

CONNECT SOCIAL

The 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy
of the Southern California Association of Governments

Equity Analysis

TECHNICAL REPORT

DRAFT | NOVEMBER 2, 2023



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1. EXECUTIVE SUMMARY

People in the SCAG region face a range of economic and social impacts, which result in health outcomes, education, employment, housing conditions, rates of incarceration and life expectancy that vary vastly based on race, income, and where people live. More specifically, institutional, and systemic racism as documented, and experienced by people of color, particularly Black and Indigenous people, continues to impact their access to more equitable, sustainable, and prosperous futures in Southern California.

As one of SCAG's most impactful planning efforts, Connect SoCal 2024, the 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy, also referred to as the Plan, must follow through on the established vision for a more equitable future. The purpose of the Equity Analysis is to evaluate the potential impacts of implementing the Plan on communities, including both protected populations defined by federal regulation and priority communities identified by SCAG and regional stakeholders. The preparation of this report relied heavily on the input gathered through public workshops, events, surveys, and meetings, along with extensive research. Feedback from residents and staff of community-based organizations, local jurisdictions, regional partners, universities, transit agencies, the business community, and elected officials provided a robust and complex picture of our region's outlook and understanding of what an equitable future looks like and how we get there.

Before 2020, SCAG's equity efforts were concentrated in its environmental justice (EJ) program, which has long focused on public outreach, engagement, early and meaningful participation of EJ communities in the decision-making process, and equal and fair access to a healthy environment. SCAG has prepared an EJ Technical Report for each Regional Transportation Plan since 1998 to ensure that its programs and plans do not create disproportionate adverse impacts for low-income and people of color in the region and to ensure these populations receive the benefits from transportation and land use investment. Because past EJ Technical Reports continued to widen the scope of analysis and the direct connection between planning and the environment, there was a natural shift into a more comprehensive regional equity analysis that includes EJ and extends beyond federal EJ and Title VI reporting requirements. The major improvements for the Connect SoCal 2024 Equity Analysis include the following:

- **Priority Equity Communities** are census tracts in the SCAG region that have a greater concentration of populations that have been historically marginalized and are susceptible to inequitable outcomes based on several socioeconomic factors. SCAG used Priority Equity Communities as a point of comparison for the region to determine if the Plan caused disproportionate and adverse impacts to historically marginalized and disadvantaged communities for several performance measures. Priority Equity Communities replaces the need for multiple equity area definitions, including Disadvantaged Communities, Environmental Justice Areas, and Communities of Concern used in previous EJ Technical Reports.
- **Equity Performance Measures** were revised and reorganized under Connect SoCal 2024's four main goal areas: mobility, communities, environment, and economy. This report includes (1) plan assessment measures that use modeling data to forecast regional performance with and without the implementation of the Plan, (2) ongoing regional performance monitoring measures to assess the progress being made over time, and (3) existing conditions measures that provide the latest available data on indicators from SCAG's Racial Equity Baseline Conditions reports.
- The **Equity Resources for Action (ERA) Toolbox**, formerly the EJ Toolbox, was also reorganized under the Connect SoCal 2024 goals with significant additions to the range of recommended

practices and approaches to address existing and potential inequitable outcomes for communities and census tracts with high concentrations of low-income populations and people of color.

This report includes an introduction, regulatory framework, analytical approach detailing the findings from advanced outreach and the overarching technical methodology applied, and historical demographic trends. At the beginning of each analysis section, SCAG reports on several measures of racial equity existing conditions. Each of the equity performance measures includes an explanation of the relevance of the performance measure, methodology and specific data sources, and analysis of the results. The ERA Toolbox at the end of the report includes recommended practices and approaches to help avoid or mitigate any disproportionate adverse impacts on priority populations.

Table 1 summarizes the results of the equity performance measures included in this analysis. The Equity Analysis concludes that although disparities and equity issues across race/ethnicity and income groups currently exist within the region, implementation of Connect SoCal 2024 will not cause further disproportionate or adverse impacts on low-income or people of color in most performance areas.

Specifically, conditions will improve for Priority Equity Communities relative to the region in most performance areas like travel time and distance savings, some measures of accessibility to parks and schools, planned safety projects for bicycle and pedestrian safety improvements, expected shifts in overlapping climate hazard zones, and emissions impacts. Investments of the Plan, especially transit improvements, are expected to benefit Priority Equity Communities, both in the geographic location and because they are expected to benefit the modes most used by people in the lowest income quintile. Connect SoCal 2024 investments by race and ethnicity are more complicated; though the Plan is expected to spend more on projects that White and Black people are more likely to use compared to Hispanic/Latino and Asian travelers.

Findings on the revenue sources in terms of tax burdens and impacts from mileage-based user fees conclude that although low-income and people of color could benefit from the Plan's investments and strategies, equity must be at the forefront and integrated into the design and re-investment framework of any future alternative funding structure. Our work over the past several years has largely centered equity as a key component of any potential future pricing program. At the core of this strategy is to think about pricing more holistically—not just about roads, but about how pricing is a tool to improve the entirety of the system as part of an integrated strategy to increase mobility. Alternative funding strategies, including pricing, can offer benefits to all communities from reduced congestion to fewer collisions, cleaner air, reduced GHG emissions and improved health, but also be targeted to improve equitable outcomes. Reinvestment of revenues can improve quality of life by enhancing pedestrian infrastructure, local bus circulator routes, express commuter buses, bike share, etc., to increase mobility options. SCAG region's equity-focused approach expands beyond traditional mitigation options for pricing programs and explores how to integrate pricing as an opportunity to support universal basic mobility concepts to increase equity in underserved communities.

Current condition analyses indicate that Connect SoCal implementation could improve the jobs-housing balance and, with the implementation of secure housing strategies, communities of color, particularly immigrants and renters, may avoid experiencing adverse impacts from gentrification. With new technologies and neighborhood improvements, jurisdictions can coordinate to reduce noise and emissions for communities, especially those in close proximity to sources, as they have in recent years. These noise, emissions, and rail-related analyses all demonstrate existing disparities, showing that people of color and low-income communities are more likely to be impacted by noise and other impacts from

proximity to transportation-related sources, though the Plan is not anticipated to worsen or exaggerate those disparities.

Without a region-wide movement towards more equitable planning practices and policies, SCAG cannot guarantee that 2050 will show any progress on these performance measures. Keeping the status quo in our approach to transportation will not be enough to create an equitable future for our region. One critical component to a more equitable future is to follow the lead of our community in implementing Connect SoCal. Empowering community members, particularly those who have been historically marginalized, to lead in decision-making processes will result in more equitable outcomes. Recommendations like this and other subject-specific topics are available in the ERA Toolbox Section 10 of this report. More resources and support for people motivated to seek equitable outcomes in their communities, including Toolbox Tuesday recordings and the Equity Resource Guide, are available on SCAG's Inclusion, Diversity, Equity, and Awareness website.ⁱ

Table 1. Summary of Equity Performance Measures

Performance Measure	Definition	Summary of Analysis
MOBILITY		
Share of Transportation System Usage	<i>Plan Assessment:</i> Comparison of transportation system usage by mode for low-income households and people of color relative to each group's regional population share	This analysis confirmed typical patterns of higher income transit riders tending to ride the train, while lower income transit riders tend to ride the bus. People of color are more likely to use public transit and active transportation modes to reach destinations as compared to White residents.
Travel Time and Travel Distance Savings	<i>Plan Assessment:</i> Change in distance traveled by all transit, local transit, and auto modes by race and ethnicity and income quintiles	Results anticipate increases in miles traveled on transit and decreases in miles traveled by auto in accordance with the integrated transportation and land use strategies proposed in Connect SoCal. There are slightly greater decreases in person miles traveled for lower income quintiles and for Hispanic/Latino, Black and Asian travelers.
	<i>Plan Assessment:</i> Change in hours traveled by all transit, local transit, and auto modes by race and ethnicity and income quintiles	Results anticipate increases in time spent on transit and decreases in time spent traveling by auto in accordance with the integrated transportation and land use strategies proposed in Connect SoCal. There are slightly greater decreases in person hours traveled for higher income quintiles and for Hispanic/Latino and White travelers.
Access to Everyday Destinations	<i>Plan Assessment:</i> Number of employments reachable within 15/30 minutes by automobile and 15/45 minutes by transit during morning peak period (6 AM - 9 AM), plus 0.5- 0.75-, and 1-mile walksheds and 1-, 3-, and 5-mile bikesheds	Access to jobs is expected to improve for the overall population in the region and in Priority Equity Communities, however, there is a slight decrease in auto access to jobs for the Black population in Priority Equity Communities.
	<i>Plan Assessment:</i> Number of retail establishments reachable within 15/30 minutes by automobile and 15/30 minutes by transit during the midday period (9 AM to 3 PM), plus 0.5- 0.75-, and 1-mile walksheds and 1-, 3-, and 5-mile bikesheds	Access to shopping is expected to improve for the overall population in the region and in Priority Equity Communities; the least amount of improvement can be seen for walking and biking.

Performance Measure	Definition	Summary of Analysis
	<p><i>Plan Assessment:</i> Percent of population that can reach a park location within 15/30 minutes by automobile and 15/30 minutes by transit during the midday period (9 AM to 3 PM), plus 0.5- 0.75-, and 1-mile walksheds and 1-, 3-, and 5-mile bikesheds</p>	<p>Access to parks is expected to improve for the overall population in Priority Equity Communities, even though there is a slight decrease at the regional level. Transit access to parks is expected to improve for all populations, however, several decreases are seen for other modes. The largest decreases are for Hawaiian-Pacific Islander and Native American populations where the decrease in auto access in Priority Equity Communities exceeds the regional change; and for the Native American population where the decrease in bicycle access in the region exceeds the decrease in Priority Equity Communities.</p>
	<p><i>Plan Assessment:</i> Number of schools within 15/30 minutes by automobile and 15/30 minutes by transit during morning peak period (6 AM- 9 AM), plus 0.5- 0.75-, and 1-mile walksheds and 1-, 3-, and 5-mile bikesheds</p>	<p>Access to schools is expected to improve for the overall population in the region and in Priority Equity Communities, however, access with walking and biking modes decreases (less than 0.01 percent) for several populations in both Priority Equity Communities and the region, while auto and bike access decreases for Black people in Priority Equity Communities.</p>
	<p><i>Plan Assessment:</i> Number of healthcare facilities within 15/30 minutes by automobile and 15/30 minutes by transit during the midday period (9 AM to 3 PM), plus 0.5- 0.75-, and 1-mile walksheds and 1-, 3-, and 5-mile bikesheds</p>	<p>Access to healthcare is expected to improve for the overall population in the region and in Priority Equity Communities except for auto decreases for Black and Hispanic/Latino populations.</p>
<p>Bicycle and Pedestrian Collisions</p>	<p><i>On-going Measure:</i> Percent of Bicycle/Pedestrian HINs located within Priority Equity Communities</p>	<p>Approximately 72 percent of the Bicycle HIN and 80 percent of the Pedestrian HIN are within or adjacent to Priority Equity Communities.</p>
	<p><i>Plan Assessment:</i> Safety projects on bicycle and pedestrian High Injury Network</p>	<p>While only 13 percent of bicycle and pedestrian modal networks of the Regional High Injury Network may experience improvement from planned safety projects included in the Plan, over 75 percent of those projects are located in Priority Equity Communities.</p>
<p>COMMUNITIES</p>		
<p>Jobs-Housing Imbalance</p>	<p><i>On-going Measure:</i> Comparison of median earnings for intra-county vs intercounty commuters for each county;</p>	<p>This analysis found that jobs-housing fit increased between 2010 and 2019, while low wage jobs-housing fit decreased during the same period. Additionally, coastal counties have a substantial concentration of low-wage jobs, but lack an</p>

Performance Measure	Definition	Summary of Analysis
	analysis of relative housing affordability and jobs throughout the region	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.
Neighborhood Change and Displacement	<i>On-going Measure:</i> Examination of demographic changes within gentrifying neighborhoods	Gentrification is more pronounced in neighborhoods with a higher concentration of immigrants and renters as well as communities of color. While gentrifying neighborhoods did not experience a pronounced change in income, they did become more culturally and racially diverse.
	<i>On-going Measure:</i> Examination of eviction filings and households threatened with eviction within gentrifying neighborhoods	Gentrifying neighborhoods and those with high eviction filings had higher percentages of Black and Hispanic/Latino people and a lower share of non-Hispanic White people compared to the region, but despite sharing such demographic similarities, most gentrifying neighborhoods were not identified as places with high eviction filings.
Rail-Related Impacts	<i>Plan Assessment:</i> Demographic analysis for areas in close proximity to rail corridors and railyards	In the Base Year, there is a higher concentration of low-income and some people of color in areas adjacent to railroads and railyards, and it is expected that this concentration could grow in the Baseline and Plan scenarios. SCAG anticipates nominal plan impact, and that population changes would generally follow that of the SCAG region.
	<i>Plan Assessment:</i> Demographic analysis for areas in close proximity to planned grade separations	Grade separations can help reduce traffic delays, idling emissions and safety risks. Hispanic/Latino people, people with limited-English proficiency, foreign-born populations, vulnerable ages, people with disabilities, and households with incomes in the lower three income quintiles are expected to experience an increase in concentration around grade separation projects with implementation of the Plan.
ENVIRONMENT		
Resilience and Climate Vulnerabilities	<i>Plan Assessment:</i> Assessment of overlay between Priority Equity Communities and Climate Risk Areas, including flood hazard zones, sea level rise, wildfire risk, substandard housing, extreme heat, drought, and earthquake hazard zones	Existing conditions show that people of color and low-income populations are at a greater risk of experiencing adverse impacts from climate change. The forecasted growth patterns included in the Plan are expected to reduce risks for Asian households in earthquake zones, with nominal changes to existing exposures to sea level rise, wildfires, extreme heat, drought, and earthquake hazards. Although impacts from climate-related hazards are not always geographically isolated, overall White populations reside disproportionately in multiple climate hazard zones.

Performance Measure	Definition	Summary of Analysis
Emissions Impacts Analysis	<i>Plan Assessment:</i> Examination of change in air pollutant emissions region-wide as a result of the Plan in region and Priority Equity Communities	SCAG expects improvements in CO and PM2.5 emissions in the region and Priority Equity Communities as a result of the implementation of the Plan. However, people of color and lower income households are slightly underrepresented in areas of improving emissions and slightly overrepresented in areas of worsening emission, though the pattern is less pronounced or non-existent in Priority Equity Communities.
	<i>Plan Assessment:</i> Examination of change in air pollutant emissions, focusing on demographics of areas in close proximity to freeways and highly traveled corridors, as a result of the Plan in region and Priority Equity Communities	In 2019, most priority population groups show higher concentrations in areas freeway-adjacent areas compared to the greater region. In 2050, Asian and foreign-born populations are expected to grow in freeway-adjacent areas, though there are no significant differences with the Plan. Emissions reductions in freeway-adjacent areas is significant compared to the share of the region's total land area, but the Plan benefits are expected to be more pronounced in the region, compared to the freeway-adjacent areas, including areas that overlap with Priority Development Areas. Black and Hispanic/Latino people, youth, and households in the higher income quintiles are expected to be overrepresented in areas with worsening emissions, and higher income quintiles are underrepresented in areas where emissions improve.
Noise Impacts	<i>On-going Measure:</i> Qualitative assessment of the disproportionate impacts of aviation noise impacts and the policies, programs, and plans to address project-level impacts	Increased air passenger demand itself has not resulted in increased aviation noise exposure, as increased air passenger activity but reduced aircraft operations have resulted in reduced aircraft noise. Additionally, newer planes and technology, aided by policy, has improved noise emissions significantly.
	<i>On-going Measure:</i> Qualitative assessment of the disproportionate impacts of roadway noise impacts and the policies, programs, and plans to address project-level impacts	As found in the Emissions Impact Analysis, there are no significant differences in the share of population groups living near freeways and highly traveled roads that may experience higher noise impacts between the Baseline and the Plan. Several state and local strategies, like soundwalls and land use planning, can help reduce existing disparities in relation to roadway noise.
ECONOMY		
Geographic Distribution of Transportation Investments	<i>Plan Assessment:</i> Evaluation of Connect SoCal transit, roadway, and active transportation infrastructure	The Plan is expected to invest 36 percent of all highway projects, 55 percent of all transit projects, and 62 percent of new bike lane miles in Priority Equity Communities; compared to the percent of the population in Priority Equity Communities, the investment is lower for highway projects, and slightly higher for

Performance Measure	Definition	Summary of Analysis
	investments in various communities throughout the region	transit and bikeway projects. Specifically, there are fewer investments in mixed-flow lanes and more bus and commuter rail revenue miles in Priority Equity Communities.
Investments vs. Benefits	<i>Plan Assessment:</i> Analysis of Connect SoCal investments by income quintile and race/ethnicity	The Plan is expected to invest a greater proportion into projects that benefit the lowest income quintile, and White, Black, and people who identify as another race (i.e., Native American, Native Hawaiian/Pacific Islander, some other race alone, and two or more races) compared to other income quintiles and Hispanic/Latino and Asian populations.
Revenue Sources in Terms of Tax Burdens	<i>On-going Measure:</i> Proportion of Connect SoCal revenue sources (taxable sales, income, and gasoline taxes) generated from low-income households and people of color	Understanding the "regressive" nature of sales and gasoline excise taxes, gasoline and transportation sales tax burden is greater for lower income quintiles, though the share of taxes paid increases as income increases. Taxes that help fund projects in the Plan are expected to fall more heavily on White and Asian households.
Impacts from Mileage-Based User Fees	<i>On-going Measure:</i> Examination of potential impacts from implementation of a mileage-based user fee on low-income households and people of color in the region	Although mileage-based user fees are the less regressive option compared to the current gas tax approach, with the shift more likely to impact higher earners, it is crucial to ensure user fee programs are designed equitable to ensure that vulnerable communities experience the benefits of road pricing without regressive financial impacts.

2. INTRODUCTION

Understanding the causes of disparities and inequities as observed from geography and the built environment is central to SCAG's work to plan for a more racially just, equitable future. As one of SCAG's most impactful planning efforts, Connect SoCal 2024, the 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), herein referred to as Connect SoCal 2024 or the Plan, must follow through on the established vision for a more equitable future. The purpose of the Equity Analysis is to evaluate the potential impacts implementing the Plan on communities, including both protected populations defined by federal regulation and priority communities identified by SCAG and regional stakeholders.

2.1 SCAG CONTEXT

Southern California is known for its diversity, particularly in its people. People of color represent roughly 70 percent of the region's population and is expected to increase by 2050. A range of economic and social impacts such as health outcomes, education, employment, housing conditions, rates of incarceration, and life expectancy, vary vastly in this region based on race, income, and census tract. According to 2017-2021 American Communities Survey (ACS) Public Use Microdata Sample (PUMS) estimates, the highest rates of poverty (below 200 percent of the Federal Poverty Level) in the SCAG region are experienced in Hispanic/Latino (39 percent), Black (37 percent), and Native American (34 percent) communities compared to the white (20 percent) population. Gaps in wealth between households reveal the effects of accumulated inequality and discrimination, as well as differences in power and opportunity. The region's low-income families and communities of color also tend to reside in areas where they experience poorer air quality (e.g., areas near freeways and high traffic roads), resulting in adverse health impacts like more asthma emergency room visits. It is so important to address equity at the regional and local levels because analysis of historic and existing conditions continues to reinforce that where a person lives significantly influences their life outcomes.

In July 2020, the SCAG Regional Council adopted Resolution No. 20-623-2 affirming that systemic racism is a human rights and public health crisis which results in disparities in family stability, health and mental wellness, education, employment, EJ, economic development, transportation, public safety, incarceration, and housing and reaffirming its commitment to advancing justice, equity, diversity, and inclusion in Southern California. The resolution directed a series of comprehensive actions that were grounded in building awareness, competency, and impact around racial equity in the SCAG region.

Of note, the resolution spurred the formation of the Special Committee on Equity and Social Justice in 2019 that led the development of the Racial Equity Early Action Plan (EAP) in 2019. The EAP defined racial equity for SCAG and included a series of goals, strategies and actions grounded in building staff awareness and education, data, engagement, and economic activity. Informed by research, best practices, peer agency review, the Racial Equity Early Action Plan identified leading with racial equity as a focal point in addressing the pervasive and deep inequities faced by people of color across the region. SCAG recognizes that challenging racism is essential if SCAG is to support the creation of a just and equitable society. Though all dimensions of equity are not addressed in the plan, by focusing on race, SCAG staff will develop the skills needed to address inequities faced by other marginalized groups based on gender, sexual orientation, ability, and age, among others. The latest comprehensive status report on these efforts is included in the January 5, 2023, Regional Council agenda.²

Prior to the adoption of the EAP, SCAG's equity efforts were concentrated in its EJ Program, which has long focused on public outreach, engagement, early and meaningful participation of EJ communities in the decision-making process, and equal and fair access to a healthy environment. SCAG's EJ Program addresses both state and federal requirements by aiming to protect people of color and low-income communities from incurring disproportionately adverse environmental impacts. SCAG has prepared an EJ Technical Report for each RTP/SCS since 1998 to ensure that its programs and plans do not create disproportionate adverse impacts for low-income and people of color in the region. Because past EJ Technical Reports continued to widen the scope of analysis and the direct connection between planning and the environment, there was a natural shift into an equity analysis that is inclusive of EJ.

The EAP produced the Racial Equity Baseline Conditions Report, last updated in November 2022, to help stakeholders develop a deeper understanding of disparities and monitor progress toward addressing them by highlighting past transportation and housing policies and practices and providing a snapshot of current existing inequitable conditions. The Equity Analysis incorporates all the indicators from the Racial Equity Baseline Conditions Report to provide updated statistics based on the latest data available.

Of the three special Connect SoCal 2024 Policy Subcommittees created to dive deeper into key issues areas for Connect SoCal, the work of the Racial Equity and Regional Planning Subcommittee (Subcommittee) is most relevant to this report. The Subcommittee convened four times between September 2022 and January 2023 to identify opportunities to advance racial equity through the policies and strategies in Connect SoCal and guide how planning and investments over the next 30 years can address and rectify the effects of racially discriminatory policies in the SCAG region. The Subcommittee prepared a White Paper to distill and document the work of the Subcommittee and present recommendations for how Connect SoCal 2024 can advance racial equity, including preliminary strategies for inclusion in the Plan. The full list of Regional Planning Policies is available in Chapter 3 of the Main Book.

2.2 WHAT IS EQUITY?

The Special Committee on Equity and Social Justice, SCAG staff, and stakeholder groups developed a working definition of racial equity to guide work moving forward. This definition formed the foundation of the EAP. The goal is to lead with racial equity as a focal point in addressing the pervasive and deep inequities faced by people of color and support the overarching goal of the creation of a just and equitable society.

As central to SCAG's work, **racial equity** describes the actions, policies, and practices that eliminate bias and barriers that have historically and systemically marginalized communities of color, to ensure all people can be healthy, prosperous, and participate fully in civic life.

Tracing roots back to the Civil Rights Movement in the 1960s and the Environmental Movement of the 1960s and 1970s, the Environmental Justice Movement in the United States responds to discriminatory environmental practices including toxic dumping, municipal waste facility siting, and land use decisions which negatively affected communities of color. Several grassroots organizations founded during this movement in the SCAG region continue to advocate for a cleaner environment to protect all communities. The federal government defines **environmental justice** (EJ) as "the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people: (i) are fully protected from disproportionate and adverse human health and environmental

effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.” In early 2021, Federal Executive Order 13985 defined **equity** as “the consistent and systematic treatment of all individuals in a fair, just and impartial matter, including individuals who belong to underserved communities that have been denied consistent and systemic fair, just, and impartial treatment, including Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.”

SCAG developed a definition for environmental equity with the Regional Planning Working Groups and SCAG’s internal Equity Work Group in 2022. **Environmental equity** addresses the actions, policies, and practices that can abolish the systemic inequities, marginalization, disinvestment, disempowerment, and exclusion from decision-making processes that have directly resulted in vulnerable people bearing disproportionate and adverse impacts from natural hazards and human activity, so that all people have access to the fundamental physical, health, and social benefits of our natural and built systems.

As reflected in the definitions above and supported by a growing body of research, there is a significant link between public health outcomes and built environment characteristics. The way in which communities are designed impacts the likelihood of active travel, healthy food access, exposure to air pollutants and access to parks and open space and has a direct impact on opportunities for physical activity and reductions in chronic disease. The circumstances and conditions in which people are born, grow up, live, work, play and age are called the social determinants of health and are recognized to have a significant impact on health outcomes and health equity. The California Office of Health Equity defines **health equity** as the “efforts to ensure that all people have full and equal access to opportunities that enable them to lead healthy lives.” SCAG adopted this definition for this report to provide a clear vision of how the Plan may impact communities across the region.

Adjacent to these concepts of environment and equity is another aspect of the Plan’s vision for the future, which is for the region to become resilient. The Resilience and Conservation Subcommittee defined **resilience** as “the capacity of the SCAG region’s built, social, economic, and natural systems to anticipate and effectively respond to changing conditions, acute shocks, and chronic stressors by creating multiple opportunities for a sustainable, thriving and equitable future.” One of the primary actions to create a resilient region is to prioritize the people, places, and infrastructure that are most at risk for climate change impacts.

2.3 NOTE ON TERMINOLOGY

Language and terms are intricately connected to equity, identity and representation and are constantly evolving. Some terms used in original sources, including legislation, do not always represent current best practice, and may in fact be offensive, triggering or erasing to some communities. In this report, the term “people of color” is used to describe people who identify as non-white and/or Hispanic/Latino who are impacted by the effects of racism. Federal guidance refers to racial and ethnic “minority” persons or communities, which no longer describes the demographic make-up of the SCAG region. SCAG recognizes that people of color is not a perfect term; grouping people into a single category can diminish the unique experiences of individuals, particularly Black and Indigenous folks who are disproportionately burdened

by the effects of racism. Moreover, the data used in this analysis falls short of distinguishing people who experience racism, relying on aggregate racial and ethnic groups defined at the federal level. SCAG aims to evaluate the impacts of the Plan in a way that acknowledges this understanding, including by sharing results that are disaggregated by race/ethnicity when feasible.

There are several terms frequently used to collectively describe marginalized population groups. SCAG has used terms like *disadvantaged*, *vulnerable* and *underserved* in reference to people who live in state or federally defined Disadvantaged Communities or to describe populations that have been systematically denied the opportunity to participate fully in aspects of economic, social, and civic life. Some of these populations have been outlined in the Federal Executive Order 13985, cited in the previous section. In this report, SCAG uses “underserved” communities to refer to the populations in Executive Order 13985 and “priority populations” to refer to populations in the definition of Priority Equity Communities, as described in Section 4.2.

2.4 ORGANIZATION OF THE REPORT

The contents of the report are organized under the following:

- Introduction
- Regulatory Framework
- Analytical Approach
- Historical Demographic Trends
- Analysis (Mobility, Communities, Environment, Economy)
- ERA Toolbox

The regulatory framework and analytical approach detail the findings from advanced outreach and research, and the overarching technical methodology applied, including the definition of SCAG’s Priority Equity Communities. The Historical Demographic Trends section describes the characteristics of the population in the SCAG region and Priority Equity Communities over time. The analysis is organized by the four goals of Connect SoCal 2024: Mobility, Communities, Environment, and Economy. At the beginning of each analysis section, SCAG reports on several measures of racial equity existing conditions, as previously reported in Racial Equity Baseline Conditions reports. Each of the equity performance measures includes an explanation of the relevance of the performance measure, methodology and specific data sources, and analysis of the results. Results of the performance measures are summarized in Table 1 and more details of all the measures, including existing conditions, are provided in Section 4.4 Impact Assessment. The Equity Resources for Action (ERA) Toolbox at the end of the report includes recommended practices and approaches to help avoid or mitigate any disproportionate adverse impacts on priority populations.

3. REGULATORY FRAMEWORK

3.1 FEDERAL REQUIREMENTS

As a government agency that receives federal funding, SCAG seeks to achieve, at a minimum, compliance with federal EJ principles, policies, and regulations described in this section.

Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.), hereinafter referred to as “Title VI,” is a federal statute that prohibits recipients of Federal financial assistance from discriminating on the basis of race, color or national origin in their programs or activities. As a direct recipient of federal funds, SCAG is required to comply with Title VI. This directive also establishes the need for transportation agencies to disclose to the public the benefits and burdens of proposed projects on minority populations.

In 1994, President Clinton signed Executive Order 12898 to direct Federal agencies to incorporate EJ into implementations, policies, and programs. The executive order requires federal agencies to identify and address human or environmental effects that resulted from their programs and policies on affected populations, specifically low-income and minority populations. Subsequently, U.S. Department of Transportation (DOT) Environmental Justice Order 5610.2 (1997, updated 2021) and Federal Highway Administration (FHWA) Order 6640.23 (1998, updated 2012), further integrated the focus on EJ in transportation planning at the federal level.

Reinforcing Executive Order 12898, the 2011 “Memorandum of Understanding on EJ and Executive Order 12898” signatories, including the U.S. DOT, agreed to develop EJ strategies to protect the health of people living in communities overburdened by pollution and to provide the public with annual progress reports on their efforts. In addition, the Federal Transit Authority (FTA) issued Circular 4702.1B, Title VI Requirements and Guidelines for FTA Recipients and Circular 4703.1, EJ Policy Guidance for FTA Recipients to clarify the requirements and offer guidance, including requirements for MPOs to implement Title VI regulations; recommendations on how to fully engage EJ populations in the public transportation decision-making process; how to determine whether EJ populations would be subjected to disproportionately high and adverse human health or environmental effects as a result of a transportation plan, project or activity; and how to avoid, minimize or mitigate these effects.

Executive Order 13985 and the subsequent Executive Order 14091 directed federal agencies to make policy changes to strengthen the federal government’s ability to address the barriers that underserved communities continue to face, including the creation of Equity Action Plans with annual progress reports. U.S. DOT’s Equity Action Plan includes key performance indicator for MPOs to adopt a quantitative equity screening component for Statewide Transportation Improvement Program and Transportation Improvement Program development processes to incorporate community vision and need in project selection and design.

Executive Order 14008, among several other steps to address the climate crisis, created a government wide Justice40 Initiative with the goal of delivering 40 percent of the overall benefits of relevant federal investments to disadvantaged communities and reestablished the White House Environmental Justice Interagency Council and White House Environmental Justice Advisory Council, who recommended revisions to Executive Order 12898.

Executive Order 14096 incorporates feedback from the White House Environmental Justice Advisory Council and expanded the federal definition of EJ, while also further embedding EJ into the work of federal agencies and promoting the latest science, data, and research related to EJ.

3.2 STATE REQUIREMENTS

In addition to Federal requirements, California has several pieces of legislation related to EJ and equal rights. Per the California Transportation Commission 2017 Regional Transportation Plan Guidelines and Caltrans' 2018 RTP Checklist for MPOs, the Equity Analysis supports the state goals for transportation, environmental quality, economic growth, and social equity. SCAG incorporates tenants of public health and health equity throughout the report, including in the analysis of housing and transportation affordability, access to transportation, displacement and gentrification, and jobs/housing fit, focusing on the needs of underserved communities. This report:

1. identifies priority populations and communities (Section 4.2 and 4.3),
2. measures the benefits and burdens to those populations and communities (Section 4.4),
3. conducts a social equity analysis (Sections 6 to 9) and
4. describes methods used to engage low-income households and people of color (Section 4.1).

SCAG must comply with California Government Code Section 11135, which prohibits discrimination from any program or activity that is conducted, funded directly, by, or receives financial assistance from the state based on race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, or disability.

In 1999, California Senate Bill 115 established the definition of EJ, which is to provide equal and fair treatment to all people regardless of race, culture, or income in the implementation of environmental laws, programs, and policies. This bill also requires the California Environmental Protection Agency to orient its mission for programs, policies, and standards within the agency around EJ.

The State of California also provides guidance for those involved in transportation decision-making to address EJ. In 2003, the California Department of Transportation published the Desk Guide on EJ in Transportation Planning and Investments to provide information and examples of ways to promote EJ. The Desk Guide identified requirements for public agencies, guidance on impact analyses, recommendations for public involvement and mitigation.

During the first target setting process for Senate Bill 375, described in Chapter 6 of the Main Book, the California Air Resources Board (CARB) appointed a Regional Target Advisory Committee (RTAC) to recommend factors to be considered and methodologies to be used for setting the targets. The RTAC report (September 2009) recognized the impact that policies to reduce Vehicle Miles Traveled (VMT) could have on social equity, specifically calling for appropriately located affordable housing to match local wage levels. The RTAC further recommended that displacement and gentrification, as a result of changing land uses and increased housing costs, should be addressed and specifically avoided to the extent possible in the SCS. As a result of the RTAC recommendation and input from our EJ stakeholders, the Connect SoCal 2020 EJ Technical Report (2020 EJ Technical Report) and this report include additional analysis on gentrification and displacement.

In 2016, California passed Senate Bill 1000, *The Planning for Healthy Communities Act*, where local jurisdictions are required to create an EJ Element and/or integrate EJ-related policies, goals, and implementations aimed to aid disadvantaged communities into their general plans. For jurisdictions

seeking specific metrics to incorporate EJ into their general plans, the Equity Analysis and ERA Toolbox indicate which general plan elements could be informed by each equity performance measure and recommended policies and strategies. In addition, Assembly Bill 617, which brings air quality monitoring to a localized level, focuses investment and exposure reduction to the communities most impacted by air pollution, which are often low-income and communities of color. On September 13, 2022, Governor Newsom issued Executive Order N-16-22 to strengthen the State's focus on advancing equity and tackling disparities, including the formation of the Racial Equity Commission. While SCAG does not have statutory requirements from these pieces of legislation, it is evident that equity and EJ are interwoven topics significant in all areas of regional planning. As a result, SCAG's EJ program aims to continue orienting programs toward equity and EJ goals and providing support to SCAG's stakeholders, as needed.

4. ANALYTICAL APPROACH

This section summarizes how SCAG gathered and applied findings from public outreach and research in the technical approach for the Connect SoCal 2024 Equity Analysis. Detailed methodologies of each performance measure are contained within the analysis section. Connect SoCal 2024 aims to ensure that when transportation decisions are made, low-income households and populations of color have ample opportunity to participate in the decision-making process and receive an equitable distribution of benefits, rather than a disproportionate share of burdens.

In preparation of this report, SCAG reviewed EJ methodologies from twenty MPOs selected based on population, regional complexity and an established organizational reputation for proactive policymaking practices implemented through their respective long-range planning processes. SCAG reviewed the equity performance measuring and monitoring elements and public outreach approaches from each of the agencies' most recent long-range planning documents to identify potential performance metrics and innovative approaches for application in the SCAG region. From this research, SCAG drew inspiration for ways to define equity areas, improved equity performance metrics, and engaged with residents and representatives of the region to develop this Equity Analysis.

4.1 OUTREACH EFFORTS

The preparation of the Plan and this report relied heavily on the input gathered through public workshops, events, surveys, and meetings. Feedback from residents and staff of community-based organizations, local jurisdictions, regional partners (councils of governments, county transportation commissions, air districts, health departments), universities, transit agencies, the business community, and elected officials provided a robust and complex picture of our region's outlook and understanding of what an equitable future looks like and how we get there. The public input shaped how SCAG determined priority populations, defined Priority Equity Communities and approached the analysis of every equity performance measure, as described in the upcoming sections.

In April and May 2023, SCAG hosted 20 in-person workshops, seven virtual workshops, and hosted tables at 20 different pop-up events throughout the region to share and gather input regarding challenges each community faces to establish planning priorities for the next 20 to 30 years. At the workshops, participants learned about the Plan's policy direction and were encouraged to respond to various prompts by placing sticky notes on a board to indicate and share details about their priorities. One station included questions related to the vision of an equitable and resilient future. A full description of the Connect SoCal outreach process and outcomes is included in the Public Participation Technical Report.

Feedback received from these workshops built on the equitable engagement policies included in the ERA Toolbox, encouraged governments to adopt equitable policies and emphasized better outcomes through tenets of economic and EJ. Participants envisioned more affordable and resilient housing, better access to community resources, healthy foods, and active spaces, along with improved transit services and active transportation options as part of a more equitable future.

Workshop participants identified several populations that SCAG should consider when analyzing equity, including:

- Black and Indigenous communities
- College students
- Farm workers
- Immigrants
- Mexican State associations
- Middle-income households
- Elderly/older adults
- People at risk of displacement
- People who do not drive
- People who primarily speak a language other than English
- People who work in the neighborhood
- People with disabilities
- Veterans
- Children/Youth
- Zero-vehicle households

Not in Priority Equity Communities:

- Formerly incarcerated population
- Foster care youth
- Lesbian, gay, bisexual, transgender, and queer (LGBTQ+) community
- People experiencing homelessness/unhoused population
- People with high debt-to-income ratio

Each of these groups experience unique barriers to transportation that are often exacerbated by intersectional identities with race and poverty. As described in Section 4.2, several, but not all, of the populations listed above are included in SCAG's identification of Priority Equity Communities. It should be noted that workshop participants mentioned several population characteristics that are largely covered by the current method of determining Priority Equity Communities, though they are not directly named. The populations that are not currently part of the Priority Equity Community definition did not have sufficient data to accurately define the population or data was not available for the entire region. SCAG will further evaluate these populations where relevant to the scope of Connect SoCal and subject to data availability. These populations will also be further explored in future SCAG efforts if they are not addressed in this report.

Beginning March 19, 2023, SCAG distributed a 15-question survey hosted online at SurveyMonkey and Survey123 and partnered with 15 community-based organizations to distribute the survey and share at various plan outreach efforts. SCAG received over 3,600 responses to the Connect SoCal survey. The survey included two equity-related questions, one focused on transportation issues and another on general regional equity issues. The responses for Questions 8 and 9 of the Connect SoCal 2024 survey, which requested the top three most important issues, are summarized in Table 2.

According to the survey respondents, the top three most important regional transportation equity issues include (1) fast, frequent and reliable transit and transportation options, (2) access to everyday destinations (e.g., work, retail, schools, healthcare and parks), and (3) safe streets for bicyclists and pedestrians. Exceeding all other responses from regional equity issues, housing affordability was one of the most important issues for most survey respondents.

Several respondents who chose the "other" category emphasized the need for safety on public transit. The second most emphasized issue regards people experiencing homelessness and the need for more housing and better social services in the region. There were also calls for bike and pedestrian infrastructure, street repair and maintenance, improved parking amenities, more charging stations for

electric vehicles, healthcare and healthier foods, and congestion management. Lastly, some respondents communicated critiques of government (i.e., overregulation, inappropriate responses to COVID-19, inefficiencies, and corruption) and disagreed with the concept of equity.

Table 2. Connect SoCal 2024 Survey Results for Equity-Related Issues

Transportation Equity Issues	%	Regional Equity Issues	%
Fast, frequent and reliable transit and transportation options	63%	Housing affordability	67%
Safe streets for bicyclists and pedestrians	60%	Air quality	40%
Access to everyday destinations	56%	Economic opportunities	33%
Transportation affordability	33%	Clean water	33%
Freight and goods movement impacts	25%	Workforce development and pathways to good jobs	30%
Access to zero-emission vehicles and charging infrastructure	21%	Housing not near jobs	27%
Distribution of transportation investments	15%	Resilience and climate vulnerability	24%
Transportation noise impacts	14%	Gentrification and displacement	22%
Other	6%	Access to broadband/internet	13%
		Other	5%

Note: Table includes the percent of respondents who identified an issue as among the most important. Percentages do not add up to 100 percent as the SurveyMonkey platform allowed up to three responses. Source: SCAG 2023

All the topics covered in the survey are discussed in the Equity Analysis and across the Connect SoCal 2024 technical reports. More results from the Connect SoCal Survey are included in the Public Participation Technical Report.

SCAG shared regular updates and sought critical feedback on the development of the Equity Analysis primarily through three public meeting platforms, including the Energy and Environment Committee (EEC), Equity Working Group (EWG) and Technical Working Group (TWG).

The EEC is one of SCAG’s Policy Committees comprised of elected officials and considers environmental and energy issues of regional significance, including EJ and equity on a monthly basis. The EWG is one of the Connect SoCal Regional Planning Working Groups that began in June 2021 out of the former Environmental Justice and Public Health Working Groups. EWG’s quarterly meetings aim to engage stakeholders on SCAG’s regional and local planning activities, including Connect SoCal, as well as share efforts across the region to eliminate racial bias and barriers in land-use and transportation planning. The TWG meets bimonthly and serves as a venue for SCAG staff and local and regional planning partners, technical experts, and coordinating agencies to discuss and receive feedback on growth-related technical approaches, such as the methodology behind Priority Equity Communities and equity performance measures.

Input from these meetings shaped the priority populations and methodology for Priority Equity Communities, with particular focus on how SCAG defined vulnerable ages, single-parent households, housing cost burdened households, and households with limited vehicle and transit access. Several other

comments are incorporated into the discussion for equity performance measures, including assessing access to more types of destinations using active modes, expanding the climate hazards assessed, and considering vehicle weight and trucks in collisions.

In 2022, SCAG initiated the critical Local Data Exchange (LDX) process to gather primary source information for and input on the development of Connect SoCal 2024. This included the LDX survey, which SCAG used to better understand the trends, existing conditions and local planning in the region. In total, out of the 191 cities and six counties in the region, 90 jurisdictions partially or fully completed the survey.

The LDX survey specifically solicited input on the progress of local jurisdictions' efforts on equity-related goals and policies. SCAG learned that some jurisdictions have developed or adopted an equity document (e.g., Equity Action Plan or Framework, Equity Baseline Conditions Analysis, Equity Definition, Equity Resolution), many others have adopted planning practices to support healthy outcomes (e.g., analysis of social determinants of health, health elements, health equity, health in all policies), and several jurisdictions have or are working on incorporating EJ policies and elements in their general plans. Survey respondents shared several unique outreach strategies to engage low-income residents, people of color and tribal governments; these strategies are listed in the ERA Toolbox. More information about the LDX process, including the survey, is included in the Main Book.

While this analysis is wide-reaching and comprehensive, it is not possible to incorporate every iteration of an analysis due to the constraints of conciseness and relevance. In the 2020 EJ Technical Report, SCAG documented three items for future consideration. Addressing the first consideration, SCAG prepared translated materials and ensured translation was available for Connect SoCal outreach workshops and will continue to explore ways of improving engagement with people who primarily speak languages other than English. In response to the second consideration, SCAG developed Priority Equity Communities to combine the multiple EJ areas assessed in previous reports into one. SCAG is working to develop the third consideration, an interactive web application for equity data and information. For future accountability, the input staff was not able to incorporate into this analysis but will be considered for future equity analyses include:

- Considering the impacts of the Plan on the formerly incarcerated population, foster care youth, LGBTQ+ community, people experiencing homelessness/unhoused population, people who do not drive, and people with high debt-to-income ratio
- Consider incorporating passenger and freight rail volumes in the Rail-Related Impacts Analysis
- Consider a new analysis on the impact of limited water resource availability on underserved communities
- Evaluate methodology and feasibility in assessing how the Plan specifically impacts vulnerable workers, including street vendors and seasonal workers

The feedback gathered through these outreach efforts is invaluable. SCAG seeks to carry the take-aways and lessons learned into future work efforts, aiming to reflect the region's needs and vision for a more equitable future in every aspect of regional planning.

4.2 PRIORITY EQUITY COMMUNITIES

To determine if there are disproportionately high and adverse impacts on historically marginalized and disadvantaged communities, SCAG conducted a regional analysis and focused on specific equity areas to address the potential impacts of the Plan for several equity performance measures. This "community-

based approach” stems from the framework developed by the Bay Area’s Metropolitan Transportation Commission and has been tailored to suit the SCAG region based on guidance from stakeholders. SCAG developed an equity area definition, called Priority Equity Communities, to assess impacts of the Plan on priority populations per statutory requirements, along with the intent that the framework could be built upon to target transportation investments in communities who need it the most.

Recently, several federal, state, and local jurisdictions developed equity area definitions that cover all or part of the SCAG region. They defined these “equity areas,” sometimes called Disadvantaged Communities, Priority Populations or Equity Focus Communities, to target analysis, investment, and policy benefits in historically marginalized communities. Each equity area definition and methodology differ to serve its own purpose, and as a result highlights different areas of the region. With the proposed definition of Priority Equity Communities, there are significant spatial overlaps with the following equity area definitions:

- Disadvantaged Communities per Climate and Economic Justice Screening Tool, U.S. Council on Environmental Quality
- Disadvantaged Communities per Equitable Transportation Community Explorer, U.S. DOT
- Transportation Disadvantaged Census Tracts, U.S. DOT
- SB535 Disadvantaged Communities per CalEnviroScreen 4.0, California Environmental Protection Agency and California Office of Environmental Health Hazard Assessment
- Priority Populations per Transportation Equity Index, Caltrans
- Community Air Protection Program Communities (also referred to as AB 617 Communities), CARB
- Transportation Equity Zones, SCAG
- Equity Focus Communities, Los Angeles County Metropolitan Transportation Authority

SCAG received input that the use of multiple equity areas in the analysis could be confusing and suggestions to find a way to create a new equity area definition. Priority Equity Communities replaces the need for multiple equity area definitions used in previous reports, including SB 535 Disadvantaged Communities, Environmental Justice Areas, and Communities of Concern.

During development of Priority Equity Communities, SCAG also built off previous efforts developing Transportation Equity Zones (TEZs) in partnership with several stakeholders, including community-based organizations, as described in the Mobility Innovations and Pricing Report (March 2022). TEZs were used to identify “areas that currently experience transportation-related burdens and may face disproportionate impacts from future mobility innovations”ⁱⁱⁱ as part of a community-based approach to transportation planning and mitigation efforts. SCAG revisited the stakeholder feedback documented in the Mobility Innovations and Pricing Report to help develop methodology for Priority Equity Communities, which identify a broader set of inequities from environmental and demographic factors beyond transportation. In Section 9.4 Impacts from Mileage-Based User Fee, the analysis uses examples that are both TEZs and Priority Equity Communities to validate TEZs as an equity area definition developed for a specific purpose, while still meeting statutory requirements and avoiding confusion with multiple equity area definitions.

4.2.1 METHODOLOGY

Priority Equity Communities are census tracts in the SCAG region that have a greater concentration of populations that have been historically marginalized and are susceptible to inequitable outcomes based on several socioeconomic factors. The socioeconomic factors defined in Table 3 were selected based on statutorily protected populations and refined with input gathered through the outreach process and are referred to in this report at “priority populations.” The U.S. Census Bureau 2017-2021 American

Community Survey 5-Year estimates are used to define each of the thresholds for the priority populations.^{iv} Statistics about the presence of each priority population in the region are further explored in Section 5. Historical Demographic Trends. The Limited Vehicle and Transit Access factor also relies on a geographic overlay with SCAG 2022 High Quality Transit Corridors (HQTC). More information on HQTCs, including a definition and map, is available in the Transit/Rail Chapter of the Mobility Technical Report.

Table 3. Priority Population Descriptions

Priority Population	Census Data Description
People of Color	People who do not identify as non-Hispanic White, inclusive of the following racial and ethnic categories: Native American, Asian, Black, Hispanic/Latino, Native Hawaiian/Pacific Islander, and Multiracial/Other.
Low-Income Households	People living below the 200 percent Federal Poverty Level (FPL). In 2019, a family of three earning less than \$21,330 was classified as living at the FPL, and a family of three earning less than \$43,440 was classified as living below 200 percent FPL.
Vulnerable Age Groups	Older Adults over 65 years of age and Children under 18 years of age
People with Disabilities	People with one or more of six types of difficulties (i.e., hearing, vision, cognitive, ambulatory, self-care, and independent living)
People with Limited English Proficiency	People above 5 years of age, who do not speak English at least "well" as their primary language or have a limited ability to read, speak, write, or understand English at least "well"
Limited Vehicle and Transit Access	Households with more members than vehicles owned that are not within a census tract that intersects with a High-Quality Transit Corridor
People without a High School Diploma	People 25 years and over without a high school diploma or higher level of education
Single Parent Households	Householders with no spouse or partner present with children of the householder under 18 years old
Housing Cost Burdened Households	Households spending 30 percent or more of their household income on housing- or rent-related costs

Source: U.S. Census Bureau and U.S. Department of Health & Human Services

A census tract is determined to be a Priority Equity Community if there is a concentration above the county average of:

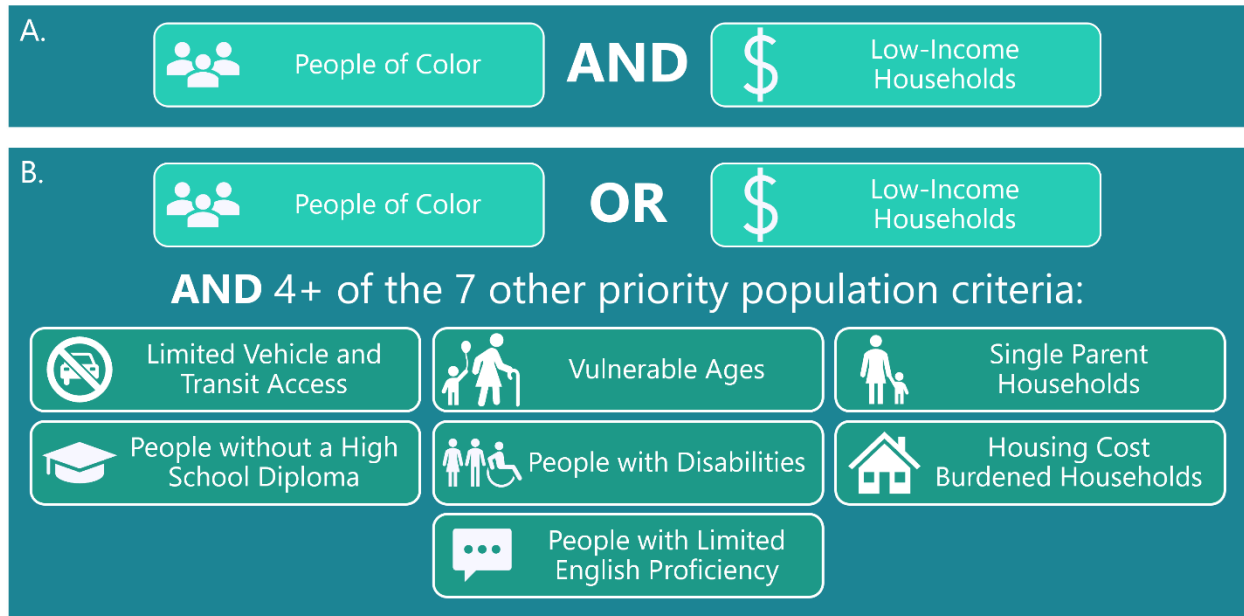
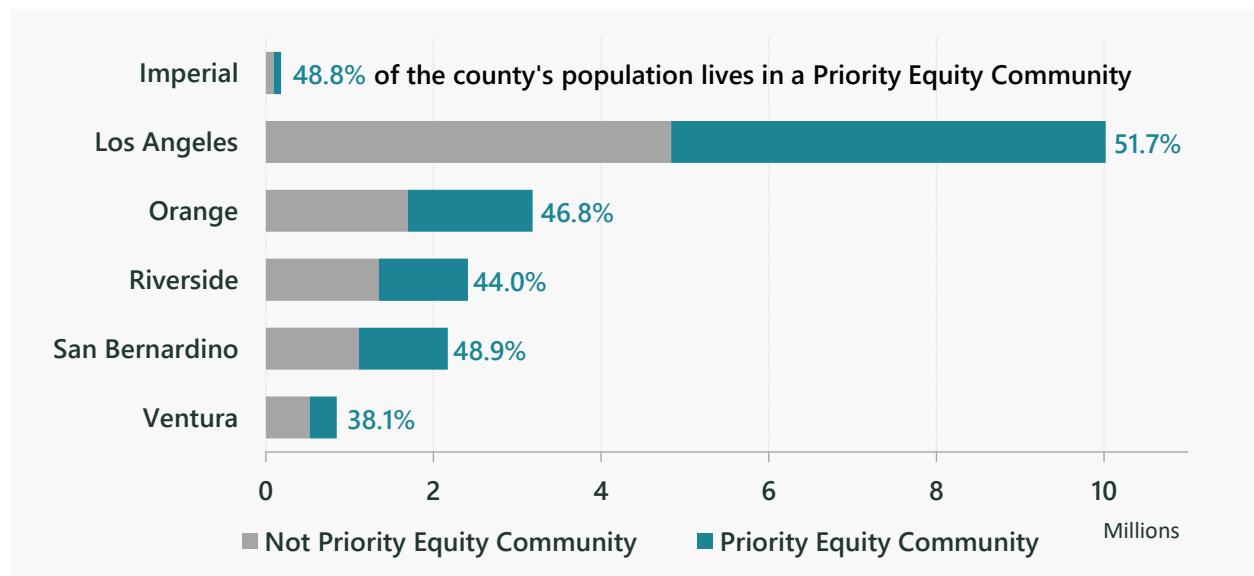


Figure 1 shows the proportion of each county’s population living in Priority Equity Communities. Overall, Priority Equity Communities cover 48.6 percent of the region’s population. Map 1 illustrates the geographic coverage of the Priority Equity Communities.

Figure 1. Population in Priority Equity Communities by County



Note: Percentage of each county’s population in Priority Equity Communities is shown.

4.3 IDENTIFYING DEMOGRAPHIC GROUPS

Identifying priority populations are necessary for both conducting effective public participation and assessing the distribution of benefits and burdens of transportation plans and projects. SCAG bases its analysis on the best available data for racial/ethnic groups in the SCAG region at the census tract level and Transportation Analysis Zone (TAZ). This report aims to further disaggregate results, particularly by race/ethnicity, wherever possible to understand the nuances of how people with different identities experience the transportation system differently. Note that sample size and data availability does not always allow the analysis to be disaggregated.

Table 4 summarizes the demographic categories for race/ethnicity, income, and additional priority populations used to evaluate Plan impacts in this analysis. Each of these categories is described in more detail in the sections below.

Table 4. Demographic Categories

Race and Ethnicity	Household Income	Additional Priority Populations
<ul style="list-style-type: none"> Asian NH Black NH Hispanic/Latino (any race) Multiracial/Other NH Native American NH Native Hawaiian/Pacific Islander NH White NH 	<p><i>Household Incomes below Federal Poverty Level (FPL)</i></p> <ul style="list-style-type: none"> Poverty 1 (Below FPL) Poverty 2 (1.5x FPL) Poverty 3 (2x FPL) <p><i>Household Income by Ranked Quintiles</i></p> <ul style="list-style-type: none"> Quintile 1 (lowest incomes) Quintile 2 Quintile 3 Quintile 4 Quintile 5 (highest incomes) 	<ul style="list-style-type: none"> Vulnerable Ages People with Disabilities People with Limited English Proficiency Limited Vehicle and Transit Access People without a High School Diploma Single Parent Households Housing Cost Burdened Households

NH = non-Hispanic/Latino

4.3.1 RACE AND ETHNICITY

Race and ethnicity categories in this analysis are reported based on the U.S. Census Bureau demographic categories as defined by the 1997 Statistical Policy Directive 15.

- **American Indian or Alaska Native (Native American):** A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
- **Asian:** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- **Black or African American:** A person having origins in any of the Black racial groups of Africa.
- **Hispanic or Latino:** A person of Cuban, Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.
- **Native Hawaiian or Other Pacific Islander:** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

- **White:** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

Surveys that collect data on race and ethnicity typically use two separate questions, though race and ethnicity are often reported together. In this report, tables, charts, and discussion referring to individual races (Native American, Asian, Black, Native Hawaiian/Pacific Islander, White, and Multiracial/Other) are not of Hispanic/Latino ethnicity, unless stated otherwise. SCAG notes that this method of analysis is not able to capture the incredible diversity within racial and ethnic groups. SCAG is closely monitoring the recent developments in revising Statistical Policy Directive 15 to support more flexibility in how people identify themselves.

The Some Other Race category used in the decennial census and American Community Survey per statutory requirement describes people who cannot be reassigned based on the write-in response provided (e.g., respondents who write in "Brazilian" cannot be reassigned to a racial category since the standards do not specify race for nationalities). People who identify with two or more races are referred to in this report as **Multiracial**. These categories are combined in the California Department of Finance demographic estimates and projections and, therefore are sometimes combined in this study as **Multiracial/Other**.

As described in the introduction, this report uses **people of color** to refer to the population that does not identify as non-Hispanic White, inclusive of the following categories: Native American, Asian, Black, Hispanic/Latino, Native Hawaiian/Pacific Islander, and Multiracial/Other.

4.3.2 INCOME AND POVERTY

Income categories are reported by relative Federal Poverty Level and income quintiles, as both measures serve a valuable purpose for assessing impacts.

The poverty classification is a federally established income guideline used to define persons who are economically disadvantaged as outlined by the U.S. Department of Health & Human Services guidelines. The poverty level applicable to the SCAG region is chosen based on the regional average household size for a given census year. In 2019, a family of three earning less than \$21,330 was classified as living in poverty.

Income quintiles provide five categories into which 20 percent of the ranked households fall and are updated based on the most recent census data on household income. Once the income quintiles are established, the incidence of benefits and costs can be estimated and compared across these income categories for multiple datasets. Examples include the number of income tax returns, households, workers/commuters, and consumer units.

SCAG maintains the income distribution for quintiles to compare income statistics over several planning years. Table 5 summarizes this income distribution that is only used for SCAG Regional Growth Forecasting data. Quintile distributions for other data sources are based on the sample population available.

