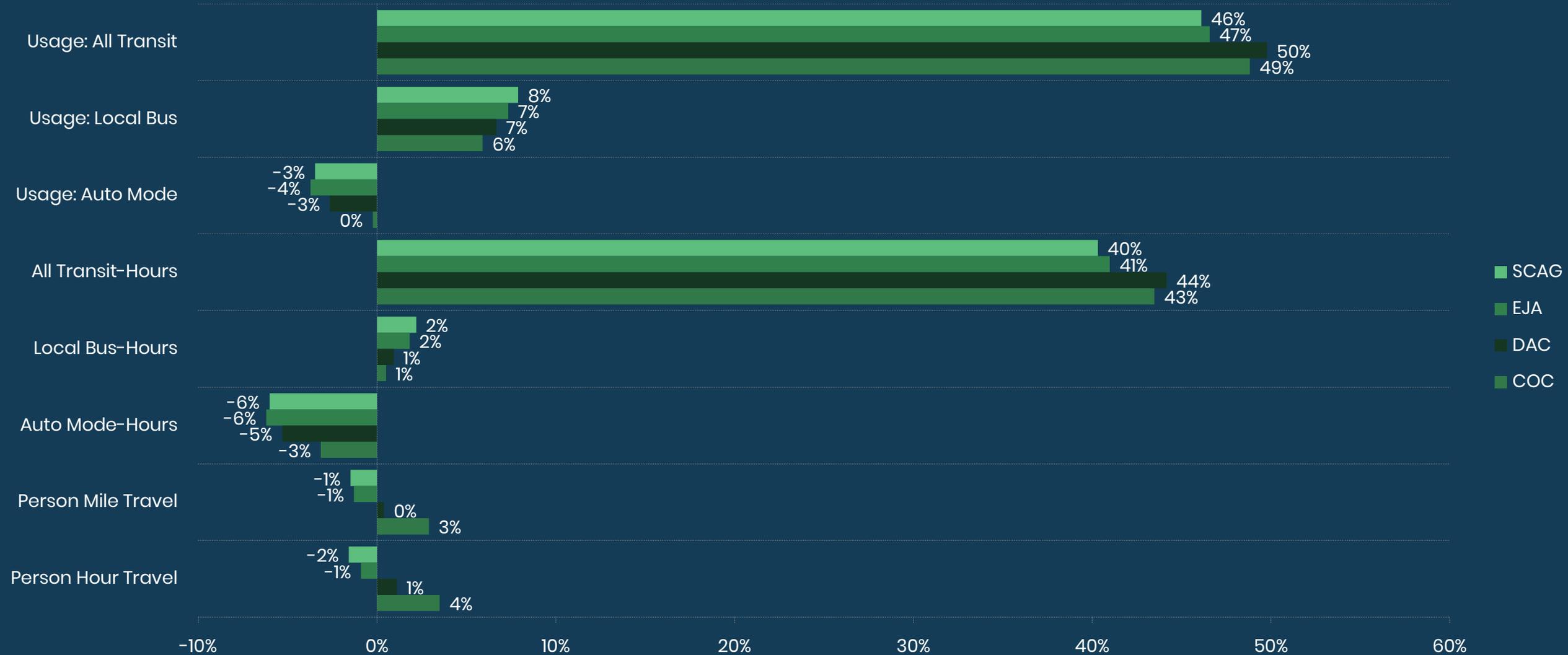
Figure 40 – Share of Travel Time and Distance by Income Quintiles (2016 Base Year)



# Travel Time Savings and Distance Reductions (3)



Figure 44 – Travel Time and Distance Improvement (2045 Plan vs. 2045 Baseline)



# Travel Time Savings and Distance Reductions (4)



- The results have generally shown positive outcomes due to the improvements in public transportation system—more traveling via transit and less driving across all income and ethnicity groups
- The lower-earning income groups will likely capture more savings in travel time and reductions in travel distance in driving regardless of their lower usage in automobiles. Conversely, similar income groups will also receive benefits from the Plan’s transit-related time savings
- All EJ communities experience an improvement in travel time and reduction in travel distance by automobiles as a result of the strategies embedded in Plan. The improvements in public transportation system have encouraged more people to use the system, more so in EJ communities than the region as a whole. However, the overall travel distance and time will likely have a minor increase in DAC and COC; additional analysis is needed to further analyze the impacts in these EJ communities