Table 5. Income Quintile Distribution for SCAG Growth Forecasting Data (2011 Constant Dollars)

Quintile	Range
Quintile 1	\$0 to \$19,585
Quintile 2	\$19,586 to \$43,990
Quintile 3	\$43,991 to 73,717
Quintile 4	\$73,718 to \$121,205
Quintile 5	\$121,206 and up

Source: SCAG 2023 processed from U.S. Census Bureau ACS PUMS 2016-2020

4.3.3 ADDITIONAL PRIORITY POPULATIONS

There are other social determinants where people are more likely to experience greater disparities in opportunity as it can be more difficult to access resources, employment, healthcare, and other needs, furthering inequitable outcomes. These outcomes are often exacerbated when people also experience racism and/or live in poverty. Social determinants of health are the conditions in the places where people live, learn, work, play, and worship that affect a wide range of health risks and outcomes. The priority populations defined in Table 3 are included as criteria for Priority Equity Communities and analyzed where feasible.

4.4 IMPACT ASSESSMENT

Building on previous EJ Technical Reports, SCAG identified equity performance measures and assessed the impacts of the Plan on priority populations in the region and specifically in Priority Equity Communities. These performance measures help evaluate how future changes in the region will impact the most vulnerable people and communities and respond to some key questions, including:

- Will our region become more connected and accessible for everyone, regardless of race/ethnicity, age, gender, disability, income, etc.?
- Will we grow in ways that encourage livability among prioritized equity populations?
- Will people and our environments, particularly areas that have historic and current public health risks, become healthier?
- Will our economy function well for all, particularly people of color and low-income households?

In response to these questions, performance measures are organized under Connect SoCal 2024's four main goals: mobility, communities, environment, and economy. There are two types of performance measures: (1) plan performance assessment measures, which use modeling data to forecast future regional performance with and without the implementation of the Plan; and (2) ongoing regional performance monitoring measures that are used to assess progress being made over time. There are also existing conditions measures that provide the latest available data on indicators from SCAG's Racial Equity Baseline Conditions reports. Public health is measured relative to several existing conditions measures, including overcrowding, CalEnviroScreen pollution burden, Healthy Places Index, and health insurance coverage. SCAG also evaluates the Plan's impact on park and healthcare access, active transportation mode share, air quality and noise impacts, and climate vulnerabilities, all of which are related to evaluating health equity across the region.

Table 6 summarizes the equity performance measures included in this analysis and distinguishes between plan assessment and ongoing measures.

Table 6. Equity Performance Measures and Existing Conditions Indicators

Section	Category	Performance Measures	Plan Assessment Measure
MOBILITY			
6	Existing Conditions	Compact commuting	
		Households without a vehicle	
6.1	Share of Transportation System Usage	Mode share	X
6.2	Travel Time and Travel Distance Savings	Commute time by mode	X
		Distribution of travel time	X
		Distribution of travel distance	X
6.3	Access to Everyday Destinations	Job access	X
		Shopping access	X
		Parks access	X
		School access	X
		Health care access	X
6.4	Bicycle and Pedestrian Collisions	Bike and pedestrian collisions	
		Safety projects on bicycle and pedestrian High Injury Network	X
COMMUNITIES			
7	Existing Conditions	Housing cost burden	
		Housing quality	
		Overcrowding	
		Homeownership	
		People experiencing homelessness	
		Broadband access	
7.1	Jobs-Housing Imbalance	Median wage by place of residence and place of work	
		Median commute distance	X
		Jobs-house balance	X
7.2	Neighborhood Change and Displacement	Neighborhood change trends	
		Eviction filings	
7.3	Rail-Related Impacts	Proximity to rail corridors	X
		Proximity to planned grade separations	X
		Proximity to railyards	X
ENVIRONMENT			
8	Existing Conditions	CalEnviroScreen 4.0 pollution burden	
		Healthy Places Index 3.0 score	
		Health insurance coverage	

Section	Category	Performance Measures	Plan Assessment Measure
8.1	Resilience and Climate Vulnerabilities	Climate risk areas	X
8.2	Emissions Impacts Analysis	Emissions impacts (CO and PM2.5)	X
		Proximity to freeways and highly traveled corridors	X
8.3	Noise Impacts	Aviation noise	
		Roadway noise	
ECONOMY			
9	Existing Conditions	Median hourly wage	
		Unemployment	
		Working poor	
9.1	Geographic Distribution of Transportation Investments	Distribution of transportation investments by mode	X
9.2	Investments vs. Benefits	Transportation system investment benefit/cost ratio	X
9.3	Revenue Sources in Terms of Tax Burdens	Proportion of Connect SoCal revenue sources	
9.4	Impacts from Mileage-Based User Fees	Comparison between existing gas tax and road improvement fees and a proposed user fee	

As described in the Main Book, SCAG conducts a ‘Plan’ vs ‘No Plan’ (or ‘Baseline’) analysis which compares how the region would perform with and without implementation of Connect SoCal. Plan assessment measures are analyzed by comparing the horizon year of the Plan, 2050, under two opposing paradigms. The first (**Plan**) represents a future where the selected strategies contained in Connect SoCal 2024 have been implemented. The second (**Baseline**) operates under the assumption that the Plan will not be implemented and represents the year 2050 under “business as usual” conditions, which includes the completion of transportation projects currently underway or for which funds are already committed and assumes the continuation of current land use and growth trends.

Both scenarios are assessed relative to existing regional conditions, also called the **Base Year** of the Plan, which is 2019. This analysis may show that the outcomes of the Baseline or Plan do not always perform as well as current circumstances. It is important to note that, according to the Demographic and Growth Forecasting Technical Report, an additional 2 million people are expected to be living in the SCAG region in 2050, which will put a tremendous strain on our current infrastructure if we do not plan for sustainable growth and change.

Plan assessment measures depend on forecasted and modeled outputs. SCAG utilizes an integrated analytical framework to develop growth projections, travel forecasts, and emissions estimates to support the region’s various planning programs. Key to the analysis in this report are SCAG’s Transportation Models and Scenario Planning Model (SPM). SCAG’s Travel Demand Model (TDM) is a trip-based model that includes a very advanced mode choice component capable of forecasting travel modes within the Region, plus the ability to capture pricing and the travel effects of smart growth. SCAG’s Activity-Based Model (ABM) simulates daily activities and travel patterns of all individuals in the region, as affected by

transportation system level of service. While the ABM does not provide a comprehensive validation of each variable as its main purpose is travel demand modeling, its outputs can facilitate a comparison of past trends versus a reasonable view of likely future trends. Finally, SCAG's SPM is a web-based land use sketch planning tool for scenario development, modeling, and data organization. SPM facilitates scenario creation and editing, providing estimates of potential benefits from alternative transportation and land use strategies.

There are instances in this report when forecasted socioeconomic data is only available at the TAZ level, which is inconsistent with other geographic boundaries, like census tract. When forecasted socioeconomic data is presented in Priority Equity Communities in this analysis, information from TAZs with their central point intersecting a Priority Equity Community census tract boundary is aggregated into that category.

More detail about the use of the SPM in the Plan can be found in the Land Use and Communities Technical Report. All of SCAG's robust models have been peer-reviewed by transportation professionals. More information about all of SCAG's models can be found on SCAG's website.^v

This report identifies potential disproportionately high and adverse impacts for various sociodemographic groups. Adverse effects are defined by the FTA in the 2012 EJ Policy Guidance for FTA Recipients as:

"the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness, or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or non-profit organizations; increased traffic congestion, isolation, exclusion or separation of individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of benefits of [Department of Transportation] programs, policies, or activities."

Adverse effects are disproportionate when they are:

"predominately borne by minority population and/or low income population", or "will be suffered by the minority population and/ or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority and/or non-low-income population" (Federal Register Volume 77, Issue 137).

5. HISTORICAL DEMOGRAPHIC TRENDS

This section compares several demographic and socioeconomic variables between the region and Priority Equity Communities in 2019 and analyzes past and expected future trends for variables such as race/ethnicity, age, educational attainment, English language proficiency, and vehicle ownership. These indicators are projected with Connect SoCal's demographic forecasting and travel demand modeling. Estimates of these variables do not provide a forecast of all future conditions; however, these characteristics are used as inputs for assessing future travel demand and are reported here to provide context.

To provide a historical context, SCAG used data from the 1990 Census to assess the demographic and socioeconomic conditions approximately 30 years before the base year. For 1990, data for Native Hawaiian/Pacific Islander and Multiracial are not available from the Census, and therefore these categories should not be compared with 1990. Additionally, the 1990 Census includes Asian and Pacific Islanders under the same category and American Indian, Eskimo, or Aleut under the Native American category. SCAG's Regional Growth Forecast projects forward from 2019 to 2050, allowing SCAG to compare the past three decades and the coming three decades. This section focuses on key differences between the region and Priority Equity Communities. Additional data (e.g., county- or jurisdiction-level) can be found through SCAG's Regional Data Platform (RDP) or Local Profiles programs. Since many of the variables assessed here are also used to delineate Priority Equity Communities, it is expected that Priority Equity Communities will differ from the region overall.

5.1 COMPARISON OF EXISTING CONDITIONS IN THE REGION AND IN PRIORITY EQUITY COMMUNITIES

Nearly half of the population in the SCAG region (48.6 percent) live in Priority Equity Communities. The region overall and Priority Equity Communities are racially/ethnically diverse. However, as shown in Table 7, people of color were disproportionately higher in Priority Equity Communities, where only 23 percent of the region's White, non-Hispanic population resided. In contrast, over 60 percent of the region's Hispanic/Latino population, Asian population, and Native Hawaiian/Pacific Islanders were in Priority Equity Communities.

Priority Equity Communities had a slightly younger population compared to the region. More than half of the region's under 18 population, and roughly 41 percent of the older adult population were in Priority Equity Communities. On the other hand, Priority Equity Communities had a far lower college education rate, accounting for less than 30 percent of the region's population with a bachelor's degree or higher. Nearly 70 percent of the region's population without a high school diploma were in Priority Equity Communities. While the SCAG region has long been a major immigration gateway, Priority Equity Communities had more than 70 percent of the region's population with limited English proficiency and will likely face a greater challenge of linguistic diversity.

Average household size was larger in Priority Equity Communities than in the region. Only 43.6 percent of the region's households were in Priority Equity Communities, as compared to 48.6 percent in terms of population share. Vehicle ownership was considerably lower in Priority Equity Communities, accounting for 57.3 percent of the region's households without vehicles. Many demographic subgroups are disproportionately represented in Priority Equity Communities which is consistent with the equity area's definition as described in Section 4.2.

Table 7. Demographics in the SCAG Region and Priority Equity Communities, 2019

	SCAG Region	Priority Equity Communities	%
Total Population	18,827,000	9,157,000	48.6%
Race & Ethnicity			
Native American	48,000	22,000	45.8%
Asian	2,590,000	1,146,000	44.2%
Black	1,148,000	694,000	60.5%
Hispanic/Latino	8,768,000	5,771,000	65.8%
Multiracial/Other	621,000	205,000	33.0%
Native Hawaiian/Pacific Islander	43,000	31,000	72.1%
White	5,610,000	1,289,000	23.0%
Socioeconomic			
Age under 5	1,127,000	624,000	55.4%
Age 5 - 17	3,394,000	1,824,000	53.7%
Age 65 and above	2,722,000	1,119,000	41.1%
No high school diploma	2,312,000	1,605,000	69.4%
Bachelor's degree and above	4,124,000	1,203,000	29.2%
People with limited English proficiency	1,921,000	1,359,000	70.7%
Total Households	6,193,000	2,699,000	43.6%
Households without vehicles	410,000	235,000	57.3%

Source: SCAG Regional Growth Forecast

5.2 COMPARISON OF PAST AND EXPECTED FUTURE TRENDS IN THE REGION AND IN PRIORITY EQUITY COMMUNITIES

This section describes how much the SCAG region has changed over the past three decades (1990-2019) versus how it is projected to change over the next three decades (2019-2050). SCAG performed the same comparison for Priority Equity Communities.

Table 8 shows that population growth of the region is expected to be 10.9 percent during 2019-2050, far slower than the 28.6 percent increase during 1990-2019. Growth rates vary by race/ethnicity, and the region continues to be incredibly diverse. The Asian and Hispanic/Latino populations, the two groups with the highest percentage increases over the past three decades, are expected to continue to grow but at a much slower rate (45.5 percent for Asian and 15.9 percent for Hispanic/Latino populations by 2050). Historical trends show decreases in Native American, White, and Black populations. Over the next three decades, it is anticipated that the White population decreases at a much lower rate, and that the Black population decreases at a considerably faster rate.

Table 8. Demographic Trends in the SCAG Region and Priority Equity Communities, 1990-2050

	SCAG Region					Priority Equity Communities				
	1990	2019	2050	Past % Change	Expected Future % Change	1990	2019	2050	Past % Change	Expected Future % Change
Total Population	14,641,000	18,827,000	20,882,000	28.6%	10.9%	7,326,000	9,157,000	10,197,000	25.0%	11.4%
Race & Ethnicity										
Native American	61,000	48,000	53,000	-21.3%	10.4%	29,000	22,000	23,000	-24.1%	4.5%
Asian	1,277,000	2,590,000	3,769,000	102.8%	45.5%	634,000	1,146,000	1,709,000	80.8%	49.1%
Black	1,160,000	1,148,000	1,017,000	-1.0%	-11.4%	827,000	694,000	596,000	-16.1%	-14.1%
Hispanic/Latino	4,851,000	8,768,000	10,164,000	80.7%	15.9%	3,525,000	5,771,000	6,441,000	63.7%	11.6%
Multiracial/Other	30,000	621,000	887,000	-	42.8%	19,000	205,000	287,000	-	40.0%
Native Hawaiian/ Pacific Islander	-	43,000	57,000	-	32.6%	-	31,000	34,000	-	9.7%
White	7,262,000	5,610,000	4,936,000	-22.7%	-12.0%	2,291,000	1,289,000	1,106,000	-43.7%	-14.2%
Socioeconomic										
Life expectancy	76.5	79.9	81.2	4.5%	1.5%	-	-	-	-	-
Age under 5	1,228,000	1,127,000	1,009,000	-8.2%	-10.5%	719,000	624,000	569,000	-13.2%	-8.8%
Age 5 - 17	2,271,000	3,394,000	2,893,000	49.4%	-14.8%	1,273,000	1,824,000	1,577,000	43.3%	-13.5%
Age 65 and above	1,435,000	2,722,000	4,547,000	89.7%	67.0%	617,000	1,119,000	1,986,000	81.4%	77.5%
No high school diploma	2,435,000	2,312,000	2,869,000	-5.1%	24.1%	1,667,000	1,605,000	1,952,000	-3.7%	21.6%
Bachelor's degree and above	1,979,000	4,124,000	5,225,000	108.4%	26.7%	502,000	1,203,000	1,672,000	139.6%	39.0%
People with limited English proficiency	1,573,000	1,921,000	2,421,000	22.1%	26.0%	1,225,000	1,359,000	1,672,000	10.9%	23.0%
Total households	4,934,000	6,193,000	7,798,000	25.5%	25.9%	2,214,000	2,699,000	3,483,000	21.9%	29.0%
Households without vehicles	440,000	410,000	629,000	-6.8%	53.4%	289,000	235,000	364,000	-18.7%	54.9%

Note: Life expectancy is only projected at the regional level and is therefore unavailable for Priority Equity Communities. Data for 1990 comes from the Institute for Health Metrics and Evaluation and is a statewide estimate.

Source: SCAG Regional Growth Forecast; U.S. Census 1990

On the other hand, this trend of decrease is projected to be reverted for the Native American group, which will grow by 10.4 percent by 2050. Nonetheless, the Native American group consistently accounts for roughly 0.3 of the total population from 2019 through 2050. While the historical data for Native Hawaiian/Pacific Islanders and other racial/ethnic groups (including multiracial people) are not available, the two groups are projected to grow considerably (32.6 percent and 42.8 percent by 2050, respectively).

With life expectancy in the SCAG region is projected to increase from 79.9 years in 2019 to 81.2 in 2050, the region is expected to age at an even faster rate. The past three decades saw a slight decrease in the population aged under 5 (-8.2 percent) and a modest increase in the population aged 5-17 (49.4 percent). By 2050 it is anticipated that the under 18 population, both those of age under 5 and age 5-17, will decrease and that the population of older adults will increase substantially (67 percent). Compared to the historical trend, the projected trends reflect a slightly slower growth in the older adult population since remaining members of the large Baby Boomer generation (born 1946-1964) will all be over 85. However, there are expected to be more notable decreases in the under 18 population due to decades of lower birth rates regionally and globally.

The region's college education rate has risen substantially since 1990 (108.4 percent); meanwhile, population without a high school diploma has decreased by 5.1 percent. By 2050 people without a high school diploma and people with a bachelor's degree or higher are anticipated to increase at similar rates. While the percentage increase in college-educated people is much lower compared to the historical trend, the growth of people with a bachelor's degree or higher is still projected to outpace population growth. People with limited English language proficiency will increase by 26 percent by 2050, a slightly higher percentage increase compared to the past three decades. This may be due to the fact that foreign immigration is expected to represent a larger share of future population growth; however, these detailed characteristics are not independently theorized and projected for travel demand modeling purposes.

The extent to which households choose to go carless reflects SCAG's regional planning efforts. While SCAG does not have the data to distinguish households' reasons for not owning a vehicle, this analysis assesses trends in vehicle ownership. Households without a vehicle have decreased by 6.8 percent since 1990 but are anticipated to increase by 53.4 percent by 2050. The projected increase in zero-vehicle households is considerable given that total households are expected to increase by only 25.9 percent. Such increase may be attributed to several factors, such as an aging population (where older adults tend to become more dependent on others to drive them or alternative modes), planning efforts that promote accessibility and reduce car dependency, more opportunities for remote work, and other economic and policy factors.

Priority Equity Communities share many of these trends with the region. Total population is anticipated to increase by 11.4 percent by 2050. Across the different racial/ethnic groups, the populations of Asian and other racial/ethnic groups (including Multiracial people) are projected to have the largest percentage increases. It is anticipated that the Native American, Native Hawaiian/Pacific Islander, and Hispanic/Latino populations continue to grow; meanwhile, Black and White populations will decrease by roughly 14 percent.

Trends in age, educational attainment, and English language proficiency in Priority Equity Communities are also on par with the region. Priority Equity Communities are continuing to age. While the populations under 18 will decrease by slightly smaller percentages compared to the region, Priority Equity Communities are expected to age a little more quickly than the rest of the region because the older adult population is projected to increase by 77.5 percent by 2050 as compared to 67.0 percent region wide. The

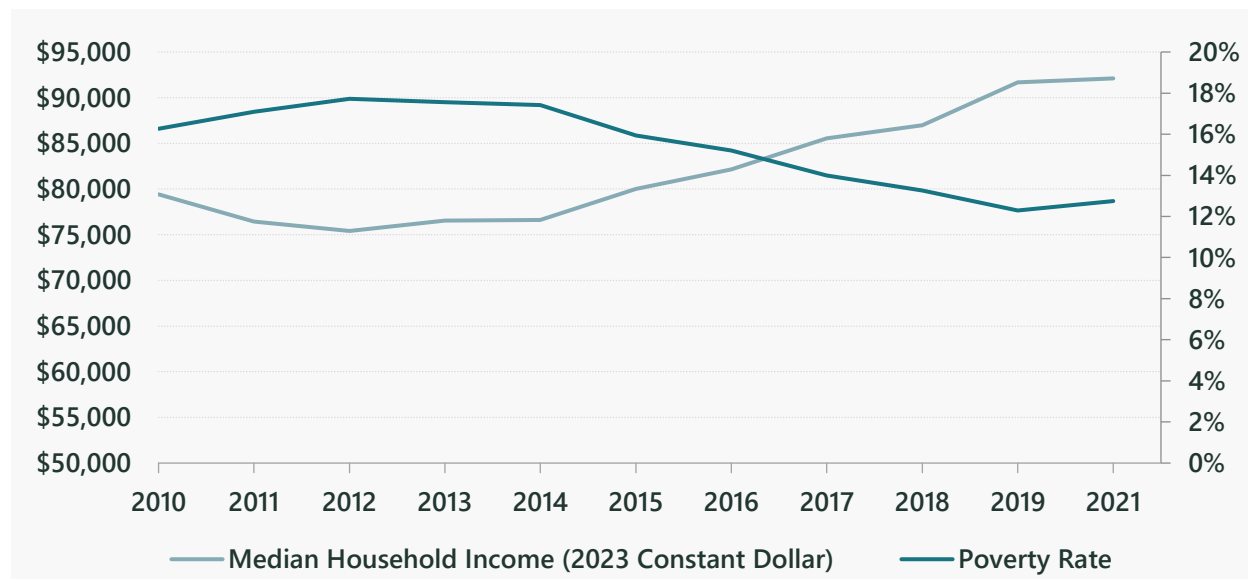
population with a bachelor’s degree or higher has increased by nearly 140 percent since 1990. The increase in college-educated people is expected to be much slower over the next three decades (39 percent), but the gap in education attainment will likely become smaller between Priority Equity Communities and the region. By 2050, people with limited English language proficiency are anticipated to increase by 23 percent in Priority Equity Communities, doubling the percentage increase (10.9 percent) over the past three decades.

Households in Priority Equity Communities without a vehicle are expected to increase by nearly 55 percent by 2050, a similar increase as is seen regionally. The increase in zero-vehicle households represents a clear divergence from the historical trend of decrease (-18.7 percent). As discussed earlier, the change in the vehicle ownership trend can be attributed to several factors.

5.3 INCOME TRENDS IN THE SCAG REGION AND PRIORITY EQUITY COMMUNITIES

Trends in regional incomes have suggested the challenge of economic equity faced by the region. Figure 2 shows that regional household incomes, using inflation-adjusted 2023 constant dollars, have gradually recovered in the years following the great recession. Between 2015 and 2019, the SCAG region saw steady increases in real median household incomes; however, real median household income growth stagnated beginning in 2019. In contrast, poverty rates have steadily decreased over the same period. After years of decreases, however, the region’s poverty rates began to rise again in 2020.

Figure 2. Median Household Incomes and Poverty Rate in the SCAG Region, 2023 Constant Dollars



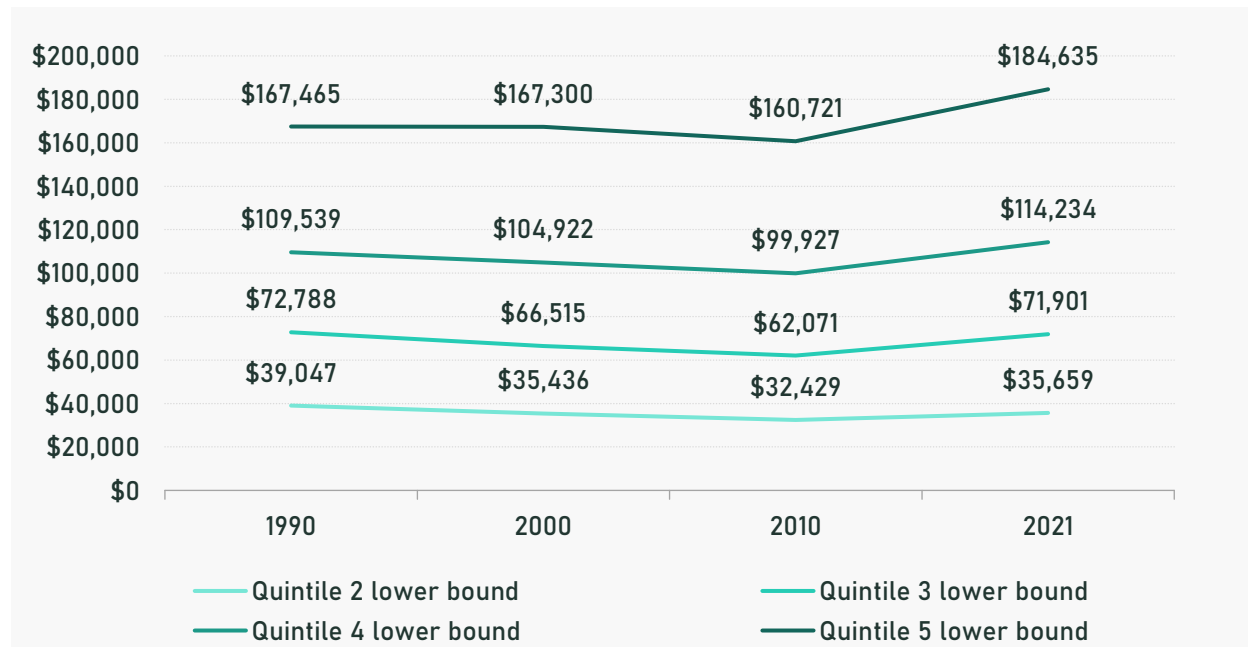
Note: June 2023 Consumer Price Index for All Urban Consumers is used to calculate real median household income.

Source: U.S. Census Bureau ACS 1-year estimates, 2010-2021; U.S. Bureau of Labor Statistics

Figure 3 shows the breakpoints in the region’s income quintiles using inflation-adjusted 2023 constant dollars, each of which represents 20 percent of the household population. For example, in 2021, to be

considered in the top 20 percent (Quintile 5) of households by income one would need to earn more than \$184,635; to be in the 60-80 percent (Quintile 4) a household would need to earn between \$71,901 and \$114,234. However, in 2000, households only needed to earn \$167,300 (inflation-adjusted) to be considered in Quintile 5, suggesting that it now takes substantially more to be considered “high-income” than it was two decades ago.

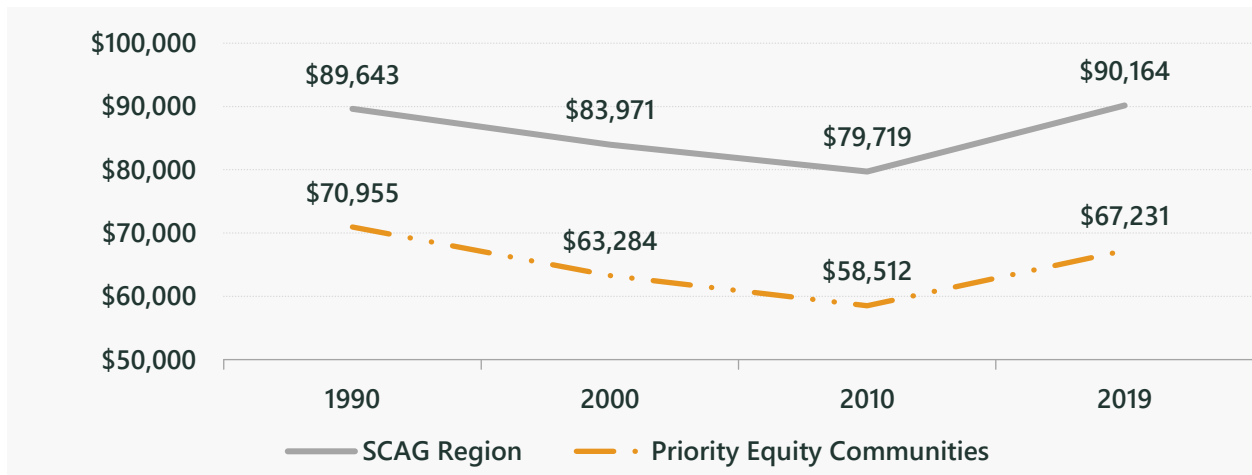
Figure 3. Household Income Quintile Breakpoints in the SCAG Region, 2023 Constant Dollars



Source: U.S. Census Bureau 1990 and 2000 Decennial Census and 2010 and 2021 ACS 1-year estimates

To illustrate the trends in household incomes in the region and in Priority Equity Communities, we used data from the U.S. decennial census and the 5-year ACS estimates. The latter is needed for approximating the 2010 and 2019 conditions because beginning in 2010, the U.S. census does not provide income data at the spatial scales needed for analyzing Priority Equity Communities. Figure 4 shows that median household incomes were notably lower in Priority Equity Communities than in the region over 1990-2019. While Priority Equity Communities are delineated based on 2019 household income (approximated using the 2017-2021 ACS 5-year estimates), the income gap between Priority Equity Communities and region has been roughly consistent.

Figure 4. Median Household Income in the SCAG Region and Priority Equity Communities, 2023 Constant Dollars



Source: U.S. Census Bureau, 1990 and 2000 Decennial Census, and 2008-2012 and 2017-2021 ACS 5-year estimates

6. ANALYSIS: MOBILITY

This section includes a description of existing conditions for mobility indicators in the SCAG region, including commuting and vehicle ownership by race and ethnicity. Mobility performance measures include Share of Transportation System Usage, Travel Time and Travel Distance Savings, Access to Everyday Destinations, and Bicycle and Pedestrian Collisions. Each measure includes a description of why the measure is relevant, the methodology, and the results of the analysis.

It is widely understood that transportation and land use decisions determine access to opportunities and have far-reaching effects on equity and social justice. Transportation links people to places, allowing them to move between home, work, play, and community services. A community's land use pattern determines the distribution of these activities and destinations which, when combined with transportation options, impacts the ability of a household to meet their daily needs. Historically, patterns such as racial segregation, gentrification, and displacement have limited accessibility to essential services and overall mobility for communities of color.

The Southern California region has long been known for its expansive highway network and the accompanying heavy traffic volumes moving along those roadways to get from one place to another. Because of the long commute distances and travel times caused by job and housing imbalances that have become prevalent in many areas of the SCAG region, a significant majority of commuters are necessarily dependent on driving alone in a motor vehicle over a long distance. As a result, communities experience high levels of air pollution and greenhouse gas (GHG) emissions contributing to the climate crisis, congested highways, reduced quality of life, and dependency on single occupancy vehicle (SOV) travel.

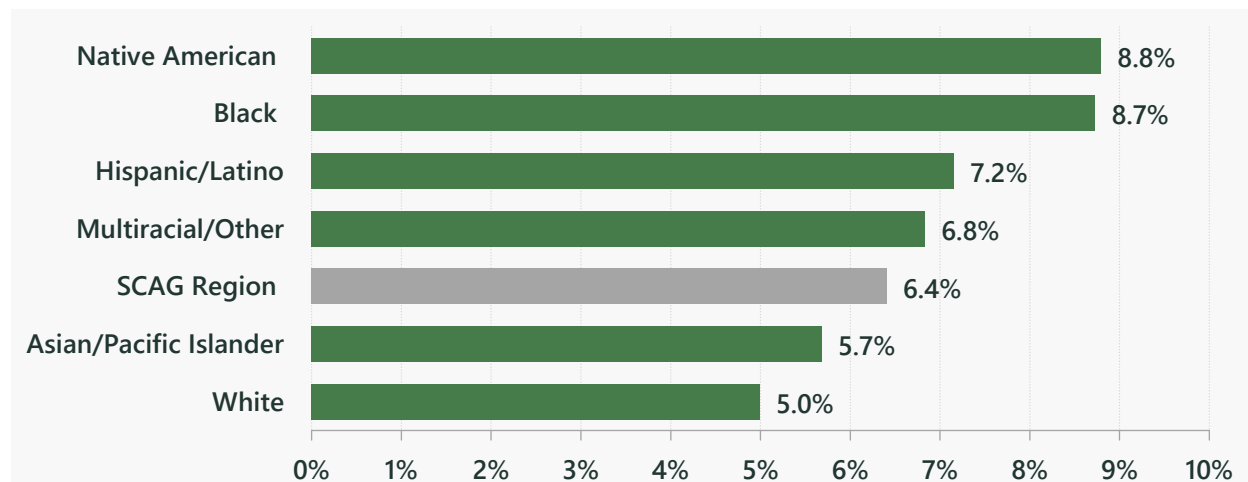
For these reasons, it is imperative that commuters in the region are provided feasible alternatives to SOV travel, specifically bicycle, pedestrian, and public transit (e.g., bus, train, subway, paratransit, micro transit) options. Compact commuting, or actively commuting by public transit, walking, and biking, was coined by Professor Dowell Myers of the University of Southern California who studied commuting and housing opportunities for Hispanic/Latino communities.^{vi} Dr. Myer's study demonstrated that Hispanic/Latino residents have bigger families, live closer together and frequently use public transit and suggests planning and urban design should implement higher density and multi-family housing located near public transit.

Figure 5 shows the percentage of compact commuters, defined as the percentage of workers (16 years and older) that commute to work by walking, bicycling, or taking public transit (excluding working from home), by racial and ethnic groups in the SCAG region. In total, over six percent of commuters in the SCAG region actively commuted to work without using a vehicle. Among the racial and ethnic groups, Native American (8.8 percent) and Black (8.7 percent) commuters had the highest shares of compact commuters in the SCAG region. White (5.0 percent) commuters were the least likely to use public transit, walk or bike in the SCAG region. Further details on public transit and rail usage in the SCAG region are available in the Transit/Rail Chapter of the Mobility Technical Report.

Although it must be recognized that this is not an affordable option for many and in many cases is not environmentally friendly, vehicle ownership does provide a more reliable transportation option. Private vehicles should not be a requirement for full participation in social, civic, and economic life, but it may be the only option available to some SCAG residents. Figure 6 shows the percentage of householders that do not own an automobile. Almost seven percent of all householders within the SCAG region, and nine percent of householders of color, do not have access to or own a vehicle. Black (13.7 percent) and Native

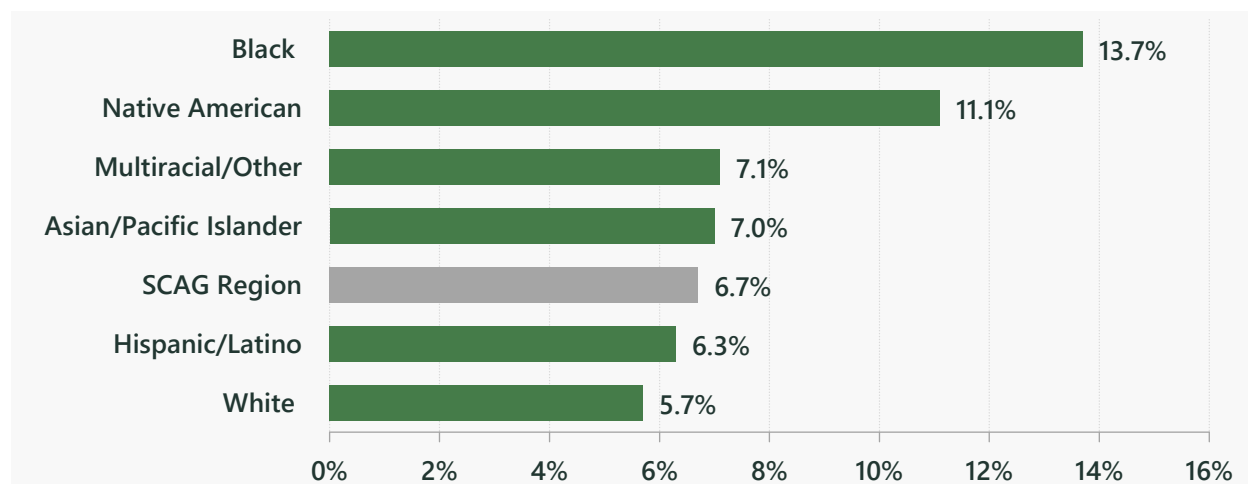
American (11.1 percent) householders disproportionately do not have access to or own a vehicle, where White householders comprise less than half (5.7 percent) compared to Black householders.

Figure 5. Workers who Commute by Walk, Bike, or Public Transit by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

Figure 6. Householders without a Vehicle by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

All households need to have access to reliable and affordable transportation to strengthen equitable outcomes for all people, regardless of race, ethnicity, income, or geography. As demonstrated throughout this report, and particularly the Mobility and Economy analyses, there are racial and income disparities in access to opportunities, travel costs, safety, and choice. The concept of Universal Basic Mobility (UBM) renders a framework for providing a minimum level of mobility to everyone. UBM aims to address existing inequities in the transportation system and improve accessibility to jobs and services. This is primarily accomplished through infrastructure and subsidy programs that expand travel choices to meet individual mobility needs and improves access to opportunities.

At its core, UBM combines a mix of partnerships and policies to support safe and efficient access to a range of mobility services. UBM program participants are typically provided with monthly subscriptions of prepaid cards to access mobility services, and UBM can also help disadvantaged community members gain payment credentials by waiving annual fees on debit cards, and transition cash users to digital payment users. In this way, UBM can help address payment barriers that technologies can impose upon disadvantaged communities while also making possible broader access to shared mobility options beyond traditional fixed route transit.

Several cities across the nation are already piloting UBM programs. Los Angeles Department of Transportation began piloting UBM in South Los Angeles in 2022, which includes fare payment subsidies and integrates fare payment across existing and new transportation options, including transit and access to a suite of mobility services. LA Metro joined the partnership in 2023, expanding the number of services offered and providing a mobility wallet with a monthly travel stipend. Portland established three Transportation Wallet programs (in parking districts, affordable housing sites, and new multi-family buildings) offering passes and credits for use on transit, bikeshare, e-scooters, ride-share, and car-share in one package.

Through its Regional Pilot Initiative (RPI) Program, SCAG anticipates piloting UBM whereby qualified residents can receive subsidies for transit and other mobility services. SCAG anticipates focusing on partnerships with affordable housing developers throughout the region to subsidize a range of transportation services, improving livability, lowering the cost burden of travel, and expanding travel choices and access to opportunities for low-income households. SCAG will build off previous work, including the Mobility Innovations and Pricing initiative, highlighting the travel needs and challenges of low-income and other underserved communities and partnerships with community-based organizations to inform the pilot locations. In parallel, SCAG plans to pilot Mobility Hubs, which seek to co-locate a range of mobility options so that people can complete their entire journey quickly, safely, affordably, and reliably without needing access to a personal car. The synergy of the two pilot concepts will make it easier to get around using shared and active modes of transportation, supporting better connections to jobs, education, and basic services. Connect SoCal 2024 expenditures include a mobility equity fund, a regional strategy that helps ensure equitable transition to road user charges and is targeted to support increased mobility and accessibility through UBM programs. Overall, UBM is a promising tool for increasing mobility and improving access to destinations for targeted communities, as discussed in this section, and advancing more equitable economic development, as discussed in Section 9 of this report.

The equity performance measures included in this section cover the differences in mode usage, travel time and distance, accessibility, and safety of road users related to the projects and recommended policies in Connect SoCal 2024. These analyses point to where investment should be focused in providing UBM. Further analysis of mobility topics can also be found in the Mobility Technical Report.

6.1 SHARE OF TRANSPORTATION SYSTEM USAGE

An important element in evaluating the benefits and impacts of the Plan is to understand how people currently use the region's transportation system. SCAG used the 2017 National Household Travel Survey California Add-On (NHTS) to determine the level of usage and refers to this information in other performance measures as a point of comparison.^{viii} The data includes daily non-commercial travel by all modes, including walking, biking, private vehicle or auto, public bus, commuter rail (Amtrak and commuter train), urban rail (subway/elevated/light rail), or other modes. Other modes include, but are not

limited to, RVs, golf carts, segways, taxis and limos (including Uber/Lyft), rental cars, private buses, boats, paratransit, and airplanes.

As discussed throughout the Plan and documented in recent research, the social distancing measures and shelter-in-place orders associated with COVID-19 caused significant changes in the way people travel around the region, most notably a plunge in the already declining transit ridership. UCLA Institute of Transportation Studies provided insights from several big data companies that reported 50 to 90 percent declines in transit use in major metropolitan areas.^{viii} Due to lower vehicle access rates and their roles as essential service workers, people of color and lower-income people were forced to take greater health risks when it came to travel mode choices. Although there are national surveys, including Arizona State University’s 2021-2022 COVID Future Surveys, that demonstrate racial and income disparities in the shift to working from home, there is still uncertainty on what the longer-term future normal may look like for the SCAG region. For this assessment, SCAG used the 2017 NHTS data as the Plan’s Base Year is 2019 and because it is the latest authoritative source that provides mode share details on the SCAG region.

Table 9 presents transportation mode usage in the SCAG region by income quintile for all trips. Based on the mode share presented in both tables, the automobile, which accounts for over 83 percent of all trips, is the dominant transportation mode. The next most popular mode of transportation is walking (11.8 percent), followed by bus (2.3 percent). Noting that there were more trips by bus than by rail overall, the highest two income quintiles had a higher share of rail trips compared to the lowest two income quintiles. Additionally, most bus riders are lower income quintile households; the lowest two income quintile households combined account for over 75 percent of bus riders. Another clear pattern in the data shows auto usage increasing with the income quintiles. The lowest income households (Quintile 1) take 13 percent of all auto trips, while the highest income households (Quintile 5) take 25 percent.

Table 9. Transportation Mode Usage by Income Quintile in the SCAG Region

	Walk	Bike	Auto	Bus	Rail	Others	Total Usage
Regional Share	11.8%	0.8%	83.8%	2.3%	0.5%	0.8%	100.0%
Quintile 1	26.5%	26.5%	13.2%	53.7%	22.2%	22.8%	15.9%
Quintile 2	22.8%	12.5%	18.6%	21.6%	6.5%	26.6%	19.1%
Quintile 3	15.3%	18.7%	20.1%	9.9%	23.4%	14.5%	19.2%
Quintile 4	16.8%	27.8%	23.0%	7.7%	24.9%	22.1%	21.9%
Quintile 5	18.6%	14.5%	25.2%	7.1%	22.9%	14.0%	23.8%

Source: 2017 NHTS, income quintiles calculated by SCAG

Table 10 presents transportation mode usage in the SCAG region by race and ethnicity for all trips. Overall, people of color are more likely to use public transit and active transportation modes to reach destinations as compared to White residents. Among the various ethnic groups, Hispanic/Latino travelers had the highest bus mode share in the SCAG region at 54.8 percent of bus trips. Black travelers had the second highest share of bus trips at 18.9 percent, a rate three times the regional usage, the highest usage rate compared to other racial/ethnic groups. The mode share for auto trips is very proportionate to the total usage, as the Hispanic/Latino and White travelers had the highest auto mode share in the SCAG region at 39.6 percent and 38.5 percent, just over their respective total usage. Multiracial, White, and “other” travelers, including Native American and Native Hawaiian/Pacific Islander travelers, reported

higher percentages of walking trips compared to their total usage while Asian, Black, Multiracial, and White travelers reported higher percentages of biking modes compared to their total usage.

Table 10. Transportation Mode Usage by Race and Ethnicity in the SCAG Region

	Walk	Bike	Auto	Bus	Rail	Others	Total Usage
Regional Share	11.8%	0.8%	83.8%	2.3%	0.5%	0.8%	100.0%
Asian	10.2%	12.5%	12.3%	7.7%	15.8%	15.6%	12.0%
Black	5.9%	6.3%	5.6%	18.9%	5.7%	7.8%	6.0%
Hispanic/Latino	38.0%	23.5%	39.6%	54.8%	20.5%	30.2%	39.5%
Multiracial	3.7%	6.5%	2.9%	2.5%	9.1%	1.7%	3.0%
White	40.8%	50.3%	38.5%	15.0%	47.6%	44.7%	38.4%
Other	1.4%	0.9%	1.1%	1.1%	1.2%	-	1.2%

Note: "Other" includes Native American and Native Hawaiian/Pacific Islander people due to small sample sizes.

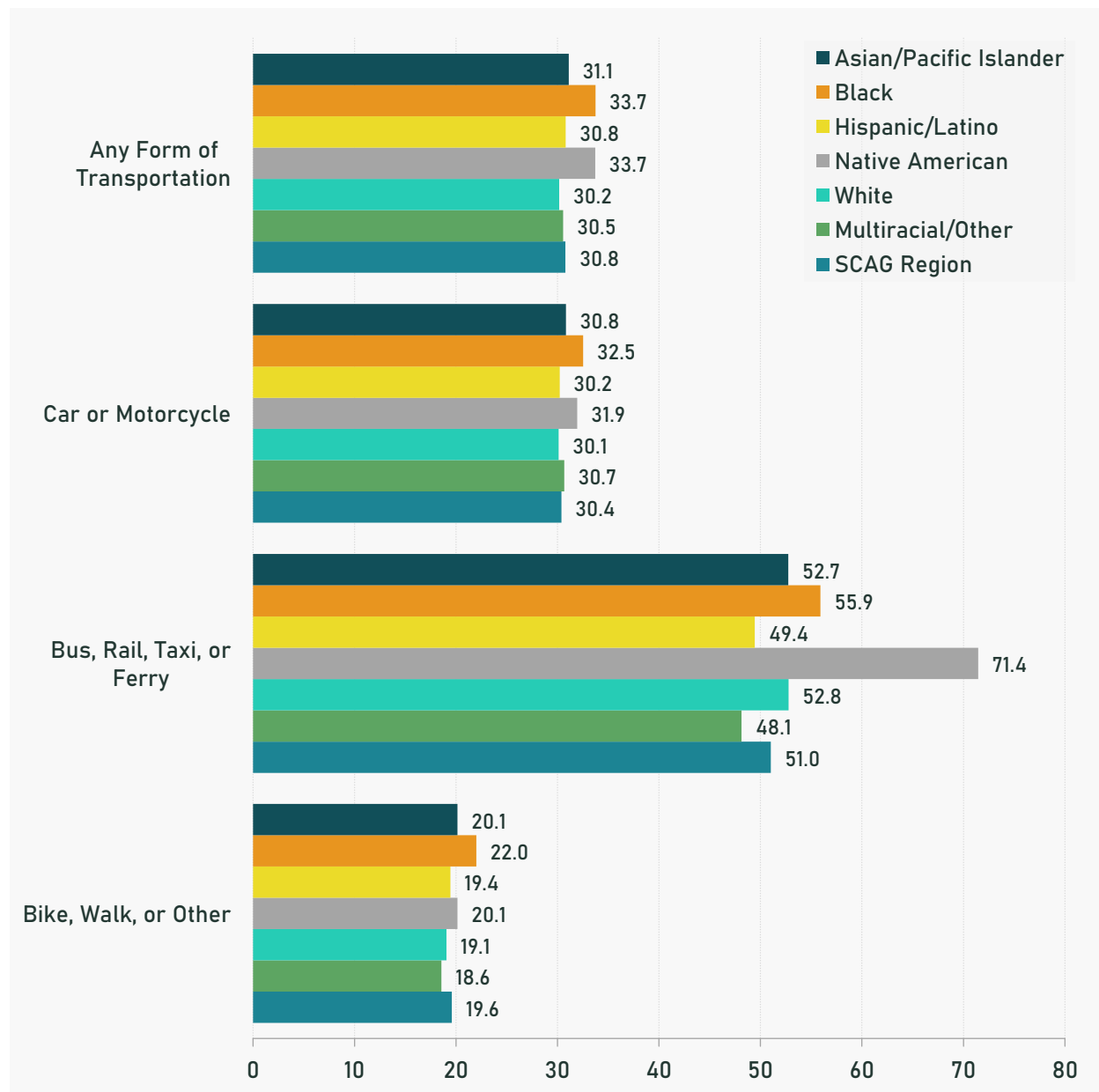
Source: 2017 NHTS

6.2 TRAVEL TIME AND TRAVEL DISTANCE SAVINGS

All residents should have reasonable travel times and travel distances to their essential destinations. Studies have shown that long commutes are linked with worse physical and mental health, including higher rates of obesity, stress, and depression. Employers also suffer from high turnover and employee dissatisfaction, and longer travel time and distance in automobiles may also impact our air quality and transportation infrastructure, which could result in additional operation and maintenance costs.

As shown in Figure 7, people of color experience longer travel times and distances using public transportation than by auto, specifically for Hispanic/Latino and Black populations; the opposite pattern is experienced by White and Asian/Pacific Islander populations. Regionally, the average commute time was nearly 31 minutes for all transportation modes, with only slight variations between racial and ethnic groups. Black and Native American residents experienced the highest average commute time of over 33 minutes while their White counterparts had the lowest average commute time of about 30 minutes. Notably, commute times on public transit (i.e., bus, rail, taxi, and ferry) are significantly higher than other modes of transportation with Native American people experiencing the highest commute time of 1 hour and 11 minutes.

Figure 7. Workers' Commute Times (Minutes) by Mode and Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

This performance measure evaluates the impact of the proposed policies and projects within the Plan on residents' travel times and travel distances.

6.2.1 METHODOLOGY

To determine if the Plan's impacts on travel time and travel distance are justly allocated, this analysis compares the total savings, or reduction in travel time and distance to each socioeconomic group's usage of the transportation system. The total savings are estimated using SCAG's travel demand model, and mode usage is determined using the 2017 NHTS, as identified previously in Section 6.1 Share of

Transportation System Usage. In this measure, travel time is defined as person-hour-traveled (PHT), and travel distance is defined as person-mile-traveled (PMT).

This analysis applied Geographic Information Systems (GIS) technologies to spatially estimate PHT and PMT in the region and Priority Equity Communities and to visualize Plan impacts on the regional transit system. SCAG used a transit efficiency index to understand where transit travel times and distances were improving in tandem. The index was estimated and visualized by using an advanced and innovative feature called “bivariate colors” in the symbology toolbox of ArcGIS Pro^{ix}. Bivariate colors symbology is most effective when showing the “quantitative relationship between two variables in a feature layer;” in this case, the two variables are the shares of transit PMT and PHT. The darker the color, the higher the quantitative relationship (or stronger correlation) between PMT and PHT, which means a high transit efficiency index with a high concentration of transit users traveling further and longer. The equations below explain the methodology of the estimating transit efficiency index:

$$1. \text{ Share of Transit PMT} = \frac{\text{Transit PMT}_{taz1}}{\text{PMT}_{taz1}}$$

$$2. \text{ Share of Transit PHT} = \frac{\text{Transit PHT}_{taz1}}{\text{PHT}_{taz1}}$$

$$3. \text{ Transit Efficiency Index} = \frac{\text{Share of Transit PMT}_{taz1}}{\text{Share of Transit PHT}_{taz1}}$$

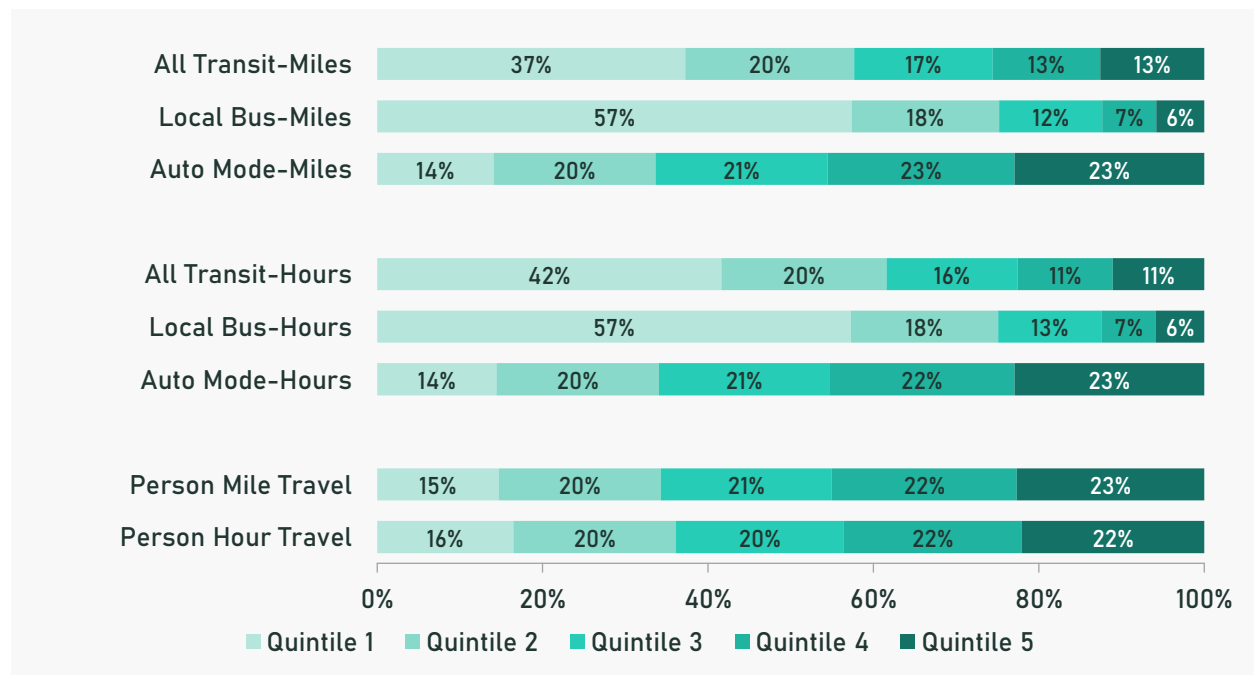
6.2.2 RESULTS

Connect SoCal strategies are expected to yield positive results in travel time and travel distance reductions for the region and Priority Equity Communities. Notably, due to the more integrated transit system, residents are expected to spend less time driving and more time riding public transit to reach their essential destinations.

The existing usage of auto versus public transportation is distinguishable by lower- and higher-income groups; for instance, Table 9 shows that 54 percent of the lowest-income group rides local buses as compared to 7 percent of the highest-income group. Figure 8 and Figure 9 present the shares of travel time and travel distance by income quintiles and ethnicity groups for automobiles, all public transportation options, and local buses. The lowest income quintiles have higher travel time (62 percent of total PHT) and distance (57 percent of total PMT) in public transit than the highest income quintiles; the opposite trend applies to auto.

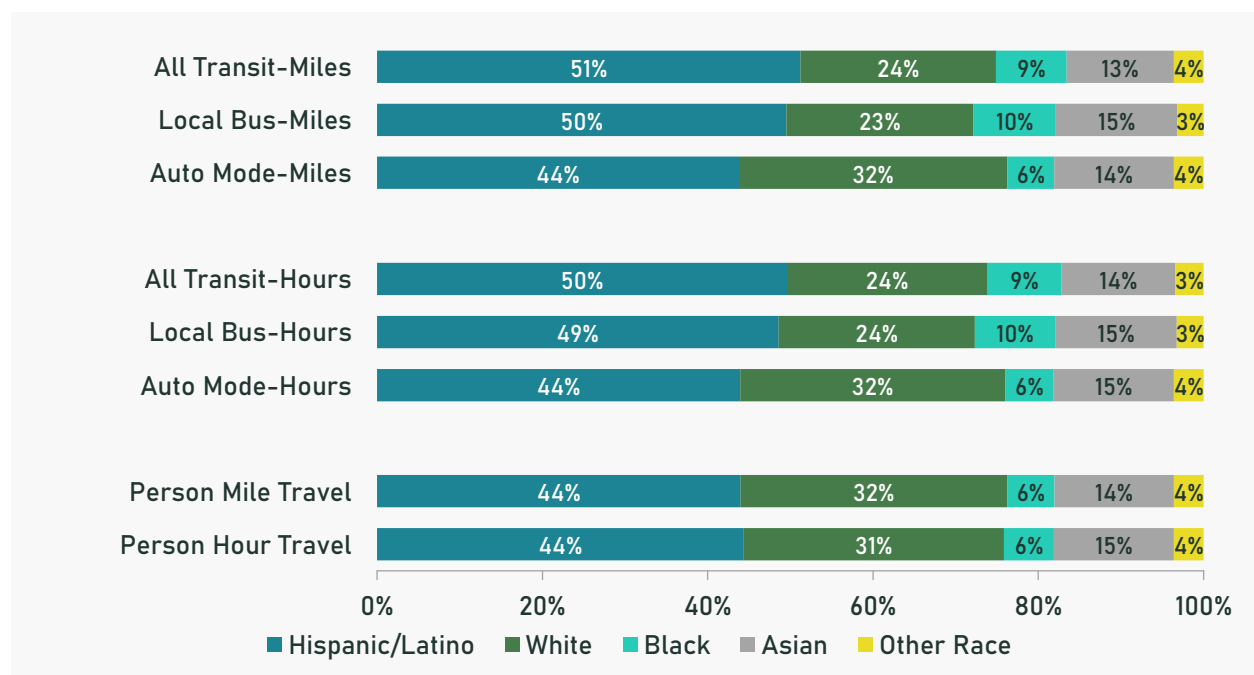
People of color, on average, have a higher share of travel time and distance in public transportation than auto, specifically for Hispanic/Latino and Black populations; the opposite pattern is shown for White and Asian population. As such, the Hispanic/Latino and Black populations are made up of 59 percent of the total hours spent on public transit as compared to 38 percent for White and Asian populations.

Figure 8. Share of Travel Time and Distance by Income Quintiles, 2019



Source: SCAG Travel Demand Model and Regional Growth Forecast

Figure 9. Share of Travel Time and Distance by Race and Ethnicity, 2019



Note: Other Race includes Native American, Native Hawaiian or Pacific Islander, multiracial, and other due to small sample size.

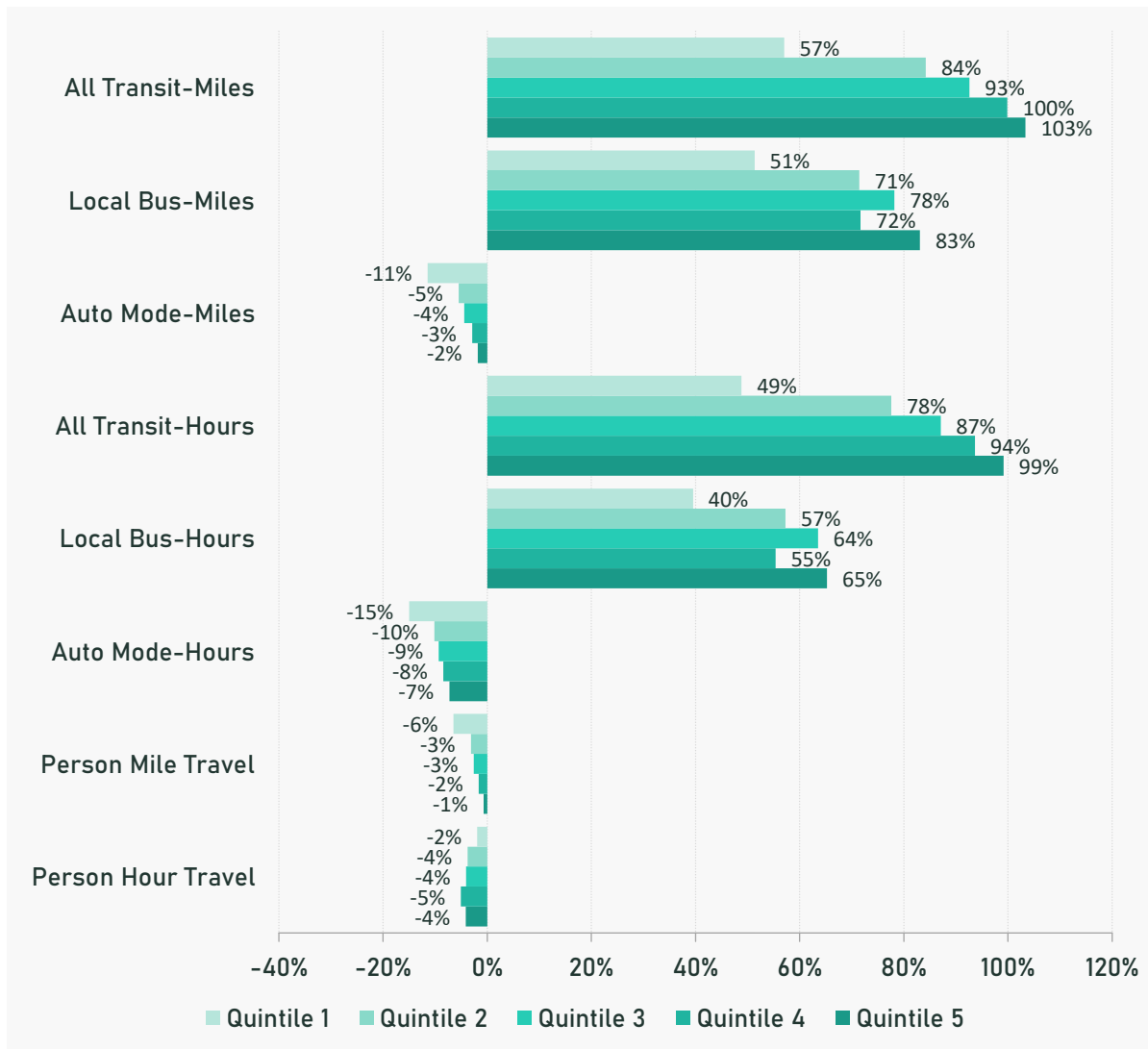
Source: SCAG Travel Demand Model and Regional Growth Forecast

Figure 10 to Figure 12 present the improvements in travel time savings and person-mile reductions from the implementation of Connect SoCal's strategies as compared between the 2050 Plan and Baseline. According to these figures, the lowest income quintiles will likely capture more savings in travel time and reductions in travel distance in driving regardless of their lower usage in automobiles, while also receiving benefits from the Plan's public transit-related time savings.

People in the lowest income quintiles are also likely to travel around more efficiently across all modes with reductions in travel time and distance; furthermore, they will spend less time and travel shorter distances on transit as compared to higher-income groups. The higher-income quintile groups are expected to shift their travels from driving to riding public transportation due to a more safe, reliable, and integrated transit system; such income groups will also likely receive the highest reduction in overall travel time, which is an improvement since they spend more time driving as compared to other income groups.

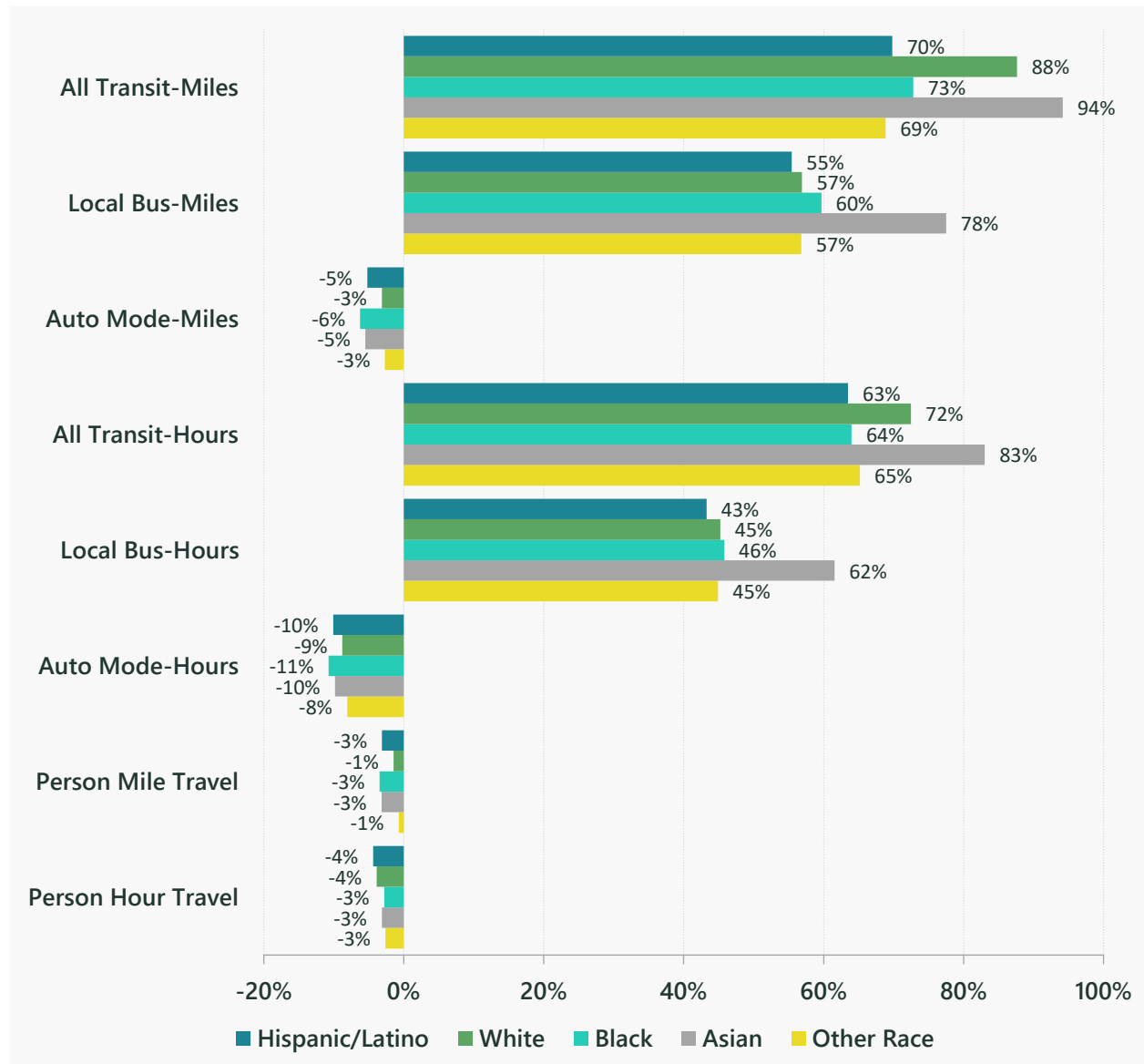
The shares of travel time savings and travel distance reductions for people of color have similar improvements as indicated for lower income quintiles, specifically with less time spent on driving and more on taking public transportation.

Figure 10. Plan Impact on Share of Travel Time and Distance by Income Quintile (Plan minus Baseline)



Source: SCAG Travel Demand Model and Regional Growth Forecast

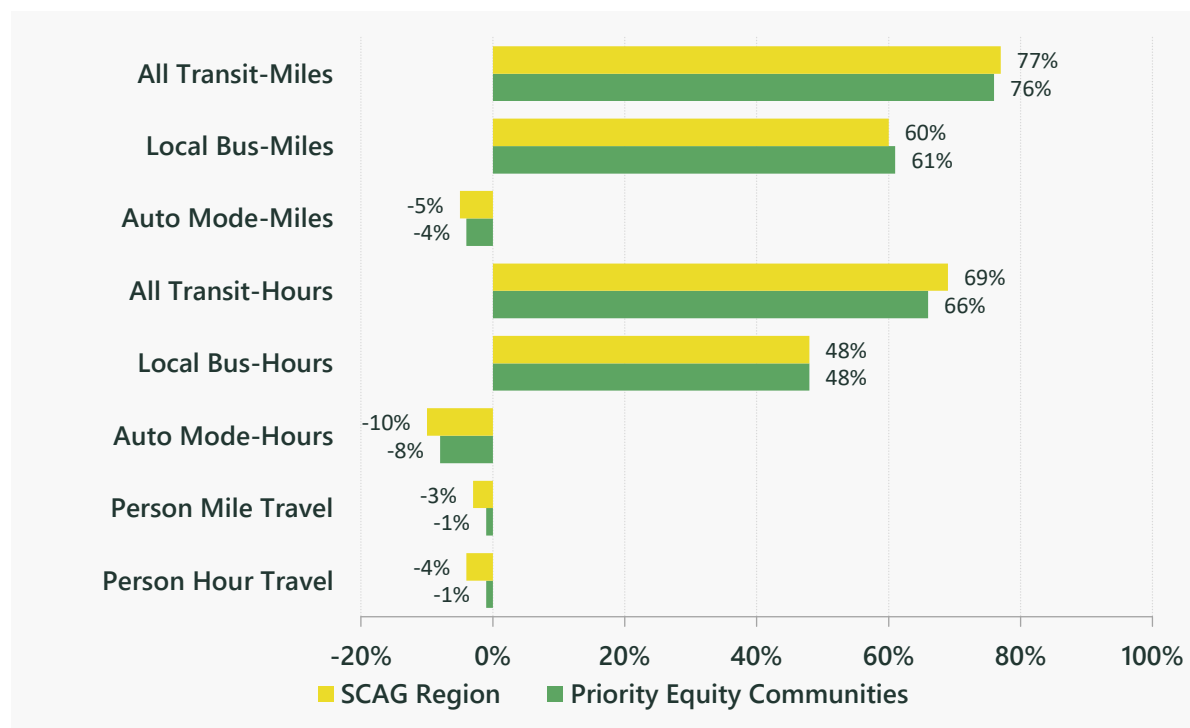
Figure 11. Plan Impact on Share of Travel Time and Distance by Race and Ethnicity (Plan minus Baseline)



Note: Other Race includes Native American, Native Hawaiian or Pacific Islander, multiracial, and other due to small sample size.

Source: SCAG Travel Demand Model and Regional Growth Forecast

Figure 12. Plan Impact on Share of Travel Time and Distance in Priority Equity Communities (Plan minus Baseline)



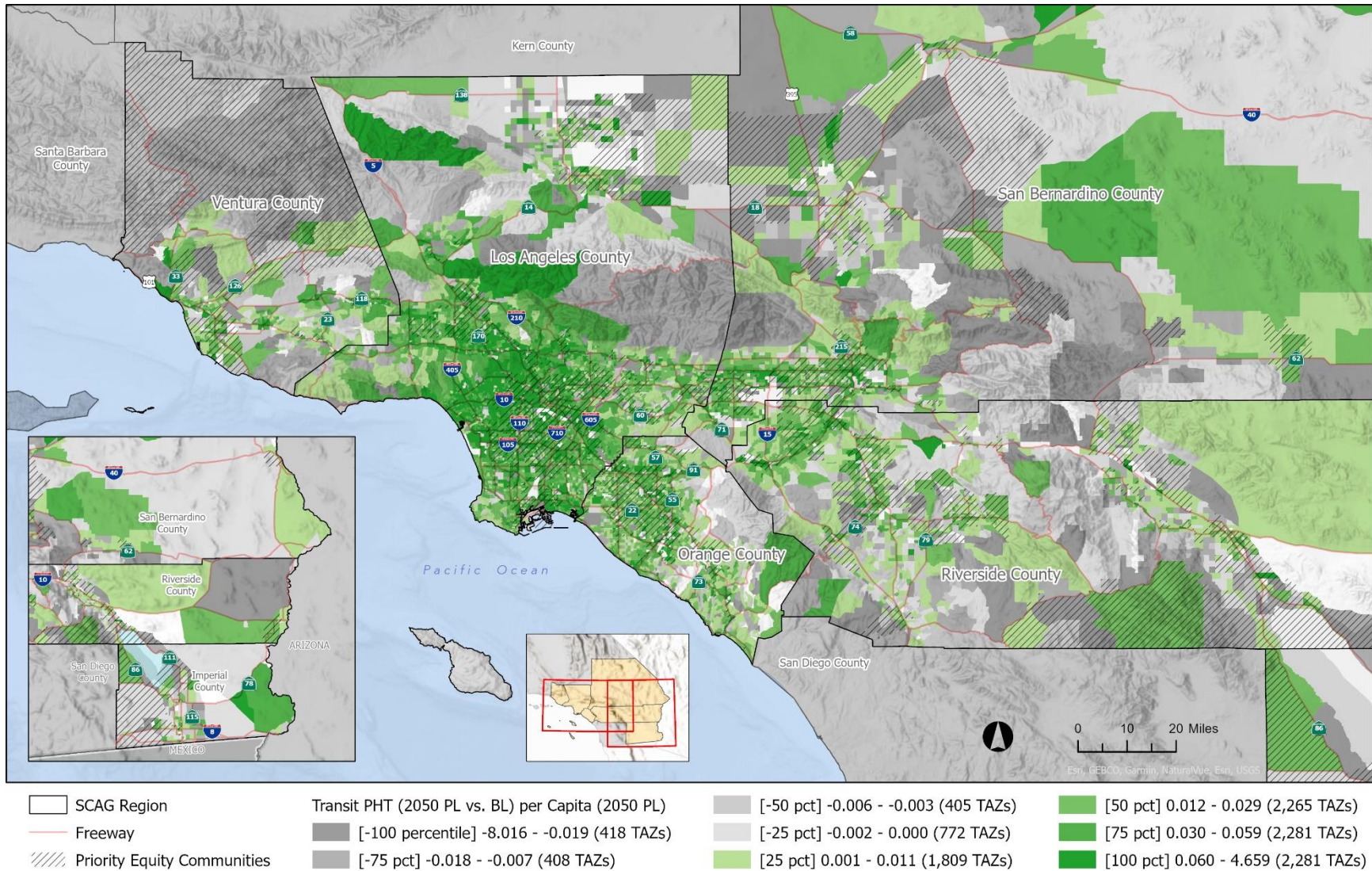
Source: SCAG Travel Demand Model and Regional Growth Forecast

The results have generally shown positive outcomes with more traveling via transit and less driving across all income and ethnicity groups due to improvements in the public transportation system. Map 2 visualizes the Plan impacts on transit travel time per capita as it likely occurs in communities with existing and planned transit investments; the darker the color, the more travel time each person likely spends on riding transit.

Map 3 and Map 4 attempt to visualize the transit efficiency index between the Plan and Baseline by calculating the ratio of the share of transit PMT and PHT as specified in the Methodology section of this analysis; areas with high transit efficiency index are likely to expand to allow more residents to efficiently travel around via transit. As a result, due to transit investments in the Plan, Map 4 has a stronger concentration and larger areas of transit efficiency index as compared to Map 3, which means more residents within these areas can use transit to reach more destinations with the Plan. For instance, there are more areas with high transit efficiency index connecting the more populated areas of Los Angeles, Riverside, and San Bernardino Counties as well as in northern Orange County.

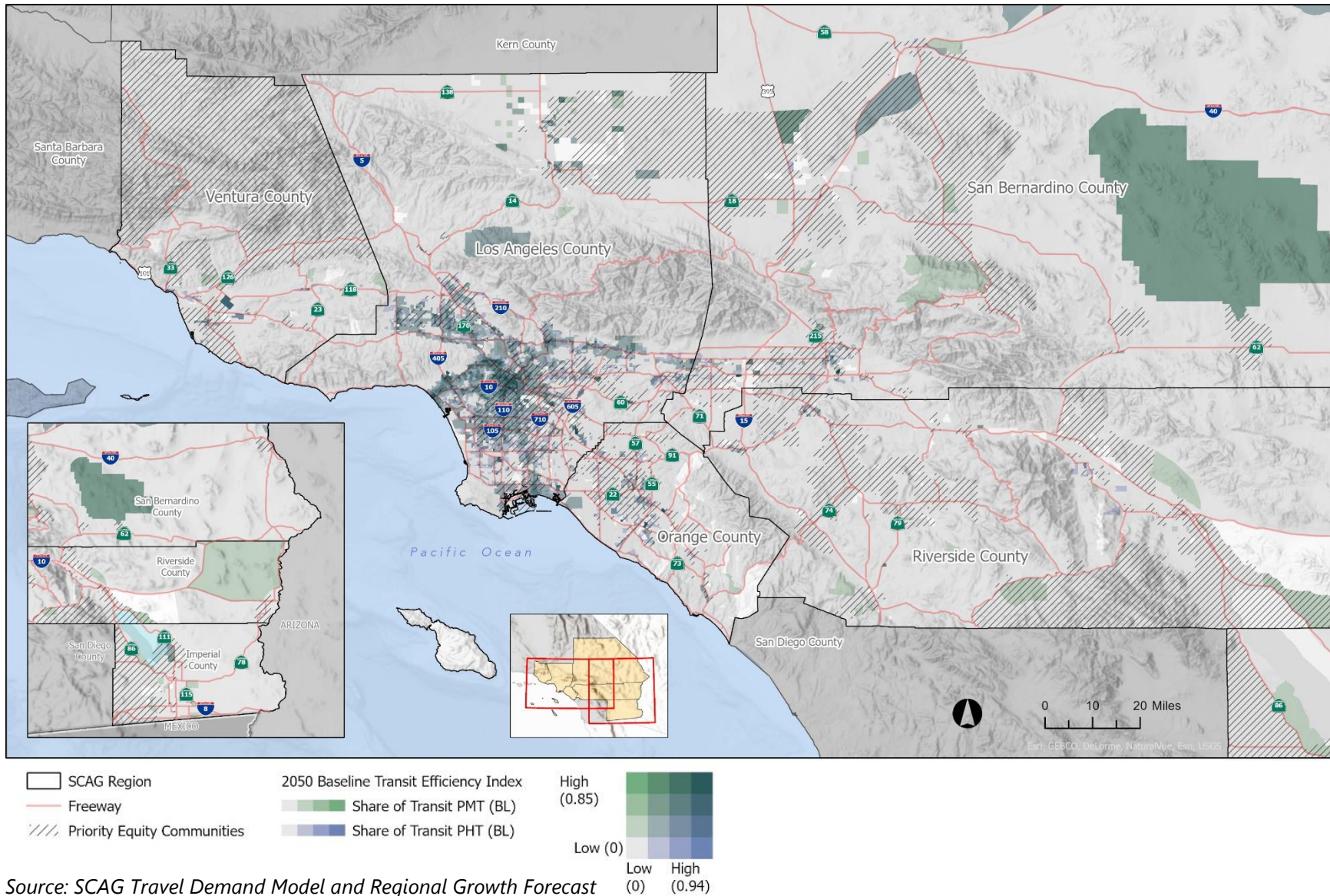
Residents who live within the Priority Equity Communities experience reductions in automobile usage in terms of travel time and distance because of the integrated transportation and land use strategies proposed in Connect SoCal. These improvements have encouraged more people to use transit in both Priority Equity Communities and the overall SCAG region, the increase in local bus use in regard to faster travel time and further travel distance than the region as a whole. Additional analysis is needed to further understand the impacts in these communities. Furthermore, other measures used in this report consider mode split and transit accessibility impacts. More information regarding transit can be found in the Transit/Rail Chapter of the Mobility Technical Report.

Map 2. Plan Impact on Transit Person Hours Traveled (PHT) (Plan vs. Baseline) per Capita

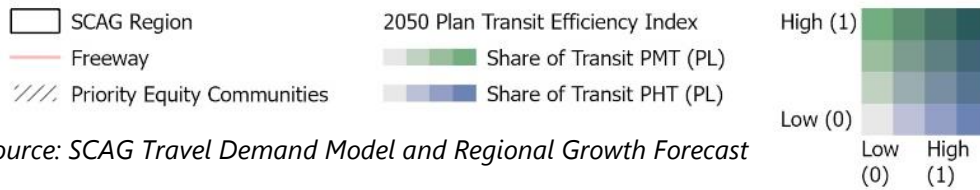
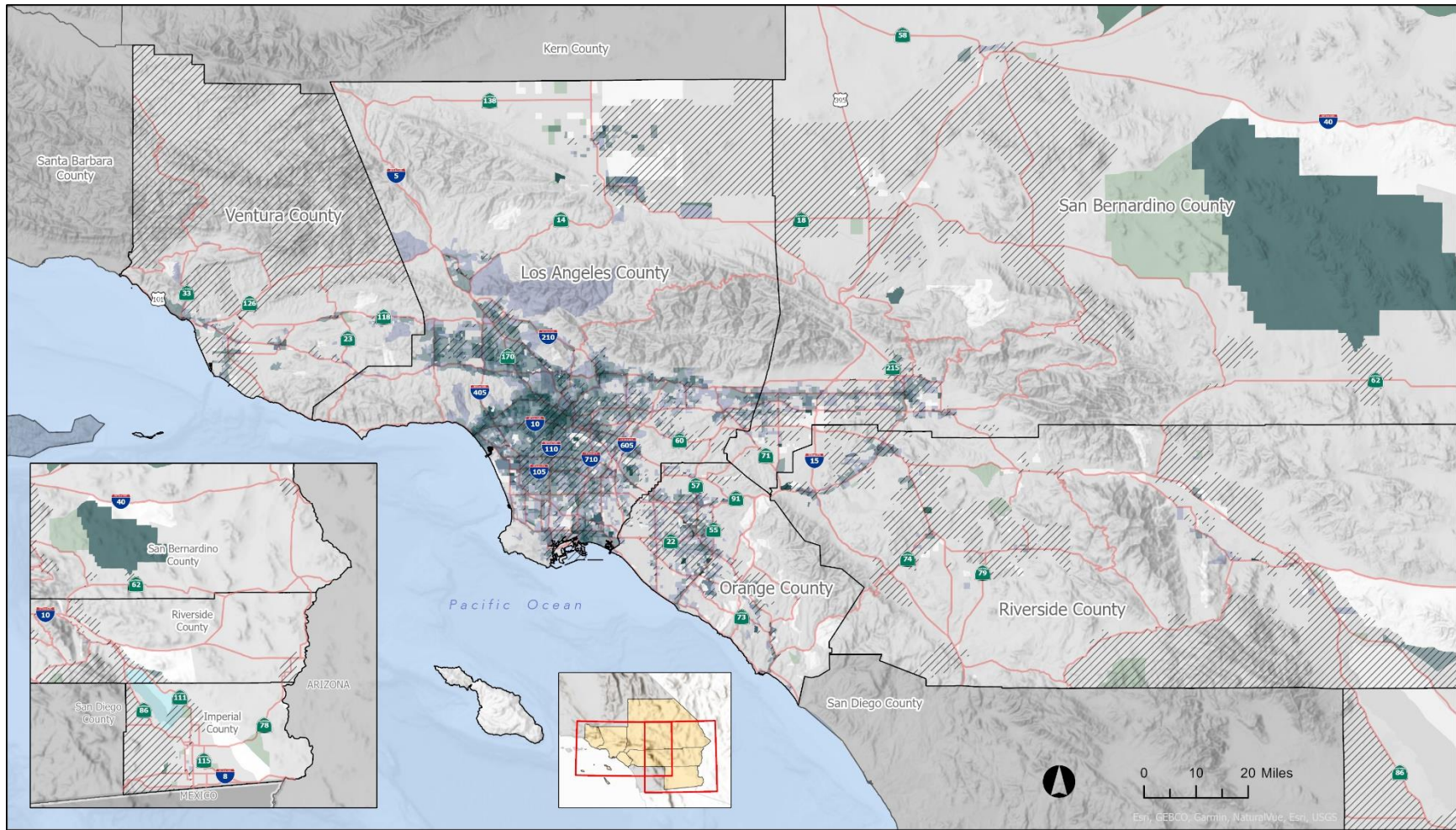


Source: SCAG Travel Demand Model and Regional Growth Forecast

Map 3. 2050 Baseline Transit Efficiency Index



Map 4. 2050 Plan Transit Efficiency Index



Source: SCAG Travel Demand Model and Regional Growth Forecast

6.3 ACCESS TO EVERYDAY DESTINATIONS

Accessing everyday destinations concerns access to employment, education, healthcare, community participation, and other opportunities that meet critical needs and determine the outcomes of people in the region. As described earlier, one of the key aims of UBM is to ensure that people have access to these opportunities, regardless of where they are traveling from, how much money they have, or any of the other barriers to mobility currently in place.

The goal of this analysis is to measure how Connect SoCal 2024 impacts accessibility to essential destinations such as employment, shopping, parks, healthcare facilities and schools for priority populations. This section examines accessibility both in the realm of travel time and distance, and seeks to answer the following question: can residents reach more destinations by auto, transit, walking, and biking within a reasonable travel time as a result of the Plan?

SCAG conducted a literature review to assess the metrics other transportation-focused organizations use to measure accessibility to key destinations, including jobs, retail/groceries, schools, healthcare facilities, and parks. SCAG explored online databases and mapping applications from other metropolitan planning organizations, state agencies, and university research institutes, primarily based in California. Table 11 summarizes SCAG's findings from the literature review, organized by key destination.

Most of the metrics measuring access to jobs, retail/groceries, and schools utilize time traveled, as opposed to distance. Most sources assessed all travel modes together; only one source distinguished bicycling and walking modes in access to jobs. Several of the sources concurred on the travel cost thresholds for each of the uses. These observations helped SCAG determine travel cost thresholds for the Access to Everyday Destinations study.

Table 11. Survey of Metrics for Access to Everyday Destinations

Source	Travel Mode	Metric	Travel Cost Threshold
Jobs			
Center for Neighborhood Technology, <i>AllTransit Methods</i> (2019)	Transit	Number of jobs and workers accessible	30 minutes
UC Davis Center for Regional Change, <i>Regional Opportunity Index (ROI)</i> (2016)	Not Specified	Number of jobs (per 1,000 people) and percent of high-paying industry jobs	5-mile radius
	Not Specified	Percent of workers whose commute time is <30 mins	<30 minutes
University of Minnesota, <i>Access Across America</i> (2022)	Driving	Number of jobs	10, 20, 30, 40, 50, and 60 minutes (7 AM to 9 AM)
	Transit	Number of jobs	10, 20, 30, 40, 50, and 60 minutes (8 AM departure)
	Bicycling or Walking	Number of jobs	10, 20, 30, 40, 50, and 60 minutes
UCLA Institute of Transportation Studies (ITS), <i>Planning Performance Indicators: Access to Opportunity</i> (2022)	Transit	Number of low wage and retail, food service, and industrial jobs from low-income communities	30 minutes
San Diego County Association of Governments (SANDAG), <i>Social Equity: Engagement and Analysis</i> (2021)	All Modes	Percent of working-age population (18+) who can access jobs	30- and 45-minutes AM peak
Sacramento Area Council of Governments (SACOG), <i>2020 MTP/SCS Environmental Justice Analysis</i>	Transit and Driving	Number of jobs	30 minutes
Retail and Groceries			
UCI School of Ecology, <i>Metropolitan Futures Initiative 2017 Quarterly Report</i>	All Modes	Number of retail shops (including groceries)	1-mile radius
UC Davis Center for Regional Change, ROI (2016)	Not Specified	Percent of people living near supermarkets	1 mile (urban) or 10 miles (rural) radius
	Transit	Number of groceries accessible in Equity Focused Communities	30 minutes

Source	Travel Mode	Metric	Travel Cost Threshold
Center for Neighborhood Technology, <i>AllTransit Methods</i> (2019)	Transit	Number of farmers markets	30 minutes
SANDAG, <i>Social Equity: Engagement and Analysis</i> (2021)	All Modes	Percent of population with accessible retail	15 minutes (midday)
Schools			
Santa Barbara County Association of Governments (SBCAG), <i>Connected 2050</i> (2021)	All Modes	Percent of population in proximity to colleges/universities and K-12 schools	5 minutes
SANDAG, <i>Social Equity: Engagement and Analysis</i> (2021)	All Modes	Percent of working-age population (18+) with access to educational opportunities	30- and 45-minute AM peak
SACOG, <i>2020 MTP/SCS Environmental Justice Analysis</i>	Transit or Driving	Percent of population with access to higher education (not including vocational training centers or adult schools)	30 minutes
UCLA ITS, <i>Planning Performance Indicators: Access to Opportunity</i> (2022)	Transit	Number of schools accessible in Equity Focused Communities	30 minutes
UCI School of Ecology, <i>Metropolitan Futures Initiative 2017 Quarterly Report</i>	All Modes	Number of elementary and secondary schools	1-mile radius
Healthcare			
UC Davis Center for Regional Change, ROI (2016)	All Modes	Number of providers of basic medical services per 1,000 population	5-mile radius
SANDAG, <i>Social Equity: Engagement and Analysis</i> (2021)	All Modes	Percent of population of transit travel time to medical facilities	30 minutes midday
Local/County Park			
SANDAG, <i>Social Equity: Engagement and Analysis</i> (2021)	All Modes	Percent of population in proximity to active parks	15 minutes midday
SBCAG, <i>Connected 2050</i> (2021)	All Modes	Percent of population in proximity to parks or beaches	5 minutes
SACOG, <i>2020 MTP/SCS Environmental Justice Analysis</i>	Transit or Driving	Number of park acres by travel time	30 minutes

Source	Travel Mode	Metric	Travel Cost Threshold
Metropolitan Transportation Commission, <i>Plan Bay Area 2050, Equity Analysis Report</i> (2021)	All Modes	Healthy Access to Parks: urban park acres per 1,000 residents, disaggregated by geography	Acreage per 1,000 residents
Los Angeles County Department of Parks and Recreation, <i>Los Angeles Countywide Comprehensive Parks and Recreation Needs Assessment Plus</i> (2022)	All Modes	Regional recreation park acreage per 1,000 residents	Acreage per 1,000 residents
		Acres of nature-based recreation areas per 1,000 residents	
		Percentage of beach access points with a half-mile walk of a public transit stop	
		Acres of local parkland per 1,000 residents in a Rural Study Area	
California State Parks, <i>Parks for All Californians Park Access Tool</i> (2022)	All Modes	Living within a half mile of a park	Over a half mile from a park or open space
		Park acres per 1,000 residents	

Source: SCAG 2023

6.3.1 METHODOLOGY

Based on the literature review and feedback from the public outreach process, SCAG measured access between home and five destination types (i.e., jobs, shops, local and county parks, schools, and healthcare facilities) for auto, transit, bike, and walk modes given travel cost thresholds, summarized in Table 12.

Table 12. Travel Cost Thresholds

Accessibility To	Travel Mode	Travel Cost Threshold
Jobs (percent of regional employments)	Auto	15 mins during AM Peak (6 AM to 9 AM)
		30 mins during AM Peak (6 AM to 9 AM)
	Transit	15 mins during AM Peak (6 AM to 9 AM)
		45 mins during AM Peak (6 AM to 9 AM)
	Walk	0.5 miles, 0.75 miles, 1 mile
Bike	1 mile, 3 miles, 5 miles	
Shops (percent of regional retail establishments)	Auto	15 mins during Midday (9 AM to 3 PM)
	Transit	15 mins during Midday (9 AM to 3 PM)
		30 mins during Midday (9 AM to 3 PM)
	Walk	0.5 miles, 0.75 miles, 1 mile
Bike	1 mile, 3 miles, 5 miles	
Local/County Park (percent of population that can reach a public park)	Auto	15 mins during Midday (9 AM to 3 PM)
		30 mins during Midday (9 AM to 3 PM)
	Transit	15 mins during Midday (9 AM to 3 PM)
		30 mins during Midday (9 AM to 3 PM)
	Walk	0.5 miles, 0.75 miles, 1 mile
Bike	1 mile, 3 miles, 5 miles	
Schools (percent of regional K-12 schools)	Auto	15 mins during AM Peak (6 AM to 9 AM)
		30 mins during AM Peak (6 AM to 9 AM)
	Transit	15 mins during AM Peak (6 AM to 9 AM)
		30 mins during AM Peak (6 AM to 9 AM)
	Walk	0.5 miles, 0.75 miles, 1 mile
Bike	1 mile, 3 miles, 5 miles	
Health Care (percent of regional healthcare locations)	Auto	15 mins during Midday (9 AM to 3 PM)
		30 mins during Midday (9 AM to 3 PM)
	Transit	15 mins during Midday (9 AM to 3 PM)
		30 mins during Midday (9 AM to 3 PM)
	Walk	0.5 miles, 0.75 miles, 1 mile
Bike	1 mile, 3 miles, 5 miles	

For auto and transit modes, SCAG analyzed access to jobs and schools during the morning peak period (6 AM to 9 AM), when vehicular traffic tends to be the heaviest, and access to shops, healthcare facilities and parks during the midday period (9 am to 3 pm), when there are fewer transit options.

Travel time by transit considered factors incurred by riders that impact total travel time, such as the accumulation of initial wait time, transfer wait time, access walk time, egress walk time, transfer walk time, and in-vehicle time. In addition, accessibility is measured for all transit (bus and rail included).

For walking and biking modes, SCAG evaluated accessibility given a travel distance cost to the share of regional destinations reachable between work and home, retail stores and home, healthcare facilities and home, parks and home, and schools and home within 0.5 miles, 0.75 miles, and 1 mile for walking, and 1 mile, 3 miles, and 5 miles by bicycling.

For all modes, SCAG compares the modeled results from the Plan scenario against the Baseline scenario to assess the impacts from the Plan on communities, including Priority Equity Communities. Existing conditions for the Base Year are also presented to provide a context of accessibility as it stands in 2019.

This analysis relies on outputs from two types of models for different modes of travel. SCAG generated outputs for auto and transit modes using the Activity Based Model (ABM), which uses Transportation Analysis Zone (TAZ) geographies, and for bike and walk modes using the Scenario Planning Model (SPM), which uses Scenario Planning Zone (SPZ) geographies. SCAG’s modeling approaches are briefly described in Section 4 (Analytical Approach) of this report. The general procedures for generating job, shopping, schools, and healthcare accessibility based on mode type are described in Table 13.

Table 13. Steps to Develop Access to Jobs, Shopping, Schools, and Health Care by Mode

Auto and Transit using Activity Based Model	Biking and Walking using Scenario Planning Model
<ol style="list-style-type: none"> 1. Using SCAG’s Travel Demand Model, develop a TAZ-to-TAZ travel time matrix by mode as auto and all transit. 2. For each TAZ, identify the number of employments from SCAG’s 2024 RTP growth forecasting data and the number of retail, K-12 school, and healthcare destinations from InfoUSA 2020. 3. For each TAZ, select all the accessible TAZs within the given travel time constraints and add employments and retail/K-12 school/healthcare destinations within the accessible TAZs 4. For each TAZ, calculate accessibility measured by dividing accessible employments and retail/K-12 school/healthcare destinations within the given travel time constraints by total regionwide employments and retail/K-12 school/healthcare destinations. 5. Calculate a weighted average of the TAZ-level accessibility measures by each demographic group. 	<ol style="list-style-type: none"> 1. Using SCAG’s Scenario Planning Model, develop a SPZ-to-SPZ travel distance matrix by mode as walking and biking. 2. For each SPZ, identify the number of total employments from SCAG’s 2024 RTP growth forecasting data and the number of retail, K-12 school, and healthcare destinations from InfoUSA 2020. 3. For each SPZ, calculate accessibility measured by dividing accessible employment, retail, K-12 school, and healthcare destinations within the given travel distance constraints by the total regionwide employments, retail/K-12 school/healthcare destinations. 4. Summarize data at the TAZ level 5. Calculate a weighted average of the SPZ-level accessibility measures by each demographic group.

Source: SCAG 2023

Note that the analysis of employment does not examine the different levels of accessibility to higher income jobs and treats each job equally. For information on the availability of higher-earning employment opportunities in relation to affordable housing, please refer to Section 7.1 Jobs-Housing Imbalance.

For local and county parks, the approach is slightly different from other land uses. In this report, park accessibility is measured by the percent of a population that can access a park given a certain travel cost. SCAG determined park locations using the 2019 Existing land use dataset and the California Protected Areas Database (CPAD), filtering out private parks. SCAG isolated the TAZs (for auto and transit modes) and SPZs (for walk and bike modes) accessible to local parks for each travel cost threshold, summing the populations of SPZs to the TAZ level, to determine the number of each demographic cohort within the park-accessible TAZs. Then, SCAG calculated the percent of each demographic cohort living within a park-accessible TAZ by dividing by the total cohort population in the region. SCAG repeated this method for TAZs that have their geographic center within Priority Equity Communities using GIS and R programming language.

Due to the comprehensive nature of this analysis, the amount of data produced can be overwhelming and difficult to interpret. To focus the analysis on the impacts of the Plan, SCAG provided abbreviated tables in the results section, consolidating results that showed nominal or no changes.^x Summary tables in the following section include results for access to destinations within 30 minutes by auto (except shopping is measured with a 15-minute threshold), 30 minutes on transit (except jobs is measured with a 45-minute threshold), 5-miles of bicycling, and 1-mile of walking under the Base Year scenario and measuring Plan impact with the difference between the Plan and Baseline scenarios.

6.3.2 RESULTS

Figure 13 to Figure 17 present the share of the region's and priority population's access to everyday destinations under the Base Year scenario. Analysis of lower travel cost thresholds shows decreased access, as expected, and similar patterns to those presented here.

Access to destinations on a regional scale produces very small numbers. As expected, the share of regional destinations within walking distance is very low; about 0.02 percent of regional shopping, jobs, schools, and healthcare destinations can be reached by the overall population. The share increases with faster modes of transportation, with driving having the highest access to those four destination types and nearly 100 percent of the region can access a park within a 30-minute drive. Though not presented in these figures, access to shopping, jobs, schools, and healthcare within 15-minute transit was near zero for all populations.

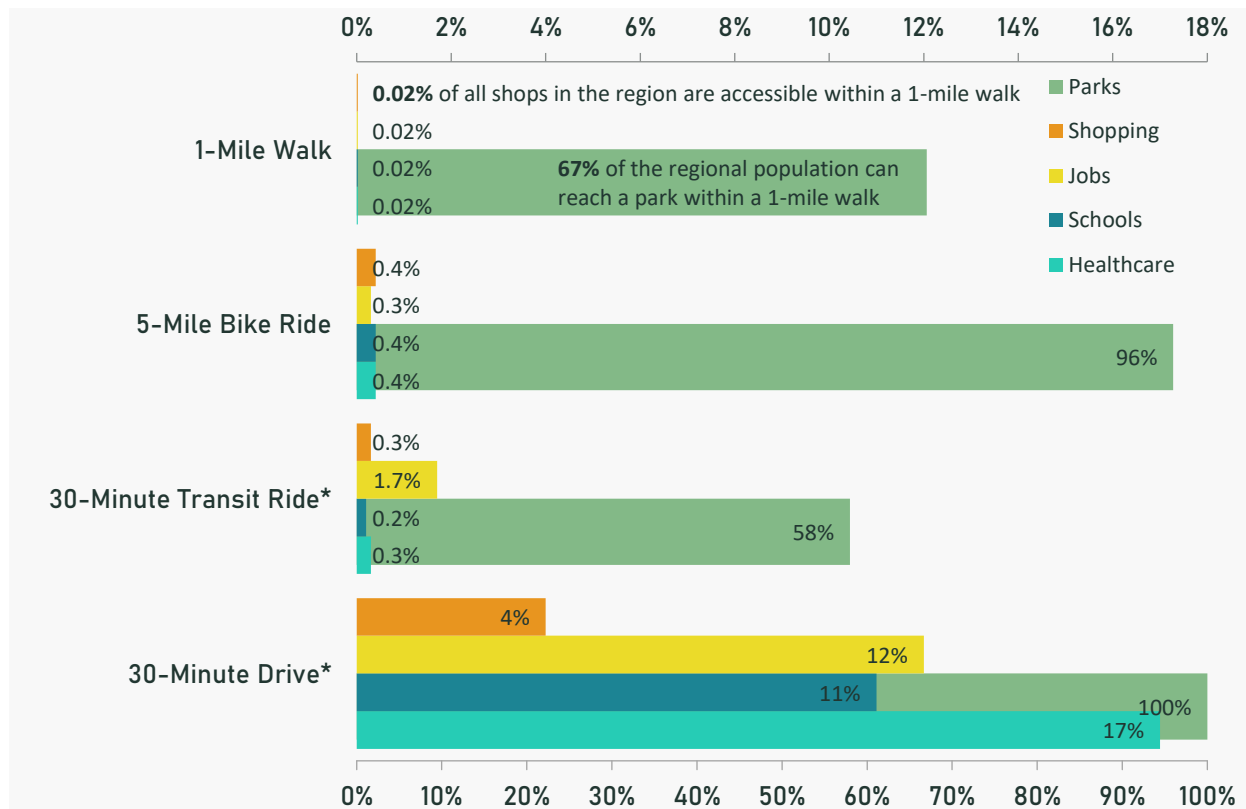
Figure 14 shows in the Base Year scenario, the Black population had elevated access to destinations via transit, followed by the Hispanic/Latino and Asian populations. Asian and Black populations had the greatest access to destinations via auto, where Native American populations had the lowest access. The Native American population also had the lowest access to destinations via biking, with Asian populations having the highest access to shopping, jobs, and healthcare via biking, relative to their share of the population, though the Black population had the highest access to schools via biking. Though there are very small differences between access to destinations via walking modes, the Asian population had the highest access to shopping and jobs; Black populations had highest access to schools; Asian, White, and Multiracial/Other populations had the highest walk access to healthcare; and Native American populations consistently had the lowest walk access to shopping, jobs, schools, and healthcare.

Figure 15 shows a consistently higher access to destinations for lower quintile groups among all modes. The trend is more prominent for transit, particularly access to jobs. There is also a slight “rebound” of increased access for the highest quintile for access to jobs and healthcare across all modes, except for transit, where Quintile 5 remained below Quintile 4.

Compared to the regional population, children under 20, older adults over 65 years old, and people with disabilities have lower access in all modes, particularly jobs and healthcare. Figure 16 also shows that zero-vehicle households have elevated access in all modes, with the highest walking access to shopping of any populations, with the ability to reach over 0.04 percent of all regional destinations within a 1-mile walk. This may be highlighting people who chose to not own a vehicle in lieu of the several other mode options available.

Figure 17 shows that most of the SCAG population can reach a park by auto or bike (over 99 percent for auto and over 95 percent for bike). Native American, White, Multiracial, and people of other races have slightly lower access to parks by all modes compared to the regional average. Black and Hispanic/Latino people have slightly better access to parks via transit compared to all other races. People in higher income quintiles are more likely to have better access to parks via bike and auto modes, whereas more people in lower income quintiles can reach a park via transit and walking. People of vulnerable ages and people with disabilities tend to have lower access to parks, particularly via transit and walking modes.

Figure 13. Base Year Access to Everyday Destinations for Regional Population

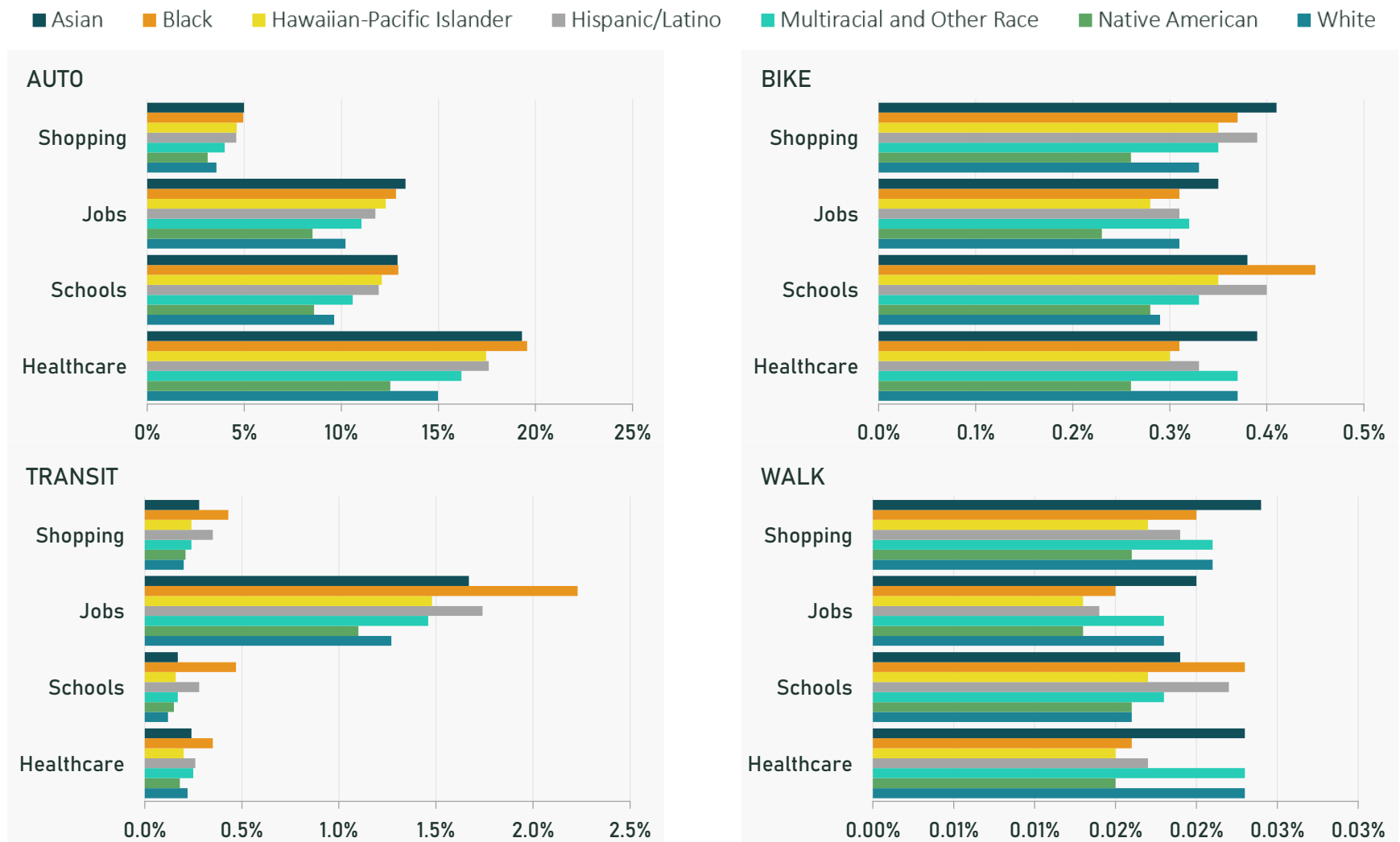


* Transit access to jobs is measured with a 45-minute threshold and auto access to shopping is measured with a 15-minute threshold.

Note: Park access is measured differently from the other destinations.

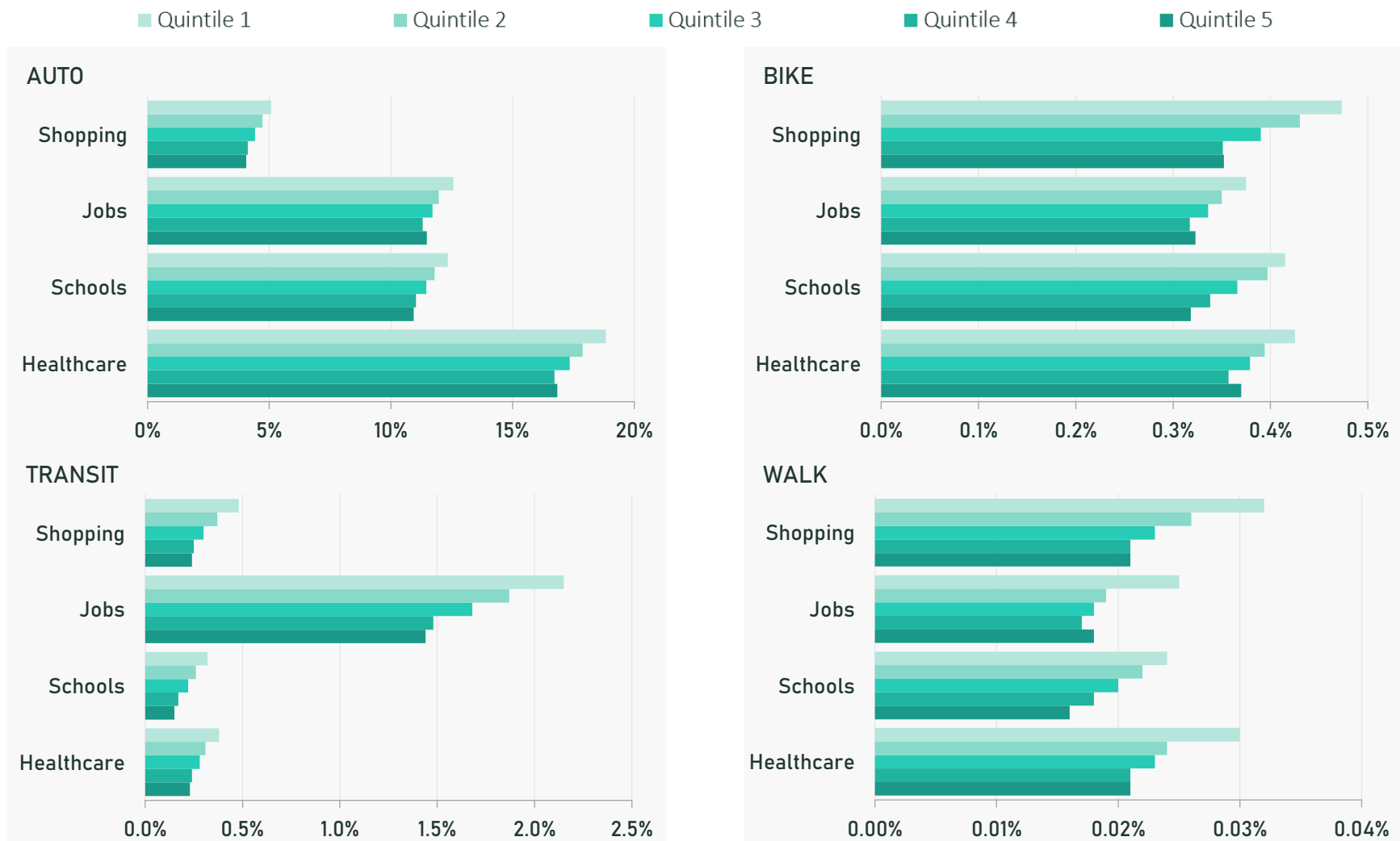
Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Figure 14. Base Year Access to Shopping, Jobs, Schools and Healthcare Destinations by Race and Ethnicity



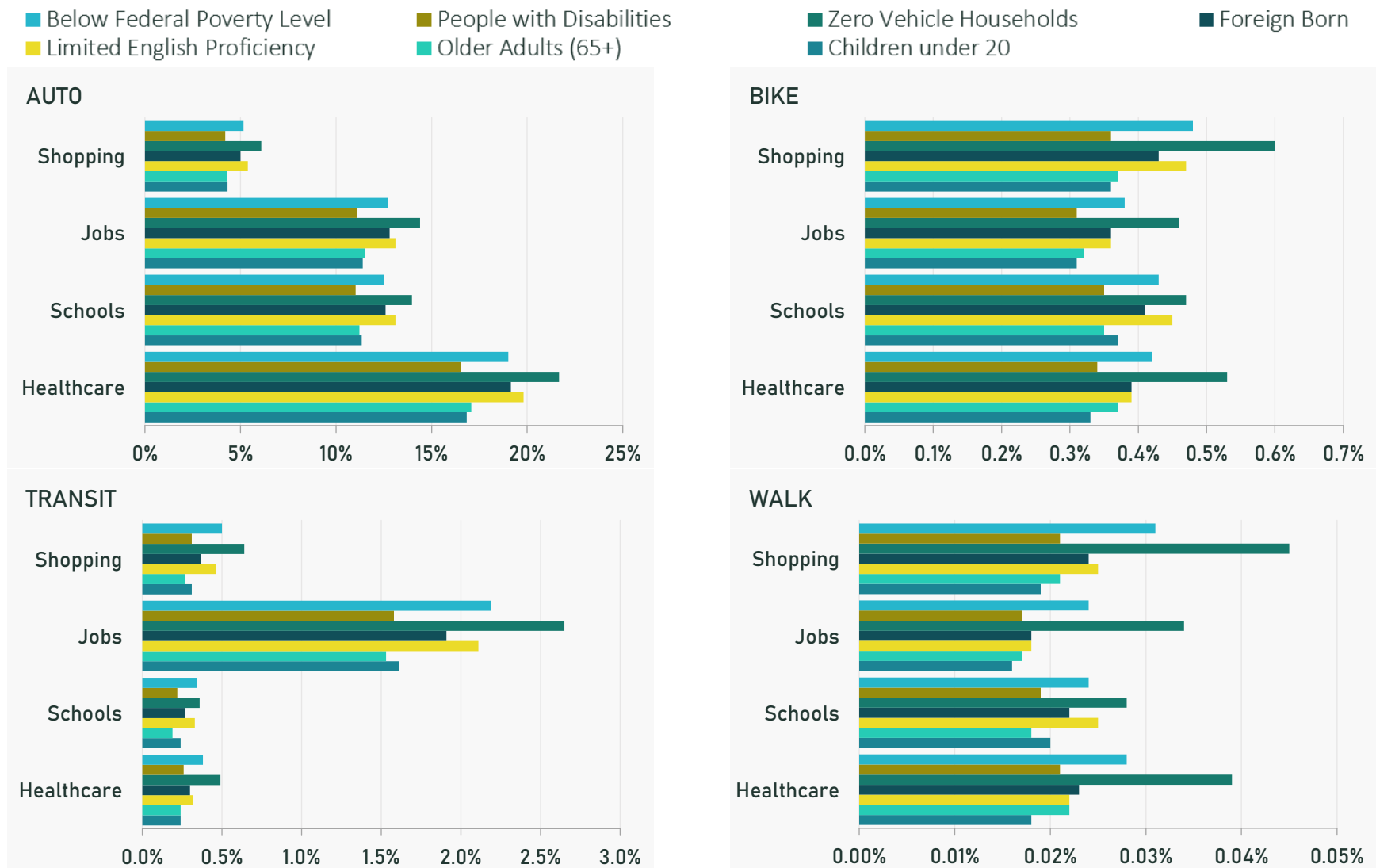
Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Figure 15. Base Year Access to Shopping, Jobs, Schools and Healthcare Destinations by Income Quintile



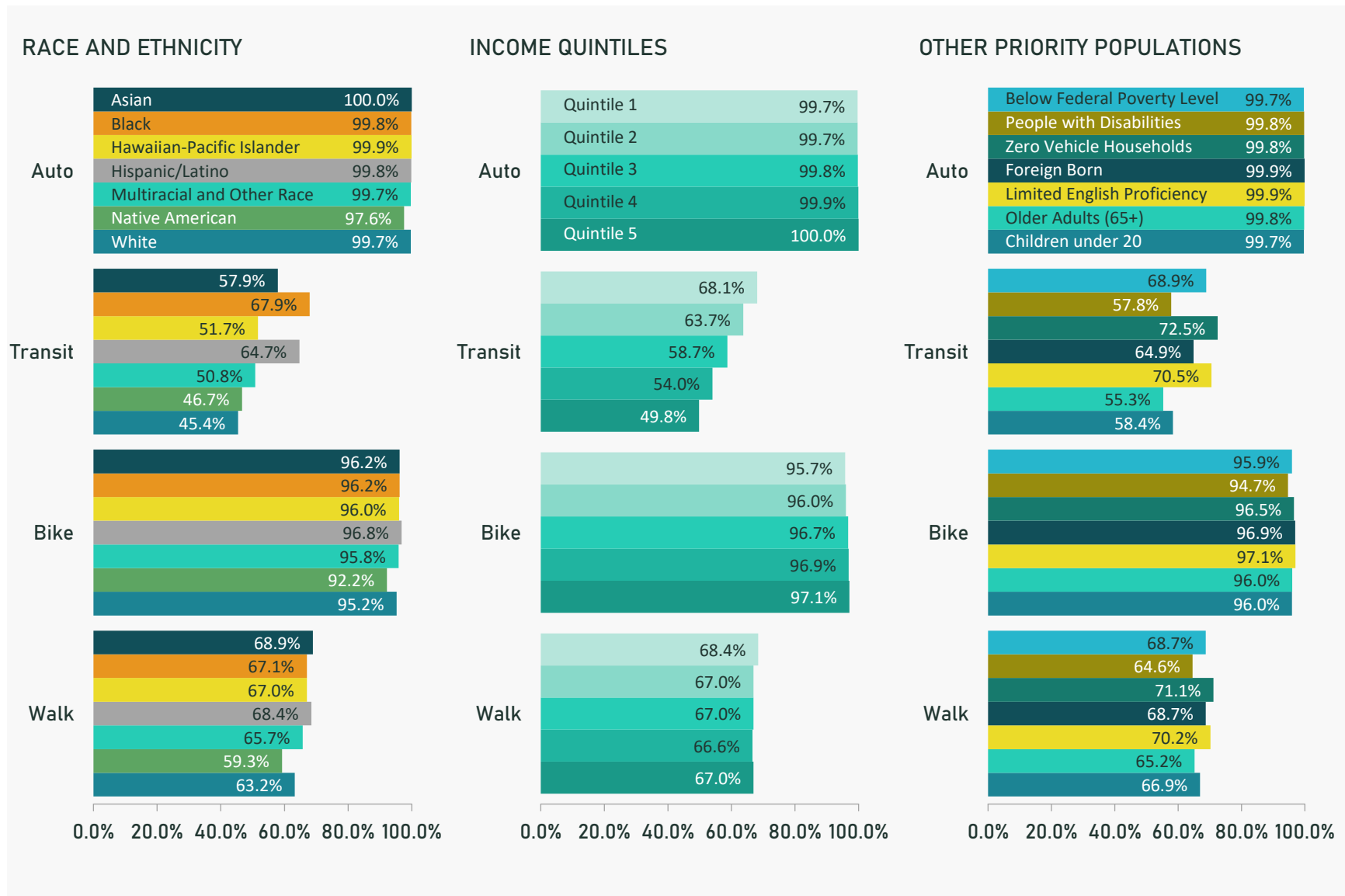
Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Figure 16. Base Year Access to Shopping, Jobs, Schools and Healthcare Destinations by Other Priority Populations



Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Figure 17. Base Year Access to Parks



Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Table 14 to Table 17 summarize the Plan's impact on access to each destination with the difference between the percentages of locations accessible in the Baseline and Plan scenarios at the regional level and for Priority Equity Communities. Table 18 shows the Plan's impact on access to parks with the difference between percentages of each cohort population that can access a park given a travel cost threshold in the Baseline and Plan scenarios at the regional level and for Priority Equity Communities.

With the implementation of the Plan, access to everyday destinations is expected to grow for every location and mode, except for a nominal decrease in auto access to parks, where access is already high and increases for Priority Equity Communities. Comparing the overall outcomes, the Plan impacts tend to improve the SCAG region more than Priority Equity Communities, though they are still expecting improvements. The SCAG region consistently sees better improvements in transit access to all destinations.

There are a few areas where specific populations see slight decreases in access:

- There is a slight decrease in auto access to jobs for the Black population in Priority Equity Communities.
- Access to schools via auto, bicycle, and walking see several very small decreases (0.01 to 0.1 percentiles) for Black and Native American people, and Older Adults in Priority Equity Communities.
- Access to healthcare via auto decreases for Black and Hispanic/Latino populations in Priority Equity Communities and access to healthcare via transit and active modes does not change or increases with the Plan in both Priority Equity Communities and the region.
- There are several decreases in access to parks in all modes, except transit where all populations in the region and Priority Equity Communities see improvements. The largest decreases in access to parks are for Hawaiian-Pacific Islander populations where the decrease in auto access in Priority Equity Communities exceeds the regional change; and for the Native American population where the decrease in bicycle and walking access in the region exceeds the decrease in Priority Equity Communities.

Overall, there are areas where the impacts of the Plan on access to everyday destinations land more heavily on priority populations, particularly auto access for lower income households and people of color. To mitigate this impact, there are several recommended strategies to improve access through transit-oriented development, and affordable and accessible transportation in Section 10. ERA Toolbox in this report.

Table 14. Plan Impact on Access to Shopping (Plan minus Baseline)

	Auto within 15 Minutes		Transit within 30 Minutes		Bicycle within 5 Miles		Walking within 1 Mile	
	SCAG	PEC	SCAG	PEC	SCAG	PEC	SCAG	PEC
Asian	0.7%	0.7%	0.3%	0.3%	0.06%	0.05%	0.01%	0.01%
Black	0.2%	0.0%	0.2%	0.3%	0.01%	0.00%	0.00%	0.00%
Hawaiian-Pacific Islander	0.7%	1.0%	0.2%	0.4%	0.06%	0.10%	0.00%	0.00%
Hispanic/Latino	0.2%	0.1%	0.2%	0.2%	0.01%	0.00%	0.00%	0.00%
Native American	0.2%	0.3%	0.1%	0.2%	0.00%	0.02%	0.00%	0.00%
White	0.3%	0.2%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Multiracial and Other Race	0.3%	0.2%	0.1%	0.2%	0.01%	0.01%	0.00%	0.00%
Quintile 1	0.4%	0.3%	0.3%	0.4%	0.04%	0.03%	0.01%	0.01%
Quintile 2	0.4%	0.3%	0.3%	0.3%	0.03%	0.02%	0.00%	0.00%
Quintile 3	0.4%	0.2%	0.2%	0.2%	0.03%	0.01%	0.00%	0.00%
Quintile 4	0.4%	0.3%	0.2%	0.2%	0.03%	0.01%	0.00%	0.00%
Quintile 5	0.4%	0.5%	0.2%	0.2%	0.03%	0.03%	0.00%	0.01%
Children under 20	0.3%	0.2%	0.2%	0.2%	0.01%	0.00%	0.00%	0.00%
Older Adults (65+)	0.3%	0.2%	0.2%	0.2%	0.01%	0.00%	0.00%	0.00%
Limited English Proficiency	0.3%	0.2%	0.2%	0.3%	0.01%	0.00%	0.00%	0.00%
Foreign-Born	0.4%	0.3%	0.2%	0.3%	0.02%	0.01%	0.00%	0.00%
Zero-Vehicle Households	0.5%	0.4%	0.5%	0.5%	0.05%	0.04%	0.01%	0.01%
People with Disabilities	0.3%	0.2%	0.2%	0.2%	0.01%	0.00%	0.00%	0.00%
Below Federal Poverty Level	0.4%	0.3%	0.3%	0.4%	0.03%	0.02%	0.01%	0.00%
Overall Population	0.4%	0.2%	0.2%	0.2%	0.03%	0.02%	0.00%	0.00%

PEC = Priority Equity Communities

Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Table 15. Plan Impact on Access to Jobs (Plan minus Baseline)

	Auto within 30 Minutes		Transit within 45 Minutes		Bicycle within 5 Miles		Walking within 1 Mile	
	SCAG	PEC	SCAG	PEC	SCAG	PEC	SCAG	PEC
Asian	2.0%	1.5%	0.9%	1.0%	0.05%	0.04%	0.01%	0.00%
Black	0.3%	-0.3%	0.9%	1.0%	0.01%	0.01%	0.00%	0.00%
Hawaiian-Pacific Islander	1.7%	1.3%	0.8%	1.2%	0.05%	0.08%	0.00%	0.01%
Hispanic/Latino	0.9%	0.5%	0.6%	0.6%	0.01%	0.00%	0.00%	0.00%
Native American	0.9%	1.1%	0.4%	0.6%	0.00%	0.02%	0.00%	0.00%
White	1.1%	0.9%	0.5%	0.5%	0.01%	0.00%	0.00%	0.00%
Multiracial and Other Race	1.0%	0.6%	0.6%	0.7%	0.01%	0.01%	0.00%	0.00%
Quintile 1	0.7%	0.3%	1.0%	1.0%	0.03%	0.03%	0.00%	0.00%
Quintile 2	0.9%	0.4%	0.9%	0.9%	0.02%	0.02%	0.00%	0.00%
Quintile 3	1.1%	0.6%	0.7%	0.7%	0.02%	0.01%	0.00%	0.00%
Quintile 4	1.4%	1.0%	0.6%	0.7%	0.02%	0.01%	0.00%	0.00%
Quintile 5	1.4%	1.2%	0.6%	0.8%	0.02%	0.03%	0.00%	0.00%
Children under 20	1.1%	0.5%	0.6%	0.7%	0.01%	0.01%	0.00%	0.00%
Older Adults (65+)	1.1%	0.7%	0.6%	0.7%	0.01%	0.01%	0.00%	0.00%
Limited English Proficiency	0.8%	0.4%	0.8%	0.8%	0.01%	0.01%	0.00%	0.00%
Foreign-Born	1.1%	0.7%	0.8%	0.8%	0.02%	0.01%	0.00%	0.00%
Zero-Vehicle Households	0.7%	0.1%	1.3%	1.3%	0.04%	0.04%	0.01%	0.00%
People with Disabilities	1.0%	0.6%	0.6%	0.7%	0.01%	0.01%	0.00%	0.00%
Below Federal Poverty Level	0.7%	0.3%	1.0%	1.0%	0.03%	0.02%	0.00%	0.00%
Overall Population	1.1%	0.7%	0.7%	0.7%	0.02%	0.02%	0.00%	0.00%

PEC = Priority Equity Communities

Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Table 16. Plan Impact on Access to Schools (Plan minus Baseline)

	Auto within 30 Minutes		Transit within 30 Minutes		Bicycle within 5 Miles		Walking within 1 Mile	
	SCAG	PEC	SCAG	PEC	SCAG	PEC	SCAG	PEC
Asian	2.0%	2.3%	0.2%	0.2%	0.03%	0.01%	0.00%	0.00%
Black	0.6%	-0.1%	0.2%	0.2%	0.00%	-0.01%	0.00%	0.00%
Hawaiian-Pacific Islander	1.8%	3.2%	0.1%	0.2%	0.03%	0.05%	0.00%	0.01%
Hispanic/Latino	1.0%	0.9%	0.1%	0.1%	0.00%	0.00%	0.00%	0.00%
Native American	0.9%	1.0%	0.1%	0.1%	0.00%	0.01%	0.00%	0.00%
White	1.0%	1.4%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Multiracial and Other Race	1.0%	1.2%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Quintile 1	0.8%	0.9%	0.2%	0.2%	0.01%	0.01%	0.00%	0.00%
Quintile 2	0.9%	0.9%	0.2%	0.2%	0.01%	0.00%	0.00%	0.00%
Quintile 3	1.1%	1.2%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Quintile 4	1.3%	1.2%	0.1%	0.1%	0.02%	0.00%	0.00%	0.00%
Quintile 5	1.3%	1.5%	0.1%	0.2%	0.01%	0.01%	0.00%	0.00%
Children under 20	1.1%	1.2%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Older Adults (65+)	1.1%	1.3%	0.1%	0.1%	0.01%	-0.01%	0.00%	0.00%
Limited English Proficiency	0.9%	1.2%	0.2%	0.2%	0.00%	0.00%	0.00%	0.00%
Foreign-Born	1.1%	1.3%	0.1%	0.2%	0.01%	0.00%	0.00%	0.00%
Zero-Vehicle Households	0.8%	0.8%	0.2%	0.2%	0.02%	0.01%	0.00%	0.00%
People with Disabilities	1.0%	1.1%	0.1%	0.1%	0.00%	0.00%	0.00%	0.00%
Below Federal Poverty Level	0.8%	1.0%	0.2%	0.2%	0.01%	0.00%	0.00%	0.00%
Overall Population	1.1%	1.3%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%

PEC = Priority Equity Communities

Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Table 17. Plan Impact on Access to Healthcare (Plan minus Baseline)

	Auto within 30 Minutes		Transit within 30 Minutes		Bicycle within 5 Miles		Walking within 1 Mile	
	SCAG	PEC	SCAG	PEC	SCAG	PEC	SCAG	PEC
Asian	2.8%	1.7%	0.2%	0.2%	0.04%	0.03%	0.00%	0.00%
Black	1.3%	-1.1%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Hawaiian-Pacific Islander	3.0%	4.2%	0.2%	0.3%	0.06%	0.08%	0.00%	0.01%
Hispanic/Latino	1.4%	-0.2%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Native American	1.1%	0.4%	0.1%	0.1%	0.00%	0.01%	0.00%	0.00%
White	1.4%	0.7%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Multiracial and Other Race	1.5%	0.6%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Quintile 1	1.8%	0.3%	0.2%	0.2%	0.02%	0.02%	0.00%	0.00%
Quintile 2	1.6%	0.1%	0.2%	0.2%	0.02%	0.01%	0.00%	0.00%
Quintile 3	1.7%	0.3%	0.2%	0.1%	0.02%	0.01%	0.00%	0.00%
Quintile 4	1.9%	0.1%	0.1%	0.1%	0.03%	0.01%	0.00%	0.00%
Quintile 5	1.9%	0.6%	0.1%	0.2%	0.02%	0.02%	0.00%	0.00%
Children under 20	1.6%	0.4%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Older Adults (65+)	1.6%	0.2%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Limited English Proficiency	1.5%	0.3%	0.1%	0.2%	0.01%	0.00%	0.00%	0.00%
Foreign-Born	1.8%	0.4%	0.1%	0.2%	0.02%	0.01%	0.00%	0.00%
Zero-Vehicle Households	2.1%	0.2%	0.3%	0.3%	0.03%	0.02%	0.00%	0.00%
People with Disabilities	1.5%	0.2%	0.1%	0.1%	0.01%	0.00%	0.00%	0.00%
Below Federal Poverty Level	1.8%	0.5%	0.2%	0.2%	0.02%	0.02%	0.00%	0.00%
Overall Population	1.8%	0.4%	0.1%	0.1%	0.02%	0.01%	0.00%	0.00%

PEC = Priority Equity Communities

Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

Table 18. Plan Impact on Access to Parks (Plan minus Baseline)

	Auto within 30 Minutes		Transit within 30 Minutes		Bicycle within 5 Miles		Walking within 1 Mile	
	SCAG	PEC	SCAG	PEC	SCAG	PEC	SCAG	PEC
Asian	-0.1%	1.6%	0.2%	0.3%	-0.1%	0.1%	0.2%	1.1%
Black	0.1%	-0.1%	0.8%	1.2%	0.8%	0.4%	0.8%	0.5%
Hawaiian-Pacific Islander	0.1%	-2.7%	0.4%	0.5%	1.9%	0.7%	1.9%	-0.7%
Hispanic/Latino	0.1%	1.5%	0.7%	0.7%	0.3%	0.1%	0.3%	-0.1%
Native American	-0.2%	-2.6%	0.3%	0.3%	-2.2%	-0.5%	-1.9%	1.0%
White	-0.3%	1.0%	0.3%	0.3%	0.0%	0.7%	0.2%	0.3%
Multiracial and Other Race	-0.1%	1.2%	0.2%	0.3%	0.1%	0.3%	-0.1%	-0.4%
Quintile 1	0.1%	0.9%	1.3%	1.0%	0.4%	0.4%	0.4%	0.5%
Quintile 2	0.1%	1.2%	0.7%	0.6%	0.4%	0.2%	0.3%	-0.2%
Quintile 3	0.1%	1.5%	0.5%	0.4%	0.4%	0.1%	0.0%	-0.3%
Quintile 4	0.0%	1.9%	0.3%	0.3%	0.3%	0.0%	0.2%	0.0%
Quintile 5	-0.4%	1.3%	0.2%	0.3%	-0.3%	-0.1%	-0.3%	-1.0%
Children under 20	-0.2%	1.2%	0.5%	0.6%	0.2%	0.3%	0.3%	0.4%
Older Adults (65+)	0.1%	1.3%	0.5%	0.5%	0.4%	-0.1%	0.4%	-0.5%
Limited English Proficiency	0.0%	0.6%	0.7%	0.7%	0.1%	0.0%	0.0%	-0.1%
Foreign-Born	-0.1%	1.1%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%
Zero-Vehicle Households	0.1%	0.2%	1.1%	0.6%	0.4%	0.3%	0.0%	-0.2%
People with Disabilities	0.2%	0.9%	0.6%	0.7%	0.4%	0.4%	0.4%	0.0%
Below Federal Poverty Level	0.0%	1.1%	1.2%	0.9%	0.2%	0.4%	0.4%	0.4%
Overall Population	-0.1%	1.3%	0.5%	0.5%	0.2%	0.2%	0.3%	0.1%

PEC = Priority Equity Communities

Source: SCAG Travel Demand Model, Scenario Planning Model, and Regional Growth Forecast

6.4 BICYCLE AND PEDESTRIAN COLLISIONS

Promoting a healthier and more active lifestyle in our communities is a key objective for Connect SoCal 2024. In addition to the positive health outcomes of physical activity, walking and biking can potentially reduce vehicular trips, which reduce VMT and GHG emissions. Despite the benefits of active travel, bicycle and pedestrian fatalities are a significant public health challenge for the region.

According to SCAG's 2021 Transportation Safety Regional Existing Conditions Report, on average, 1,450 people are killed, 5,500 are seriously injured, and 124,000 are injured in traffic collisions each year in Southern California.^{xi} Collisions are happening to people from all walks of life to those who drive and disproportionately, to those who walk and bike. In 2019, most collisions in the region occurred in urbanized areas and urban clusters, primarily on local roads.

Using collision data from the Statewide Integrated Traffic Records System (SWITRS) and annual VMT data from Highway Performance Monitoring System (HPMS), Table 19 summarizes the latest outcome for the five safety performance measures SCAG monitored during 2019.

Table 19. Transportation-Related Fatalities and Serious Injuries in SCAG Region, 2019

	Fatalities	Rate of Fatalities per 100 million VMT	Serious Injuries	Rate of Serious Injuries per 100 million VMT	Non-motorized Fatalities & Serious Injuries
Imperial	32	1.29	127	5.12	14
Los Angeles	724	0.94	3,858	4.98	1,473
Orange	180	0.67	775	2.9	269
Riverside	288	1.35	1,030	4.84	197
San Bernardino	328	1.44	1,058	4.64	240
Ventura	49	0.75	314	4.82	68
SCAG Region	1,601	1.02	7,162	4.55	2,261

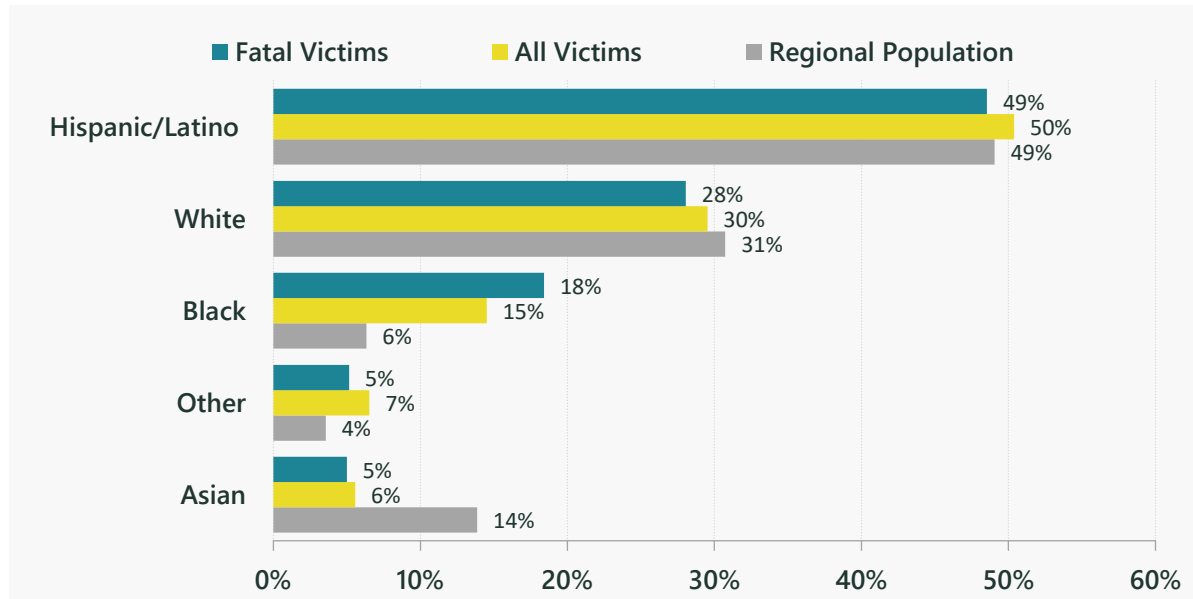
Source: SWITRS and HPMS

SCAG's Regional High Injury Network (HIN) shows that 65 percent of all fatal and serious injuries occurred on just 5.5 percent of the regional transportation network. There are many causes for collisions, but unsafe speed was a top contributing factor of collisions, accounting for about 18 percent of fatalities in the region in 2019. Across the region, people of color were overrepresented as fatal and serious injury victims compared to their proportion of the region's population. Most notably, in 2019, 10 percent of fatal and serious injury victims were Black, even though Black people only represent about 6 percent of the region's population.

SCAG's 2021 Transportation Safety Regional Existing Conditions Report and several other studies document the disproportionate representation of historically disadvantaged populations in active transportation collisions. Figure 18 illustrates the breakdown of race/ethnicity by the severity of injury and compares the outcomes to their share of the population. Data for this table is sourced from UC Berkeley's Transportation Injury Mapping System (TIMS)^{xii}, which geocodes the SWITRS data. Note that there are limitations to the SWITRS data source, most notably that race is determined for only one person for each party involved by the reporting sheriff (i.e., not self-reported). Overall, people of color, including "other" (i.e., Native American, Native Hawaiian/Pacific Islander, some other race alone, and two or more races)

were overrepresented in fatal and serious injuries. Understanding this existing condition, this analysis focuses on how the Plan confronts these inequities through projects and strategies.

Figure 18. Bicyclist and Pedestrian Injuries and Fatalities by Race and Ethnicity



Source: TIMS 2021, U.S. Census Bureau ACS, 2017-2021

6.4.1 METHODOLOGY

To evaluate the Plan’s impacts on active transportation collisions, this analysis evaluates the overlap of the bicycle and pedestrian modes of the Regional HIN with Priority Equity Communities and compares where safety-focused projects are planned.

SCAG’s Regional HIN is a network of corridor-level road segments where the highest concentrations of serious and fatal collisions occurred between 2015 and 2019. Segments are included in the Regional HIN based on the number of victims per roadway-mile for automobile, bicycle- and pedestrian-involved collisions until 65 percent of victims throughout each county is reached. More details about the development of the Regional HIN are available on the SoCal Transportation Safety Resource Hub.^{xiii} Focusing on the Bicycle and Pedestrian HINs, this analysis uses GIS software to calculate the percentage of these HINs that fall entirely or partially within a census tract designated as a Priority Equity Community. The measure also includes HINs within 250 feet of the census tracts to account for the fact that census tract boundaries run along roads and may not overlap with the road’s centerline. The approximate diagonal distance across a large intersection is 250 feet, which is a standard buffer distance for intersection safety screening.

SCAG also used GIS software to estimate the percentage of lane miles in the bicycle and pedestrian modal networks of the Regional HIN that may be improved by Project List projects with safety, bicycle, and/or pedestrian improvements. SCAG defined “planned safety projects” as (1) projects with a project description or program code description with “safe,” “ped,” “bicycle,” or “bike,” and (2) projects that partially or fully support progress towards federal performance targets for safety (PM 1). SCAG selected

HIN segments within 250 feet of the planned safety projects of the Draft 2024 transportation network and summed the lane miles from the Regional HIN.

6.4.2 RESULTS

Map 5 illustrates the regional concentration of bicycle and pedestrian collisions occurring within a 5-year spread (2015-2019) HIN with Priority Equity Communities. Table 20 provides a summary of the bicycle and pedestrian modal networks of the Regional HIN within Priority Equity Communities and the region.

Overall, approximately 69.5 percent of all HIN segments are within or adjacent to Priority Equity Communities. Approximately 72 percent of the Bicycle HIN and 80 percent of the Pedestrian HIN are within or adjacent to Priority Equity Communities. Though the planned safety projects only cover about 13 percent of the bicycle and pedestrian modal networks of the Regional HIN, over three quarters of these lane miles are located within Priority Equity Communities.

Table 20. Planned Safety Projects on the High Injury Network (HIN)

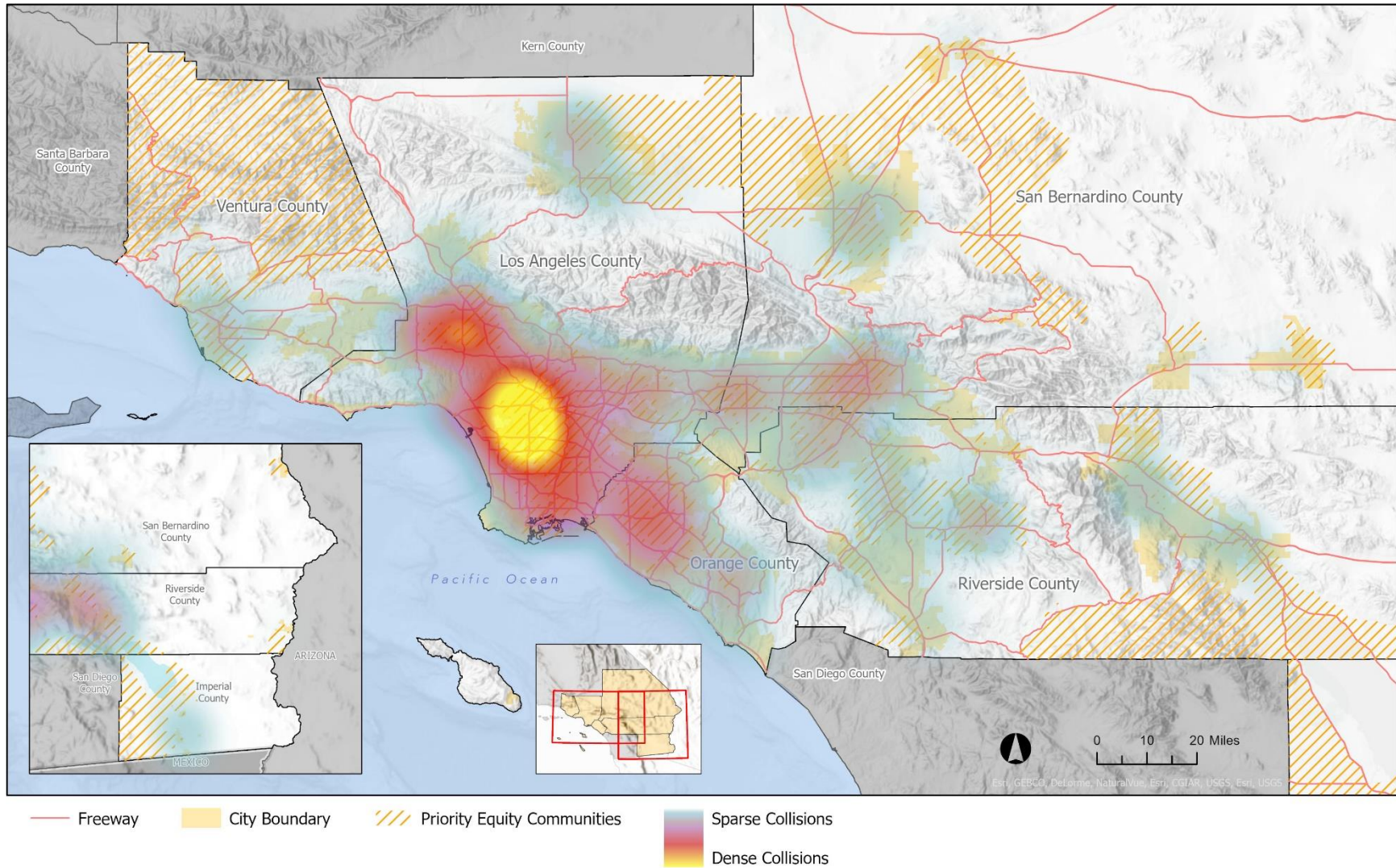
	Bike HIN			Pedestrian HIN			All HIN		
	SCAG	PEC	%	SCAG	PEC	%	SCAG	PEC	%
Total Lane Miles	904.7	650.7	72%	1795.2	1438.1	80%	4813.8	3345	69%
Lane Miles Covered by Planned Safety Projects	117.2	89.7	77%	246.9	217.7	88%	641.6	501.5	78%

PEC = Priority Equity Communities

Source: SCAG 2023

The existing conditions results show that there is an equity issue within these hotspots of active transportation-related collisions in the region. SCAG includes safety strategies in Connect SoCal 2024 to address these inequities, like data-driven approaches to guide transportation safety and security investment decision-making, including the development of High Injury Networks and innovative safety modeling tools. Other existing programs, including SCAG’s *GoHuman* campaign and *Toward-Zero-Death*, can also help work towards more equitable outcomes in the region. *GoHuman* is a community outreach and advertising campaign focused on regional bicycle and pedestrian safety. *Toward-Zero-Death* is a national strategy on highway safety to advocate for eliminating serious injuries and deaths on our nation’s roadways. Please refer to the ERA Toolbox for strategies to reduce the risk for active transportation users. For additional information related to transportation safety, please visit SCAG’s SoCal Transportation Safety Resource Hub, a centralized source of information on SCAG’s transportation safety programs, data, reports and resources.^{xiv}

Map 5. Bicycle and Pedestrian Collisions with Priority Equity Communities



Source: SCAG 2023

7. ANALYSIS: COMMUNITIES

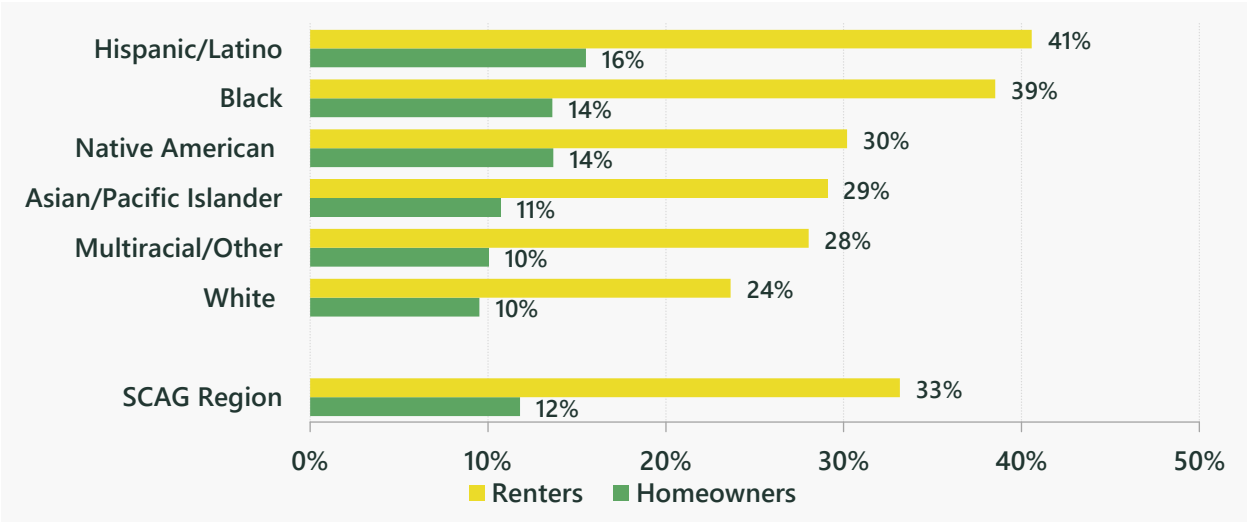
This section includes a description of existing conditions for communities indicators in the SCAG region, including housing cost burden, housing quality, overcrowding, homeownership, homelessness, and broadband access by race and ethnicity. Community performance measures include Jobs-Housing Imbalance, Neighborhood Change and Displacement, and Rail-Related Impacts. Each measure includes a description of why the measure is relevant, the methodology, and the results of the analysis.

Connect SoCal 2024 charts a path toward a more mobile, sustainable, and prosperous region, and includes the goal of developing more healthy and complete communities. Analysis of regional conditions reinforces the fact that where a person lives matters. Households that are housing-cost burdened are also at an increased risk of living in poor quality housing, overcrowded housing, and living in housing located near high-volume roadways, as these options are typically less expensive. All these situations increase the risk of negative health outcomes. The cost of housing can force people to live in unsafe or poor-quality housing that can expose residents to toxins and other conditions that may be harmful to public health.

Low-income households that are housing-cost burdened often spend less on food and healthcare, which can result in increased negative health outcomes. Cost burdened households also tend to be in areas that may be lower cost but have longer commute times to jobs and urban centers with job opportunities. This causes increased transportation-related costs, resulting in households having less to spend on food and healthcare.

In Figure 19, housing cost burden is referred to as households that spend 30 percent or more of their household income on rent- and housing-related costs and make less than 200 percent of the Federal Poverty Line. When compared to White households, all other racial and ethnic households experienced greater housing burdens regardless of whether they rent or own their own homes. Compared to other racial and ethnic groups, Hispanic/Latino households experienced the greatest housing burdens, regardless of whether they rent or own their homes. Finally, a higher percentage of Black and Hispanic/Latino renters and homeowners experience housing burden compared to other renters and homeowners within the SCAG region.

Figure 19. Renters and Homeowners Experiencing Housing Cost Burden by Race and Ethnicity

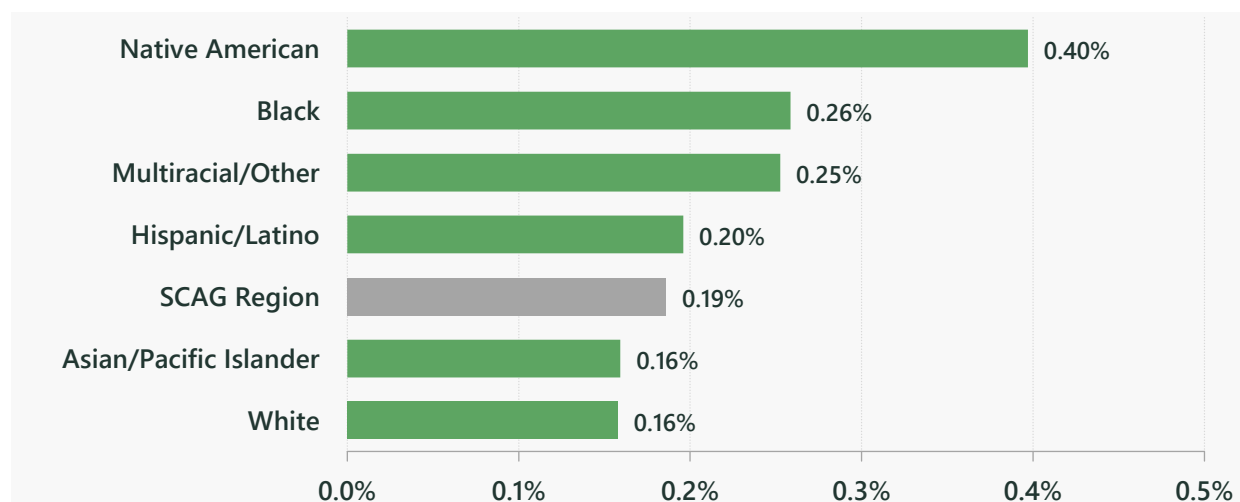


Source: U.S. Census Bureau ACS PUMS, 2017-2021

In addition to the affordability of housing, the essential amenities offered by a housing unit matter greatly in being able to maintain sanitation and quality of life. The availability of plumbing facilities, which include hot and cold running water, a flush toilet, and a bathtub or shower, provides insight into who has access to necessary sanitation that helps keep residents safe and healthy. In addition, families living without proper kitchen facilities, which include a sink with running water, a stove or range, and a refrigerator, are less likely to prepare nutritious food and maintain adequate sanitation, which may lead to increased food insecurity and poorer health outcomes.

Figure 20 shows the percentage of individuals living in housing units without complete kitchen and plumbing facilities. Native American people (0.4 percent) were most likely to live in a housing unit without complete kitchen and plumbing facilities compared to all other racial and ethnic groups. Furthermore, Native American, Black, Multiracial/Other, Hispanic/Latino people groups had higher proportions of people in poor quality housing compared to the 0.19 percent regional average and Asian/Pacific Islander and White individuals (both 0.16 percent).

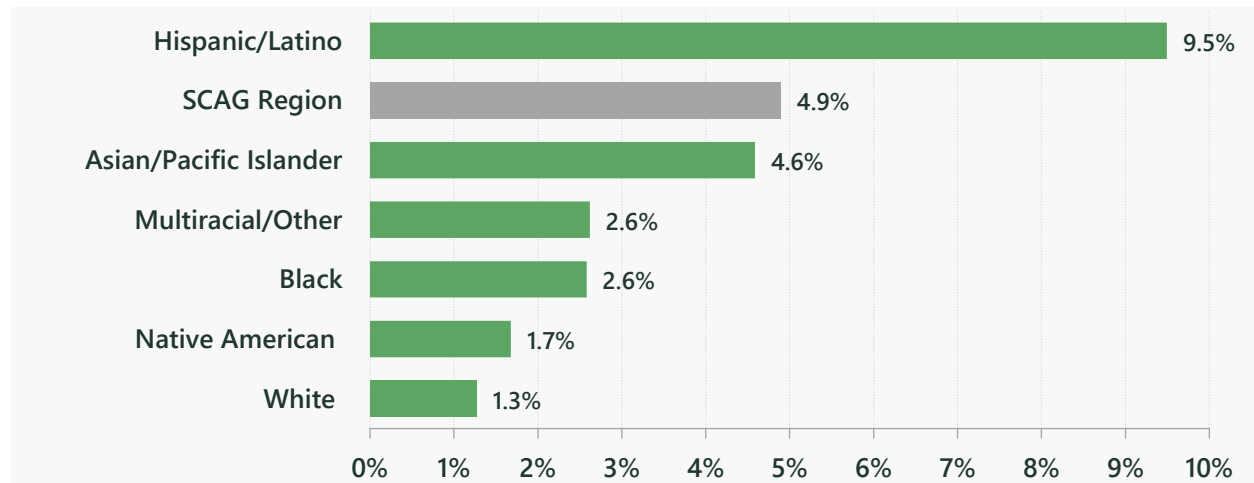
Figure 20. People Living in Households Without Kitchen and Plumbing Facilities by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

Overcrowded housing is a public health issue, as it increases the risk of infection from communicable diseases, the prevalence of respiratory issues, and vulnerability to homelessness. The Census Bureau notes that persons-per-room is a common measure for assessment of severe overcrowding in housing and 1.5 is a widely accepted threshold above which there are impacts on health and personal safety. In Figure 21, severe overcrowding is measured as the percentage of householders that have more than 1.5 persons per room (excluding bathrooms and kitchens). Hispanic/Latino householders were twice as likely to experience overcrowding compared to other racial and ethnic groups in the region. In comparison to White householders, a higher percentage of all other racial and ethnic group householders experienced severe overcrowding.

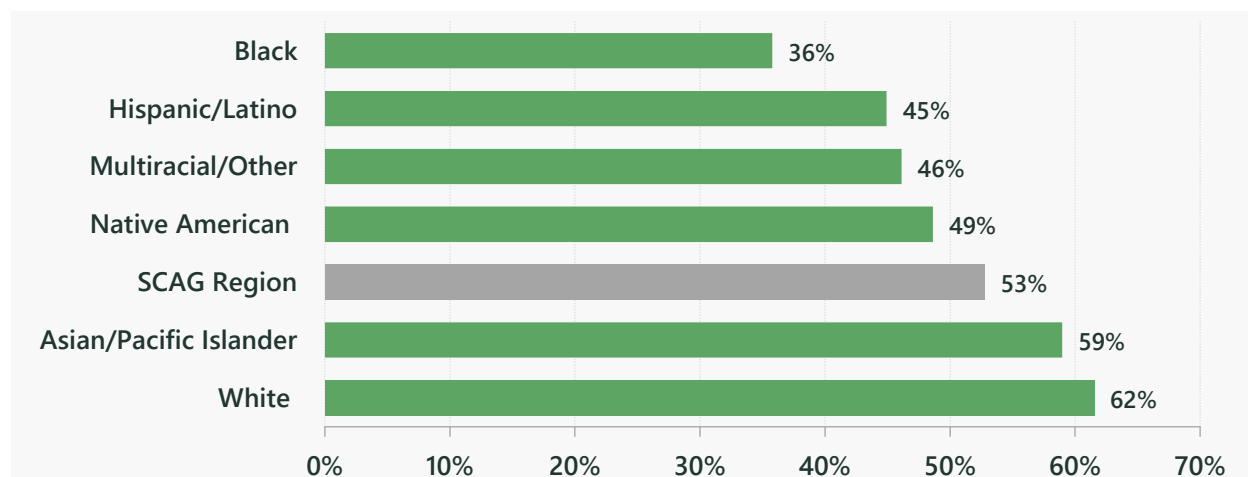
Figure 21. Households with Severe Overcrowding by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

Homeownership is a significant contributor to wealth building. Due to a history of restrictive covenants and discriminatory lending practices, many households of color have been locked out of owning a home and thus an opportunity to maintain and increase wealth between generations. The Great Recession of 2008 and the COVID-19 pandemic exacerbated many existing inequities and set back communities of color in both homeownership rates and household wealth. In Figure 22, homeownership is defined as the percentage of owner-occupied households as opposed to rented households and is computed by dividing the number of owner-occupied households by the total number of occupied households. Higher percentages of White homeowners (62 percent) and Asian/Pacific Islander homeowners (59 percent) own their homes compared to all other racial and ethnic groups. The Black homeownership rate (36 percent) is the lowest of all racial and ethnic groups and notably 26 percentage points behind White homeowners.

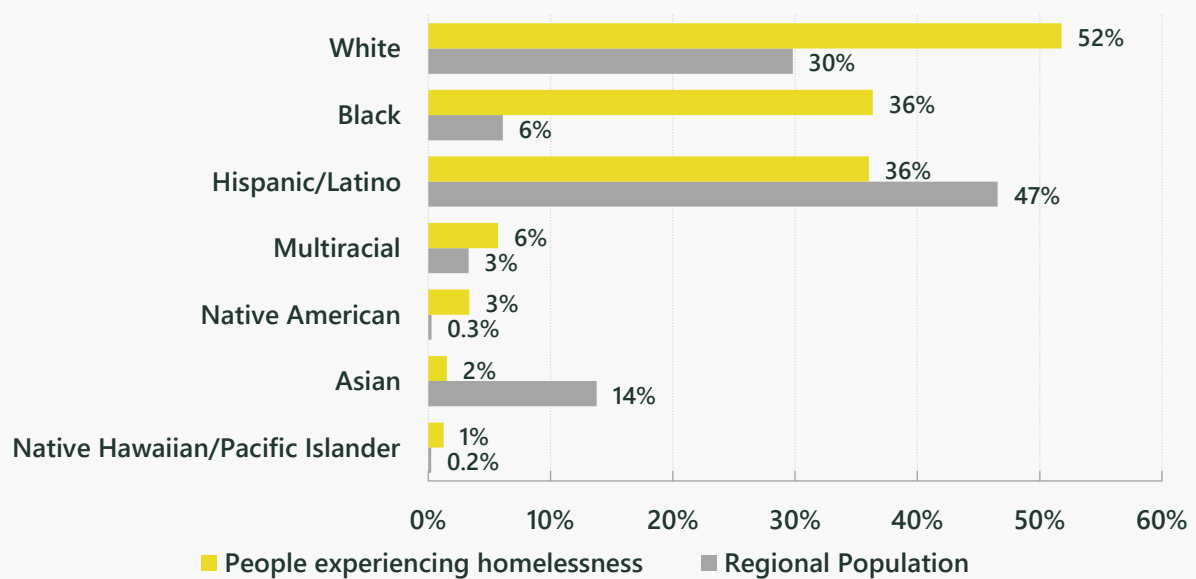
Figure 22. Homeownership by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

Homelessness is a pressing issue in the SCAG region, given the magnitude of cost burdened and low-income households. Data on homelessness are based on annual Point-in-Time Counts conducted by Continuums of Care (CoCs) to estimate the number of people experiencing homelessness on a given night compiled by the U.S. Department of Housing and Urban Development (HUD). According to the latest full counts (sheltered and unsheltered) from January 2022, there were 84,816 people experiencing homelessness in the SCAG region.^{xv} For Figure 23, SCAG summed the race/ethnicity figures for the nine CoCs in the region and compared them to 2019 estimates from the Regional Growth Forecast. The figure shows that Native American people experiencing homelessness represent over 13 times the share of the regional population. Black (6x), Native Hawaiian/Pacific Islander (5.5x), Multiracial (1.7x), and White (1.7x) people also have disproportionate shares of people experiencing homelessness compared to their regional share. SCAG used 2019 data for this comparison as 2022 census data was not available for comparison at the time of writing, and 2020 and 2021 had incomplete counts due to COVID-19. More data on the trends of homelessness is explored in the Housing Technical Report.

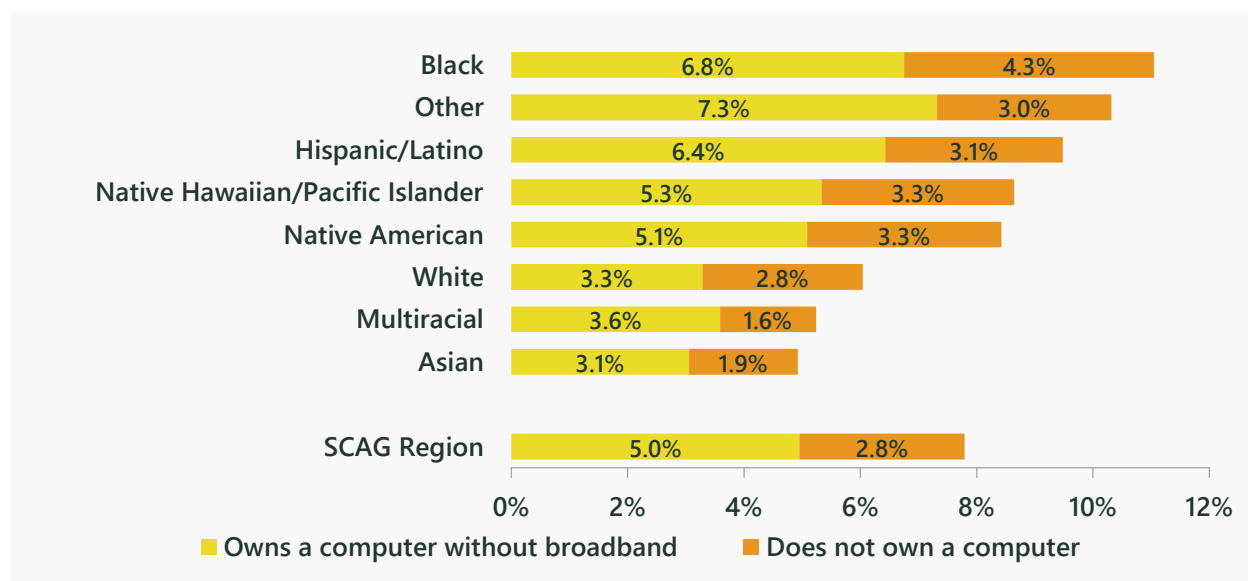
Figure 23. People Experiencing Homelessness in the SCAG Region, 2019



Source: U.S. HUD, 2022 Annual Homeless Assessment Report, 2007-2022 PIT Estimates by CoC. SCAG Regional Growth Forecast

Participating in digital activities is vital for someone to fully participate in society. Yet, a sizable portion of our population does not have access to broadband, devices, or digital literacy. Those who do not have access tend to reside in low-income or rural areas, be persons of color, be older adults, have limited English proficiency, and/or have a disability. While this is not a new phenomenon, the growing gap became especially apparent during the COVID-19 pandemic when those who were unconnected faced severe disadvantages in accessing healthcare services, food services, telework, and e-learning. This is what is known as the digital divide. In Figure 24, households without broadband access are defined as the percentage of individuals living in households without a computer, or with a computer without broadband (high speed) internet service (wired or wireless) within minimum speeds of at least 25/3 Mbps. This assessment shows that Black households (4.3 percent) are most likely to not own a computer. Asian, Multiracial, and White households had the highest access to high-speed internet.

Figure 24. People Living in Households without Broadband Access by Race and Ethnicity



Source: U.S. Census Bureau ACS, 2017-2021

In April 2023, SCAG’s Regional Council approved Resolution No. 23-654-4, formalizing a Digital Action Plan which lays out actions the agency will take to provide digital accessibility and in turn foster an equitable, prosperous, and resilient region for all residents.^{xvi} The Digital Action Plan is divided into four major goals, each with strategies, guiding principles and supporting actions.

1. Accessibility and Affordability: Every household in the region should have access to affordable high-speed broadband services and high-quality devices.
2. Adoption: All residents should have the confidence and skills to participate in digital activities.
3. Consensus: Build partnerships and reach a consensus that high-quality and affordable broadband is an essential service to everyone and provides economic, environmental and safety benefits to the region.
4. Planning: Develop broadband technical tools and studies which provide value to the region.

The equity performance measures included in this section cover the changes expected in communities because of the distribution of housing and jobs, displacement risk, and rail-related impacts as a result of the projects and recommended policies in Connect SoCal 2024. Further analysis on these topics can also be found in the Housing and Goods Movement Technical Reports.

7.1 JOBS-HOUSING IMBALANCE

Among planners and policymakers, the imbalance of jobs and housing is considered one of the key contributors to traffic congestion and air pollution, and an impediment to EJ. A proper balance of housing and jobs can help people live close to their workplace, thus reducing overall congestion, VMT, and GHG emissions. From an economic point of view, transportation and driving are expensive; workers without a car or people who cannot afford a vehicle have to either live close to their jobs where they can have access to transit or can walk or bike. Moreover, since long-distance commuting is expensive, people do not do it unless they own a dependable vehicle, can access fast and cheap transit, or have a well-paying job.

From an equity perspective, it is important to ensure low-wage jobs-housing fit because of ongoing difficulties with affordable housing provision. In addition to regional equity, ensuring a low-wage jobs-housing fit can contribute to environmental benefits and GHG emission reduction, given low-income households on average drive older and less fuel-efficient cars.

Table 21 identifies the median wages for intercounty and intra-county commuters using the most recent ACS data available. These statistics indicate that most inter-county commuters command higher wages than those commuters who work and live in the same county. Those commuters also command wages higher than workers who work and reside in their destination work counties.

Table 21. Median Wage for Workers by Place of Residence and Place of Work (2021 Dollars)

Place of Residence	Place of Work					
	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura
Imperial	31,594	-	-	31,594	-	-
Los Angeles	49,189	41,197	43,724	44,231	38,258	50,550
Orange	-	65,940	46,347	63,705	67,058	44,962
Riverside	69,583	59,949	51,496	35,636	45,497	63,188
San Bernardino	-	53,343	52,657	42,820	34,753	53,526
Ventura	-	68,454	94,006	-	90,994	40,117

Note: CPI adjusted to \$ in 2021; '-' indicates sample size is too small for the analysis

Source: U.S. Census Bureau ACS PUMS, 2017-2021

In this report, SCAG analyzed median commute distance, job-to-worker ratio by wage, and jobs-housing ratio and low-wage jobs-housing fit (JHFIT). The research question of this study is whether there are significant differences in commute distance, job-to-worker ratio and jobs-housing ratio (1) between different income levels, (2) between coastal counties (Los Angeles and Orange Counties) and inland counties (Riverside and San Bernardino Counties), and (3) between temporal periods.

7.1.1 METHODOLOGY

In this analysis, SCAG examined historical trends using the U.S. Census Bureau’s Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES). The LODES files are organized into three types: Origin-Destination, Residence Area Characteristics, and Workplace Area Characteristics, all at census block geographic detail. SCAG used the LODES 8.0 Origin-Destination data file for the years 2002-2019.

For the median commute distance analysis, SCAG aggregated LODES block-level statistics to the census tract level to estimate the median commute distance between origin and destination tracts by wage in each county. The distance measured is the Euclidean distance, or distance measured “as the crow flies” between the centroid of an origin tract and the centroid of a destination tract and is therefore shorter than the actual commute distance incurred by travelers.

For the job-to-worker ratio analysis, SCAG obtained job data from the LODES Workplace Area Characteristics Primary Jobs data files and worker data from the LODES Residence Area Characteristics

Primary Jobs data files. Given individual census tracts are often relatively too small to represent proper commute distance, SCAG developed a reasonable commute distance buffer around census tracts. Since this analysis is focusing on whether jobs and workers are relatively balanced at the neighborhood level, SCAG used a 2.5-mile buffer (the approximate average of walk- and bike-commute distances) from the centroids of the census tracts and counted jobs and workers within the buffer distance.

For the JHFIT analysis, SCAG applied a methodology that characterizes low-wage jobs-housing fit at both a jurisdiction and the census tract scale (roughly equivalent to a neighborhood), by examining a ratio between the total number of low-wage jobs and the total number of affordable rental units. In contrast to overall jobs-housing balance, the low-wage fit analysis helps highlight jurisdictions and neighborhoods where there is a substantial shortage of affordable housing in relation to the number of low-wage jobs.

Using job numbers from LODES Workplace Area Characteristics Primary Jobs data files, staff extracted the low-wage job numbers with earnings of \$1,250/month or less, which is equivalent to \$15,000/year for someone working for 12 full months. In this section, SCAG defines low, medium, and high wages according to the following thresholds:

- **Low Wage:** jobs with earnings \$1,250/month or less
- **Medium (Med.) Wage:** jobs with earnings \$1,251/month to \$3,333/month
- **High Wage:** jobs with earnings greater than \$3,333/month

Based on 2019 LODES data, the low-wage category accounted for 16 percent of total jobs in the SCAG region. Although the LEHD covers most public- and private-sector employment, it does not include self-employed individuals, military and some federal agencies. Also, the workplace location reported by the employer may not be the physical location to which the employee commutes.

SCAG obtained housing data from Census Bureau's 2008-2012 ACS 5-Year Estimates to represent 2010 conditions and 2017-2021 ACS 5-Year Estimates to represent 2019 conditions. SCAG used the counts of rental units with both contract rent (renter-occupied units) and rent asked (vacant-for-rent units) for affordable rental unit estimates. To estimate affordable rentals, SCAG used the county median household income, or the midpoint of an income distribution in the county, as the Area Median Income (AMI) limit. SCAG assumed that a housing unit is affordable if a household whose income is at or below 80 percent of the AMI can live there without spending more than 30 percent of their income on rental units. The 30 percent threshold is widely accepted among affordable housing developers and advocates and is the threshold above which the U.S. Department of Housing and Urban Development considers a household to be "cost burdened." Like the job-to-worker ratio analysis, SCAG used a 2.5-mile buffer from the centroids of the census tracts and counted jobs and housing within the buffer distance to estimate the jobs-housing ratio and the low-wage jobs-housing fit at the neighborhood level.

7.1.2 RESULTS

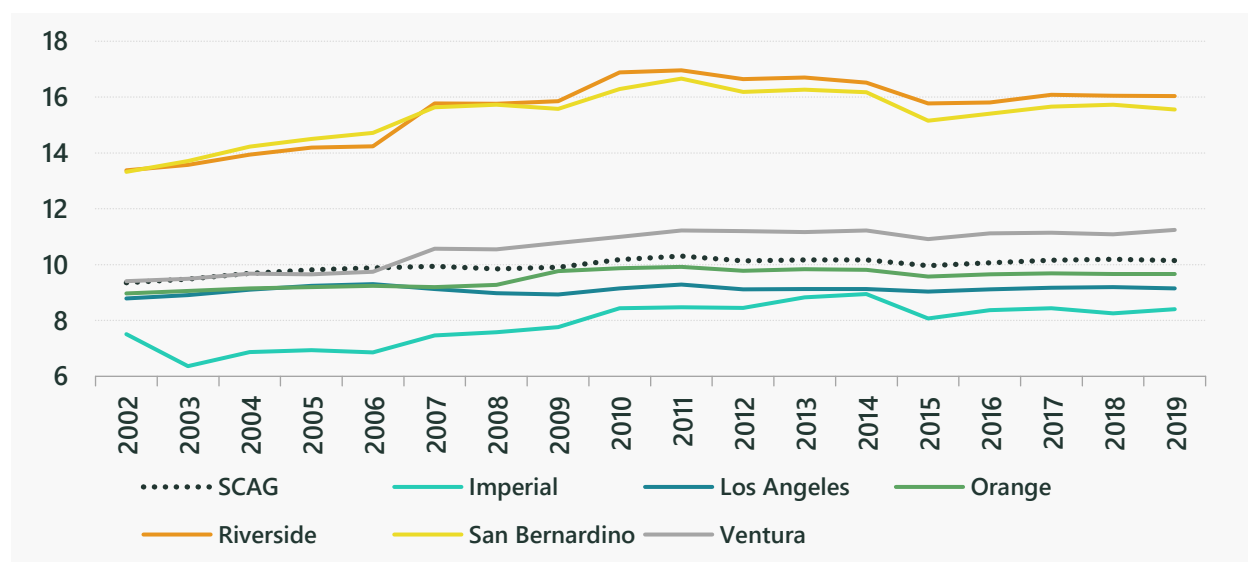
Table 22 identifies the median commute distance by wage for counties in the SCAG region for the years 2002, 2012 and 2019. Figure 25 shows historical trends in the median commute distance between 2002 and 2019 for counties in the SCAG region.

Table 22. Median Commute Distance (in Miles) by Wage in the SCAG Region, 2002-2019

Origin	Destination	All Jobs	Low Wage	Med. Wage	High Wage
2019					
SCAG	SCAG	10.2	9.2	9.5	11.1
Imperial	SCAG	8.4	6.6	8.3	10.1
Los Angeles	SCAG	9.2	8.4	8.6	9.9
Orange	SCAG	9.7	8.8	8.7	10.5
Riverside	SCAG	16.0	14.1	14.1	18.4
San Bernardino	SCAG	15.6	14.5	14.1	17.2
Ventura	SCAG	11.2	12.1	10.3	11.6
2012					
SCAG	SCAG	10.1	9.0	9.7	11.3
Imperial	SCAG	8.4	6.3	9.1	9.6
Los Angeles	SCAG	9.1	8.1	8.8	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					
SCAG	SCAG	9.4	8.6	8.8	11.0
Imperial	SCAG	7.5	8.1	7.2	5.6
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

Source: U.S. Census Bureau, 2023. LODES 8.0

Figure 25. Median Commute Distance (in Miles) by County in the SCAG Region, 2002-2019



Source: U.S. Census Bureau, 2023. LODES 8.0

These statistics indicate that, given that commuting is expensive, higher wage workers can afford a more costly commute and will commute longer for higher pay. On the other hand, lower wage workers tend to live closer to jobs. Overall, commute distance grew from 2002 to 2019 for all wage levels, while it slightly decreased from 2012 to 2019. The median commute distance for low-wage workers and high-wage workers were 8.6 miles and 11.0 miles in 2002, respectively, while they increased to 9.2 miles and 11.1 miles in 2019. Although the commute distance grew in all six counties between 2002 and 2019, it is observed that the commuting distance of workers in inland counties grew more rapidly than workers in coastal counties, especially for low-wage workers in inland counties.

The growing commute distance can influence a range of economic, social, transportation and environmental outcomes, particularly for low-income workers and workers of color given the constraints they face, such as declines in job proximity and limited transportation options. Additionally, comparing the median commute distance and overall job-to-worker ratio between coastal counties and inland counties, counties with lower job-to-worker ratios generate more long-distance commuters. This indicates the need for more job growth in inland counties, while coastal counties need more housing growth.

Although the descriptive analysis of the commuting distance may indicate a spatial mismatch between workers and jobs in the SCAG region, this condition is projected to improve in the future (see Section 2.6 of the Demographics and Growth Forecast Technical Report). The Connect SoCal growth forecast anticipates higher rates of household growth in counties with a historical job surplus, recognizing that, like at the regional scale, a county experiences practical limits to employment growth without being able to house the working population. Notably, Riverside County, which historically provided space to house workers whose jobs are elsewhere, is expected to have a slightly higher rate of job growth than household growth. According to the Hoover Index of Concentration (HIOC) analysis for the SCAG Region, which provides a simple measure of the relative concentration of population versus employment across subregional geographies, a substantial improvement can be expected in terms of jobs-housing balance at the county level between 2019 and 2050.

Table 23 identifies the job-to-worker ratio by wage for counties in the SCAG region for the year 2019. A ratio over 1 means that there are more jobs than workers, while a ratio less than 1 means there are more workers than jobs. Considering all jobs, the SCAG region sees more workers compared to jobs, except for Orange County where there is an even balance between workers and jobs. Compared to other counties, Riverside and Ventura have lower ratios, particularly high wage jobs in Ventura, which has a 0.60 jobs-to-worker ratio.

Table 23. Job-to-Worker Ratio by Wage in the SCAG Region, 2019

County	All Jobs	Low Wage	Med. Wage	High Wage
Imperial	0.94	0.93	0.88	1.02
Los Angeles	0.98	0.97	0.93	1.02
Orange	1.00	1.04	1.07	0.95
Riverside	0.80	0.86	0.85	0.73
San Bernardino	0.93	0.92	0.94	0.92
Ventura	0.71	0.79	0.81	0.60

Source: U.S. Census Bureau, 2023. LODS 8.0

Table 24 shows jobs-housing ratio and low-wage JHFIT in the SCAG region for the years 2010 and 2019. As shown in the table, while the ratio of jobs to housing increased from 1.10 to 1.22, the ratio of low-wage jobs to affordable rental units decreased from 0.94 to 0.75 during the period. The growing difference between these two ratios signals that while all jobs are outpacing housing growth, there is a growing mismatch between the location of low-wage jobs and affordable housing.

Table 24. Jobs-Housing Ratio and Low-Wage Jobs-Housing Fit in the SCAG Region, 2010 and 2019

County	2010			2019		
	Jobs-Housing Ratio	Low-Wage JHFIT	Difference	Jobs-Housing Ratio	Low-Wage JHFIT	Difference
Imperial	1.13	1.03	0.10	1.18	0.89	0.30
Los Angeles	1.14	0.89	0.26	1.26	0.71	0.55
Orange	1.33	1.09	0.23	1.44	0.86	0.58
Riverside	0.77	0.97	-0.20	0.91	0.83	0.08
San Bernardino	0.95	0.95	0.00	1.08	0.74	0.34
Ventura	0.98	0.96	0.02	1.04	0.84	0.20
SCAG	1.10	0.94	0.17	1.22	0.75	0.46

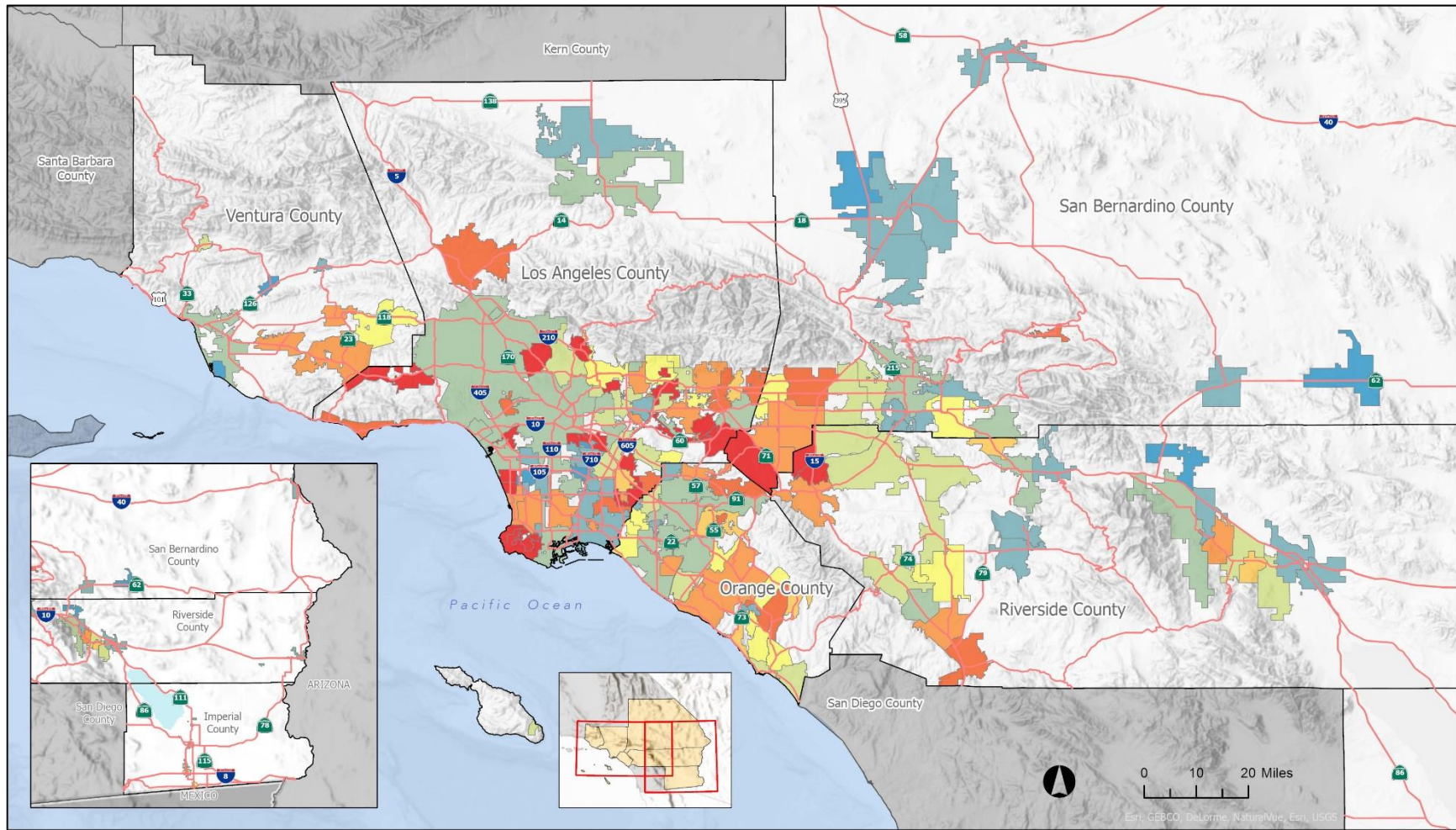
Source: U.S. Census Bureau, 2023. LODES 8.0 and ACS PUMS, 2017-2021

Map 6 and Map 7 depict the ratio of low-wage jobs to affordable rental units at both cities and census tracts scale, respectively. These maps show that there are more cities and neighborhoods in coastal counties that have relatively higher concentrations of low-wage jobs but lack an adequate number of affordable rentals for people who are employed in those jobs. On the other hand, there are more cities and neighborhoods in inland counties and central Los Angeles that have relatively higher concentrations of affordable housing units but fewer low-wage jobs.

In summary, this analysis found that:

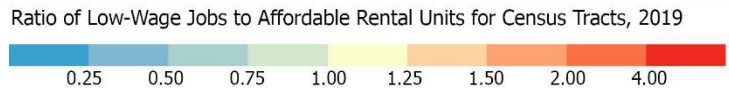
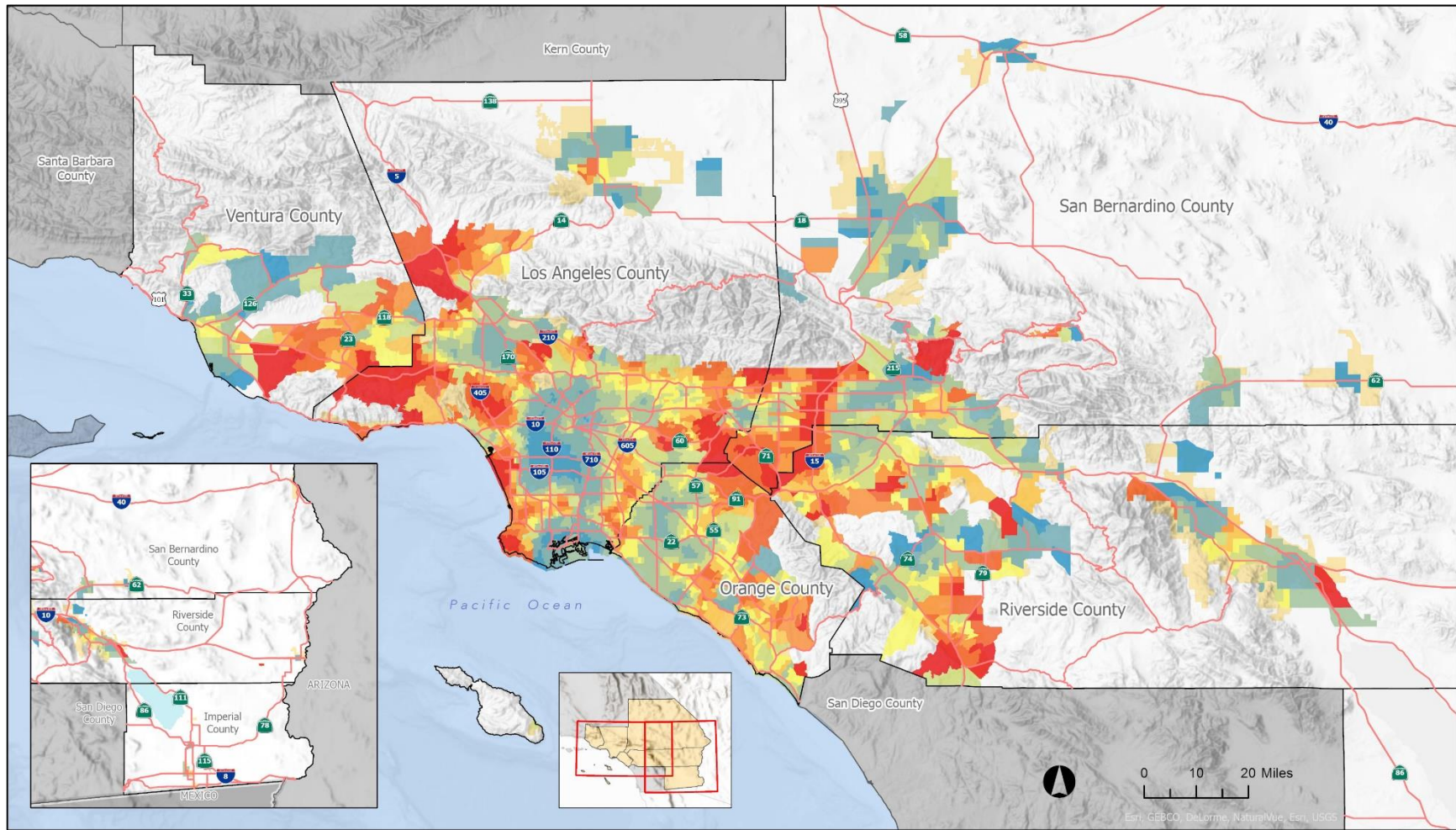
- Higher wage workers tend to commute longer distances than lower wage workers;
- The commute distance grew in all six counties between 2002 and 2012, while it slightly decreased between 2012 and 2019;
- The commute distance of workers in inland counties grew more rapidly than in coastal counties, especially for 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;
- Jobs-housing fit increased between 2010 and 2019, 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 that match their skills; and,
- Job-housing balance in the SCAG region may be improved due to the faster growth of employment over population in the inland counties between 2019 and 2050, according to the Connect SoCal growth forecast projections.

Map 6. Ratio of Low-Wage Jobs to Affordable Rental Units for Cities, 2019



Source: U.S. Census Bureau, 2023. LODES 8.0

Map 7. Ratio of Low-Wage Jobs to Affordable Rental Units for Census Tracts, 2019



Source: U.S. Census Bureau, 2023. LODS 8.0

7.2 NEIGHBORHOOD CHANGE AND DISPLACEMENT

It is important to enhance equity in access to opportunity and resources so that people of different socioeconomic statuses can live in places of their choice and benefit from neighborhood improvement. Public investments are crucial to improving the livability and vitality of a neighborhood and revitalizing historically disinvested places. However, neighborhood improvements could also lead to demographic change that raises equity concerns.

Public investments, such as providing service upgrades, enhancing the aesthetics of the area, and improving transit services and transportation infrastructure, can make a neighborhood a better place to live for existing residents. Neighborhood improvements can also attract new commercial venues as well as middle- and upper-class residents. Policymakers and scholars have long been aware of the potential risk of neighborhood advancement, or gentrification, which broadly describes a form of neighborhood change where neighborhoods of initially lower socioeconomic status become higher socioeconomic status places. Some have considered gentrification as a precursor to rising housing costs and displacement of lower-income residents in gentrifying neighborhoods.

One popular fear is that gentrification could alter neighborhood character and culture, risking the loss of social fabric and connections, through changing the racial/ethnic composition. Previous studies also suggest that the presence of immigrant populations could lead to subsequent neighborhood revitalization and have implications for future changes of neighborhood characteristics in terms of demographics and cultural amenities.^{xvii} There is some evidence that evictions are more likely to occur in neighborhoods with growing foreign-born populations than in neighborhoods with majority U.S.-born non-Hispanic white residents.^{xviii} SCAG further explores these concepts in Section 4.6 of the Housing Technical Report.

This analysis focuses on low-income neighborhoods experiencing substantial in-migration of college-educated individuals. The analytic focus on change in neighborhood education attainment (but not other factors such as income and rent) is motivated by both practice and the literature. In practice, relative low-cost neighborhoods undergoing improvements can be attractive places to live for recent college graduates and young professionals who do not necessarily earn much higher incomes than existing residents. Moreover, in places already experiencing substantial rent increases, those who remain are likely to have managed to adapt and survive in an increasingly competitive housing market.

SCAG's analytic focus can capture neighborhoods in early stages of gentrification.^{xix} As discussed in the literature, these places typically experience changes in some demographic characteristics (e.g., education attainment) but not others (e.g., incomes and rents). Some studies also refer to this type of neighborhood change as marginal gentrification.^{xx} In these neighborhoods, housing cost increases could potentially follow the influx of more educated people and price out existing low-income residents. Previous work has shown that early-staged gentrification (or marginal gentrification) is associated with increased evictions and is more likely to occur in majority Hispanic/Latino or majority Black neighborhoods than in majority White neighborhoods.^{xxi}

Drawing on data from the decennial census and the American Community Survey 5-year estimates, this analysis first identified census tracts that were initially low-income and had relatively large increases in college-educated residents over three periods between 1990 and 2019. Such tracts are referred to as *gentrifying neighborhoods*. As discussed above, this definition captures neighborhoods in different stages of gentrification, such as those earlier in the process (i.e., primarily experiencing education increase) and

those in later stages (i.e., experiencing multiple dimensions of change including education, rent, and income increases). After identifying the gentrifying neighborhoods, SCAG compared changes in demographic and socioeconomic characteristics over time between the gentrifying neighborhoods and the rest of the region.

7.2.1 METHODOLOGY

SCAG identified gentrifying neighborhoods for three periods: 1990-2000, 2000-2010, and 2010-2019. Data for 1990 and 2000 come from the decennial census, and data for 2010 and 2019 come from the 2008-2012 American Community Survey (ACS) and 2017-2021 ACS 5-year samples. In this analysis, racial/ethnic categories are sometimes grouped to facilitate longitudinal analysis, including the consolidation of Native American, Asian, or Native Hawaiian/Pacific Islander groups. Additionally, data on multiracial people are not available from the 1990 Census. SCAG used ACS data because, beginning in 2010, the long-form census questionnaire began to be collected by the ACS. For each period, a census tract is defined as a gentrifying neighborhood if it meets all four criteria:

1. tract median household income in the bottom 40 percent of the countywide income distribution at the beginning of the period,
2. increase in college-educated people (as the percentage of population aged 25 years and older at the beginning of the period) in the top 25 percent of the countywide distribution,
3. no less than 100 people aged 25 years at the beginning of the period, and
4. over 50 percent of the tract land area within a census defined urbanized area^{xxii}

To understand where neighborhood change occurred, SCAG also assessed the baseline conditions of the gentrifying neighborhoods in terms of various demographic, socioeconomic, housing, and built environment characteristics.

SCAG also focused on neighborhoods that gentrified during the most recent decade (2010-2019) and examined the demographic and socioeconomic changes. To assess the potential upward pressure on rents, which could lead to involuntary residential displacement, SCAG examined the changes in incomes, rents, and newly constructed housing units in gentrifying neighborhoods and compare such changes to the rest of the region. Specifically, the gentrifying neighborhoods were sorted into three groups based on median household incomes at the *end* of the period relative to the countywide distribution: <40 percent, 40 to below 60 percent, and 60 percent and above. Because gentrifying neighborhoods were in the bottom 40 percent of the countywide income distribution at the *beginning* of the period, the analysis compares gentrifying neighborhoods that remained low-income, experienced moderate income growth, and experienced large income growth. The remaining neighborhoods in the region are sorted into non-gentrifying, low-income neighborhoods (i.e., incomes in the bottom 40 percent at the *beginning* of the period) and the rest (non-gentrifying, higher-income neighborhoods).

Lastly, SCAG drew on court eviction filing records from the Eviction Lab at Princeton University to assess the risk of displacement.^{xxiii} Displacement is a major concern in gentrifying neighborhoods; however, the effect of neighborhood change on displacement has been challenging to quantify due to the lack of precise data on residential mobility resulting from displacement. One strand of work focuses on evictions, which constitute one form of displacement and could pose severe health and housing challenges to households. SCAG estimated the percentage change for demographic and socioeconomic variables by calculating change in values divided by the value in 2010, approximated using the 2008-2012 ACS.

The latest available eviction filing records in California are from 2018. Data are based on court-issued eviction records or records by proprietary data that are validated against court-issued data. An eviction filing is the result of a landlord filing a case in court to have a tenant removed from a property. Over the course of a year, a landlord may file multiple evictions against the same household. The Eviction Lab counts each eviction filing when calculating the eviction filing number and rate (i.e., number of eviction filings per 100 renter households). A high eviction filing rate indicates high displacement pressure because an eviction filing, even if no eviction is executed, can intimidate tenants and limit their future housing options by damaging rental histories.

As documented by the Eviction Lab, the observed filing rates in California are undercounted because many cases that end in eviction are sealed and are not accessible by the public. To mitigate the reliability concerns of the data, SCAG considered census tracts with an average annual filing rate over three during 2010-2018 (above the 90th percentile of the regional distribution) as neighborhoods with high eviction filings. Drawing on the multi-year records, SCAG calculated the average annual filing rates for tracts with available data.

7.2.2 RESULTS

Overall, the spatial distributions of gentrifying neighborhoods are consistent over time, as shown in Table 25. In each of the periods assessed, the identified gentrifying neighborhoods were concentrated in Los Angeles and Orange Counties. Over the past three decades, the share of gentrifying neighborhoods slightly decreased in Los Angeles County and increased in Orange, Riverside, and San Bernardino. During 2010-2019, a total of 292 gentrifying neighborhoods were identified in the region, with over 80 percent of these neighborhoods in Los Angeles (64.7 percent) and in Orange (16.1 percent). Notably, while the identified gentrifying neighborhoods in San Bernardino account for only 6.2 percent of the regional total, this number increased from merely 3.6 percent in the period of 1990-2000. The change in spatial distribution of gentrifying neighborhoods reflects that gentrification is no longer a phenomenon unique to the older, inner portion of a metropolitan area, as suggested in earlier literature.

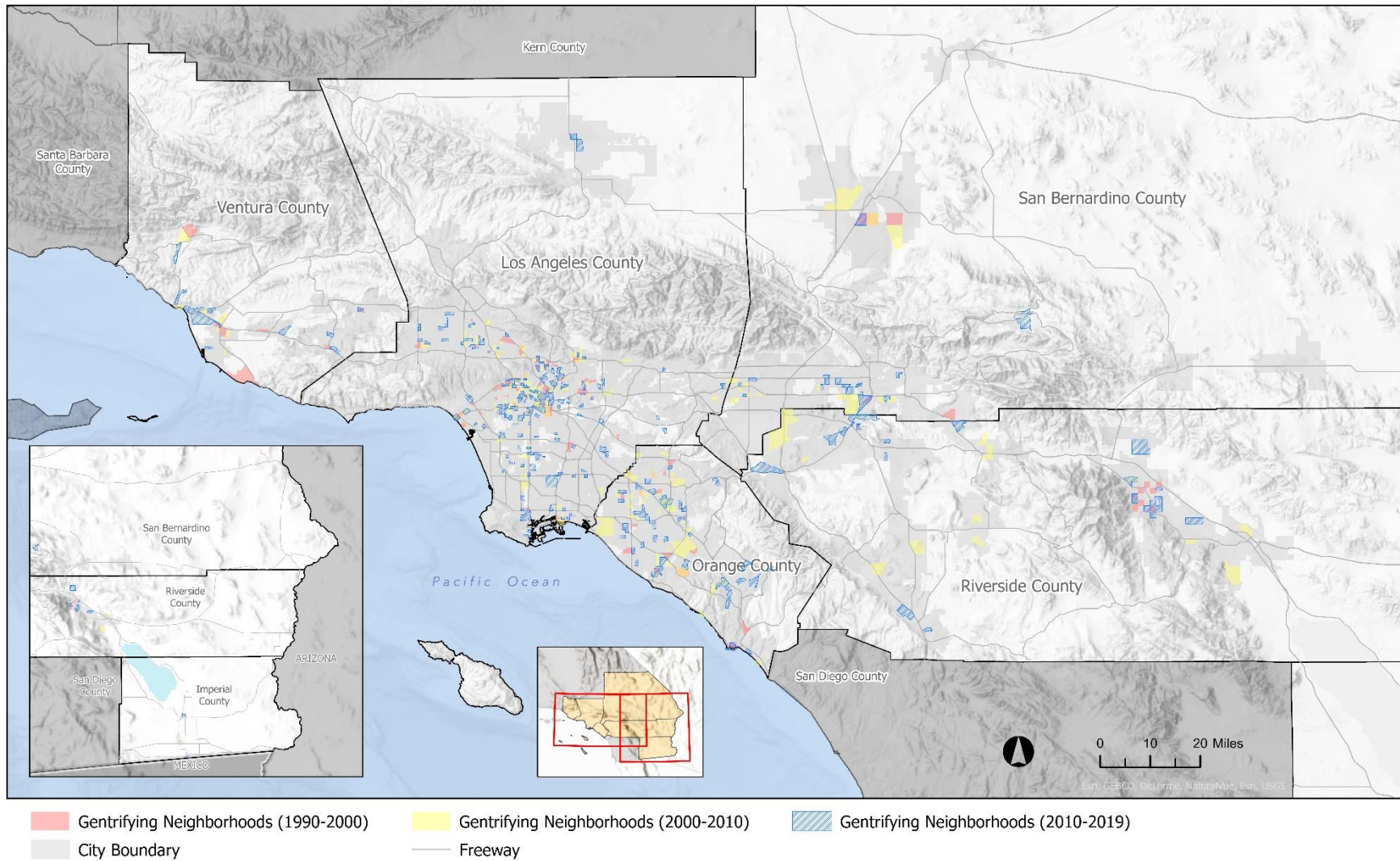
Table 25. Gentrifying Neighborhoods by County

County	1990-2000		2000-2010		2010-2019	
	#	%	#	%	#	%
Imperial	1	0.9%	1	0.4%	3	1.0%
Los Angeles	77	68.8%	163	67.1%	189	64.7%
Orange	16	14.3%	39	16.0%	47	16.1%
Riverside	7	6.3%	19	7.8%	23	7.9%
San Bernardino	4	3.6%	14	5.8%	18	6.2%
Ventura	7	6.3%	7	2.9%	12	4.1%
SCAG Region	112	100%	243	100%	292	100%

Source: U.S. Census Bureau 2000 Decennial Census, 2008-2012 ACS, and 2017-2021 ACS

Neighborhood change has been a multi-decade, ongoing phenomenon in some places, such as Downtown Los Angeles and Santa Monica, where SCAG identified gentrifying neighborhoods in all three periods, as illustrated in Map 8. In these places, the specific neighborhoods identified as gentrifying can change from one period to the next, but many of them were concentrated in the same area.

Map 8. Gentrifying Neighborhoods in the SCAG Region



Source: SCAG 2022, U.S. Census 1990 and 2000; 2008-2012 and 2017-2021 American Community Survey 5-year Estimates

Neighborhood change is a relatively recent phenomenon in other places, where gentrifying neighborhoods were identified in the post-2000 periods. For example, these neighborhoods were identified near the south of Downtown Los Angeles and in southern Orange County (e.g., Lake Forest and Mission Viejo), San Bernadino County (e.g., Upland, Ontario, and Fontana), and the City of Riverside.

Table 26 summarizes the neighborhood characteristics for gentrifying census tracts and the remaining census tracts at the beginning of each period (e.g., neighborhood characteristics in 2000 for the period 2000-2010). Neighborhoods with a high concentration of immigrant populations and renters appeared to be more likely to experience gentrification. In all three periods, gentrifying neighborhoods had markedly higher percentages of foreign-born people and renter households compared to the rest of the region. In the post-2000 periods, gentrification became a more pronounced phenomenon in communities of color. The gentrifying neighborhoods identified had noticeably higher percentages of people identifying as Black and Hispanic/Latino as well as a lower share of people identifying as White compared to the rest of the region. Such patterns were not observed in neighborhoods that gentrified during the period 1990-2000. Therefore, the kinds of neighborhoods that gentrify are in part sensitive to the time period for which neighborhood change is assessed.

Table 26. Population at the Start of each Period by Neighborhood Type

	1990-2000		2000-2010		2010-2019	
	<i>Gentrifying</i>	<i>Rest of Region</i>	<i>Gentrifying</i>	<i>Rest of Region</i>	<i>Gentrifying</i>	<i>Rest of Region</i>
Median Household Income	\$26,290	\$39,126	\$31,746	\$49,973	\$40,894	\$66,304
Population	460,488	14,097,497	926,674	15,503,540	1,178,716	16,808,691
% Native American/Asian/Pacific Islander	12.9%	9.0%	13.7%	10.7%	14.1%	12.8%
% Black	5.9%	8.0%	8.8%	7.2%	9.0%	6.3%
% Multiracial	-	-	2.8%	2.3%	1.7%	2.1%
% White	48.3%	49.5%	29.3%	39.3%	25.5%	33.8%
% Hispanic/ Latino	32.7%	33.2%	45.3%	40.4%	49.5%	45.0%
% Foreign-Born	38.4%	26.9%	41.1%	30.5%	37.6%	30.3%
Households	189,453	4,721,354	327,986	5,032,977	416,703	5,353,700
% Renter households	77.1%	44.8%	70.2%	43.7%	66.7%	44.2%
Neighborhoods	112	3,246	243	3,668	292	3,620

Source: U.S. Census Bureau 2000 Decennial Census, 2008-2012 ACS, and 2017-2021 ACS

Table 27 shows the demographic and socioeconomic changes in neighborhoods that gentrified in the most recent decade between 2010 and 2019. Over 70 percent of the gentrifying neighborhoods remained low-income throughout 2010-2019. The level of income increase in these neighborhoods was comparable to the non-gentrifying low-income neighborhoods in the region (47.1 vs. 46.4 percent). Only 22 gentrifying neighborhoods (less than ten percent) shifted to the top 40 percent of the countywide income distribution. These results suggest that most gentrifying neighborhoods did not see a substantial income increase. Therefore, when conceptualized as a neighborhood change process in which residents' socioeconomic status (as measured by education attainment) increased over time, gentrification is not clearly linked to the displacement of lower-income residents by higher-income newcomers. In

neighborhoods where income increased more rapidly, such increases could have resulted from the displacement of lower-income households or income growth of incumbent households. Better data is needed to understand the nuanced phenomenon of displacement in gentrifying places.

Table 27. Change in Neighborhoods that Gentrified, 2010-2019

	Gentrifying Neighborhoods by End-Period Income Level			Non-Gentrifying Low-Income	Remaining
	<40% (Remained low-income)	40 to <60% (Moderate income growth)	>=60% (Large income growth)		
Neighborhoods	208	61	22	1,245	2,328
Change in median household income	47.1%	72.2%	115.9%	46.4%	27.7%
Change in median gross rent	40.4%	42.9%	44.8%	33.8%	37.7%
Change in limited-English households	-16.1%	-23.6%	-4.7%	-17.7%	-4.9%
Change in foreign-born	2.0%	0.7%	10.4%	-7.5%	3.1%
Change in Native American/Asian/Pacific Islander	18.7%	24.9%	31.9%	3.4%	16.2%
Change in Black	5.3%	-7.1%	-2.5%	-7.8%	1.5%
Change in multiracial	77.7%	95.5%	55.7%	39.4%	52.6%
Change in White	5.0%	3.6%	5.5%	-11.0%	-8.0%
Change in Hispanic/Latino	6.7%	12.4%	3.0%	4.2%	12.5%
% Owner-occupied units built 2010 or later	3.6%	4.7%	1.7%	2.6%	4.7%
% Renter-occupied units built 2010 or later	7.0%	7.7%	3.6%	3.1%	6.0%

Source: U.S. Census Bureau 2008-2012 ACS, and 2017-2021 ACS

Rent increases could indicate higher risk of displacement for households whose incomes did not keep pace with rising housing costs. This analysis shows that gentrifying neighborhoods generally saw larger percentage increases in rent compared to non-gentrifying areas; however, rents increased at slower rates (40-45 percent) compared to household income increases (47-116 percent) in the gentrifying neighborhoods. In fact, displacement pressure might be higher in non-gentrifying, higher-income neighborhoods because rent increases outpaced income growth in these places.

While most of the gentrifying neighborhoods did not experience a substantial income increase, other aspects of change occurred in these neighborhoods. Most notably, compared to the non-gentrifying neighborhoods, neighborhoods that gentrified during 2010-2019 (all three subgroups) saw larger percentage increases in foreign-born populations as well as in multiple racial/ethnic groups, including non-Hispanic White, Native American, Asian, and Pacific Islander, and two or more races. Meanwhile, the level of linguistic isolation, measured as the percentage of limited English households, decreased most drastically (-23.6 percent) in gentrifying neighborhoods that experienced moderate income growth during

2010-2019. These neighborhood changes illustrate a complex picture of gentrification in that such changes could foster cultural diversity or intercultural interactions. As also revealed in prior research, residents' perspectives toward neighborhood change and gentrification vary across different stakeholders (e.g., in terms of age, race, and social position), and there are community stakeholders that seek to engage the diversity of cultural groups as they seek to improve the local quality of life.^{xxiv}

Finally, Table 28 summarizes the characteristics of gentrifying neighborhoods compared to high eviction filing neighborhoods. The identified gentrifying neighborhoods and the neighborhoods with high eviction filings differ from the region in similar ways. Specifically, these neighborhoods have higher percentages of Black and Hispanic/Latino people and a lower share of non-Hispanic White people compared to the region. Additionally, both the gentrifying neighborhoods and the high eviction filing neighborhoods are more likely to be Priority Equity Communities. Across the region, less than 50 percent of the neighborhoods are identified as Priority Equity Communities, whereas 72.3 percent of the gentrifying neighborhoods and 69.9 percent of the high eviction filing neighborhoods are Priority Equity Communities. Given that Priority Equity Communities have a greater concentration of historically marginalized populations, such neighborhoods may be more susceptible to the potential adverse impacts of gentrification and displacement. On the other hand, unlike the identified gentrifying neighborhoods, the high eviction filing neighborhoods had lower shares of foreign-born populations and renter households compared to the region. Map 9 shows that the neighborhoods with high eviction filings do not overlap much with the neighborhoods that gentrified during roughly the same period.

Table 28. Characteristics of Gentrifying Neighborhoods and High Eviction Filing Neighborhoods

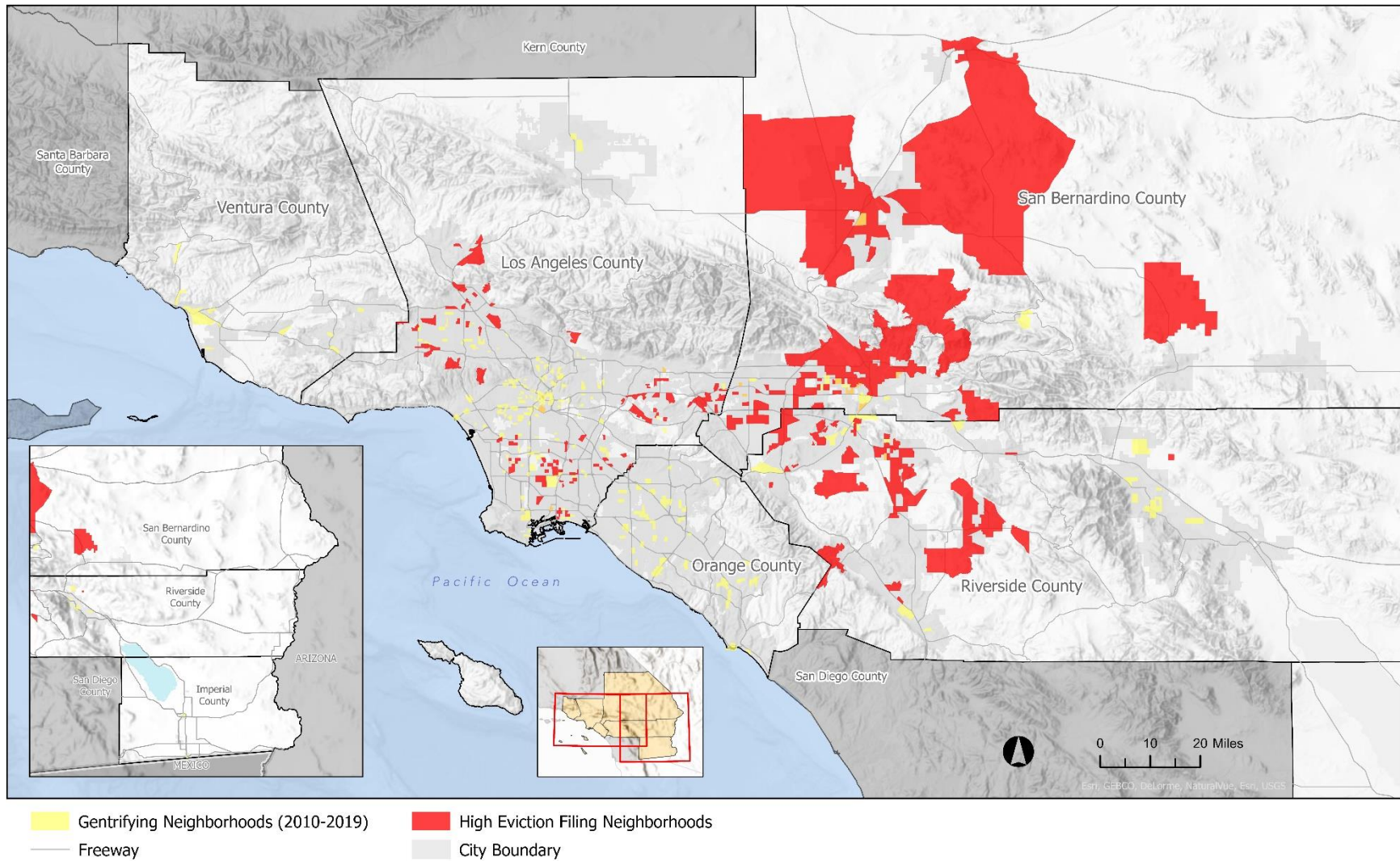
	Gentrifying (2010-2019)	High Eviction Filings (2010-2018)	SCAG Region
Median Household Income	\$40,894	\$55,736	\$64,560
Population	1,178,716	1,636,887	18,092,156
% Native American/Asian/Pacific Islander	14.1%	6.7%	12.9%
% Black	9.0%	12.4%	6.5%
% Multiracial	1.7%	2.1%	2.0%
% White	25.5%	24.0%	33.3%
% Hispanic/Latino	49.5%	54.7%	45.2%
% Foreign-born	37.6%	25.0%	30.7%
Households	416,703	457,006	5,798,972
% Renter households	66.7%	39.8%	45.7%
Neighborhoods (N)	292	319	3,956
Neighborhoods in Priority Equity Communities	211	223	1,934
% of Neighborhoods in Priority Equity Communities	72.3%	69.9%	48.9%

Source: U.S. Census Bureau, 2008-2012 ACS, and 2017-2021 ACS. Eviction Lab, 2018.

In summary, this analysis found that:

- Neighborhoods with a high concentration of immigrant populations and renters appeared to be more likely to experience gentrification;
- In the post-2000 periods, gentrification became a more pronounced phenomenon in communities of color;
- Low-income households living in gentrifying neighborhoods, where rent increased more rapidly than non-gentrifying areas, are particularly susceptible to displacement;
- Most gentrifying neighborhoods between 2010 and 2019 did not experience a substantial increase in income, suggesting that better data is needed for quantifying the displacement of lower-income residents by higher-income newcomers;
- Gentrifying neighborhoods might be becoming more culturally and racially diverse, which calls for planning and community efforts grounded in awareness and competency in order to harness and foster cultural diversity;
- Gentrifying neighborhoods and those with high eviction filings had higher percentages of Black and Hispanic/Latino people and a lower share of non-Hispanic White people compared to the region; and
- Despite sharing such demographic similarities, most gentrifying neighborhoods were not identified as places with high eviction filings.

Map 9. High Eviction Neighborhoods in the SCAG Region



Source: U.S. Census Bureau, 2008-2012 ACS, and 2017-2021 ACS. Eviction Lab, 2018.

7.3 RAIL-RELATED IMPACTS

The SCAG region is served by two Class I freight railroads and three passenger rail services. Supporting mainline rail operations are a variety of rail facilities. Major freight facilities include intermodal yards at ports and at inland locations, traditional carload yards, and set-up auto handling facilities. Passenger facilities include major multimodal centers like Los Angeles Union Station (LAUS), plus a network of other multimodal and smaller local stations throughout the region and maintenance facilities in Los Angeles and San Bernardino. Rail transit options are critical for a variety of reasons, but especially for their intersection with the region's economic, equity, and climate change goals. More information about transit/rail is available in Chapter 2 of the Mobility Technical Report.

The efficient movement of goods and people is critical to a strong economy and improves quality of life in the SCAG region by providing jobs and access to markets through trade. However, increased volumes of goods moving across the transportation system contribute to greater congestion, safety concerns and harmful emissions. While the benefits of goods movement are broadly dispersed in support of our consumption and economic activity, impacts are often concentrated, having disproportionate impacts on certain communities. It is therefore important to ensure that those most impacted are benefiting from the economic opportunities generated by the region's goods movement industry. More information about goods movement in the SCAG region is available in the Goods Movement Technical Report with more detail on forecasted rail volumes in the SCAG Integrated Passenger and Freight Rail Forecast Study^{xxv}.

Railyards involve the operation of trucks, locomotives, and yard equipment that may operate on diesel fuel. Communities adjacent to railroads and railyards can be negatively impacted by increased air and noise pollution. In a 2014 report on community views on the San Bernardino Railyard, participants expressed concern for poor air quality and noise pollution, but were even more concerned about significant community challenges, including violence, poor infrastructure, and limited opportunities for residents.^{xxvi}

One way to address some of these concentrated impacts is to implement grade separation projects, where structures are built to separate the vehicle roadway from railroad tracks. When constructed, traffic delays at the crossing, idling emissions and grade-crossing related collisions could be reduced by redirecting vehicles and pedestrians above or below railroad tracks. This section includes an analysis of how communities adjacent to railroads and railyards are forecasted to change, and who grade separation projects are more likely to benefit.

7.3.1 METHODOLOGY

To evaluate the Plan's rail-related impacts, this analysis compares the demographic and socioeconomic composition within TAZs that are within 500 feet of railroads and railyards, and grade separation projects between Base Year, Baseline, and Plan scenarios. For interpretation, higher concentrations around railroads and railyards indicate the potential for negative health outcomes, while higher concentrations around grade separation projects indicate the potential for improvements. SCAG used area-based interpolation to determine the population within the TAZ that is also in the 500-foot buffer zone. Demographic information is sourced from SCAG's Regional Growth Forecast.

7.3.2 RESULTS

Table 29 presents the forecasted socioeconomic and demographic makeup of railroad adjacent areas and in the SCAG region. Overall, there is a higher concentration of low-income and some people of color in areas adjacent to railroads and railyards, and it is expected that this concentration could grow in the Baseline scenario. SCAG anticipates nominal plan impact, or small differences between the Baseline and Plan scenarios, and that population changes would generally follow that of the SCAG region.

In the Base Year, the table shows that the share of the Hispanic/Latino population is concentrated near railroads/railyards compared to other racial and ethnic groups, though it is expected to decrease with the implementation of the Plan. There are slightly elevated concentrations of people with limited-English proficiency, foreign-born populations, vulnerable ages, and people with disabilities in rail-adjacent areas, but the patterns of change between each of the scenarios are expected to reflect the regional changes from Base Year to Baseline and Plan. Finally, households with incomes below FPL and the lower three income quintiles are more concentrated in railroads/railyards, all of which are expected to maintain or decrease with the implementation of the Plan.

For populations around grade separation projects, Hispanic/Latino people, people with limited-English proficiency, foreign-born populations, vulnerable ages, people with disabilities, zero vehicle households and households with incomes in Quintiles 1, 3, and 5 are expected to experience an increase in concentration with implementation of the Plan.

In response to historic impacts of community freight-associated issues, the Southern California Goods Movement Communities Opportunities Assessment aimed to better understand goods movement communities' perspectives and opportunities. This study looked to improve the ability of communities to capture the economic benefits of goods movement through a closer look at workforce development initiatives. It focused on public health, workforce development, and communications best practices. Key products included a best practices toolkit for impacted communities, recommendations for impacted communities and the region, and a communications strategy for SCAG goods movement outreach^{xxvii}.

Table 29. Characteristics of Rail-Adjacent Areas

	Railroads and Railyards			Grade Separation Projects			SCAG Region		
	Base Year	Baseline	Plan	Base Year	Baseline	Plan	Base Year	Baseline	Plan
Population									
Asian	14%	19%	20%	11%	15%	16%	14%	18%	18%
Black	4%	3%	3%	3%	3%	3%	6%	5%	5%
Hawaiian/Pacific Islander	0.2%	0.3%	0.3%	0.1%	0.2%	0.3%	0.3%	0.3%	0.3%
Hispanic/Latino	59%	59%	58%	65%	68%	66%	47%	49%	48%
Native American	0.3%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
White	21%	16%	16%	18%	12%	12%	30%	24%	24%
Multiracial or Other Race	2%	3%	3%	2%	2%	3%	3%	4%	4%
Limited English Proficiency	13%	14%	14%	12%	14%	14%	10%	11%	12%
Foreign-Born	33%	37%	37%	31%	37%	37%	30%	34%	34%
Population < 20	29%	22%	22%	30%	23%	23%	27%	21%	21%
Population > 65	13%	20%	20%	11%	18%	18%	14%	22%	22%
People with Disabilities	11%	13%	13%	10%	13%	12%	11%	13%	13%
Households									
Below Federal Poverty Level	14%	12%	12%	13%	12%	12%	11%	10%	10%
Quintile 1	15%	16%	15%	13%	14%	14%	13%	13%	13%
Quintile 2	21%	21%	21%	25%	24%	23%	18%	18%	18%
Quintile 3	26%	26%	26%	25%	26%	26%	23%	24%	23%
Quintile 4	17%	15%	16%	16%	16%	15%	17%	16%	16%
Quintile 5	21%	22%	22%	20%	20%	21%	25%	25%	25%
Zero-Vehicle Households	6%	8%	9%	5%	6%	6%	6%	7%	8%

Source: SCAG Regional Growth Forecast

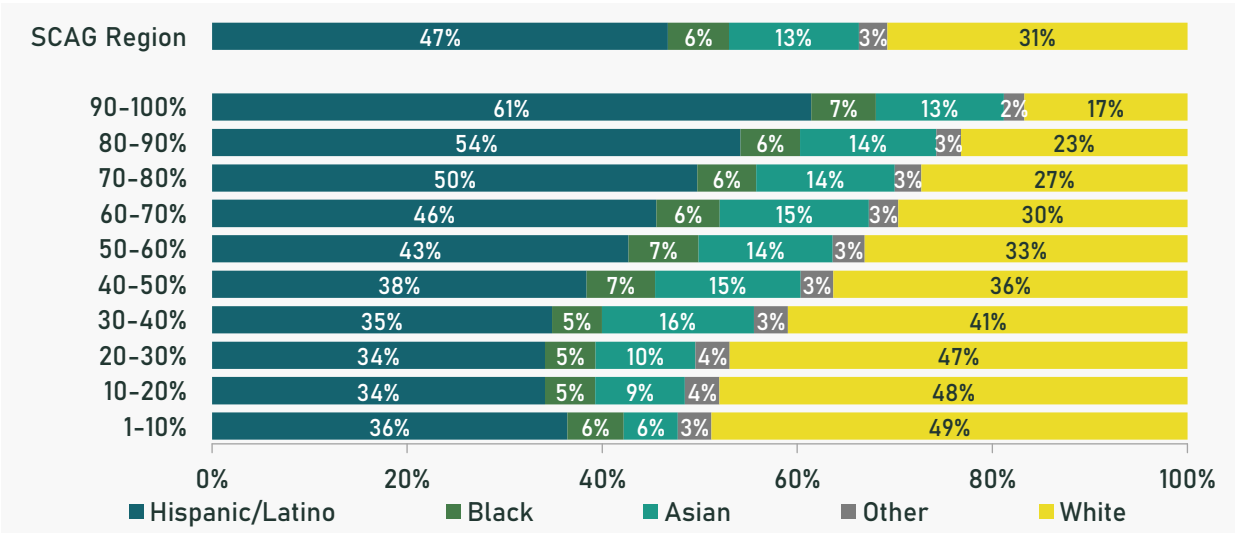
8. ANALYSIS: ENVIRONMENT

This section includes a description of existing conditions for environmental indicators in the SCAG region, including CalEnviroScreen pollution burden, Healthy Places Index score, and health insurance by race and ethnicity. Environment performance measures include Resilience and Climate Vulnerabilities, Emissions Impacts, and Noise Impacts. Each measure includes a description of why the measure is relevant, the methodology, and the results of the analysis.

At the core of this report is EJ and the acknowledgment of the inequities that exist in the environmental protection of communities. Historically, people of color have been provided less protection from poor environmental conditions, and have lived in closer proximity to highways, highly traveled roads, industrial plants, and other sources of pollutants. Pollution continues to be a major public health concern in the region, as pollutants exacerbate chronic conditions and disproportionately affect vulnerable populations (children, pregnant women, older adults, outdoor workers, and people with disabilities). In addition, impacts from climate change (e.g., smoke from wildfires, ground-level ozone from increased temperatures) further exacerbates air quality issues and affect residents’ well-being.

The California Communities Environmental Health Screening Tool, also known as CalEnviroScreen, helps identify California communities that are disproportionately burdened by multiple sources of pollution. The pollution burden component is comprised of exposures (e.g., ozone, and PM2.5 concentrations, drinking water contaminants, traffic impacts) and environmental effects (e.g., toxic cleanup sites, and hazardous and solid waste facilities). Figure 26 shows the percentage of people based on racial and ethnic groups living in census tracts within each of the percentile values for pollution burden scores from CalEnviroScreen 4.0. Due to their small numbers relative to other racial/ethnic groups, Native American people were grouped into the “Other” category, which also included multiracial people. Based on this figure, Hispanic/Latino people are overrepresented in higher pollution burden areas and underrepresented in areas with less pollution burden. The opposite trend is experienced by White people, with their share of population increasing as pollution burden decreases.

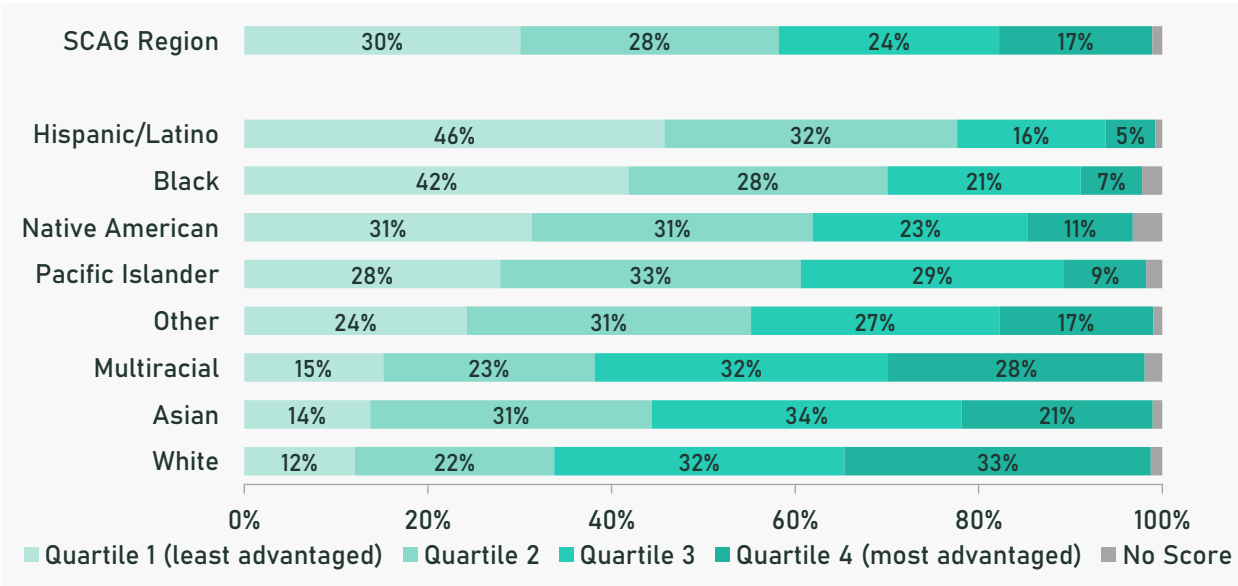
Figure 26. CalEnviroScreen 4.0 Pollution Burden Percentile by Race and Ethnicity in the SCAG Region



Source: CalEnviroScreen 4.0, SCAG

Another frequently used and authoritative source for advancing health equity is the California Healthy Places Index (HPI), a project of the Public Health Alliance of Southern California. HPI maps data on social conditions that drive health, like education, job opportunities, clean air and water, and other indicators that are positively associated with life expectancy at birth. Figure 27 shows the percentage of people based on racial and ethnic groups living in census tracts within each of the percentile values of the composite score for Healthy Places Index 3.0. HPI excludes census tracts that do not meet certain population and group quarter thresholds to account for institutional populations that are mobility restricted and/or are (temporarily) economically dependent, hence a “no HPI score” category is included. Hispanic/Latino and Black people are overrepresented in the least advantaged census tracts and underrepresented in the more advantaged census tracts compared to the rest of the region. Pacific Islander, Hispanic/Latino, Native American, and Asian populations, and people of other racial/ethnic groups are overrepresented in the second least advantaged census tracts compared to the region.

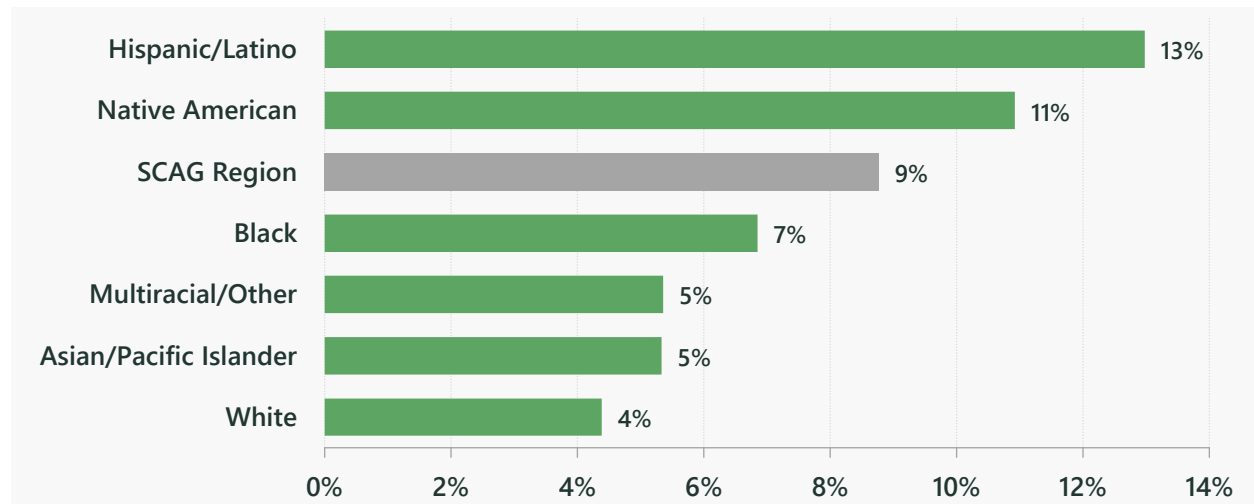
Figure 27. Healthy Places Index 3.0 Quartiles by Race and Ethnicity in the SCAG Region



Source: California Healthy Places Index 3.0 processed by SCAG

In addition to experiencing the brunt of pollution burden, people of color are also least likely to have access to health-care options to address health issues that arise from exposures. As demonstrated in Section 6.3 Access to Everyday Destinations, people of color are least likely to have access to health-care options to address health issues that arise from environmental exposures. Furthermore, insured individuals have better health outcomes as they are more likely to receive preventative services for chronic conditions and have greater access to recommended care. Without access to primary care services, uninsured individuals are more likely to utilize emergency services for routine procedures, and the overutilization of emergency services can lead to an increase in overall healthcare spending. In Figure 28, health insurance is measured as having comprehensive coverage (private or public insurance) at any time during the calendar year for the civilian, noninstitutionalized population. The figure shows that approximately nine percent of residents in the SCAG region are not covered by health insurance, with disproportionately higher percentages of Hispanic/Latino (13 percent) and Native American (11 percent) residents without health insurance.

Figure 28. People without Health Insurance by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

The equity performance measures included in the Environment section assess the distribution of populations impacted by climate, pollution, and noise impacts related to the projections expected from implementation of Connect SoCal 2024. Further analysis on these topics can be found in the Aviation and Transportation Conformity Technical Reports.

8.1 RESILIENCE AND CLIMATE VULNERABILITIES

Existing conditions show that people of color and low-income populations are at a greater risk of experiencing adverse impacts from climate change, such as extreme heat, floods, and other events. These populations have fewer resources to respond or adapt to climate-related issues and often have higher rates of chronic diseases, which increases their susceptibility to climate threats. For example, a lack of air conditioning and transportation options may exacerbate vulnerability in heat-prone areas, and access to cooling centers may be limited. The ability to adapt to climate change is critical to prevent further heightened disparities in health outcomes across different communities.

As part of the ongoing development of SCAG’s Regional Resilience Framework, SCAG interviewed several community-based organizations and tribal community leaders to gather feedback on how SCAG can support and enhance climate resilience efforts in the region. The feedback provided by community-based organizations focused on several key areas, including:

- equitable distribution of emergency preparedness and response resources;
- accessible and understandable emergency preparedness and alerts through social media;
- meetings and roundtables that promote active listening and practice cultural responsiveness;
- utilize more community hubs (e.g., schools, faith-based locations, and libraries) for climate response and preparedness;
- build trust and partnerships between communities, local jurisdictions, and government officials;
- concerns about high asthma rates due to air pollution;
- improve access to cooling centers for vulnerable populations;
- COVID-19 exacerbated issues for climate vulnerable communities; and
- continual updates to climate resilience policies and programs.

SCAG incorporated lessons learned from these interviews with the inclusion of new strategies in the ERA Toolbox and through analysis included in this and other technical reports.

8.1.1 METHODOLOGY

To evaluate the potential impacts of climate change on the region's population, SCAG compared Base Year, Baseline, and Plan scenarios of the projected population within TAZs overlapped by various climate hazard zones. Table 30 summarizes the data used to evaluate each of the six climate hazards that are described further in the next sections. Using GIS software, SCAG combined the hazard layers to determine the proportion of each hazard area within a TAZ and applied that proportion to the forecasted populations. SCAG calculated Plan impacts by finding the difference between the Baseline and Plan scenarios.

Table 30. Climate Hazard Data Description

Climate Hazard	Data Source	Data Description
Flooding and landslides	Federal Emergency Management Agency (FEMA)	100-year and 500-year flood areas
	California Department of Conservation, California Geological Survey (CGS)	Landslide Zones
Coastal inundation (sea level rise)	Coastal Storm Modeling System (CosMos)	Areas vulnerable to 1 meter of sea-level rise
Wildfires	CalFire	Local Responsibility Areas and State Responsibility Areas showing areas that are at <i>moderate, high, and very high</i> risk of wildfires
Extreme heat	California Heat Assessment Tool	areas that are projected to experience more than two heat health events from 2031-2050
Drought	U.S. Drought Monitor	areas that experienced <i>severe, extreme, and exceptional</i> drought during September 2014
Earthquake hazard zones	California Department of Conservation, CGS	Alquist-Priolo Earthquake Fault Zones

This measure also includes a summary of the number of climate hazards that communities face as climate impacts can be compounded. SCAG summarized these results by race and ethnicity and by Priority Equity Communities.

8.1.2 FLOODING AND LANDSLIDE ZONES

Flood hazard areas are vulnerable to flooding due to environmental (e.g., proximity to a river or coastline, heavy rains) or physical (e.g., poor drainage) factors. Atmospheric rivers are regions of high-water vapor transport from the tropics to the Pacific Coast of the U.S. that can produce intense topographic-induced precipitation along southern California mountain ranges. Although such events have helped pull the region out of droughts, they are also responsible for devastating floods and mudslides. According to the

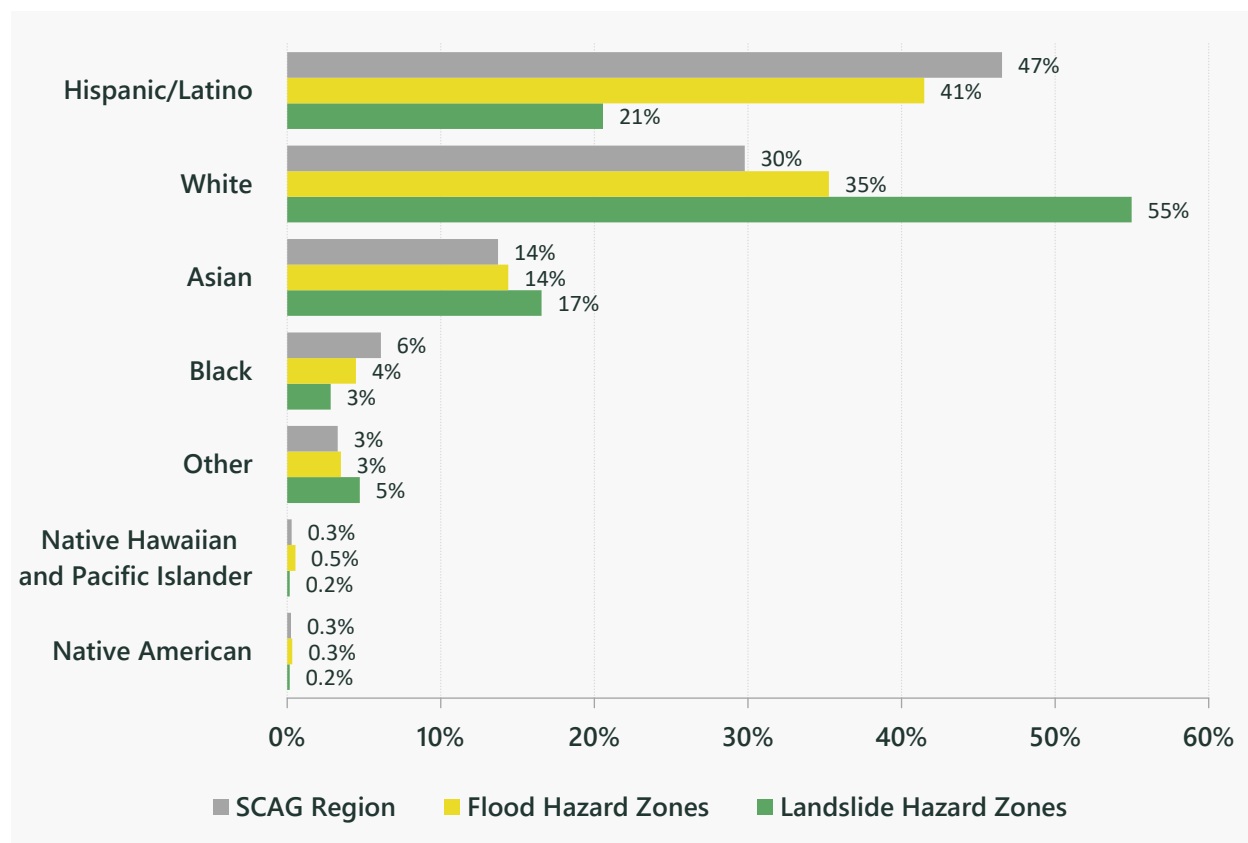
FEMA Risk Mapping, Assessment and Planning (Risk MAP) program, areas that have at least one percent chance of experiencing a flood yearly, which have a one-in-four chance of experiencing flooding during a 30-year mortgage, are considered “high risk.”^{xxviii}

FEMA projects that flooding will increase by 2050 due to climate change. Analysis of several previous-generation global climate models (GCMs) suggest that the frequency of atmospheric river events may increase in the future and that the storms themselves will be associated with higher water vapor transport rates compared to historical conditions.^{xxix} Moreover, the peak season of atmospheric rivers may also lengthen, which could extend the flood-hazard season in California.

Flooding can have devastating impacts on public health, the economy, the environment, physical infrastructure and social networks. The California Department of Water Resources identifies community displacement, damage to important infrastructure such as public facilities, and disruptions to the state’s water systems and natural ecosystems as some of the consequences of flooding. California’s Fourth Climate Change Assessment (Fourth Assessment) cites the direct effects flooding and landslides have on public health, such as causing deaths, injuries, and other trauma, as well as the indirect impacts, such as water contamination, infrastructure damage, and mold contamination in homes due to floodwaters.^{xxx} This can have a ripple effect and impact the surrounding natural ecosystems, neighboring communities, and the regional economy. Research from the Public Policy Institute of California shows that flooding disproportionately impacts people of color, low-income, and other vulnerable communities, such as unhoused communities, because they often do not have access to the resources, relief funds, and/or insurance coverage to recover from losing their homes, jobs, and property to a flood event.^{xxxi} The burdens of displacement and the economic costs of infrastructure recovery are more severe for low-income residents.

Figure 29 shows the distribution of race and ethnicity of the population living in flood and landslide hazard zones compared to the regional population. In the Base Year, White residents are disproportionately affected by flooding, as they comprise 35 percent of the population living in flood hazard areas, and only 30 percent of the regional population. For landslide hazard areas, Asian people are disproportionately affected, as they comprise 17 percent of the population living in landslide hazard zones, but only 14 percent of the SCAG Region. Similarly, people identifying as some other race comprise three percent of the region’s population, but five percent of the total population living within landslide hazard zones.

Figure 29. Population in Flood and Landslide Hazard Zones by Race and Ethnicity, 2019



Source: Federal Emergency Management Agency, California Department of Conservation, CGS

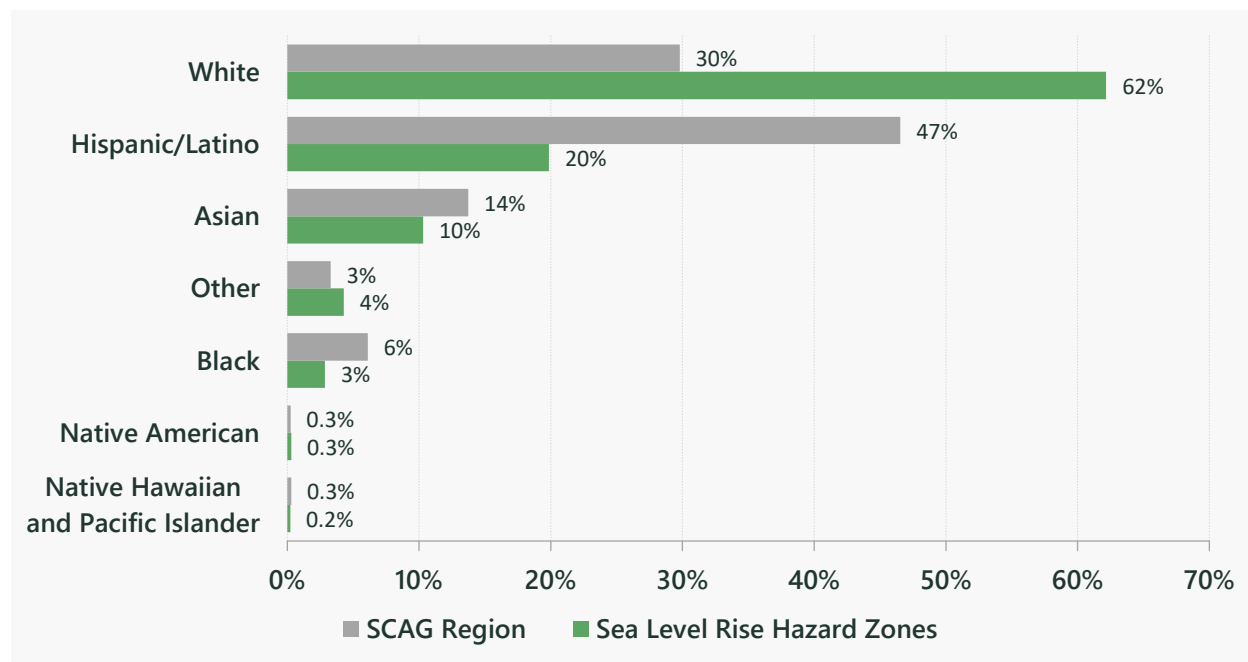
8.1.3 COASTAL INUNDATION (SEA LEVEL RISE)

According to the Fourth Assessment, sea levels have been on the rise in the last few years as a result of increasing ocean temperatures and melting of mountain glaciers, ice caps, and ice sheets. This puts coastal communities at-risk of experiencing coastal flooding or inundation, which particularly impacts Orange, Los Angeles, and Ventura counties. Sea level rise is projected to become more frequent, increasing the risk of coastal inundation by 2050.

Coastal inundation, much like inland flooding, can have destructive public health, socioeconomic, ecological and physical impacts on coastal communities. According to UC Berkeley College of Natural Resources' *Toxic Tides*, there are 493 hazardous facilities (e.g., oil refineries, industrial facilities, power plants) in low-lying coastal areas that are projected to be at risk of at least one coastal flooding event per year in 2100. Orange and Los Angeles counties are among the five most at-risk counties in the state.^{xxxii} Communities near a flooded hazardous facility are at risk of negative health impacts and poor air quality. *Toxic Tides* estimates that, by 2050, disadvantaged communities are over five times more likely to live within one kilometer (a little over half a mile) from a hazardous facility that is at risk of flooding. Additionally, like an inland flooding event, coastal inundation can destroy homes, jobs, and property, levying a heavy on people to find financial resources to recover from a devastating coastal flooding event.

Figure 30 shows the distribution of race and ethnicity of the population living in sea level rise hazard zones compared to the regional population. According to this figure, White people are two times as likely and Hispanic/Latino and Black people are half as likely to live in areas impacted by sea level rise compared to their share of the SCAG population.

Figure 30. Population in One Meter Sea Level Rise Hazard Zones by Race and Ethnicity, 2019



Source: CosMos

8.1.4 WILDFIRES

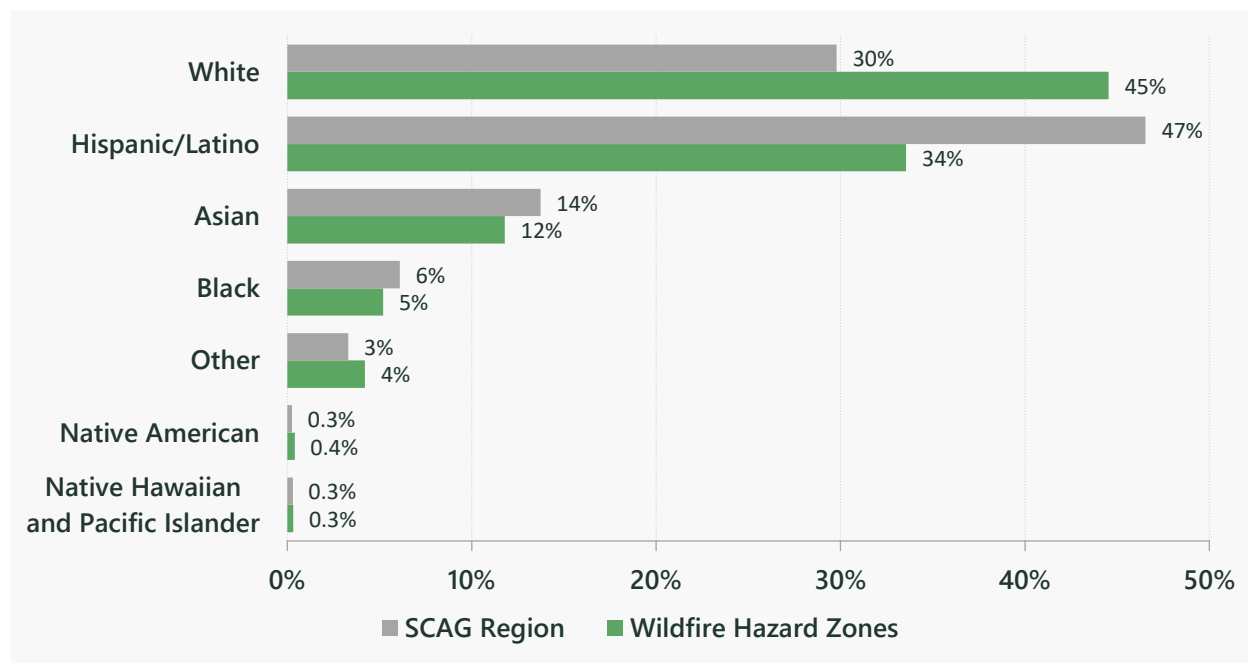
As discussed in the Fourth Assessment, wildfires can be caused by several factors, such as dry hot weather exacerbated by the Santa Ana winds and drought, dead or dry vegetation, human activity, and/or maintenance practices. The Fourth Assessment anticipates that Southern California has the potential to experience larger wildfires and burned areas by the middle of the century under the Representative Concentration Pathway 8.5 (RCP8.5) scenario.

Aside from the consequences of displacement and property loss, the Fourth Assessment underscores that wildfires have very serious health effects on people living in and near communities directly affected by wildfire events. These impacts include death, respiratory illnesses, mental health illnesses such as depression and post-traumatic stress disorder, and pulmonary diseases such as acute bronchitis. Smoke from wildfires releases harmful chemicals and particulates that affect air quality which can reach communities up to 100 miles away.

As with other destructive natural disasters, low-income communities may not have immediate access to financial resources to recover from displacement and property loss or cover medical expenses resulting from a wildfire. Additionally, people of color and low-income groups are already disproportionately exposed to poor air quality and prone to respiratory illnesses, which can be exacerbated by wildfire events.

Figure 31 shows the distribution of race and ethnicity of the population living in wildfire hazard zones compared to the regional population. There is a greater concentration of White residents in wildfire hazard zones (45 percent) as compared to the share of population in the SCAG region (30 percent). Hispanic/Latino population is much less likely to be living in a wildfire hazard zone with only 34 percent of their 47 percent share of the SCAG population.

Figure 31. Population in Wildfire Hazard Zones by Race and Ethnicity, 2019



Source: CalFire

8.1.5 EXTREME HEAT AND COOLING STRATEGIES

Extreme heat refers to warm temperatures that are higher than average daily temperatures. According to the Fourth Assessment, due to climate change, the number of extreme heat days in Southern California is projected to grow significantly by mid-21st century under RCP8.5. Though extreme heat is often associated with the summertime, extreme heat can happen at any time of the year. For example, the Fourth Assessment shows that Los Angeles County’s winter season tends to experience extreme temperature days and heat-related mortality.

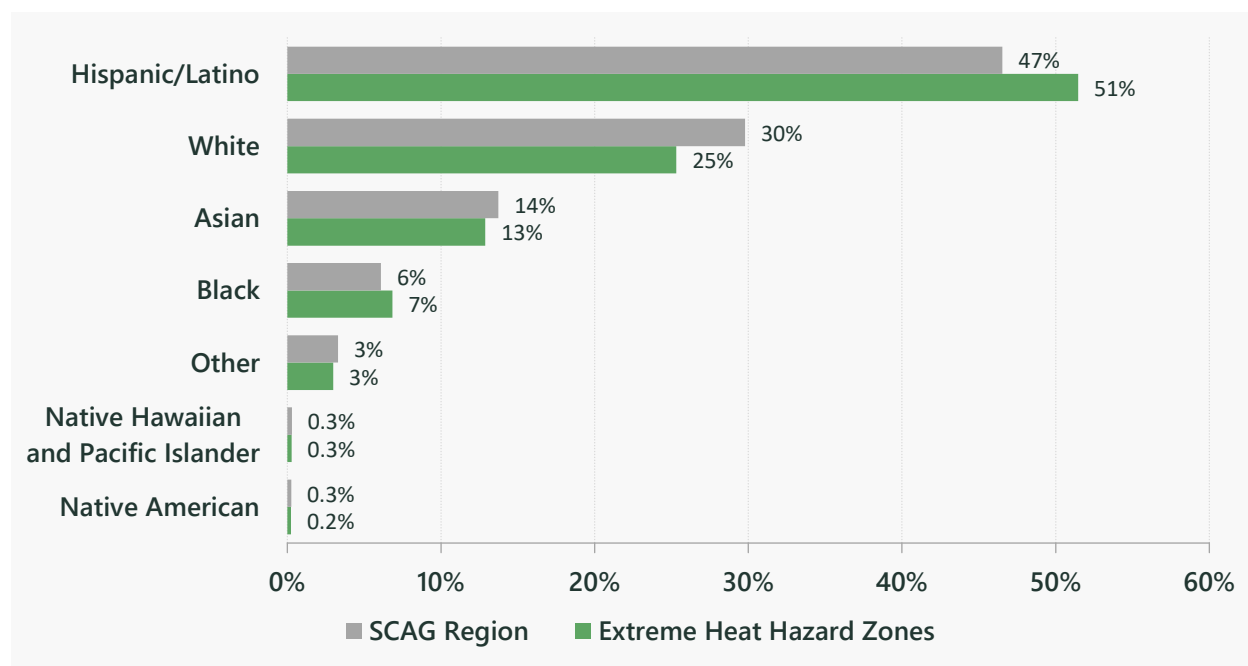
Extreme heat has one of the highest hazard mortality rates causing more deaths yearly than floods, storms, and lightning. Extreme heat can have severe public health consequences by causing heat-related illnesses, such as heat exhaustion and heat stroke, exacerbating other illnesses, and increasing mortality rates. U.S. EPA found that during an extreme heat event, the body’s temperature can quickly rise and reach 106 degrees Fahrenheit, increasing the risk of heat stroke. U.S. EPA also found that certain groups have increased likelihood of experiencing heat-related cramps at 90 degrees Fahrenheit. The Fourth Assessment underscores that high heat temperatures can increase the risk of other serious climate hazards, such as drought or wildfire risk, and increase the concentration of ground-level ozone which contributes to poor air quality.

Due to a legacy of disinvestment in low-income and communities of color, there are racial and income disparities in urban heat islands and communities that lack trees and access to air conditioning, therefore increasing vulnerability to extreme heat. Research from the UCLA Luskin Center for Innovation shows that many low-income families tend to live in substandard housing units that lack air conditioning or have lower thermal performance, which leads to higher electricity costs.^{xxxiii} In addition, children and older adults, people with disabilities, people with chronic medical conditions, as well as populations who spend a lot of time outside and are exposed to the heat, such as unhoused individuals and outdoor workers, are all more vulnerable to extreme heat impacts.

To mitigate extreme heat and the urban heat island effect, which the Fourth Assessment describes as the phenomenon where the built environment exacerbates the temperature of a community, local jurisdictions have increasingly implemented several urban cooling strategies. These include increasing tree canopy coverage, air conditioning accessibility, and impervious surfaces.

Figure 32 shows the distribution of race and ethnicity of the population living in extreme heat hazard zones compared to the regional population. In the Base Year scenario, Hispanic/Latino and Black people are more likely to reside in extreme heat hazard zones compared to their shares of the regional population.

Figure 32. Population in Extreme Heat Hazard Zones by Race and Ethnicity, 2019



Source: California Heat Assessment Tool

8.1.6 DROUGHT

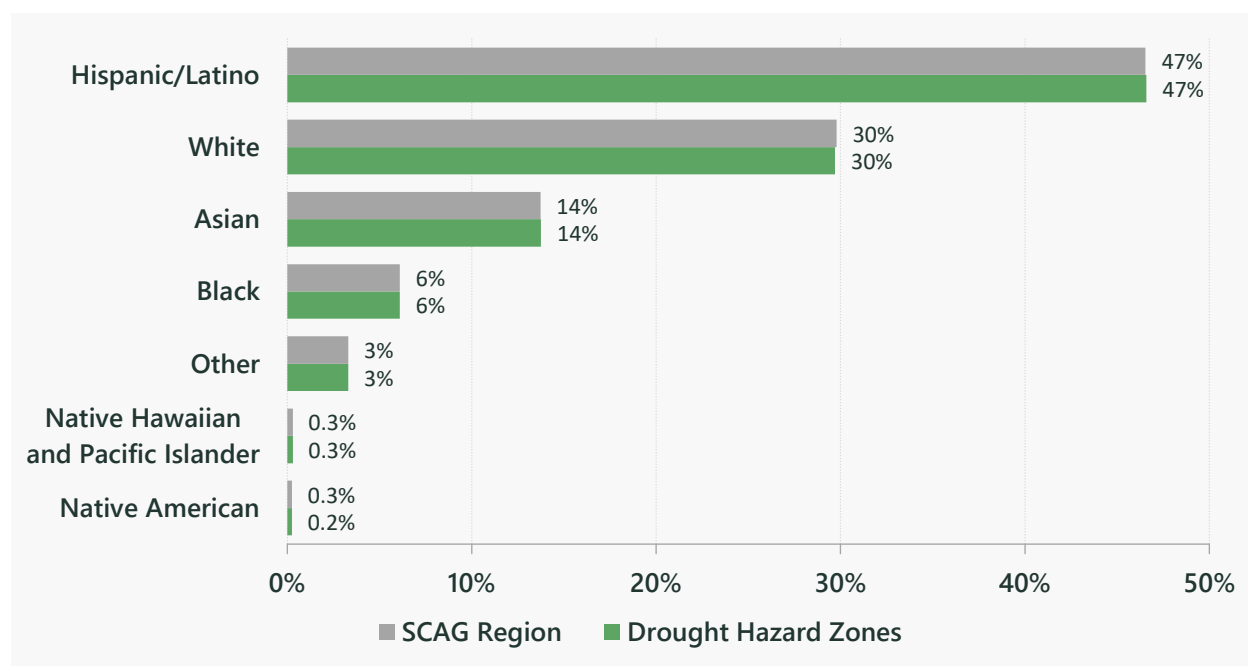
Droughts occur after periods of extremely dry and warm conditions. According to the Fourth Assessment, the SCAG region recently experienced an exceptional drought during 2011-2015, with anthropogenic warming contributing to historically warm temperatures, dry soils, precipitation deficits, and low

snowpack. Extremely dry years are projected to increase across southern California, potentially doubling or more in frequency by the late-21st century. Anthropogenic warming increases the probability that low-precipitation years coincide with warm years, increasing the current risk and severity of droughts and low snowpack in California.

The Fourth Assessment states that climate effects can negatively impact agriculture, contributing to higher food prices and further reducing access to affordable, healthy food options. Increases in drought frequency and severity impact both water availability and quality, which is particularly an issue for populations, including tribal communities, who rely on local ground and surface water sources. Low-income households, people of color, and communities already burdened with environmental pollution suffered the most severe impacts caused by water supply shortages and rising cost of water.^{xxxiv} Among an array of indirect impacts, drought conditions also exacerbate the risk of wildfires.

Figure 33 shows the distribution of race and ethnicity of the population living in areas impacted by extreme, severe, and exceptional drought risk compared to the regional population. This figure shows that residents who live in areas impacted by extreme, severe, and exceptional drought closely resemble the greater region.

Figure 33. Population in Drought Hazard Zones by Race and Ethnicity, 2019



Source: U.S. Drought Monitor

8.1.7 ALQUIST-PRIOLO EARTHQUAKE HAZARD ZONES

Southern California has the highest level of earthquake risk in the United States, as half of the expected financial losses from earthquakes in the nation are expected to occur in Southern California. According to the United States Geological Survey, Southern California has over 300 faults that can produce earthquakes at magnitude 6 because it sits astride the Pacific–North American plate boundary at the Big Bend of the San Andreas Fault.^{xxxv} The California Earthquake Authority reports that the San Andreas Fault can cause

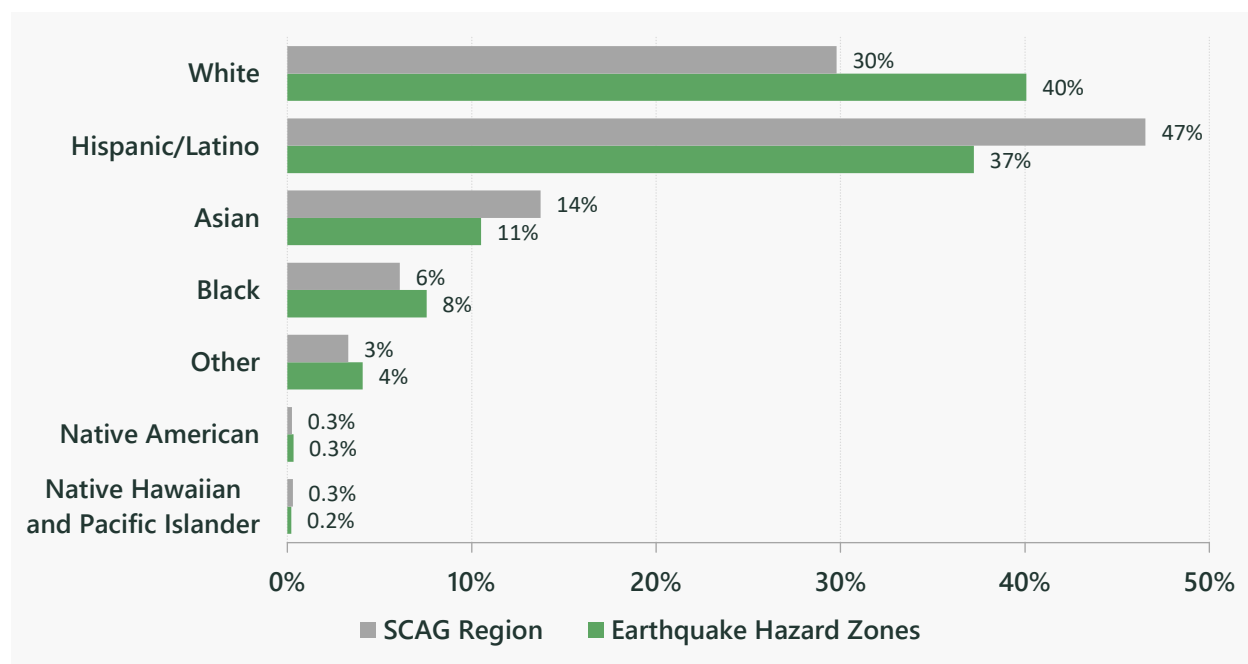
earthquakes as powerful as magnitude 8, and there is a 75 percent probability that one or more 7.0+ earthquakes strike Southern California based on a 30-year period that began in 2014.^{xxxvi}

Depending on the magnitude, earthquakes can cause serious infrastructure damage which can lead to bodily injury and even mortality. More severe earthquakes can trigger tsunamis, which primarily affect communities along the coast. Severe earthquakes can also destroy personal belongings and buildings, leading to displacement. Earthquakes also increase the risk of landslides occurring on steep hillsides, where soil may be prone to liquefaction.

Low-income and communities of color are inequitably impacted by the economic costs associated with severe earthquakes, specifically property damage and displacement.

Figure 34 shows the distribution of race and ethnicity of the population living in earthquake hazard zones compared to the regional population. In the Base Year (2019), Black, White, and residents identifying as some other race were disproportionately affected by earthquake risk, as they comprise a higher percentage of the population living in earthquake hazard zones than is seen in the greater region.

Figure 34. Population in Earthquake Hazard Zones by Race and Ethnicity, 2019



Source: California Department of Conservation, CGS

8.1.8 PLAN IMPACTS

Table 31 shows the differences between Plan and Baseline scenarios in race and ethnicity of the population living in each climate hazard zone described above with the implementation of the Plan. In the future scenarios, there are nominal differences (less than one percent change) between the Baseline and Plan scenarios, meaning that the implementation of the Plan is not expected to disproportionately impact populations in most climate hazard zones.

Table 31. Plan Impacts on Population in Climate Hazard Zones by Race and Ethnicity (Plan minus Baseline)

Race/Ethnicity	Landslide	Flood	Wildfire	Drought	Sea Level Rise	Extreme Heat	Earthquake
Asian	-3.7%	-0.2%	-1.6%	0.0%	-0.7%	0.6%	0.0%
Black	0.1%	-0.1%	0.1%	0.0%	0.1%	0.0%	0.3%
Hispanic/Latino	0.9%	-0.1%	-0.1%	-0.1%	0.2%	-0.7%	-0.3%
Native American	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Native Hawaiian/ Pacific Islander	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%
Other	0.2%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%
White	2.4%	0.1%	1.4%	0.0%	0.2%	0.0%	-0.1%

Source: SCAG Regional Growth Forecast, FEMA, CGS, CosMos, CalFIRE, California Heat Assessment Tool, U.S. Drought Monitor

With the implementation of the Plan, the Asian population is expected to decrease in most hazard areas, primarily landslide, wildfire, and sea level rise hazard zones; but may increase in extreme heat hazard zones. Hispanic/Latino populations are expected to decrease in extreme heat hazard zones but increase in landslide hazard areas. More significant increases are seen with White populations growing in landslide and wildfire hazard areas with the implementation of the Plan.

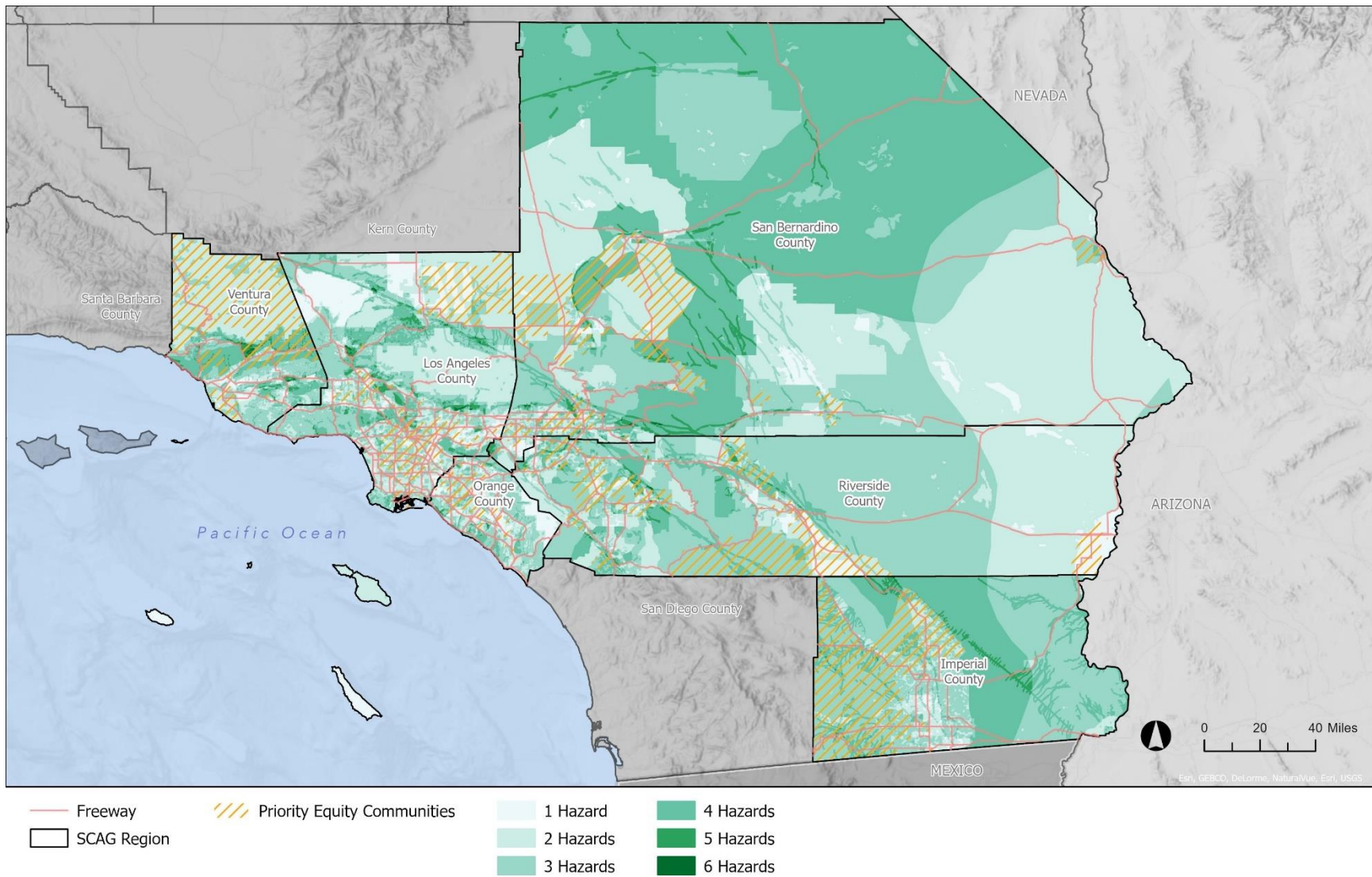
As illustrated above, there are many climate hazards that impact the SCAG region, and several communities are impacted by more than one hazard. Understanding what parts of the region are at risk of being impacted by several climate hazards in relation to the demographics of these areas can provide a better understanding of climate vulnerability in the region.

Map 10 shows the climate hazards discussed in this section that impact the SCAG region: flooding, landslides, sea level rise, extreme heat, wildfires, drought, and earthquake hazard zones. Although it is not a climate hazard, substandard housing is also included in this map because substandard housing units can exacerbate the impacts of climate hazards on homes and families.

The areas that experience the highest number of climate hazards in the region are impacted by six climate hazards, while the areas that experience the lowest number of climate hazards are only impacted by one. The areas that experience the highest number of climate hazards are near Landslide Zones and Alquist-Priolo Earthquake Fault Zones. The areas that experience the second highest number of climate hazards (five hazards) are largely concentrated in San Bernardino County, with some areas in Riverside and Imperial Counties and along the coasts of Ventura, Los Angeles, and Orange Counties.

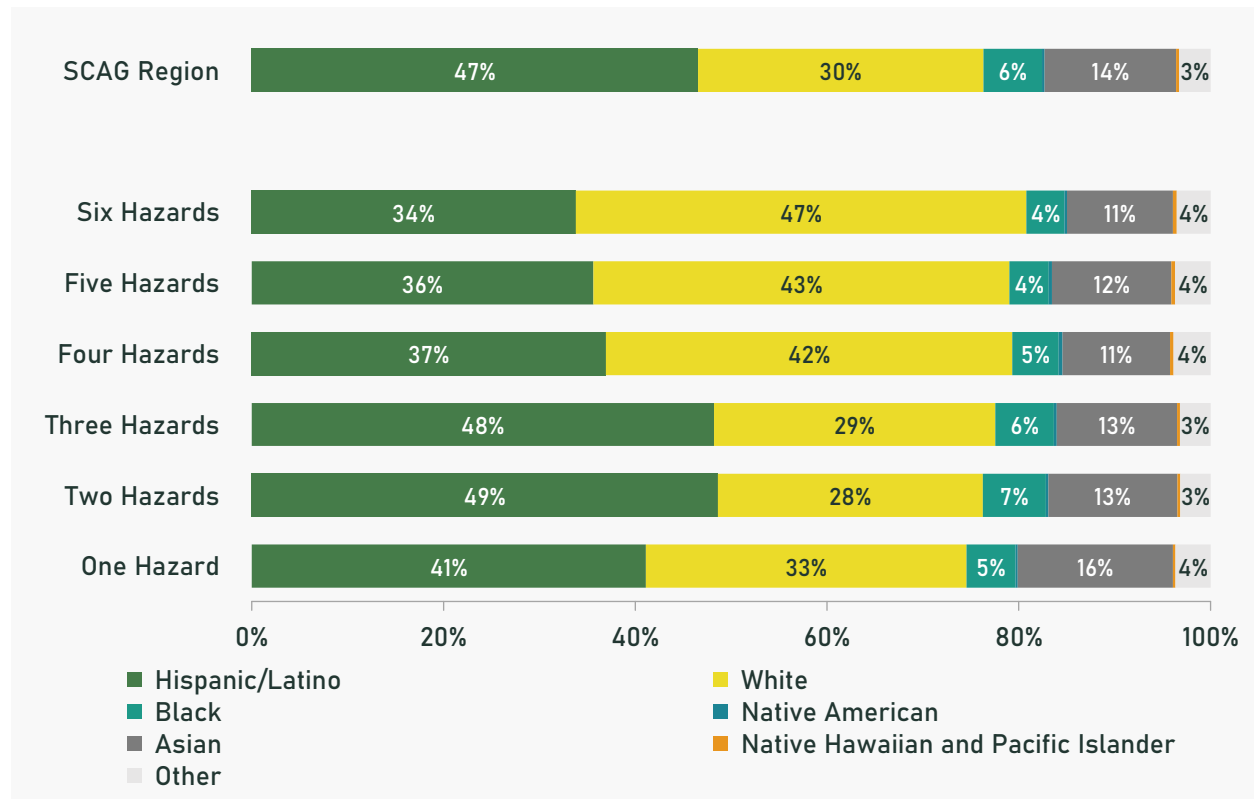
Figure 35 shows that there is a higher concentration of White residents in areas with four or more climate hazards and Asian residents in areas with one climate hazard than is seen in the greater region. When comparing the Plan to the Baseline scenario, Figure 36 indicates that Hispanic/Latino residents have a lower concentration in areas with five or more hazards from the Plan scenario as compared to the Baseline. White residents have a higher concentration in areas with four or more hazards than is seen in the greater region, both for the Plan and Baseline growth forecasts.

Map 10. Overlapping Climate Vulnerabilities in the SCAG Region



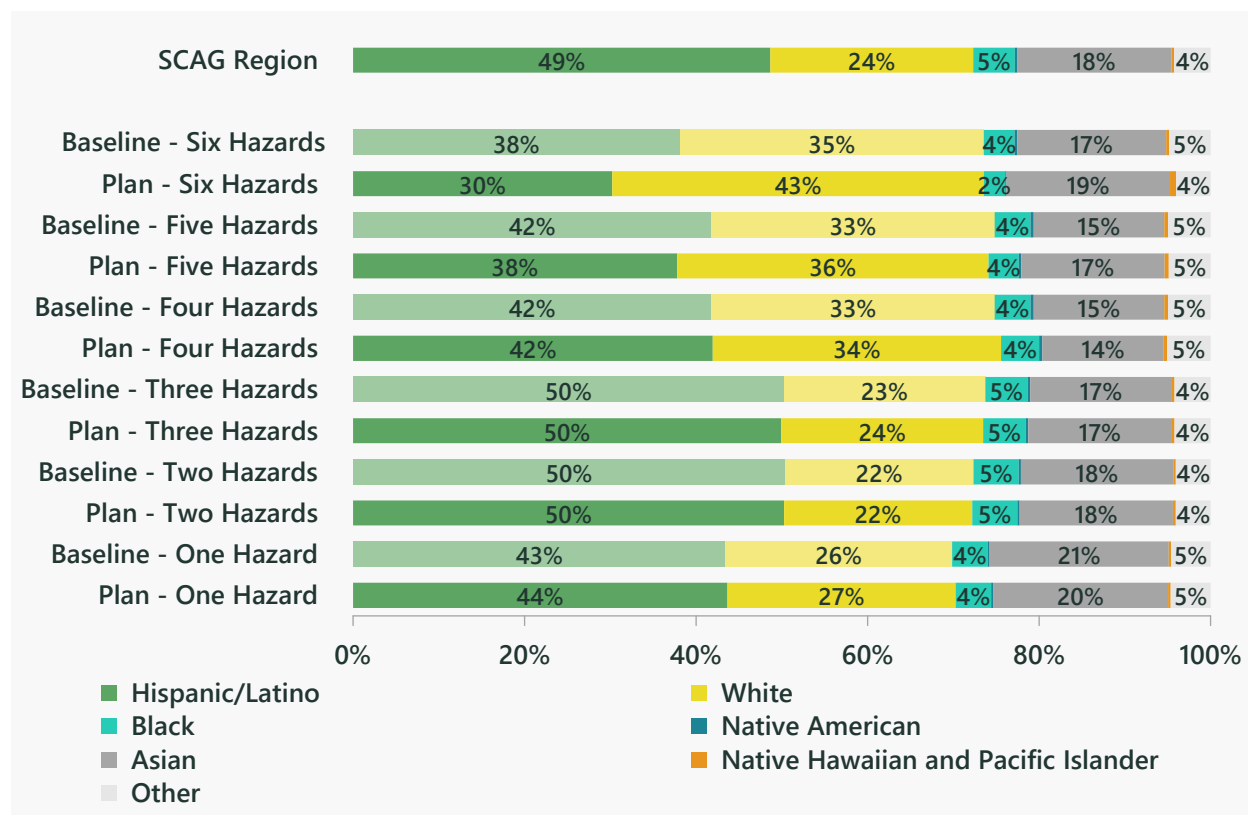
Source: SCAG 2023, FEMA, CGS, CosMos, CalFIRE, California Heat Assessment Tool, U.S. Drought Monitor, U.S. Census Bureau ACS, 2017-2021.

Figure 35. Population in Combined Climate Hazard Zones by Race and Ethnicity, 2019



Source: SCAG 2023, FEMA, CGS, CosMos, CalFIRE, California Heat Assessment Tool, U.S. Drought Monitor, U.S. Census Bureau ACS, 2017-2021

Figure 36. Population in Combined Climate Hazard Zones by Race and Ethnicity, 2050



Source: SCAG 2023, FEMA, CGS, CosMos, CalFIRE, California Heat Assessment Tool, U.S. Drought Monitor, U.S. Census Bureau ACS, 2017-2021

8.2 EMISSIONS IMPACTS

Residents of the SCAG region have historically suffered from some of the worst air quality in the nation. Air pollution comes from several sources and can be classified into two types: ozone pollution and particulate matter. Ozone pollution takes a gaseous form and is generated as vapor emitted from fuel commonly used in vehicles, industrial processes, etc. Ozone is formed by the reaction between volatile organic compounds (VOC) and oxides of nitrogen (NOX) in the presence of sunlight. Particulate matter (PM10 and PM2.5) are very fine particles made up of materials such as soot, ash, chemicals, metals and fuel exhaust that are released into the atmosphere. Exposure to unhealthy air can cause respiratory and cardiovascular disease, exacerbate asthma, and even lead to premature death. The SCAG region is at particular risk for health impacts due to air quality, as the region has the worst levels of ground-level ozone (smog) and among the highest levels of fine particulate matter (PM2.5) with EJ communities experiencing the brunt of the health effects from air pollution.

Table 32 shows the number of stations within Priority Equity Communities and each in the region. There are 55 air quality monitoring stations around the SCAG region operated by five local air districts including 35 stations for PM2.5 and 43 stations for ozone. Just over half of the region’s monitoring stations are in Priority Equity Communities.

Table 32. Distribution of Air Quality Monitoring Stations in the SCAG Region

Region	PM2.5	Ozone	Total	
	#	#	#	%
Region	35	43	55	100%
Priority Equity Communities	16	20	28	51%
Imperial	2	3	4	7%
Los Angeles	12	14	18	33%
Orange	2	3	4	7%
Riverside	7	7	8	15%
San Bernardino	7	11	15	27%
Ventura	5	5	6	11%

Note: Some stations monitor multiple air pollutants.

Source: South Coast Air Quality Management District, 2023 Annual Air Quality Monitoring Network Plan, and California Air Resources Board Air Monitoring Site List Generator

Transportation projects can have both positive and negative impacts on the air quality. Investments can initiate shifts in travel behavior to modes with lower emissions per capita (e.g., bus, rail transit, carpooling, or passenger rail). Conversely, investments that increase traffic volumes on a particular facility usually degrade air quality in the immediate vicinity of that facility.

Exposure levels to PM and carbon monoxide (CO) are often higher in areas adjacent to freeways and high-traffic roads compared to other areas in the region. The average exposure to the nearby residents, workers and other sensitive receptors located near freeways and high-traffic roads can be much higher than other places in the region are measured by a concentration index (for example, emissions divided by land area). The residents near freeways and heavily traveled corridors, particularly near port and logistics activities, are primarily people of color and low-income households, making air quality impacts an equity issue.

Through the development of this and previous RTP/SCS cycles, environmental groups, public health advocates, housing groups, and air quality regulation agencies elevate concerns about incompatible land uses, including sensitive receptors such as hospitals, senior/daycare centers, and housing near freeways and busy roadways. A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to air contaminants. The locations where these sensitive receptors congregate are considered sensitive receptor locations. Map 11 shows certain sensitive receptor locations including schools, colleges, child and senior care facilities, medical care/nursing facilities, and religious and recreational facilities in the SCAG region. The concentration of sensitive receptors is highest in central Los Angeles County, north Orange County, southwest San Bernardino County, and northwest Riverside County. The distribution of these facilities highly correlates with PM2.5 emissions in the SCAG region, which suggests that there may be health impacts to these sensitive populations, especially along freeways and high-traffic roads.

There are several local, state, and federal efforts to reduce emissions and mitigate the disproportionate public health impacts on local communities. For example, CARB's Community Air Protection Program (CAPP) focuses on reducing exposure in communities most impacted by air pollution.^{xxxvii} Several of the CAPP communities, also referred to as AB 617 Communities, are in the SCAG region, including:

1. Wilmington, West Long Beach, Carson
2. South Los Angeles
3. South East Los Angeles
4. San Bernardino, Muscoy
5. Portside Environmental Justice Communities
6. North Imperial Phase 1
7. International Border Community
8. Eastern Coachella Valley
9. East Los Angeles, Boyle Heights, West Commerce
10. Calexico, El Centro, Heber

This section examines the air pollutant emissions that result from the Plan at the regional level, neighborhood level (i.e., TAZ), and in Priority Equity Communities. SCAG's air pollutant emissions analysis is based on emission estimates for pollutants that have localized health effects: CO and PM2.5. The analysis is also conducted for PM2.5 exhaust emissions from heavy-duty vehicles, which is an indicator of diesel toxic air contaminants.

For additional context about how SCAG and local air quality management districts are working to meet federal air quality standards, including the Regional Emissions Analysis, see the Transportation Conformity Analysis Technical Report.

8.2.1 METHODOLOGY

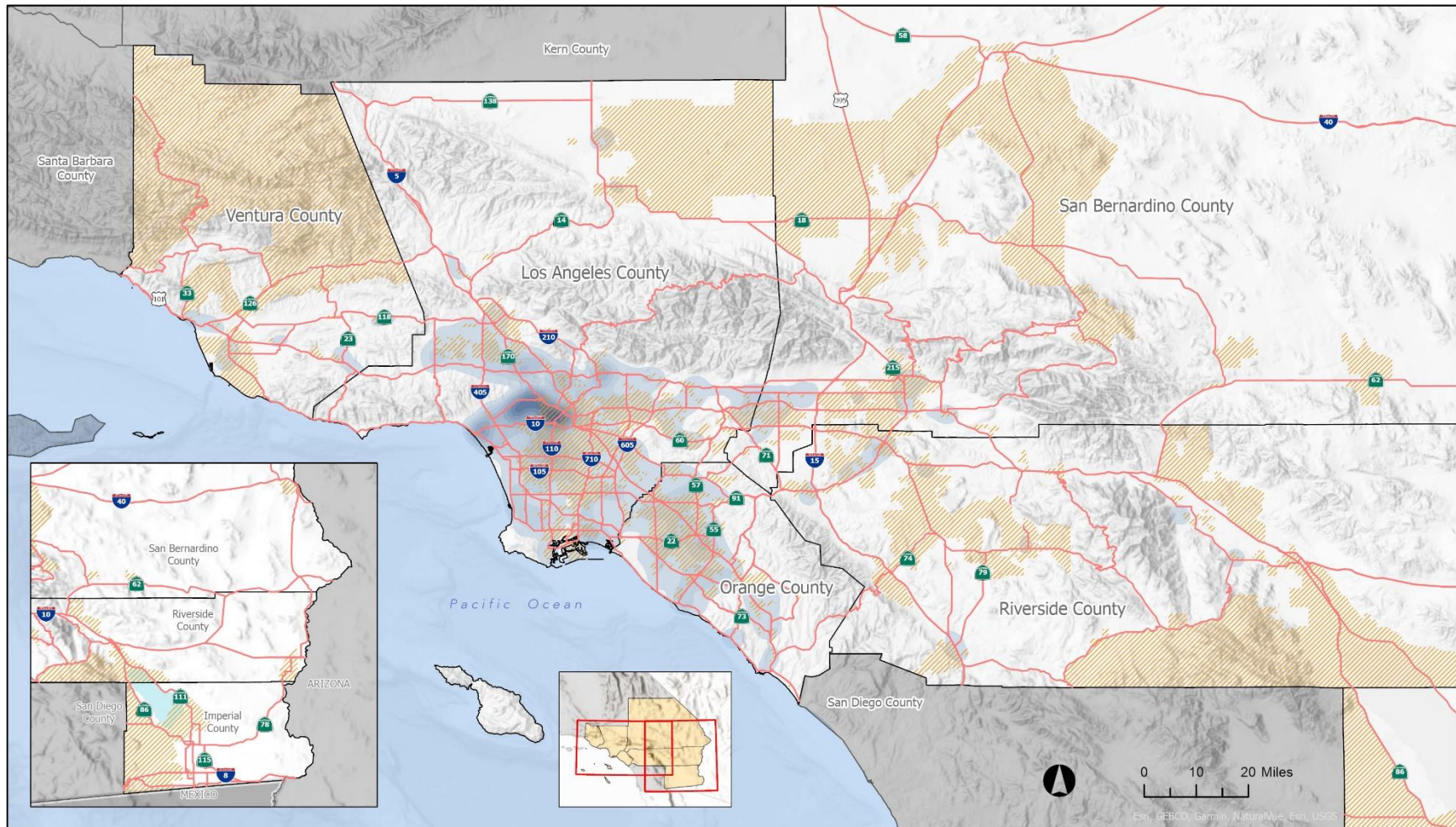
Since ambient pollutant concentration levels are directly linked to localized emissions and cannot be easily estimated, the geographic emissions distribution analysis focuses on pollutants that tend to have localized effects, namely CO and PM2.5. The analysis does not cover pollutants that do not have localized effects proportionate to emissions but are regionally distributed as a result of chemical interactions, photochemical reactions, and meteorology (VOC, NOX, and SOX).

Using SCAG's Travel Demand Model and EMFAC2021, this analysis calculated the expected changes in the emissions for CO and PM2.5 between the Base Year, Baseline, and Plan scenarios. This section analyzed the regional change in emissions, the share of population in Priority Equity Communities impacted by emissions changes, and the demographic distribution of the population impacted by emissions changes. The results were computed based on the average emissions (tons per day) at the TAZ level.

Additionally, this analysis highlights the expected changes in emissions exposure to populations within 500 feet of freeways and high-traffic roads, also referred to as freeway-adjacent areas. High traffic roads are defined per California Public Resources Code Section 21151.8 as roadways that, on an average day, have traffic in excess of 50,000 vehicles in rural areas and 100,000 vehicles in urban areas. The Connect SoCal 2024 land use strategy calls for redirecting future growth into Priority Development Areas (PDAs). As a result, part of this growth will occur in areas where PDAs overlap with freeway-adjacent areas. More information about the development and analysis of Priority Development Areas is available in the Land Use and Communities Technical Report.

To evaluate how the Plan's projects and policies impact areas near highly traveled corridors, SCAG compared the existing and projected distribution of priority populations in freeway-adjacent areas to the regional distribution. SCAG also estimated characteristics of population living in areas where CO and PM2.5 emissions are expected to improve and worsen.

Map 11. Sensitive Receptor Locations in 2020



Sensitive Receptor Locations

Less Concentration

More Concentration

Priority Equity Community

(Note: Sensitive receptor locations include schools/colleges, child and senior care facilities, medical care and nursing facilities, and religious and recreational facilities.)

Source: 2020 TomTom Points of Interest, California School Campus Database (Version 2021)

8.2.2 RESULTS

Overall, SCAG expects improvements in CO and PM2.5 emissions in the region and Priority Equity Communities as a result of the implementation of the Plan. Table 33 summarizes the difference in CO and PM2.5 emissions between Base Year and Baseline scenarios, and Baseline and Plan scenarios. Comparing Base Year and Baseline, SCAG expects reductions of 61 percent for CO emissions and 26 percent for PM2.5 emissions in the SCAG region. With the implementation of the Plan, SCAG expects to see an additional seven percent reduction for CO emissions and five percent for PM2.5 emissions. In Priority Equity Communities, SCAG expects equal or greater emission reductions compared to the region with the implementation of the Plan, especially for PM2.5 emissions which are expected to improve by 88 percent.

Table 33. CO and PM2.5 Emission Reductions

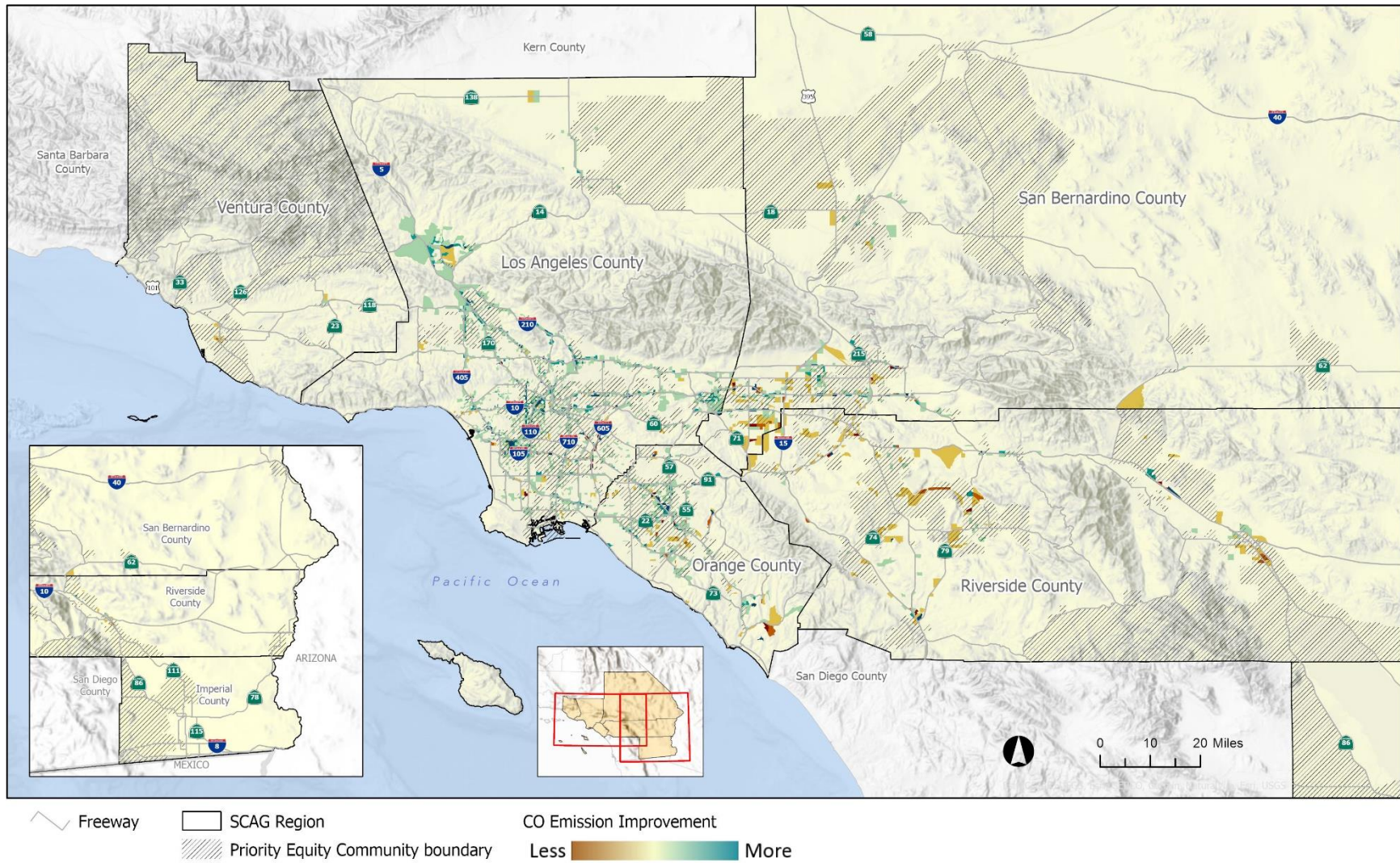
	Region	Priority Equity Communities
CO		
Base Year vs. Baseline	61%	61%
Baseline vs. Plan	7%	7%
PM2.5		
Base Year vs. Baseline	26%	-14%
Baseline vs. Plan	5%	88%

Source: SCAG Transportation Model

Map 12 and Map 13 show the changes in geography of CO and PM2.5 emissions at the TAZ level expected with the implementation of the Plan. Generally, the emissions improvements are seen closer to freeways and other high-traffic corridors, which are evaluated later in this section.

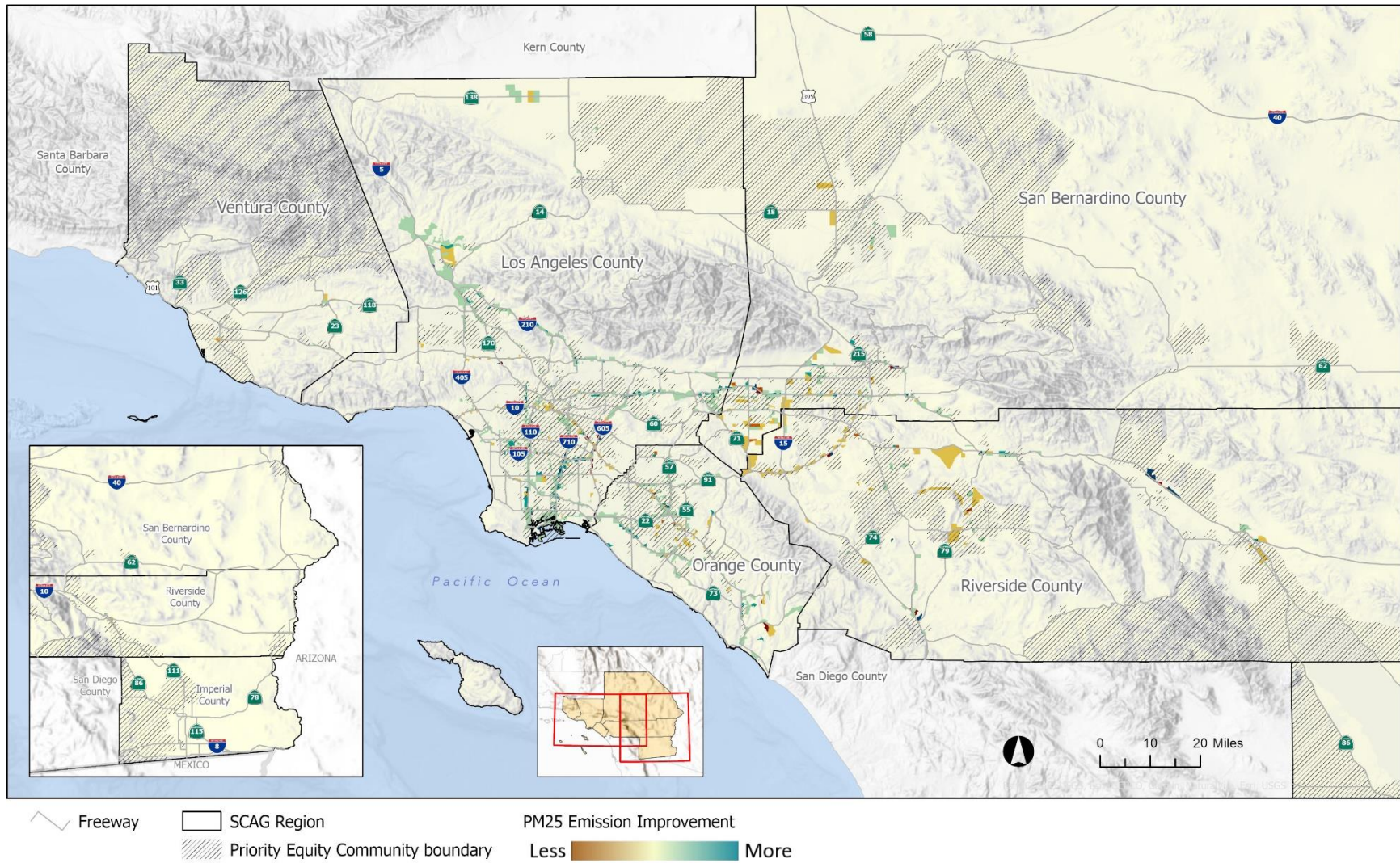
Table 34 provides information about the distribution of the population who will experience improvement and worsening of CO and PM2.5 emissions with the implementation of the Plan. In the SCAG region, 83 percent and 78 percent of the population is expected live in areas that will experience CO and PM2.5 emissions improvement resulting from the Plan, respectively. Priority Equity Communities are also expected to experience improvement with 82 percent and 77 percent of the population residing in areas where CO and PM2.5 emissions improve with the Plan, respectively. The population in areas where CO emissions worsen is lower in the region (15 percent) compared to Priority Equity Communities (17 percent). Compared to the proportion of the population within the region and Priority Equity Communities, Hispanic/Latino populations are underrepresented in areas of improving emissions and overrepresented in areas of worsening emissions by five percent or less. Generally, the difference is less pronounced or non-existent in Priority Equity Communities compared to the region.

Map 12. Plan Impact on CO Emissions



Source: SCAG Transportation Model

Map 13. Plan Impact on PM2.5 Emissions



Source: SCAG Transportation Model

Table 34. Plan Impact on Population in Areas with CO and PM2.5 Emission Changes

	Region					Priority Equity Communities				
	Total	CO		PM2.5		Total	CO		PM2.5	
		Improve	Worsen	Improve	Worsen		Improve	Worsen	Improve	Worsen
Population	100%	83%	15%	78%	20%	100%	82%	17%	77%	21%
Asian/Pacific Islander	18%	18%	18%	18%	19%	17%	17%	16%	17%	18%
Black	5%	5%	5%	5%	5%	6%	6%	5%	6%	5%
Hispanic/Latino	48%	48%	53%	48%	51%	63%	63%	65%	63%	64%
Native American	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
White	24%	24%	20%	24%	21%	11%	11%	11%	11%	10%
Multiracial or Other Race	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%
Limited English Proficiency	12%	12%	12%	12%	12%	16%	17%	15%	16%	16%
Foreign Born	34%	35%	34%	34%	35%	40%	40%	38%	40%	39%
Population < 20	21%	21%	21%	21%	21%	23%	24%	23%	24%	22%
Population > 65	22%	22%	21%	22%	21%	19%	19%	19%	20%	19%
People with Disabilities	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Households	100%	83%	15%	78%	20%	100%	82%	17%	76%	22%
Zero-Vehicle Households	8%	8%	8%	8%	9%	10%	11%	9%	10%	11%
Below Federal Poverty Level	11%	11%	11%	10%	11%	15%	15%	14%	15%	15%
Quintile 1	14%	14%	15%	14%	15%	19%	19%	18%	19%	19%
Quintile 2	19%	18%	19%	18%	19%	24%	24%	24%	24%	24%
Quintile 3	25%	25%	25%	25%	24%	26%	26%	25%	26%	25%
Quintile 4	17%	17%	17%	17%	16%	14%	14%	15%	14%	14%
Quintile 5	26%	26%	25%	26%	25%	17%	17%	18%	17%	18%

Source: SCAG Transportation Model and Regional Growth Forecast

Table 35 shows the distribution of populations in freeway-adjacent areas with those in the greater SCAG region for Base Year, Baseline and Plan scenarios. The table indicates that most priority population groups show higher concentrations in areas freeway-adjacent areas than is seen in the greater region. There is a relatively low presence of White people and households in the highest income quintiles for freeway-adjacent areas.

Table 35. Characteristics of Freeway-Adjacent Areas

	Freeway-Adjacent Areas			SCAG Region		
	Base Year	Baseline	Plan	Base Year	Baseline	Plan
Population						
Asian	15%	21%	21%	14%	18%	18%
Black	6%	5%	5%	6%	5%	5%
Hawaiian/Pacific Islander	0.3%	0.3%	0.4%	0.3%	0.3%	0.3%
Hispanic/Latino	50%	51%	50%	47%	49%	48%
Native American	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%
White	25%	20%	19%	30%	24%	24%
Multiracial or Other Race	3%	4%	4%	3%	4%	4%
Limited English Proficiency	11%	12%	12%	10%	11%	12%
Foreign-Born	33%	37%	37%	30%	34%	34%
Population < 20	27%	21%	21%	27%	21%	21%
Population > 65	14%	21%	21%	14%	22%	22%
People with Disabilities	11%	13%	13%	11%	13%	13%
Households						
Below Federal Poverty Level	13%	11%	11%	12%	11%	11%
Quintile 1	14%	14%	14%	13%	14%	14%
Quintile 2	19%	19%	19%	19%	19%	19%
Quintile 3	25%	25%	25%	24%	25%	25%
Quintile 4	18%	16%	16%	18%	17%	17%
Quintile 5	25%	25%	25%	26%	26%	26%
Zero-Vehicle Households	8%	9%	9%	7%	8%	8%

Source: SCAG Regional Growth Forecast

It is projected that the share of most population groups will increase in freeway-adjacent areas between 2019 and 2050 in both the Baseline and Plan scenarios. This is particularly a burden for Asian and foreign-born populations, where the growth near freeways exceeds regional growth. The exception to this growth includes Black and White populations that are already decreasing at the regional level, and people under 20 years old. There are no significant differences (greater than 0.5 percentage points difference) in the share of population groups between the 2050 Baseline and the 2050 Plan.

Table 36 presents a comparison of CO and PM2.5 emissions in TAZs within freeway-adjacent areas, including where they overlap with PDAs, with those in the SCAG region for Base Year, Baseline and Plan scenarios. The 500-foot buffer around freeways and high-traffic roads comprises 378 square miles, which is about 1 percent of SCAG’s land area. As shown in the table, the share of CO and PM2.5 emissions in freeway adjacent areas is significant relative to their share of the region’s total land area. While regional

emissions overall are projected to decrease significantly between 2019 and 2050, the rate of decrease near freeways and high-traffic roads is expected to be even greater between the Base Year and Baseline scenarios. Similar conclusions are drawn for freeway-adjacent areas that overlap with PDAs; this subset of freeway-adjacent areas follows the same pattern with a slightly greater decrease in PM2.5 emissions.

Table 36. Emissions in Freeway-Adjacent Areas

Criteria Pollutant	Share of Emissions within Freeway-Adjacent Areas			Emissions Reductions			
	Base Year	Baseline	Plan	Freeway-Adjacent Areas		SCAG Region	
				Baseline - Base Year	Plan - Baseline	Baseline - Base Year	Plan - Baseline
CO	52%	50%	51%	-62%	-6%	-61%	-7%
PM2.5	55%	52%	52%	-30%	-4%	-26%	-5%
<i>Overlapping with Priority Development Areas</i>							
CO	32%	30%	31%	-63%	-5%	-61%	-7%
PM2.5	32%	30%	31%	-31%	-3%	-26%	-5%

Source: SCAG Transportation Model

Table 37 provides information about the percent of the population living within 500-feet of freeways and high-traffic roads who will experience increases and reductions of CO and PM2.5 as a result of the Plan. Comparing the anticipated share of population in freeway-adjacent areas to specific areas where emissions are worsening, the results show that Black and Hispanic/Latino people, youth under 20 years old, households with incomes below 200% of the FPL and the higher income quintiles are overrepresented and are more likely to experience worsening CO or PM2.5 emissions. In addition, households with incomes below 200% of the FPL and in higher income quintiles are also underrepresented in areas where emissions improve.

Table 37. Characteristics of Freeway-Adjacent Areas with CO and PM2.5 Emission Changes, 2050 Plan

	Freeway-Adjacent Areas	CO		PM2.5	
		Improve	Worsen	Improve	Worsen
Population					
Asian	21%	21%	12%	21%	15%
Black	5%	5%	7%	5%	7%
Hawaiian/Pacific Islander	0.4%	0.4%	0.3%	0.4%	0.4%
Hispanic/Latino	50%	50%	60%	50%	56%
Native American	0.2%	0.2%	0.2%	0.2%	0.3%
White	19%	19%	15%	19%	17%
Multiracial or Other Race	4%	4%	5%	4%	5%
Limited English Proficiency	12%	13%	12%	13%	11%
Foreign-Born	37%	37%	34%	38%	31%
Population < 20	21%	21%	23%	21%	23%
Population > 65	21%	21%	19%	21%	18%
People with Disabilities	13%	13%	14%	13%	13%

	Freeway-Adjacent Areas	CO		PM2.5	
		Improve	Worsen	Improve	Worsen
Households					
Zero-Vehicle Households	9%	9%	8%	9%	7%
Poverty 1	11%	11%	10%	11%	8%
Poverty 2	7%	7%	6%	7%	7%
Poverty 3	8%	8%	8%	8%	9%
Quintile 1	14%	15%	12%	15%	12%
Quintile 2	19%	19%	18%	19%	18%
Quintile 3	25%	25%	28%	25%	27%
Quintile 4	16%	16%	19%	16%	19%
Quintile 5	25%	25%	22%	25%	24%

Source: SCAG Transportation Model and Regional Growth Forecast

8.3 NOISE IMPACTS

Exposure to high noise emissions is a continuing challenge to individual and community health as potential health impacts, such as hearing impairments or loss, hypertension, anxiety, physiological and psychological stress, and sleep disturbances, may occur. Previous EJ Technical Reports and academic research ^{xxxviii, xxxix} confirm that populations of color remain the most affected by noise impacts.

Noise is defined as unexpected and unwanted sound. Unlike other linear measures, such as weight and time, noise levels are measured in decibels (dB) on a logarithmic scale. Doubling a noise source, such as air traffic volume, does not double the noise level, but instead increases the resultant noise level by 3-dB. Conversely, reducing a noise source in half results in a 3-dB decrease. In cases where existing ambient noise levels are already relatively high, there will be a small change in overall noise levels when a newer and lesser noise source is added. For example, when 70 dB ambient noise levels are combined with a 60-dB noise source, the resulting noise level equals 70.4 dB.⁷

A significant challenge in managing and mitigating transportation noise is that not every person or community perceives and responds to noise in the same way. From an individual to the neighborhood level, there are different thresholds and tolerances for sound. Furthermore, one community (e.g., urban environment) may deem a type of land use (e.g., airport expansion) acceptable within a certain noise level, while another (e.g., suburban) might not. Therefore, the challenge remains in determining appropriate noise policies in the face of varying, sometimes contradictory, reactions to aircraft and roadway sound. This section qualitatively assesses the impacts of aviation and roadway noise on SCAG residents living adjacent to noise sources. Additional details about noise impacts can be found in the Connect SoCal 2024 Program Environmental Impact Report.

8.3.1 AVIATION NOISE

The six-county SCAG region is home to an expansive multiple airport system that includes eight commercial airports with scheduled passenger service, seven government/military airfields, and over 30 reliever and general aviation airports. With such a large and versatile transportation system, the SCAG region airports support a significant amount of passenger and goods movement, and the subsequent

volume of air traffic. As a result of the high amount of air traffic, there are potential concerns with aviation noise.

Aircraft operations can generate substantial levels of noise exposure when one is in the immediate vicinity of airport runways, or when one is near the flight path of an aircraft departure or approach at lower altitudes. In addition to proximity to runways and departure/approach flight paths, other contributing factors to noise impacts include duration of noise exposure, the type of aircraft operated, number of aircraft operations (e.g., take-offs, landings, flyovers), altitude of the aircraft, and atmospheric conditions, which may influence the direction of aircraft operations and affect noise propagation.

There are several federal noise regulations and requirements, including the Aviation Noise Abatement Policy, Aviation Safety and Noise Abatement Act, and Code of Federal Regulations (CFR) Part 150, that aim to reduce aviation noise impacts. The Federal Aviation Administration (FAA) is the lead agency for airspace regulation, including overseeing aircraft air navigation, air safety, and aircraft standards and certification. Airport Land Use Commissions (ALUC), required by California law, protect public health, safety and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

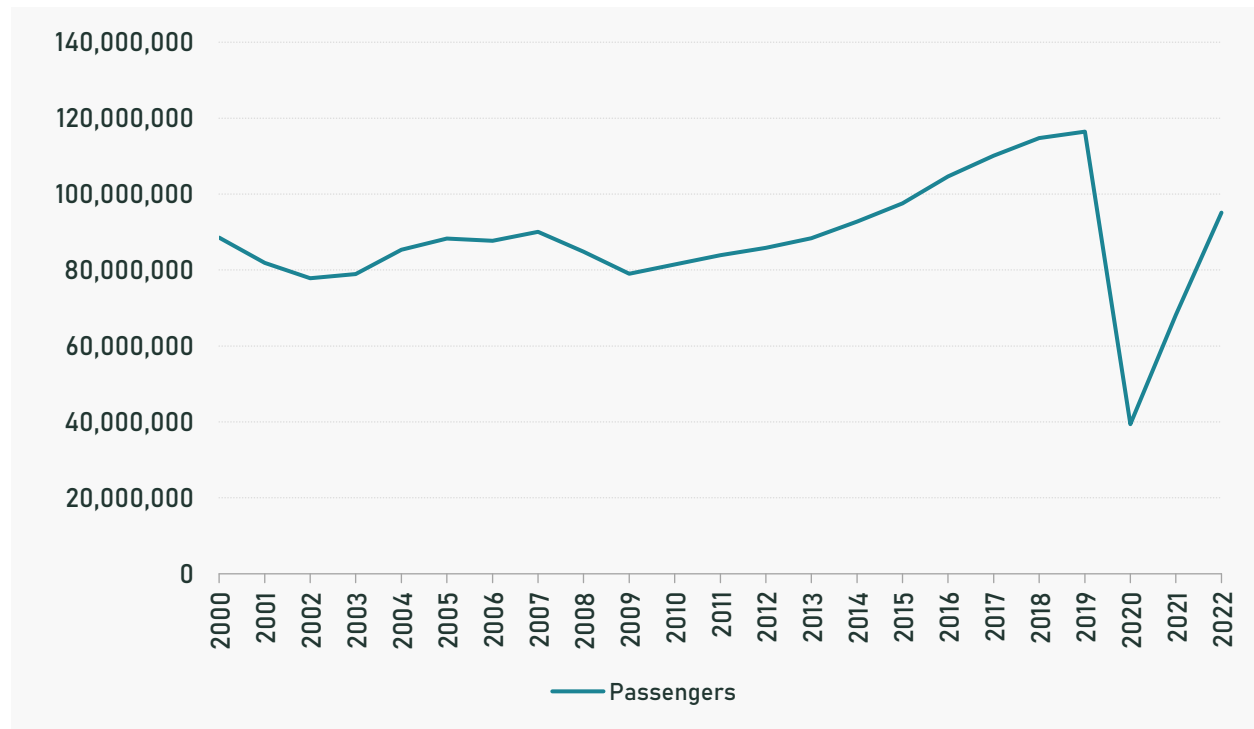
MPOs like SCAG have no role in airspace planning, operations, and regulation, and do not have planning, operational, or regulatory authority over the airports. Rather, MPOs play a collaborative role in airport surface transportation planning by working with the airports, county transportation commissions, state departments of transportation, FHWA, and FTA. Furthermore, the aviation systems and airport ground access planning conducted by MPOs complement the planning efforts of the FAA, states, and individual airports. Therefore, aircraft and airport noise are outside of the jurisdiction of MPOs. The FAA, working with the airports is the lead agency for aircraft noise monitoring and regulation, including developing and maintaining aviation noise contour maps. These regulations and the role of the FAA and ALUCs are further described in the Aviation and Airport Ground Access Technical Report.

Although the air passenger demand in the SCAG region might raise concerns about aviation noise, the increased passenger activity does not directly translate to increased aircraft operations and the subsequent noise impacts associated with increased aircraft operations. As illustrated in Figure 37 and Figure 38, the SCAG region airports served 116.4 million annual passengers (MAP) in 2019; translated to aircraft operations, the airports handled approximately 1.6 million aircraft operations (take-offs and landings). From 2000 to 2022, air passenger demand increased at a rate of 1.45 percent per year (31.6 percent total), but aircraft operations decreased by -1.15 percent per year (-19.7 percent total).

The trend in the airline business has been to shrink seats, add additional rows and operate at higher load factors. In other words, an aircraft on a route that used to have 120 seats, may now have 150 seats, and the previously 120-seat aircraft that was 80 percent full is now a 150-seat aircraft that is 90 percent or more full. Thus, there are more passenger arrivals and departures with the same number of flights or less.

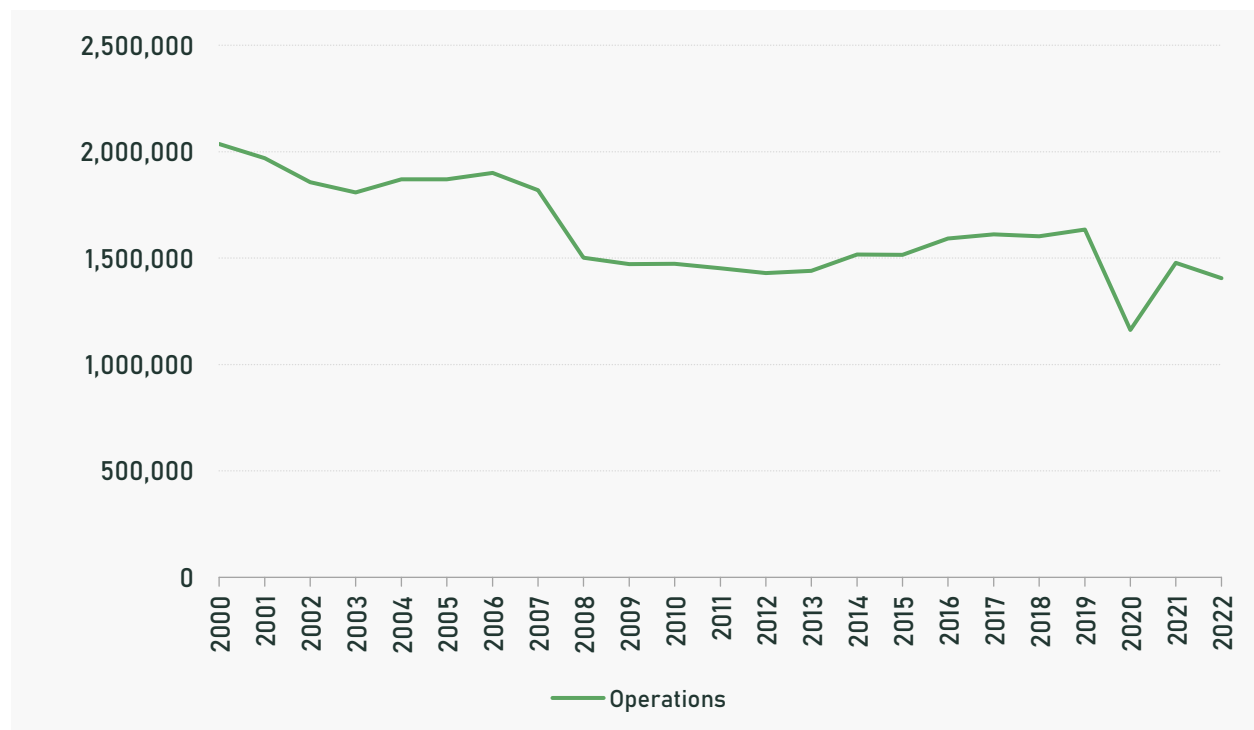
Due in part to the increased load factors and larger aircraft, aircraft operations are forecasted by the 2021 FAA Terminal Area Forecast to grow at a much slower rate than air passenger demand. From 2019 to 2045, passenger activity is forecast to grow 64.4 percent in the SCAG Region, while aircraft operations are forecast to grow only at 45.2 percent.

Figure 37. SCAG Region Historic Airport Passengers, 2000 to 2022



Source: Airport Activity Reports

Figure 38. SCAG Region Historic Aircraft Operations, 2000 to 2022



Source: Airport Activity Reports and FAA Operations Network

To best assess aviation noise impacts, air passenger demand should be observed within the context of the new business practices and technology being employed by the airlines. Since the mid-1970s, the number of people exposed to significant aviation noise exposure in the U.S. has declined from approximately seven million to just over 400,000 today. At the same time, the number of enplanements (each enplanement equals one person flying on a single commercial flight) has increased from approximately 200 million in 1975 to over 850 million today. In 1975, one person on the ground experienced significant noise exposure for every 30 enplanements, compared to today where more than 2,100 enplanements are flown for every person on the ground experiencing significant noise exposure. Therefore, increased air passenger demand itself has not resulted in increased aviation noise exposure. Rather, increased air passenger activity but reduced aircraft operations have resulted in reduced aircraft noise. Furthermore, the noise created by what was once a 120-seat but now is a 150-seat aircraft is the same or reduced due to newer planes and technology.

According to the FAA, the single most influential factor in the decrease in exposure to aviation noise was the transition to quieter aircraft. Title 14 CFR Part 36 instituted noise standards for aircraft type (i.e., design) and airworthiness certification. Following the framework established by 14 CFR Part 36, the FAA has adopted increasingly stringent noise certification standards for new aircraft.

In summary, the areas around the airports experiencing significant sound levels have been reduced through:

- 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.

Today's civilian aircraft are quieter than at any time in the history of powered flight, and the FAA, aircraft manufacturers, and airlines, continue to work to reduce aircraft noise at the source. Moreover, today's aircraft are larger, have more passenger capacity, and are operating at higher load factors. Therefore, in addition to planes being quieter, they are also absorbing much of the increased passenger demand, resulting in decreasing and flattening aircraft operations.

Concerned communities and individuals can monitor aviation noise levels and impacts by viewing the noise contour maps and visiting the noise abatement websites of the airports within their vicinity. The impacts of noise may vary from the community to the individual level. It is the goal of the FAA and the airports to mitigate those impacts across the board. The following resources offer more information on aviation noise impacts, including some of the airport-specific noise management programs, Noise Exposure Maps, and contour maps:

- FAA: Aircraft Noise Issues
- Hollywood Burbank Airport (BUR): Noise Monitoring
- John Wayne Airport (SNA): Access and Noise
- Long Beach Airport (LGB): Noise Abatement website
- Los Angeles International Airport (LAX): Noise Management
- Ontario International Airport (ONT): Noise Management

More information about aviation can be found in the Aviation and Airport Ground Access Technical Report.

8.3.2 ROADWAY NOISE IMPACTS

The SCAG Region has an extensive roadway system, with over 73,000 roadway lane miles. It includes one of the country's most extensive High-Occupancy Vehicle (HOV) lane systems and a growing network of High Occupancy Toll (HOT) lanes. The region also has a vast network of arterials and other minor roadways.

Traffic noise is generated primarily by vehicles and is dominated by trucks. In general, higher traffic volumes, higher speeds, and greater numbers of trucks will increase the noise level. Vehicle noise comes from noises generated by the engine, exhaust, and tires, and is often exacerbated by vehicles in a state of disrepair, such as defective mufflers or struts.

Low-income households and communities of color are disproportionately affected by these environmental health impacts since they are more likely to reside near busy roadways. Historically, the Federal Highway System was built in areas with higher concentrations of low-income households and communities of color, which is why it is even more critical to address the negative impacts of the transportation system. In the emissions impacts section, the demographic distributions within 500 feet of freeways and high-traffic roads show that this is still the case, with elevated numbers of most priority populations, including people of color and lower-income households. Along with greater emissions impacts, people living in freeway-adjacent areas also tend to experience greater roadway noise impacts. The forecasted changes in freeway-adjacent areas, as detailed in Table 35, show increased share of priority populations, notably excluding Black and White populations and people under 20 years old. As stated in Section 8.2.2 Emissions Impacts Results, there are no significant differences (greater than 0.5 percentage points difference) in the share of population groups between the 2050 Baseline and the 2050 Plan. Thus, the projects and policies in the Plan are not expected to adversely impact priority populations.

Traffic noise can be a significant environmental concern where buffers (e.g., buildings, landscaping) are inadequate or where the distance to sensitive receptors is relatively short. In addition to distance, the line of sight also affects the extent to which traffic noise can affect sensitive receptors. Line of sight can be interrupted by roadways that are elevated above grade or depressed below grade; by intervening structures such as buildings, landscaping, and sound walls; or by terrain such as hills.

Noise barriers are a method to prevent sound emissions and vibrations from traveling to noise-sensitive areas. One example of a noise barrier is sound walls that reflect or absorb noise to prevent emissions from surpassing the threshold of 67 dBA. Caltrans identified the 67dBA threshold to be the noise level where individuals could have a regular conversation uninterrupted by noise. Anything higher than 67 dBA is determined to be a high noise impact, and continuous exposure to high decibels may lead to hearing loss and stress.

Caltrans implements the robust sound wall installation program, which provides funding to construct sound walls and mitigates high noise level impacts across the state. More than 750 miles of sound walls installed in California may mitigate the environmental health impacts for residents disproportionately affected by high noise emissions. All state projects on the state highway system are subject to Caltrans' soundwall requirements.

Local jurisdictions use noise reduction strategies through land use planning and programs to mitigate high noise impacts. More examples can be found in the Equity Resources for Action Toolbox at the end of

this report and the Connect SoCal 2024 Program Environmental Impact Report Project Mitigation Measures for noise impacts.

Recently, the state also enacted legislation to reduce vehicular noise. In September 2022, Governor Newsom approved Assembly Bill 2496 (AB 2496) which will require vehicle owners who received noise ticket violations to resolve the citations by receiving a certificate of compliance from the Department of Motor Vehicles before the owner can renew registration of any vehicle. This bill will also require stations to provide referee functions for testing exhaust systems of motor vehicles to ensure the vehicles meet compliance. Currently, vehicle owners can pay a fine and keep illegally modified cars until the law takes into effect in 2027.

In September 2020, the California State Senate passed Senate Bill 1079 (SB 1079) which targets loud car exhaust emissions using automated sound-activated cameras recommended by California Highway Patrol. In California, the cameras will detect modified exhaust systems reaching above 95 decibels for cars and trucks and 80 decibels for motorcycles. Once the cameras have detected high sound emissions, the system will issue a ticket similar to drivers who run on a red light. Automated sound-activated cameras are expected to be in the legislature by 2025.

Sound walls and other noise barriers can reduce certain decibel levels by interfering with noise emissions and should be incorporated in freeway-adjacent areas that have a higher concentration of low-income populations and people of color. Regional and local planning agencies can employ noise-compatible planning strategies to place non-noise-sensitive uses, such as industrial, manufacturing, parks, green spaces, and commercial areas adjacent to roadways and highways. This practice uses large and dense land developments as noise barriers to buffer against high noise impacts where communities and individuals are not directly affected by environmental health impacts of stress, anxiety, and hearing loss. Noise-compatible planning works more efficiently with additional noise reduction strategies mentioned earlier, sound walls, vegetation roadside, and land cover. More project level mitigation options to reduce roadway noise impacts can be found in the Connect SoCal 2024 Program Environmental Impact Report.

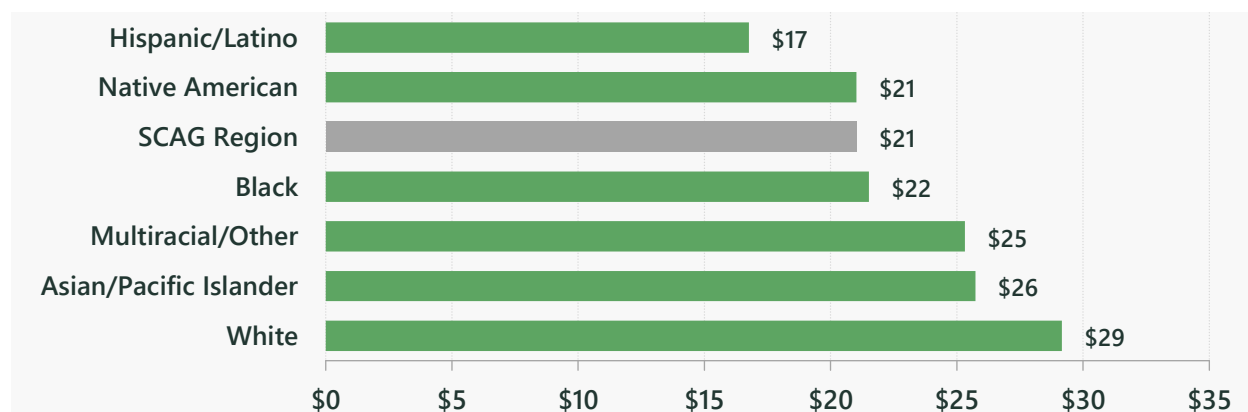
9. ANALYSIS: ECONOMY

This section includes a description of existing conditions for economic indicators in the SCAG region, including median hourly wage, unemployment, and working poor by race and ethnicity. Economy performance measures include Geographic Distribution of Transportation Investments, Investments vs. Benefits, Revenue Sources in terms of Tax Burdens, and Impacts from Mileage-Based User Fees. Each measure includes a description of why the measure is relevant, the methodology, and the results of the analysis.

Impacts from the COVID-19 pandemic increased recognition that improving economic health and achieving equity will require new approaches and strategies that address the various social and environmental factors influencing the economy. The pandemic continues to disproportionately impact the disadvantaged and most at-risk residents in the SCAG region, with lower-resourced jurisdictions experiencing greater impacts. Lower-income segments of the regional population have experienced dramatically higher job losses and economic disruptions related to the pandemic, frequently among people who were already experiencing significant economic difficulties before the pandemic. As the region moves forward in building an inclusive economic recovery strategy, efforts must be made to ensure that the region’s most economically vulnerable and disadvantaged populations are provided unimpeded access to economic opportunities.

Higher wages improve living standards, provide greater workforce stability, reduce reliance on social safety net services, and increase the tax base. Unsurprisingly, low wages and pay gaps by race and gender challenge workers and their communities, while also reducing local spending and tax revenue. Increased wages for low wage workers will boost disposable incomes, resulting in more consumer spending that supports regional business growth and job creation. In Figure 39, median hourly wage is the estimated 50th percentile of the distribution of wages based on data collected from employers in all industries for civilian wage and salary workers between the ages of 25 and 64. Hispanic/Latino (\$17) and Native American (\$21) workers’ median hourly wage is at or below the regional average. White workers have the highest median hourly wage (\$29/hour).

Figure 39. Median Hourly Wage by Race and Ethnicity

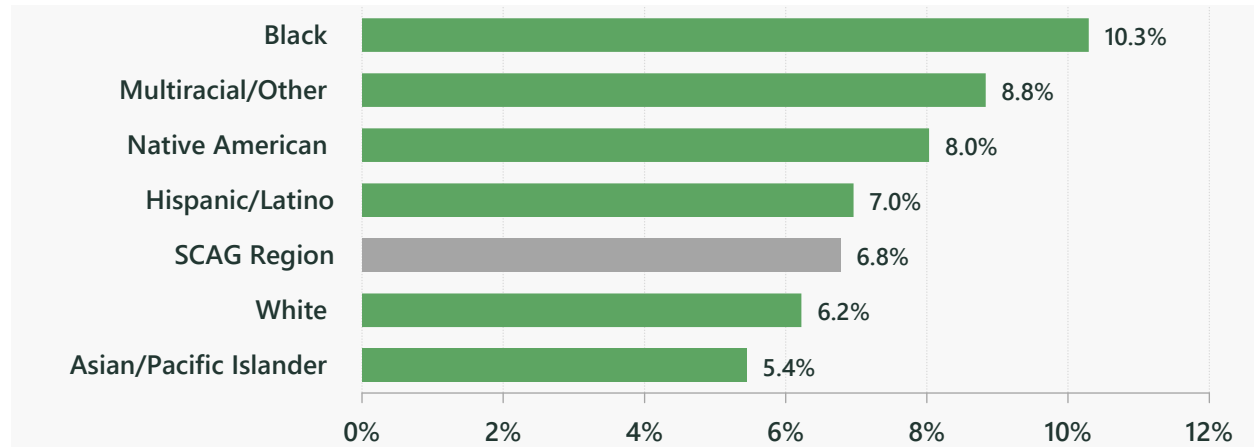


Source: U.S. Census Bureau ACS PUMS, 2017-2021

Employment is the predominant source of income for most working-age people, and several pieces of public health research suggest unemployment is associated with poverty as well as physical and mental

illness, drug addiction, and suicide. In Figure 40, unemployment is defined as the number of unemployed people as a percentage of the labor force (the labor force is the sum of employed and unemployed people). Black people have the highest rate of unemployment at 10.3 percent. Multiracial, Native American, Hispanic/Latino, and people of other races and ethnicities also have elevated rates of unemployment compared to the region.

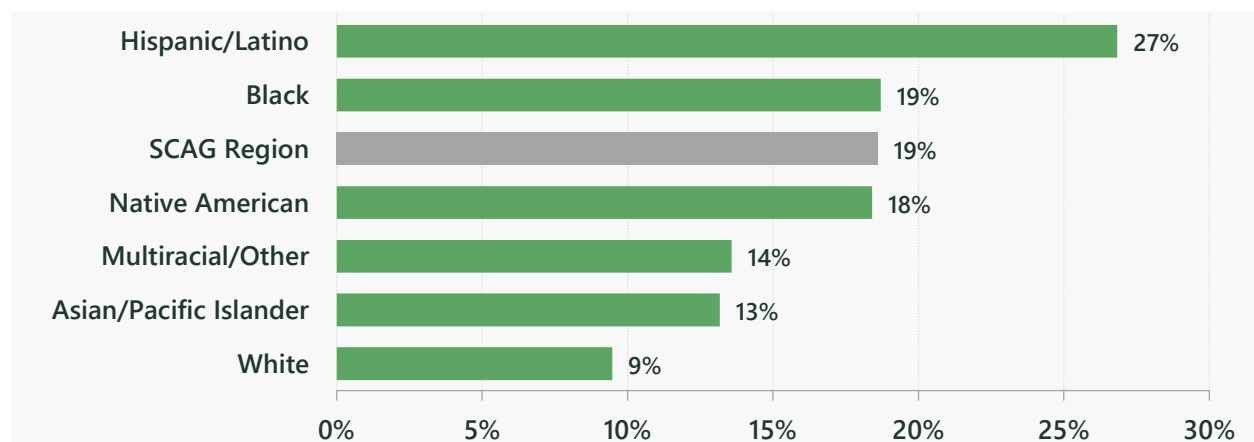
Figure 40. Unemployment by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

Many full-time jobs do not pay enough to keep workers out of poverty, leaving them struggling to pay bills and unable to invest in their future. Low-wage workers face the challenge of finding affordable childcare and experience greater family instability and worse health outcomes than higher-wage workers. In Figure 41, working poor is defined as full-time workers living below 200 percent of the FPL. Hispanic/Latino workers are significantly more likely to be full-time workers living below 200 percent of the FPL. The SCAG region averages around 19 percent of workers, which is similar to the percent Black and Native American people. White people have the lowest percentage of working poor.

Figure 41. Working Poor by Race and Ethnicity



Source: U.S. Census Bureau ACS PUMS, 2017-2021

The equity performance measures included in this section cover the distribution of transportation investments and burdens related to the projects and recommended policies in Connect SoCal 2024.

Further analysis on eliminating racial and gender wage gaps and transportation investment benefits can also be found in the Economic Impact Analysis and Transportation Finance Technical Reports.

9.1 GEOGRAPHIC DISTRIBUTION OF TRANSPORTATION INVESTMENTS

From Base Year to Plan Year, there will be an additional 5,400 highway lane miles, 214,000 transit revenue miles, and over 4,000 bikeway miles as a result of the Plan. Disproportionate allocation of resource investments can indicate patterns of discrimination. This section assesses the geographic distribution of physical improvements for active transportation, transit, and highway-related projects throughout the region, with a focus on the proportion of projects in Priority Equity Communities.

9.1.1 METHODOLOGY

This section tabulates the mileage of highway, transit, and bikeway improvements using the project list in the region and compares it to the share located in Priority Equity Communities. Highway improvements are presented by project lane type, including mixed-flow, toll, express, and HOV lanes. Transit improvements are presented through changes to transit revenue mileage by type, including local, express, and rapid buses; and local, commuter and high-speed rail. The revenue mile calculation for transit improvements includes transit projects with service-only improvements. Bike facility lane miles were calculated by the centerline of bike lanes.

9.1.2 RESULTS

Overall, the Plan includes 36 percent of all highway projects, 55 percent of all transit projects, and 62 percent of new bike lane miles in Priority Equity Communities under the 2050 Plan scenario. Compared to the 48.9 percent of the population in Priority Equity Communities, the proportion of investment in Priority Equity Communities is lower for highway projects, and slightly higher for transit and bikeway projects.

Table 38 shows the breakdown of investment by highway type at the regional level and in Priority Equity Communities between 2019 Base Year and 2050 Baseline and Plan scenarios. Examining the RTP highway projects in the region, 39 percent of the transportation investment for highway improvements will occur in mixed-flow corridors from 2019 Base Year to 2050 Baseline and an additional 30 percent from Baseline to Plan. The largest share of investment will go to express lanes, which will be 58 percent between Base Year and Baseline, and an additional 79 percent between the Baseline and Plan. While HOV lane improvement accounts for three percent of highway investments in the Baseline scenario, there will be a reduction by 11 percent of HOV lanes due to HOV conversion to express lanes in the Plan scenario.

When summarizing total improvements in Priority Equity Communities, 35 percent of total improvements in Priority Equity Communities will be added to mixed flow, and an additional 26 percent will be gained with the Plan. The largest share of highway investment improvements in Priority Equity Communities will also go to express lanes, with 80 percent and 84 percent in Baseline and Plan scenarios, respectively. While HOV investment will be reduced by 15 percent in the region with the Plan, Priority Equity Communities will only see a ten percent reduction in HOV lanes with the Plan.

Table 39 shows that the largest transit investment, 116 percent of transit revenue miles, will be in local bus lines between 2019 Base Year and 2050 Baseline, with an additional 20 percent added in the 2050 Plan scenario. While there will be a decrease of 53 percent of rapid bus lines by revenue mile in the Baseline,

rapid bus lines will add 23 percent of transit revenue mile investments with the Plan. With the Plan, commuter and high-speed rail will be increased by 25 percent and 16 percent, respectively.

Compared to the whole region, 119 percent of the transit line investments in Priority Equity Communities will occur local bus between 2019 Base year and 2050 Baseline, with an additional 24 percent added in with the Plan. In addition to the improvements for transit between the Base Year and Baseline scenarios, Priority Equity Communities are expected to receive equal or greater investments in all bus transit and commuter rail with the implementation of the Plan. Though there are still increases, investments in local rail and high-speed rail are slightly lower in Priority Equity Communities compared to the regional share.

Table 38. Change in Highway Lane Mileage by Type

Type	SCAG Region		Priority Equity Communities	
	<i>Base Year vs Baseline</i>	<i>Baseline vs Plan</i>	<i>Base Year vs Baseline</i>	<i>Baseline vs Plan</i>
Mixed Flow	39%	30%	35%	26%
Express Lanes	58%	79%	80%	84%
HOV Lanes	3%	-11%	-15%	-10%
Toll Roads	0%	2%	0%	0%
Region	100%	100%	100%	100%

Source: SCAG 2023

Table 39. Change in Transit Revenue Miles by Type

Type	SCAG Region		Priority Equity Communities	
	<i>Base Year vs Baseline</i>	<i>Baseline vs Plan</i>	<i>Base Year vs Baseline</i>	<i>Baseline vs Plan</i>
Local Bus	116%	20%	119%	24%
Express Bus	0%	5%	2%	6%
Rapid Bus	-53%	23%	-47%	28%
Local Rail	36%	11%	25%	10%
Commuter Rail	1%	25%	1%	25%
High-Speed Rail	0%	16%	0%	9%
Region	100%	100%	100%	100%

Source: SCAG 2023

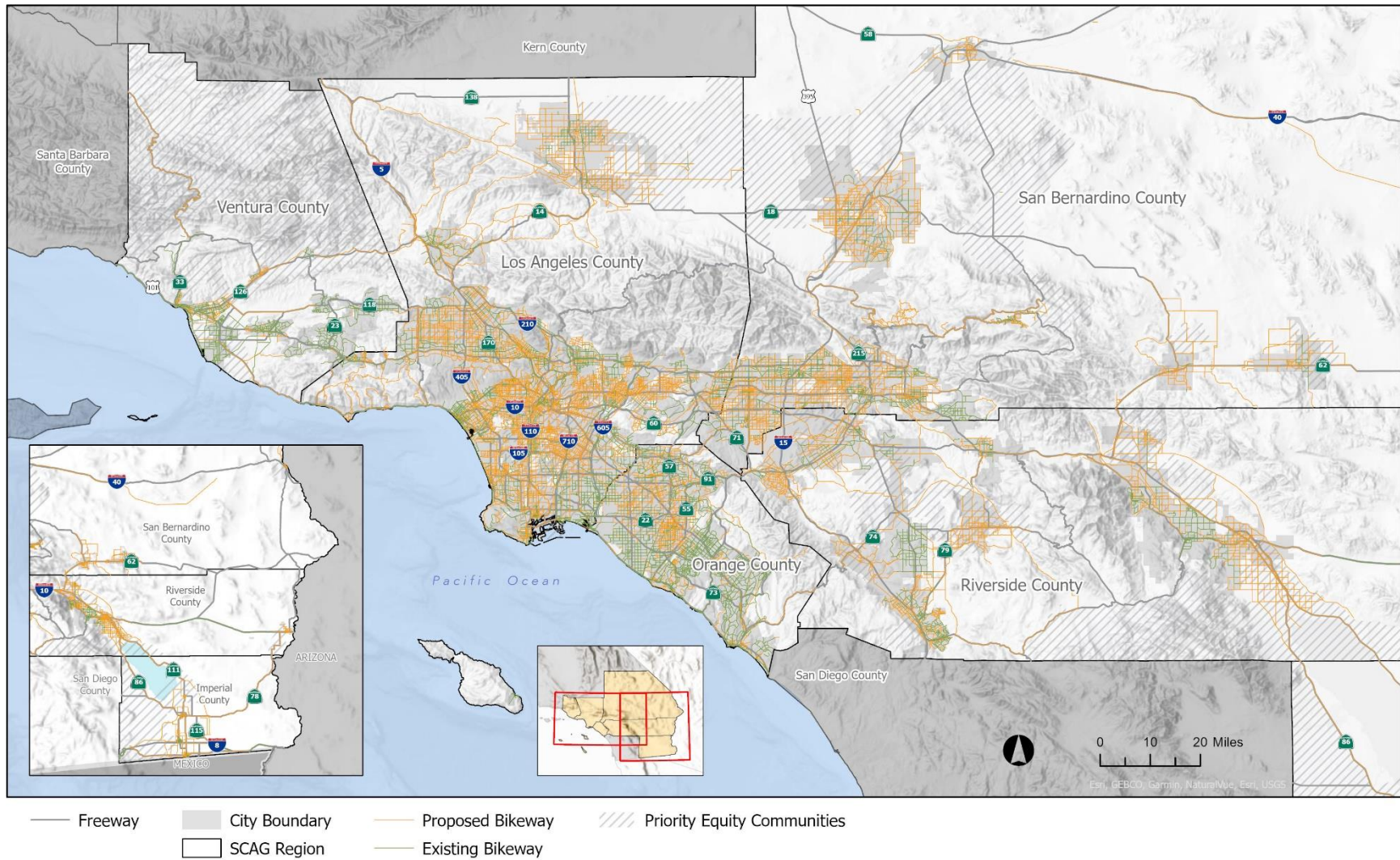
Currently, about 30 percent of the region’s bike facilities are in Priority Equity Communities. With the additional bikeways in the Plan, this proportion will grow to 43.1 percent. Table 40 and Map 14 illustrate the existing and proposed bike facilities in the region and Priority Equity Communities. Compared to the region’s 72 percent increase in bike lane miles, bike lane facilities in Priority Equity Communities are expected to grow by 149 percent from current levels. Growth for all bike facility types, except for Class IV (separated bikeways), is expected to be greater in Priority Equity Communities than for the full region. Class IV bikeway mileage is still anticipated to increase significantly both in the region and in Priority Equity Communities.

Table 40. Change in Bike Lane Mileage by Facility Type

Type	Region	Priority Equity Communities
Class I	71%	118%
Class II	49%	149%
Class III	106%	147%
Class IV	489%	343%
Region	72%	149%

Source: SCAG 2023

Map 14. Existing and Proposed Bikeways in the SCAG Region



9.2 INVESTMENTS VS. BENEFITS

The transportation investment strategy of Connect SoCal 2024 will have a large impact on future travel options for low-income and communities of color. Disproportionate allocation of resources for various investments can indicate a pattern of discrimination. Such was the case in the landmark civil rights class action lawsuit *Labor/Community Strategy Center v. Los Angeles County Metropolitan Transportation Authority* (LA Metro) in October 1996. The lawsuit, which eventually led to a court-ordered Consent Decree, charged that LA Metro's investment and service priorities disproportionately allocated resources to rail transit modes over bus ridership, an expenditure pattern discriminatory to low-income and communities of color. The analysis in this section focuses on who is expected to receive the benefits from investments included in Connect SoCal 2024 and whether resources are being allocated equitably.

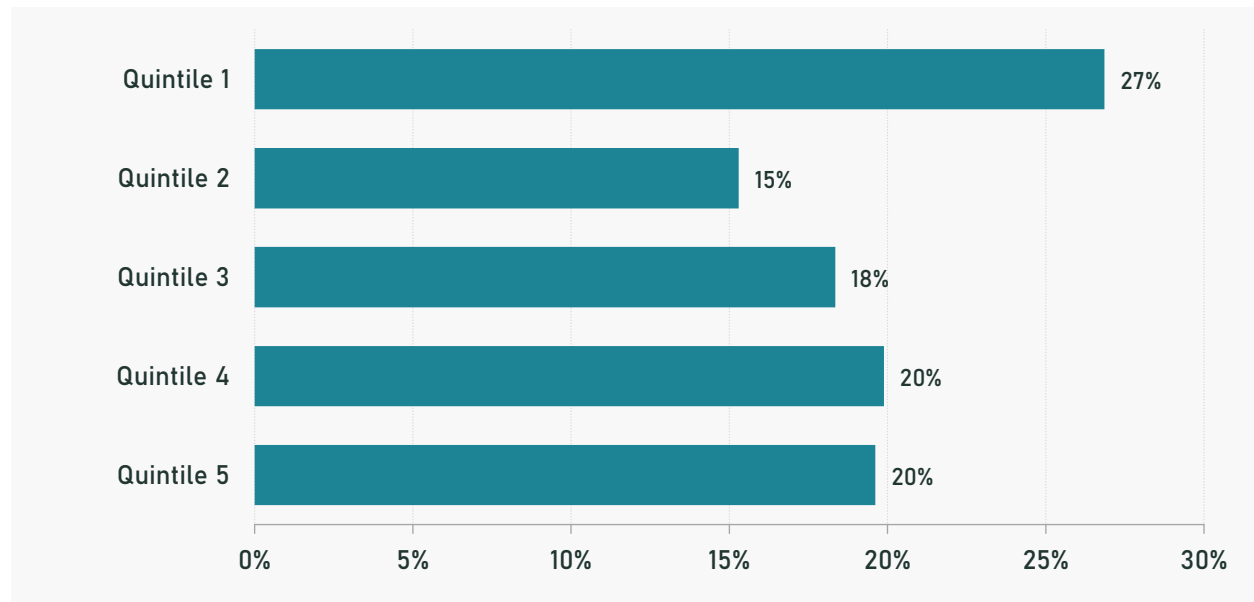
9.2.1 METHODOLOGY

SCAG compared the total share of transportation funding borne by low-income households against other income groups. SCAG estimated the share of total Plan expenditures allocated to each category of household income by summing expenditures on each type of mode (i.e., bus, rail transit, passenger rail, highways/arterials, and HOV/HOT lanes), then allocated to income categories based on each income group's use-share of these modes. To assess the share of investments by race and ethnicity, the estimated expenditures were allocated based on the distribution of race and ethnicity within each income quintile. Note that due to small numbers from NHTS and the lack of a multiracial category in the statewide population forecasts used to develop SCAG's Regional Growth Forecast, the "other" race category includes people who identify as Native American, Native Hawaiian/Pacific Islander, some other race alone, and two or more races. For more details about the development of the total Plan expenditures, see the Transportation Finance Technical Report.

9.2.2 RESULTS

Figure 42 presents the findings for the share of total investments, which looks at the raw dollars and compares the amount of transportation investments spent on low-income and high-income households. Note that income quintiles divide the regional population into groups of equal size, each representing 20 percent of the population. Transportation investments are most likely to benefit people of the lowest income quintile with about 27 percent of Plan investments benefiting modes most used by the lowest quintile group. The two higher income quintiles (4 and 5) are expected to receive approximately 20 percent of the investment, which is proportionate to their share of the regional population.

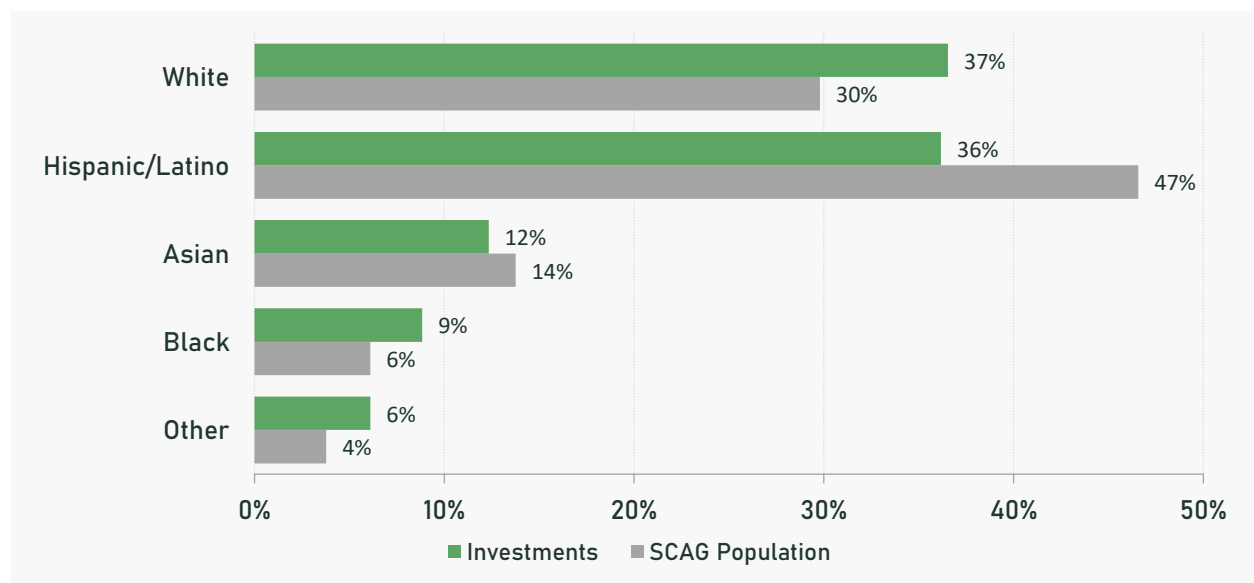
Figure 42. Connect SoCal 2024 Transportation Investments by Income Quintile



Source: SCAG 2023

Figure 43 evaluates the distribution of transportation investments for various racial and ethnic groups. Based on this analysis, Plan investments are expected to be greater for projects that are most used by White, Black, and “other” populations (i.e., Native American, Native Hawaiian/Pacific Islander, some other race alone, and two or more races) more than their share of the population. On the other hand, the Plan’s investments in projects most used by Hispanic/Latino and Asian populations are lower compared to people of other races and ethnicities.

Figure 43. Connect SoCal 2024 Transportation Investments by Race and Ethnicity



Source: SCAG 2023

9.3 REVENUE SOURCES IN TERMS OF TAX BURDENS

Sales and gasoline taxes are the primary sources of funding for the region's transportation system. As established in previous EJ Technical Reports, there are inherent equity issues with a funding system based on gasoline consumption, prices, and taxes. Lower income households and people of color are disproportionately burdened by sales and gasoline taxes.

Table 41 presents taxable sales and expenditures shares by income quintile in 2019 for the SCAG region, using data collected by the California Department of Tax and Fee Administration (CDTFA) and the share of expenditures by income quintile from the U.S. Bureau of Labor Statistics (BLS) Consumer Expenditure Survey (CEX). Households in the SCAG region spent \$25,054 million at gasoline stations in 2019. The lowest income quintile's share of gasoline consumption, 9.3 percent of service station sales are gasoline, was just under 9.6 percent, while households in the highest income quintile accounted for more than 34 percent of gasoline sales. In terms of expenditures on motor vehicle and parts purchases, the lowest income quintile accounted for just 7.9 percent of all motor vehicle and parts sales, while top income quintile households account for over 37 percent of sales. This is not surprising as many low-income households cannot afford the cost of vehicle ownership including maintenance, insurance and the purchase of gasoline. In fact, the CEX indicates that households in the lower-income quintiles predominately owned used and older cars. This situation has implications in terms of fuel efficiency; low-income households pay proportionally more on gasoline and gasoline taxes than more affluent households that normally own newer vehicles that are more fuel efficient and allow them to travel further on the same amount of gasoline.

Table 41. Taxable Sales by Retail Categories and Shares by Income Quintile in the SCAG Region, 2019

Type of Business	Number of Outlets	Taxable Transactions (\$1,000s)	Q1	Q2	Q3	Q4	Q5
Motor Vehicle and Parts Dealers	19,472	41,935,333	7.9	12.2	18.3	24.2	37.3
Home Furnishings and Appliance Stores	23,682	14,264,591	9.0	11.0	16.7	22.8	40.6
Building Material and Garden Equipment and Supplies Dealers	7,878	17,518,536	9.6	12.4	16.7	21.4	40.0
Food and Beverage Stores	17,495	13,863,010	10.3	14.2	17.7	22.5	35.2
Gasoline Stations	4,296	25,054,158	9.3	15.2	19.7	21.8	34.1
Clothing and Clothing Accessories Stores	69,017	23,093,609	8.7	13.2	16.3	23.8	38.0
General Merchandise Stores	17,391	27,763,760	10.9	14.5	18.4	22.2	34.1
Other Retail Group	162,115	31,539,010	9.1	15.1	19.4	18.8	37.6
Food Services and Drinking Places	56,187	43,746,341	9.1	12.4	17.5	22.0	39.0

Type of Business	Number of Outlets	Taxable Transactions (\$1,000s)	Q1	Q2	Q3	Q4	Q5
Total Retail and Food Services	377,533	238,778,348	9.1	12.8	16.9	22.5	38.7
All Other Outlets	248,006	103,184,496	9.1	15.1	19.4	18.8	37.6
Total All Outlets	625,539	341,962,844	9.1	12.8	16.9	22.5	38.7

Note: "Q" is for Quintile

Sources: CDTFA, Taxable Table 3, 2019. BLS CEX, Table 1101, 2019.

9.3.1 METHODOLOGY

This section evaluates how households, based on income and race/ethnicity, contribute to the region's sales, gasoline and income tax revenue that will fund projects included in the Plan.

The BLS CEX consists of two surveys, the Quarterly Interview Survey and the Diary Survey, which provide information on the buying habits of American consumers, including data on their expenditures, income, and consumer unit characteristics (families and single consumers). The CEX is the only federal survey to provide information on the complete range of consumers' expenditures and incomes, including the socioeconomic characteristics of those consumers. It is used by policymakers to examine the impact of policy changes on economic groups, by businesses and academic researchers studying consumers' spending habits and trends and by other federal agencies. Most importantly, the CEX is used to regularly revise the Consumer Price Index's market basket of consumer goods and services, which is the primary indicator for inflation in the United States.

SCAG sourced data on personal income from the California Franchise Tax Board's (FTB) 2020 Personal Income Annual Report. Taxable sales, gasoline tax data, and sales and use tax rates came from the CDTFA. SCAG applied the expenditure shares by quintiles from the BLS CEX surveys to taxable sales to assess regional expenditures by category and adjusted gross income. In particular, the tabulation showing the share of aggregate expenditures by income quintile is used to estimate transportation funding contributions (i.e., taxes paid) by income quintile. This analysis compares the share of taxes paid with transportation mode usage, as defined earlier in this report, against the tax burden, or the taxes paid as a percent of income.

To assess the share of taxes paid for people of color, the adjusted gross income and tax assessment were allocated based on the distribution of race and ethnicity within each quintile. The values are then summarized across income quintiles to estimate the share of income, gasoline, and sales taxes and compared to the share of households in the region and transportation mode usage, as reported in Section 6.1 Share of Transportation Usage.

9.3.2 RESULTS

Table 42, Figure 44, and Figure 45 illustrate how most taxes paid as a percent of each group's adjusted gross income puts the heaviest burden on lower-income groups. This is the so-called "regressive" nature of the excise gasoline taxes and retail sales taxes levied primarily on consumer durable and non-durable goods that make up the necessities of daily living. Lower quintile groups (Quintile 1 and Quintile 2) are anticipated to pay a respective 6.6 percent and 3.4 percent of their adjusted gross income on regional

sales tax for transportation and gasoline taxes. By comparison, the higher quintile groups (Quintiles 4 and 5) are anticipated to pay 1.7 percent and 0.7 percent of their adjusted gross income on all regional sales taxes for transportation purposes and gasoline taxes, respectively.

Although the lower income quintile groups pay a larger percentage of their income on taxes than other quintiles, their contribution of the total share of sales tax for transportation purposes and gasoline taxes is the smallest of the group at 9.2 percent for Quintile 1 and 14.1 percent for Quintile 2. Quintile 4 and Quintile 5, in contrast, pay 22.1 percent and 36.2 percent of the total sales tax for transportation and gasoline taxes in the region.

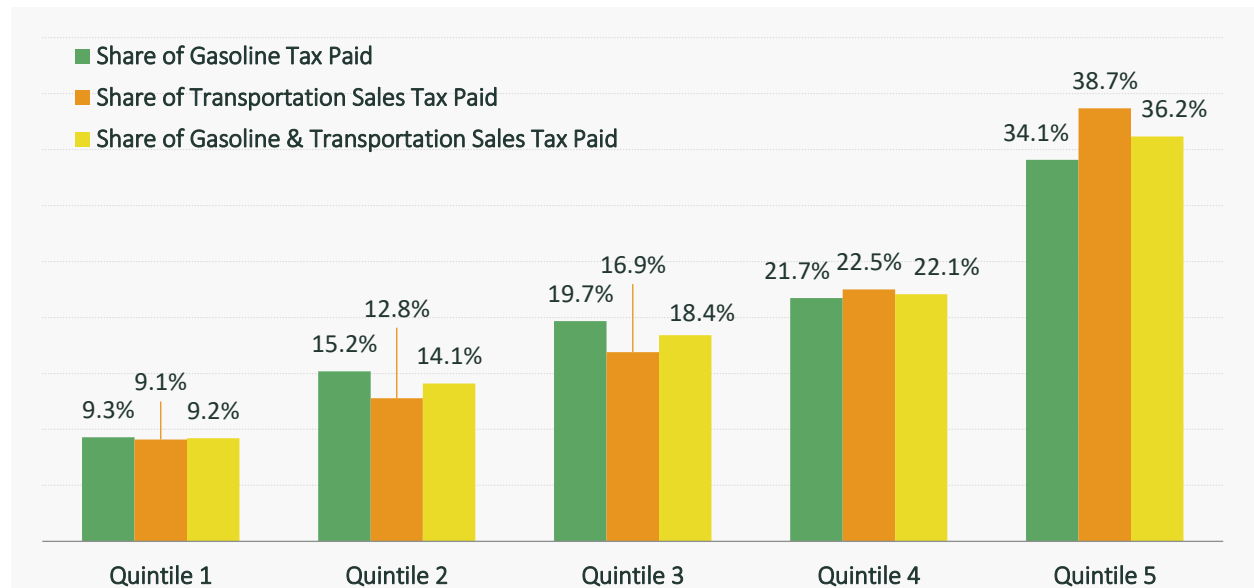
In contrast, the progressive structure of income tax shows that higher income quintiles pay the largest percentage of their income on taxes.

Table 42. Income, Retail, and Gasoline Tax Burden by Income Quintile for the SCAG Region, 2019

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Income Tax						
Total Adjusted Gross Income (1,000s)	12,923,692	38,401,491	68,192,881	120,940,069	454,196,109	694,654,242
Income Tax Assessed (1,000s)	20,749	131,317	689,290	2,703,255	31,756,774	35,301,384
<i>Share of Adjusted Gross Income</i>	1.9%	5.5%	9.8%	17.4%	65.4%	100%
<i>Share of Tax Assessed</i>	0.1%	0.4%	2.0%	7.7%	90.0%	100%
Income Tax Burden	0.2%	0.3%	1.0%	2.2%	7.0%	
Gasoline Taxes (Effective rates as of July 1, 2019)						
State Excise Tax (\$0.473)	140,434,685	229,527,658	297,479,925	328,435,958	514,927,179	1,510,805,405
Federal Excise Tax (\$.184)	54,629,983	89,287,715	115,721,577	127,763,671	200,309,939	587,712,885
Estimated Sales Tax on Gasoline	80,372,774	131,361,953	170,252,005	187,968,584	294,700,171	864,655,486
Total Gasoline Tax Paid	470,502,111	768,992,697	996,655,009	1,100,367,840	1,725,174,407	5,061,692,064
<i>Share of Gasoline Tax Paid</i>	9.3%	15.2%	19.7%	21.7%	34.1%	100.0%
Gasoline Tax Burden	3.6%	2.0%	1.5%	0.9%	0.4%	
Sales Taxes						
Estimated Taxable Sales (1,000s)	31,118,619	43,771,244	57,791,721	76,941,640	132,339,621	341,962,844
Estimated Sales Tax Paid (1,000s)	2,679,368	3,768,782	4,975,970	6,624,812	11,394,676	29,443,607
<i>Share of Sales Tax Paid</i>	9.1%	12.8%	16.9%	22.5%	38.7%	100.0%
<i>Sales Tax Burden</i>	20.7%	9.8%	7.3%	5.5%	2.5%	
Estimated Transportation Sales Tax Paid	380,744,000	535,552,000	707,096,000	941,400,000	1,619,208,000	4,184,000,000
<i>Share of Transportation Sales Tax Paid</i>	9.1%	12.8%	16.9%	22.5%	38.7%	100.0%
Transportation Sales Tax Burden	2.9%	1.4%	1.0%	0.8%	0.4%	
Combined Gasoline and Transportation Sales Tax						
Estimated Gasoline & Transportation Sales Tax Paid	851,246,111	1,304,544,697	1,703,751,009	2,041,767,840	3,344,382,407	9,245,692,064
<i>Share of Gasoline & Transportation Sales Tax Paid</i>	9.2%	14.1%	18.4%	22.1%	36.2%	100.0%
Gasoline & Transportation Sales Tax Burden	6.6%	3.4%	2.5%	1.7%	0.7%	

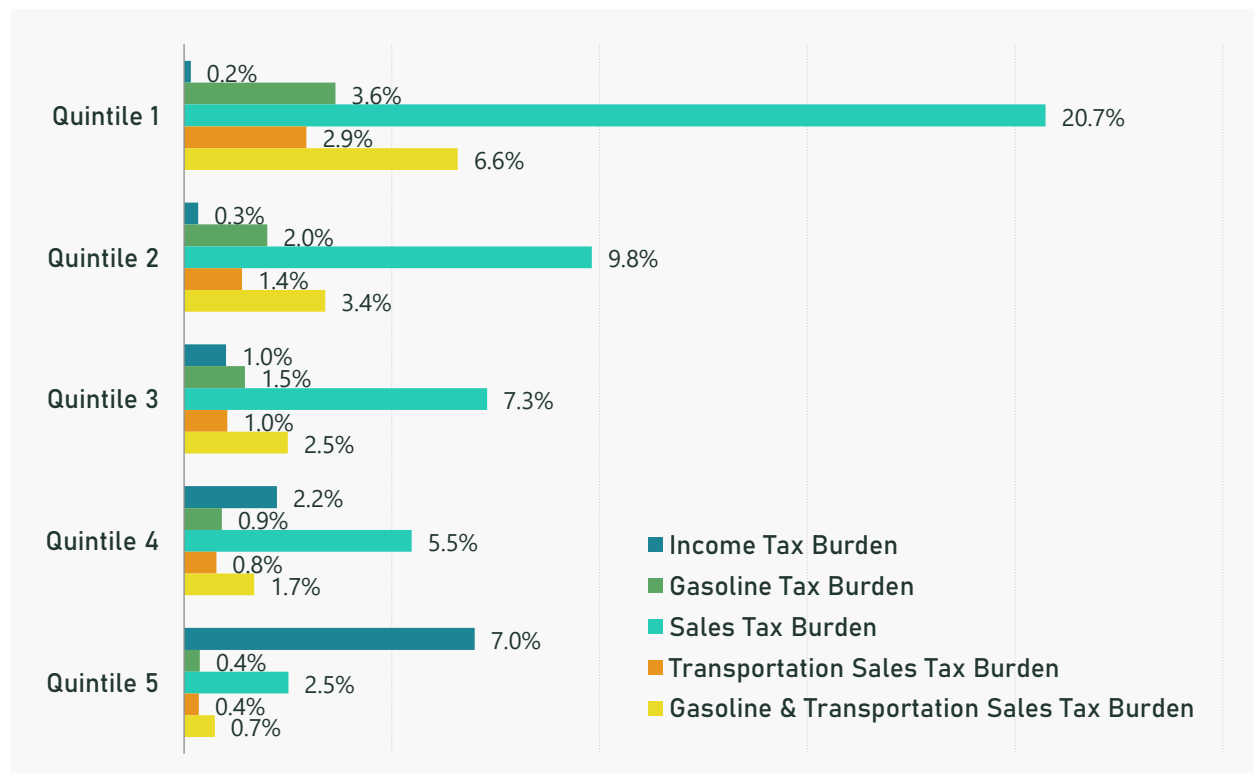
Source: CA FTB, 2020 Personal Income Annual Report, Table B-7. CDTFA, CA City and County Sales and Use Tax Rates (July 1, 2019, to December 31, 2019). CDTFA, Tables 1, 3, and 24A. BLS CEX, Table 1101.

Figure 44. Share of Taxes Paid by Income Quintile



Source: CA FTB, 2020 Personal Income Annual Report, Table B-7. CDTFA, CA City and County Sales and Use Tax Rates (July 1, 2019, to December 31, 2019). CDTFA, Tables 1, 3, and 24A. BLS CEX, Table 1101.

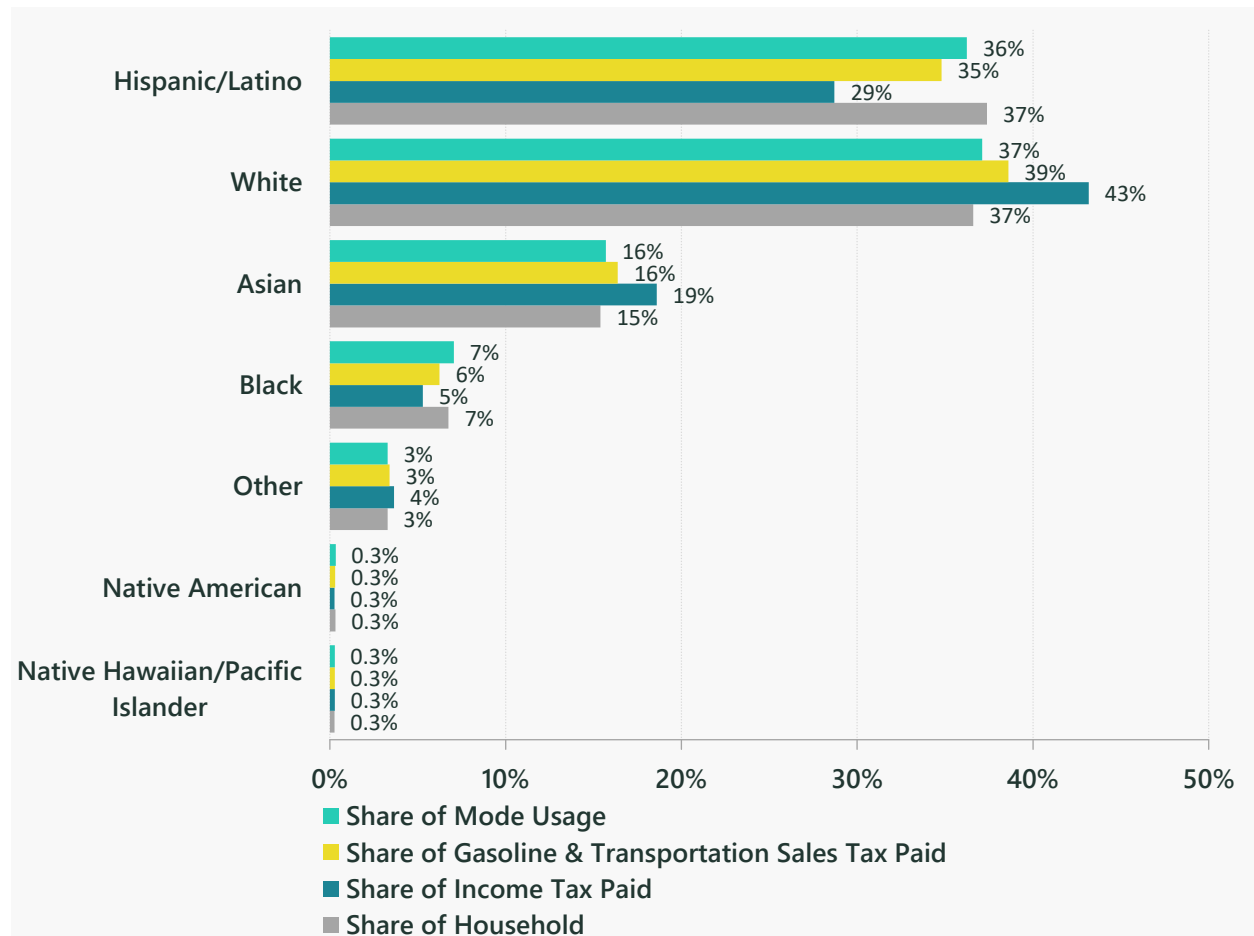
Figure 45. Tax Burden by Income Quintile



Source: CA FTB, 2020 Personal Income Annual Report, Table B-7. CDTFA, CA City and County Sales and Use Tax Rates (July 1, 2019, to December 31, 2019). CDTFA, Tables 1, 3, and 24A. BLS CEX, Table 1101.

Figure 46 indicates that income taxes are expected to fall more heavily on White and Asian households who pay 43 percent and 19 percent of the income taxes while only making up 37 percent and 15 percent of the regional population, respectively. For gasoline and transportation sales taxes, most racial/ethnic groups have a share proportionate to the share of households, with a slightly elevated share for White and Asian households.

Figure 46. Share of Taxes Paid by Race and Ethnicity



Sources: SCAG Regional Growth Forecast. CA FTB, 2020 Personal Income Annual Report, Table B-7. CDTFA, CA City and County Sales and Use Tax Rates (July 1, 2019, to December 31, 2019). CDTFA, Tables 1, 3, and 24A. BLS CEX, Table 1101.

As this analysis confirms, the region should explore alternative funding mechanisms to support the transportation system to avoid disproportionately impacting low-income and people of color. A mileage-based user fee has the potential to correct the equity issue inherent in a funding system based on gasoline consumption, prices, and taxes, as explored in Section 9.4 of this report. Additionally, as documented in previous SCAG reports, the nation continues to experience a longstanding shift from products to services, with the service economy surpassing the merchandise economy since 1970. The aging population further exacerbates the shift with decreased income and expenditures as major consumption categories shift to prescription drugs, healthcare, and other services that are not taxed in

California. Further research is required to show how this shift could impact communities of color and low-income communities in the SCAG region.

9.4 IMPACTS FROM MILEAGE-BASED USER FEE

Connect SoCal 2024 includes establishing a user-based fee system (Regional Planning Policy #27), an alternative funding and key GHG reduction strategy to transition from federal and state gas taxes to a replacement mileage-based user fee (MBUF). A road charge is a “user pays” system where all drivers pay to maintain the roads based on how much they drive, rather than how much gas they purchase. As gasoline and diesel vehicles become more fuel efficient and alternative fuel vehicle (AFV) adoption grows, gas tax revenues are projected to decrease significantly over the RTP/SCS timeline through 2050. The reductions in gas tax proceeds are expected to accelerate due to implementation of CARB’s Advanced Clean Cars II regulations, which bans the sale of new, gasoline-powered vehicles beginning in 2035. Currently, in lieu of paying a gas tax, AFV drivers pay an annual Roadway Improvement Fee (RIF) (\$108 as of August 2023 and indexed to inflation). Reduced gas tax proceeds lead to reduced funding to maintain the State Highway System, bridges, local roads and streets, resulting in further declines in California’s roadway infrastructure conditions.

Over the past several years, MBUF has been evaluated for potential implementation at the federal and state level, as well as within the SCAG region. At the State level, in 2014, the California Legislature passed Senate Bill (SB) 1077 (DeSaulnier) directing California to create a Road Charge Technical Advisory Committee (TAC) to study road user charges as an alternative to the gas tax. The pilot began in 2016, and over 5,000 participants drove over 37 million miles during the nine-month program. The initial pilot explored multiple mileage reporting methods and found that 86 percent of participants were satisfied with their chosen method, and 85 percent were satisfied with the pilot overall. Caltrans published its findings from the pilot and now the California Transportation Commission is studying next steps for implementation.

SCAG began studying the concept of road pricing as an alternative funding strategy starting in the 2012 RTP/SCS. In 2020, SCAG’s EJ Technical Report assessed the potential impacts of a mileage-based user fee on low-income communities through a comparison between the federal and state gasoline excise tax and a hypothetical mileage-based user fee.

More recently, SCAG published *Mobility Innovations and Pricing (MIP): An Initiative to Elevate Equity in Planning* (March 2022), a study aimed at understanding the equity implications of pricing strategies, most critically leading with the concerns of underrepresented communities, and increasing community participation in the policymaking process on these issues.^{xi} The study combined stakeholder engagement, technical analyses, and communications strategies to elevate the voices of 13 nonprofit organizations serving seven priority populations that made up the Community Advisory Committee (CAC) and reported some of their needs facing implementation of road pricing in the SCAG region. Though the CAC expressed skepticism about road pricing as a pathway to more equitable transportation, they identified several priorities for pricing-related advocacy, including but not limited to the following:

- **Fixing the bus system:** improving accessibility and reliability, electrifying vehicles, and eliminating transit fares before implementing pricing
- **Ensure regional coordination:** engaging with county transportation commissions and advocating for alternatives to freeway widening

- **Addressing enforcement and over-policing issues:** the criminalization of poverty and restrictions on movement, such as gang injunctions, are fundamental transportation inequities that could be addressed by shifting funding away from policing transportation and developing alternative enforcement models rooted in restorative justice

As described in this report, median commute lengths differ based on location within the region; for example, commuters in Riverside and San Bernardino travel longer distances for work compared to the other counties. These regional differences emphasize the need for pricing strategies that are both locally sensitive and coordinated at a regional level.

Unequal enforcement and over-policing are issues rooted in racism that have several touchpoints in the transportation system, from traffic stops to parking tickets. The CAC encouraged agencies like SCAG to explore alternative enforcement models grounded in community, restorative, and/or transformative justice principles. Alternative enforcement models could work to alleviate some of the disproportionate impacts of the regional transportation system on low-income and people of color, contributing to more resilient futures.

In partnership with the CAC, SCAG developed Transportation Equity Zones (TEZ) to identify areas that currently experience transportation-related burdens and may face disproportionate impacts from future mobility innovations in order to support a more geographic approach to understanding impacts from and opportunities presented by innovative mobility strategies. TEZs highlight census tracts in the SCAG region with the greatest intersection of socioeconomic, environmental, and transportation burdens. TEZs are most prevalent in the Los Angeles urbanized area and in high-density areas near sources of pollution such as freeways, freight distribution points, and major arterials. The MIP report includes a more complete description of the conversations and takeaways from the CAC and methodology and results from the TEZ analysis.

9.4.1 METHODOLOGY

This analysis builds on SCAG's existing work and understanding of road pricing impacts through an evaluation of how the replacement of current taxes and fees with a mileage-based user fee would impact people differently depending on the type of vehicle they own.




Table 43 compares total fuel/charging costs for three different types of vehicles based on an industry-standard 12,000 miles driven per year. The types of vehicles were selected as illustrative examples of the range of vehicles that may be owned by people at different income levels. Lower income individuals often own older vehicles with lower fuel efficiencies (e.g., pick-up trucks), and higher income individuals often own newer vehicles with higher fuel efficiency or electric vehicles (EV). Based on AAA reports as of March 29, 2023, the average fuel cost for the SCAG region is \$4.818 per gallon, including Federal and State taxes.^{xii} Estimates of EV charging costs vary depending on where you charge; this analysis relies on an estimated average \$0.06 per mile.^{xiii} The table shows that current owners of older, low fuel-efficient vehicles pay nearly \$2,900 for fuel annually compared to newer more fuel-efficient vehicles paying just over \$1,700 a year, and electric vehicles paying around \$720 for charging costs over the same distance.

To isolate the impact of transitioning from a fuel excise tax to a MBUF replacement, SCAG compared the taxes and fees paid by the same three vehicles today to the taxes and fees paid after implementation of the MBUF. Today's taxes and fees include gas taxes, consisting of a federal gasoline tax of 18.3 cents per gallon and state gasoline tax of 53.9 cents per gallon. Taxes and fees for electric vehicles are limited to the

RIF of \$108 per year. It should be noted that the current taxes and fees land more heavily on gasoline-powered vehicles compared to EVs. Connect SoCal assumes transition to a 2.5 cents per mile MBUF as a replacement for state and federal fuel excise taxes. For more information on user fees, please see the Transportation Finance Technical Report.

To illustrate potential MBUF impacts for different parts of the region, two sets of Origin-Destinations (OD) pairs were selected, with the requirement that the origin needed to be a TEZ, and home-based work trips were identified for each. Although this analysis focuses on commute travel, other types of travel, such as shopping or recreational trips, would also be valuable to understand from an equity perspective. The first OD pair, North Hills to El Segundo in Los Angeles County represents an urban commute of 26.3 miles each way. The second OD pair, Adelanto to Victorville in San Bernardino County, represents a rural commute of 9.2 miles each way. Map 15 illustrates the OD pairs used in the two examples.

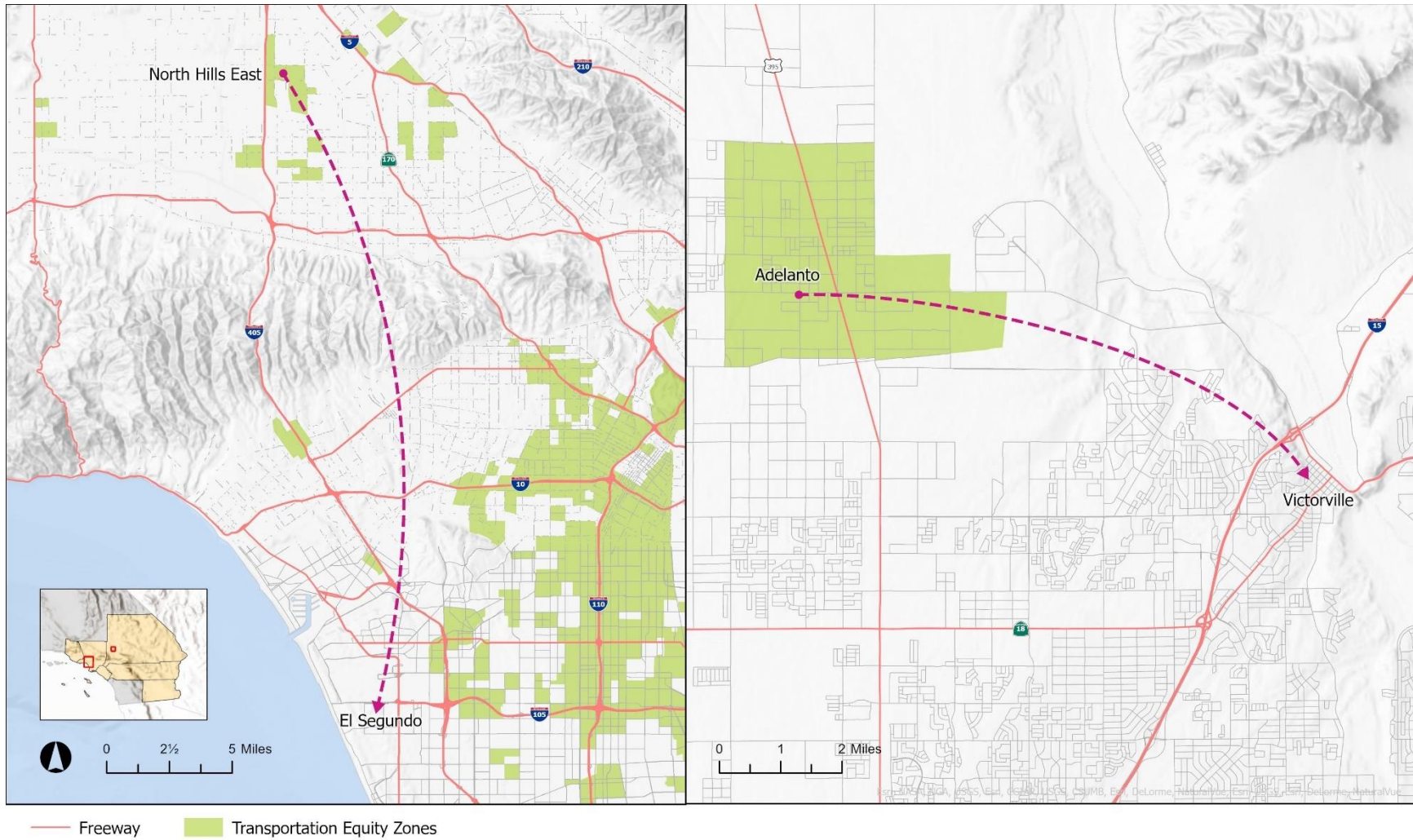
Table 43. Estimated Annual Fuel and Charging Costs

Vehicle Type	Older Model Gasoline Powered Car (pre-2009) <i>Like a Chevy Silverado</i> 	Newer Model Gasoline Powered Car (2019) <i>Like a Mercedes 250 CL</i> 	Electric Vehicle <i>Like a Tesla Model S</i> 
Fuel Efficiency (mpg)	17.0	28.7	n/a
Annual Gasoline Consumed (gallons)	705.88	418.12	0.00
Annual Price Paid for Gas or Electric Charging (\$)	\$2,891.29	\$1,712.61	\$720.00

Based on average 4.818 per gallon and \$0.06 per mile for EV charging.

Source: AAA California Average Gas Prices (as of March 29, 2023). Images from Cars.com Research & Reviews.

Map 15. Urban (Left) and Rural (Right) Example Commute Locations



Source: SCAG 2023

9.4.2 RESULTS

Table 44 and Table 45 summarize the impacts of MBUF implementation for the urban and rural examples, respectively. The tables reflect replacing state and federal gas taxes with a 2.5 cents per mile MBUF.

Table 44. Impacts of Shift to Mileage-Based User Fee (MBUF) by Vehicle Type, Urban Example

	Older Model Gasoline Powered Car (pre-2009)	Newer Model Gasoline Powered Car (2019)	Electric Vehicle
Fuel Efficiency (mpg)	17.0	28.7	n/a
Total Annual Commute Miles	13,150	13,150	13,150
Annual Gasoline Consumed (gallons)	773.5	458.2	0.0
Current Annual Taxes/Fees	\$558.49	\$330.81	\$108.00
Annual Taxes/Fees After MBUF Implementation	\$328.75	\$328.75	\$328.75
Impact of MBUF Implementation*	\$(229.74)	\$(2.06)	\$220.75

*Impact of MBUF Implementation reflects the difference between current gas taxes and MBUF
 Source: System Metrics Group, Inc., SCAG 2023

Table 45. Impacts of Shift to Mileage-Based User Fee (MBUF) by Vehicle Type, Rural Example

	Older Model Gasoline Powered Car (pre-2009)	Newer Model Gasoline Powered Car (2019)	Electric Vehicle
Fuel Efficiency (mpg)	17	28.7	n/a
Total Annual Commute Miles	4,600	4,600	4,600
Annual Gasoline Consumed (gallons)	270.59	160.28	0
Current Annual Taxes/Fees	\$195.36	\$115.72	\$108.00
Annual Taxes/Fees After MBUF Implementation	\$115.00	\$115.00	\$115.00
Impact of MBUF Implementation*	\$(80.36)	\$(0.72)	\$7.00

*Impact of MBUF Implementation reflects the difference between current gas taxes and MBUF
 Source: System Metrics Group, Inc., SCAG 2023

The results show that moving to the MBUF approach will save a modest amount of total taxes/fees for individuals who drive lower fuel efficiency vehicles. The reduction occurs for both urban and rural

travelers and increases as commute lengths increase. Individuals with higher fuel efficiency vehicles will pay about the same.

For individuals driving EVs, the MBUF is expected to increase the total tax paid. However, as charging costs are expected to be much lower than gasoline costs (without taxes/fees), EV operating costs are expected to remain significantly lower than vehicles with internal combustion engines. The pattern of reduced burden on gasoline powered vehicle owners and increased burden on electric vehicle owners with MBUF implementation becomes more prominent as travel distances increase.

Moving the region to an MBUF approach will be a less regressive funding approach compared to the current approach where gas taxes do not reflect road usage and disproportionately burden low-income households, who tend to own lower fuel efficiency vehicles. Connect SoCal also includes an additional local road charge strategy to provide necessary funding to the region, and the findings that a MBUF is a less regressive approach to transportation funding holds true. However, since low-income households may own newer, more fuel-efficient vehicles, an MBUF still has the potential to disproportionately impact low-income individuals and those with limited transportation options. The MIP report includes a Road Pricing Equity Toolkit that includes strategies for designing pricing programs more fairly and for reinvesting pricing revenue more equitably. By prioritizing equity in designing a road pricing program, an implementing agency can minimize the impacts on vulnerable communities while targeting road-pricing benefits to increase transportation equity.

10. EQUITY RESOURCES FOR ACTION TOOLBOX

The **Connect SoCal Equity Resources for Action (ERA) Toolbox** is a compilation of best practices and existing policies and strategies from local agencies and groups. It includes recommended practices and approaches to address existing and potential inequitable outcomes for communities and census tracts with high concentrations of low-income populations and people of color. The toolbox is intended to help local jurisdictions and community members integrate and advocate for equitable methods into policies and implementations. Resources, case studies, and examples are available for toolbox users to contextualize implementation of specific recommendations and strategies. Strategies will vary for each local jurisdiction and communities to fit their needs in addressing racial, socioeconomic, and health disparities.

Throughout its development, the ERA Toolbox, formerly Environmental Justice Toolbox, draws from many sources, such as the Governor's Office of Planning and Research (OPR) General Plan Guideline, the SB 1000 Implementation Toolkit developed by California Environmental Justice Alliance and PlaceWorks, and staff research on local and community-based organizations efforts. This collection brings together a range of case studies and examples from various agencies and groups that have demonstrated effectiveness in addressing and responding to various forms of inequities. The toolbox is a dynamic document that continues to grow and incorporate feedback from local jurisdictions, community-based organizations, and stakeholders.

This toolbox is organized by the four Connect SoCal 2024 goals: mobility, environment, community, and economy. Each goal includes several recommended practices and approaches with resources and examples at the end of each topic area. The ERA Toolbox continues to include General Plan Element icons to aid local jurisdictions in developing their EJ elements, goals, and/or policies per requirements from SB 1000.

All recommendations are optional and up to the discretion of the user. Recommendations incorporating or referring to compliance with existing regulations are for informational purposes only and do not supersede existing regulations. If you would like to provide feedback or contribute an idea to the toolbox, please send an email to environmentaljustice@scag.ca.gov.

10.1 MOBILITY

Relevant General Plan Elements

● *Circulation*
● *Land Use*
● *Conservation*
● *Safety*
● *Noise*

Historically, patterns such as racial segregation, gentrification, and displacement have limited accessibility to essential services and overall mobility for underserved populations like low-income households and communities of color. Therefore, it is important for local jurisdictions to seek out and develop policies and strategies that will help our region become more connected and accessible for everyone, regardless of race/ethnicity, age, gender, disability, income, etc. The goal of the Mobility Section is to provide recommended practices and approaches to address inequities caused by transportation-related impacts, focusing around developing transit-oriented districts, designing and promoting complete, safe, and active streets, and providing quality, safe, reliable and affordable transportation options. These example strategies can start discussions on what impacted communities need and uplift communities disproportionately impacted by transportation impacts.

10.1.1 TRANSIT ORIENTED DISTRICTS (TOD)

- Update zoning and land use policies to facilitate compact mixed-use development
- Prioritize projects with pedestrian-friendly streetscape enhancements to encourage walkability
- Consider the local context and existing neighborhood characteristics in TOD planning, with particular attention to ensuring residents continue to receive the benefits of the improvements through supportive policies, including rent stabilization measures

Resources and Examples:

1. Federal Transit Administration, Transit Oriented Development
2. Los Angeles County, Transit Oriented District (TOD) Design Guidelines (2019)
3. Los Angeles County, Transit Oriented District (TOD) Toolkit: [A Case Study involving the Atlantic/Whittier Station \(2021\)](#)
4. LA Metro, Transit Oriented Communities
5. Riverside County Transportation Commission, Transit-Oriented Communities Strategic Plan

10.1.2 COMPLETE STREETS AND ACTIVE TRANSPORTATION

- Adopt and implement Complete Street policies supporting jurisdictions design of streets that are planned, designed, built, operated, and maintained to support safety, comfort, and mobility for all road users
- Include traffic-calming measures and reallocate street space to people walking, bicycling, and using mobility devices when designing Complete Streets
- Adopt and institutionalize complete pedestrian and bicycle network plans that allow for safe and low-stress travel between all areas and destinations in a community. Invest in new and updated infrastructure improvements, including sidewalks, bicycle lanes or paths, dedicated bus lanes, transit/rail stops or stations, crossing opportunities, median islands, accessible pedestrian signals, commercial delivery zones, curb extensions, landscape treatments, cool pavements, and other urban heat mitigation aspects, all with the goal of increasing access to essential services, especially via non-auto modes
- Engage with local and private industries to strengthen public-private partnerships, like shared micromobility (i.e., bike/scooter) programs, to broaden access to mobility options
- Integrate artwork such as murals in transportation infrastructure, crosswalks, underpasses, and the public-right-of-way to encourage safe driving and activity among pedestrians and bicyclists
- Engage communities throughout a project to ensure local needs inform investments, street design improvements, and assessment of project success. See Section 10.2 Communities for more recommendations on community engagement

Resources and Examples:

1. UC Berkeley, California Active Transportation Safety Information Pages: Complete Streets
2. Smart Growth America, National Complete Streets Coalition Policy Atlas
3. LA Metro, Complete Streets Policy (2014)
4. Orange County Council of Governments, Complete Street Initiatives
5. City of Los Angeles Planning, Complete Streets Design Guide
6. San Bernardino Associated Governments, Complete Street Strategy (2015)
7. Western Riverside Council of Governments, Subregional Climate Action Plan Chapter 4: Complete Streets

8. City of Santa Monica, Scooter and Bike Share [Services](#)
9. City of Long Beach, Bike Share [Program](#)
10. Los Angeles County Bicycle Coalition
11. LA Metro, Bike Share
12. Complete Streets Ahead, Millburn (New Jersey) Complete Streets Project, Before and After Gallery
13. San Francisco Municipal Transportation Agency, Better Market Street
14. California Walks
15. Caltrans Transportation Art Program, Highway Art Provides Community Canvas
16. Butte County Association of Governments, SR 162 Corridor Study
17. UC Berkeley SafeTREC, Community Pedestrian and Bicycle Safety Program, Focus Regions Program
18. Walk Score

10.1.3 SAFE ROUTES AND STREETS

- Use wayfinding and public education campaigns to increase awareness of accessibility and proximity to major destinations using walking, biking, and transit/rail routes or lines
- Adopt and implement Vision Zero or Toward Zero Death policies to create safer streets for all users. (See resources #11 and #12)
- Conduct Safe Routes to School (SRTS) and walk audits that include EJ hazards checklists such as an analysis of canopy, urban heat island threat, air quality, flood drainage, etc.
- Develop High Injury Networks or complete hot spot analyses to encourage data-driven decision-making. (See resource #9 and #10)
- Consider a Transit to Parks program that provides free transportation for children, older adults, and disabled persons to recreational sites such as trails, parks, and beaches (See resource #5)
- Create a Safe Routes for Seniors program/plan to eliminate crashes that lead to serious injuries/fatalities to older adults by educating community members about risks for older adults, increasing the number of trips by walking and bicycling for older adults, uplifting the voices of older adults regarding transportation needs and safety, and targeting neighborhoods with large populations of older adults who have a lack of access to transportation (See resource #4)

Resources and Examples:

1. Imperial County Public Health Department, Safe Routes to School
2. Orange County Transportation Authority, Safe Routes to School
3. City of Los Angeles, Safe Routes to School
4. Los Angeles Department of Transportation, Safe Routes for Seniors
5. LA Metro, Transit to Parks Strategic Plan (2019)
6. Safe Routes to School National Partnership, Safe Routes to Healthy Food: Strategies for Local Governments (2017)
7. San Bernardino County Transportation Authority, Regional Safe Routes to School Plan Phase II Volume II (2019)
8. Federal Highway Administration, Zero Deaths and Safe System
9. SCAG, Recommendations for California Statewide Guidance: High Injury Networks (2021)
10. SCAG, Regional High Injury Network
11. Toward Zero Deaths
12. Vision Zero Network
13. Los Angeles County, Vision Zero Action Plan: A Plan for Safer Roadways [\(2019\)](#)
14. City of Long Beach, Go Active LB

10.1.4 AFFORDABLE AND ACCESSIBLE TRANSPORTATION

- Increase wheelchair accessible vehicles services and infrastructure by coordinating with local and state transportation agencies
- Provide resources and improve customer service and information for transit rail passengers with physical, neurological, mobility and learning disabilities
- Promote innovative solutions to provide first/last mile connections to transit/rail services
- Invest and promote partnerships with Transportation Network Companies (TNCs) and other mobility providers, especially in communities with limited access to transit/rail
- Ensure customer service options are available for app-based transportation services
- Provide language translation services through customer call centers and in transit-oriented developments and public transportation stops to assist people with disabilities and individuals who primarily speak a language other than English
- Translate all information resources whether electronic or physical into multiple languages and ensure all materials are ADA accessible, especially for specific transportation-related images
- Conduct research and a needs assessment on transit/rail fares for riders of color and low-income riders
- Conduct community engagement with historically marginalized or underserved communities to receive input on how to assess needs and provide affordable transit fares
- Research and create dedicated funding sources to support accessible and new transportation programs
- Collaborate with transit agencies to provide reduced and free transit for riders who are low-income, unhoused, unemployed, older adults, youth populations, and disabled persons

Resources and Examples:

1. Federal Transit Administration, Accelerating Innovative Mobility
2. Federal Transit Administration, Americans with Disabilities Act (ADA)
3. California Public Utilities Commission, TNC: Access for Persons [with Disabilities Program \(SB 1376, Hill\)](#)
4. California Department of Rehabilitation, Resources Transportation Issues
5. Access, Paratransit Eligibility
6. OmniTrans, Mobility Services
7. City of Los Angeles Department of Transportation, Bilingual Glossary of Transportation Terms
8. City of Long Beach, Disability Community Resource Guide [\(2018\)](#)
9. LA Metro, Aging and Disability Transportation Network (2023)
10. LA Metro, Equity Information Hub
11. Seamless Bay Area, Vision for Integrated Transit Fares
12. City of Los Angeles Department of Transportation, Universal [Basic Mobility](#)
13. Metrolink, Accessibility and Affordability Study [\(2021\)](#)
14. LA Metro, Low-Income Fare is Easy (LIFE)
15. LA Metro, Understanding How Women Travel [\(2019\)](#)
16. Urban Institute, Access to Opportunity through Equitable Transportation: [Lessons from Four Metropolitan Regions \(2020\)](#)

10.2 COMMUNITIES

Relevant General Plan Elements

● Land Use ● Safety ● Housing

Connect SoCal 2024 strives to help develop, connect, and sustain communities that are livable, equitable, and thriving. Lack of community engagement during the planning process, unaffordable and unattainable housing, and lack of healthy food choices are a few of many reasons that result in unsustainable communities. Therefore, it is crucial to consider equitable practices and approaches to break down barriers and ensure communities in the SCAG region can thrive. The Communities section of this toolbox provides recommended practices and approaches centering around equitable engagement, especially with specialized populations, affordable, safe, secure, and protected housing, and healthy food access, to address inequities impacting vulnerable populations and underserved communities. The examples include best practices in the region and help empower residents and local jurisdictions to take action.

10.2.1 COMMUNITY ENGAGEMENT

DEVELOP EFFECTIVE COMMUNITY ENGAGEMENT AND PUBLIC OUTREACH

- Build relationships with residents through community-based organizations, health departments, schools, libraries, and other groups that directly interface with the community
- Measure and assess the current community engagement approaches to ensure they are reaching all impacted residents
- Anticipate any barriers to effective communication and participation with all community members when developing an effective public outreach plan by looking at the demographics in the area (e.g., primary language, age, internet access, and educational attainment)
- Consider different ways to build trust within the community including facilitating conversations through a non-governmental organization, contractual trust, communication trust, competency trust, and caring (See resource #5)
- Host art-centered events and activities to increase engagement with community members such as art galleries, murals, festivals, and public art pieces
- Bring information and opportunities for input to community events, high schools, local markets, and community group meetings
- Provide information through non-digital formats, like local magazines and water bills

Resources and Examples:

1. Institute for Local Government, Technology, Tools, and Techniques to Improve Public Engagement
2. Homelessness Policy Research Institute, Homeless Outreach: The Los Angeles County Context [\(2022\)](#)
3. City of Rancho Cucamonga, General Plan Progress Report (2022)
4. Stanford Social Innovation Review, Building Trust with Communities of Color [\(2015\)](#)
5. University of Minnesota, Building Trust in Communities (2022)

EMPOWER COMMUNITIES TO MAKE DECISIONS

- Build capacity within communities that are historically underrepresented in the decision-making process by providing relevant and effective training and workshops that empowers them to participate in their local decision-making process
- Maintain communication with community groups throughout the entire project development and implementation
- Uplift and amplify opinions and priorities of community members during workshops and community meetings
- Provide a safe space for community members to take charge of discussions and practice active listening if conflicts arise
- Conduct interviews to uplift personal and shared narratives
- Develop surveys to be delivered and responded to in group settings to enhance discussion
- Foster a network of neighborhood associations

Resources and Examples:

1. U.S. DOT, Promising Practices for Meaningful Public Involvement in Transportation Decision-Making (2022)
2. Greenlining Institute, Mobility Equity Framework: How to Make Transportation Work for People (2018)
3. City of Santa Ana, Neighborhood Initiatives and Environmental Services Program

IMPLEMENT PARTICIPATORY BUDGETING (PB) COMMITTEES AND PROGRAMS

- Create a PB Committee consisting of community members, stakeholders, public officials, and local decision-makers to advocate for democratizing the city budgeting process
- Research and locate discretionary funding sources by speaking with experienced PB practitioners, contacting key officials who control funding, and attend PB information sessions (See resource #5)
- Recruit community members who can act as budget delegates and can form relationships and represent the interests of the residents
- Collect and share data on voting results to ensure transparency with community members

Resources and Examples:

1. Institute for Local Government, Participatory Budgeting
2. City of Los Angeles, Los Angeles Reforms for Equity and Public Acknowledgement of Institutional Racism Participatory Budgeting
3. Investing in Place, Demystifying the Transportation Budgeting Process in the City of Los Angeles (2020)
4. Long Beach Forward, The People's Budget
5. People Powered, Impacts of Participatory Budgeting [\(2022\)](#)

CONDUCT ACCESSIBLE AND INCLUSIVE PUBLIC AND COMMUNITY MEETINGS

- Ensure public meetings and workshops are accessible and convenient for residents by holding events in public venues and during various times in the day to accommodate work schedules,

providing child-care and food, and distributing meeting materials in advance to allow residents time to review and comment

- Use different methods of education and engagement, such as community-based participatory research, community benefits agreements, community events, design charrettes, door-to-door canvassing, focus groups, interactive workshops, mobile engagement, open houses, and surveys
- Host meetings in a hybrid setting, offer free device rentals for virtual attendees, and distribute a list of locations with free broadband services so that individuals can attend online meetings
- Practice language support services in community and public meetings that includes coordinating with translators to translate information materials in multiple languages, interpreters to be present at meetings, and provide visual and auditory resources for public meetings
- Consult with cultural community representatives to ensure meetings are conducted in a culturally sensitive manner
- Provide free tours for stakeholders, affected populations, and concerned individuals on project sites and project specific areas as part of community meetings and workshops
- Increase transit accessibility by providing free transit fares for attendees and host community and public meetings located near bus stops or transit corridors
- Utilize popular education, universal design learning, and active learning techniques to engage and build knowledge and information

Resources and Examples:

1. SCAG, Public Participation Plan [\(2022\)](#)
2. City of Tustin, Community Engagement Plan (2020)

10.2.2 LANGUAGE ACCESS PROGRAMS AND RESOURCES

- Provide requested language access resources and translation equipment, including visuals and audio equipment based on language needs survey results for public and community meetings hosted by local jurisdictions and community organizations
- Use the registration process for meetings and events as an outreach opportunity to determine the language needs of participants or attendees in conjunction with using the registration process, consider surveying community organizations before an event, or periodically/annually, to determine which languages are spoken most often by community members
- Translate outreach materials to multiple languages, specifically languages that are spoken and used within the community
- Conduct a needs assessment for translators and language accessibility resources within communities, including regular surveys of needs through community-based organizations
- Contract with local translators who are community members to coordinate translation services for large group settings such as public meetings
- Ensure more than one interpreter is present during public meetings and events to accommodate for multiple languages and to allow interpreters to take breaks by rotating with another interpreter
- Assemble internal translation groups and teams by including a multilingual criterion when hiring and ensure they are compensated fairly
- Provide accessible multilingual training for individuals seeking to learn new languages

Resources and Examples:

1. Welcoming America, Bridging Language and Work [\(2022\)](#)
2. Migration Policy Institute, Language Access: Translation and Interpretation Policies and Practices

3. City of Long Beach, Health and Human Services: Language Access
4. [Communities Creating Healthy Environments, Language Justice Toolkit](#)

10.2.3 TRIBAL ENGAGEMENT

- Research, locate, and initiate contact with tribal leads such as a tribal advisor and inter-agency tribal organizations
- Conduct outreach with tribal communities at a local level by inviting members to public meetings, community engagement events, and workshops
- If permitted by the tribal members, consider visiting tribal land to engage with tribal community members
- Coordinate multi-tribe gathering events and meetings for all tribal members to attend so that different tribes can provide various viewpoints and feedback
- Be considerate that there are tribal differences and be open to modifying approaches to different tribes
- Welcome and support tribal members into leadership and decision-maker positions
- Consult with tribal governments at early stages of the planning process when changing general plans such as amending policies to ensure long range plans do not affect sacred, historical, or cultural sites of indigenous and tribal communities
- Develop land use agreements with local tribes
- Facilitate engagement with tribes through non-governmental organizations

Resources and Examples:

1. FirstNet Authority, Guidance for States and Localities to Outreach to Tribal Governments
2. California Department of Water Resources, Sustainable Groundwater Management Program: Guidance Document for the Sustainable Management of Groundwater, Engagement with Tribal Members (2018)
3. Census 2020, Outreach to Tribal Nations and Native Communities Final Report (2021)
4. San Diego Association of Governments, Tribal Consultations
5. City of Long Beach, Willow Spring Restoration and Environmental Stewardship
6. City of Oakland, Sogorea Te' Land Trust and City of Oakland Plan to Return Land to Indigenous Stewardship (2022)
7. City of West Hollywood, Climate Action and Adaptation Plan Outreach: How did WeHo Climate Action engage the local indigenous population?
8. National League of Cities, Roadmap to Repair (2022)

10.2.4 IMMIGRANT COMMUNITIES

- Create an Office of Immigrant Resources and Support to provide guidance and resources for the integration of immigrants within communities and neighborhoods
- Initiate dialogues with community members including individuals with lived experiences to build relationships and better understand how to plan for the needs of the community
- Incorporate metrics to evaluate and improve policies and practices centered on immigration integration
- Expand civic participation among migrants and immigrant communities through language accessibility and cultural and community representatives

- Encourage multicultural curriculum for workplaces and educational facilities and increase supportive services for new workers and students
- Provide free and accessible transportation for immigrant communities

Resources and Examples:

1. Welcoming America, Receiving Communities Toolkit [\(2011\)](#)
2. Welcoming San Diego, Strategic Plan on Immigrant and Refugee Integration 2019-2024

10.2.5 AFFORDABLE AND SECURE HOUSING

- Support communal land ownership and expand housing affordability
- Establish partnerships and collaborations with community land trusts on how to preserve local land ownerships
- Create a local housing trust fund that leverages developer fees and other fees to fund new affordable housing projects
- Consider mitigation, non-profit, and grant funding opportunities for local community-oriented businesses
- Consider community-based ownership for options, such as co-ops to encourage ownership for opportunities in areas with low homeownership rates
- Encourage community-led development through a tripartite board made of equal representation of lease holders of Community Land Trust land residents from surrounding areas, and community leaders, nonprofit representatives, public officials and other interested people

Resources and Examples:

1. National Association of Housing Cooperatives
2. California Center for Cooperative Development
3. PolicyLink, Invest in Neighborhoods: Community Benefits Agreement Toolkit
4. Los Angeles Neighborhood Land Trust, [Project Updates \(2022\)](#)
5. Irvine Community Land Trust
6. THRIVE Santa Ana Community Land Trust

10.2.6 AFFORDABLE HOUSING PROTECTION

- Create policies that incentivize the creation of affordable and efficient housing
- Prioritize affordable housing locations near amenities in conjunction with market-rate development in disadvantaged communities
- Enact policies that protect and preserve mobile homes and mobile home parks as it is often primary housing option in many low-income, underserved, and rural communities
- Include rent control or rent stabilization policies in disadvantaged or underserved communities to protect housing affordability and availability
- Continuously review inclusionary or affordable housing policies, procedures, or requirements to adapt to changing needs of the community

Resources and Examples:

1. Institute of Local Governments, Meeting California's Housing Needs: Best Practices for Inclusionary Housing (2018)
2. County of Los Angeles, Rent Stabilization Program
3. City of Los Angeles, Housing Element 2021-2029

10.2.7 HOUSING RIGHTS PROTECTION

- Establish protections for low-income renters, including requiring 60-day notice for rent increases
- Fund programs that focus on outreach, information, and enforcement of tenant protections laws; If housing protections already exist, consider revising protections as needed to meet community needs and continue to safeguard vulnerable populations
- Provide public education and materials to educate residents on potential hazards that can lead to unhealthy housing conditions and encourage residents to take action
- Implement tenant protection measures such as Right to Counsel and rent escrow to avoid displacement impacts from housing repairs and improvements, including repairs that are made to meet sustainable design guidelines, correct code violations, or address habitability issues
- Enforce substantive resident protection measures to avoid displacement impacts from community investments, including rent control, just cause eviction, and “right-to-return” ordinance

Resources and Examples:

1. U.S. Department of Housing and Urban Development, Tenant Rights, Laws and Protections: California
2. California Civil Rights Department
3. National Alliance of HUD Tenants, Resources
4. County of Los Angeles, Consumer and Business Affairs: Housing and Tenants Protections

10.2.8 PREVENT DISPLACEMENT

- Set-up a no net loss of affordable housing that are within ½ miles of public investments
- Create homeowner assistance programs to assist low-income families to purchase homes or prevent foreclosures
- Implement affordable housing linkage fees within zoning codes to require a certain percentage from real estate developments will be used to fund affordable rental and homeownership housing programs
- Provide foreclosure assistance programs to provide guidance and counseling for residents who are experiencing foreclosures
- Review housing policies at local and state levels to ensure they do not result in displacement for people of color.

Resources and Examples:

1. California Strategic Growth Council, Anti-Displacement Strategies Round 7 Draft (2022)
2. City of Sacramento, Anti-Displacement/Gentrification (2018)
3. UC Berkeley, Developing a New Methodology for Analyzing Potential Displacement (2017)
4. UC Berkeley, Urban Displacement Project
5. Anti-Eviction Mapping Project

10.2.9 SUPPORT UNHOUSED/HOUSING INSECURE INDIVIDUALS OR INDIVIDUALS EXPERIENCING HOMELESSNESS

- Define “homelessness” and create a homelessness response plan to provide details on policies and practices to support those who are experiencing homelessness or are unhoused

- Design a transitional housing program by consulting with homeless outreach centers and community organizations supporting those who are unhoused on how to appropriately address the needs of those who are experiencing homelessness
- Apply for state and federal grants to fund programs for transitional housing, rapid re-housing, permanent supportive housing, housing voucher waitlist, state-funded trailers, and single room occupancy
- Incentivize multi-family housing, motels, hotels, and inns to participate in transitional housing and single room occupancy programs so that individuals can stay within these locations until permanent or reliable housing options arise.
- Develop a street and encampment response to provide safe and sanitary conditions for individuals living in encampments such as providing food, porta-potties, handwashing stations, garbage pick-ups, and designated RV parking
- Consider joining local Continuums of Care (CoCs) to help identify other organizations who are working to end homelessness in your community

Resources and Examples:

1. California Department of Social Services Housing and Homelessness Programs
2. City of Oakland Homelessness Response
3. HUD Exchange, Continuum of Care
4. County of Los Angeles Homeless Initiative, Approved Strategies to Combat Homelessness (2016)
5. Los Angeles County Homelessness Emergency Response
6. U.S. Department of Housing and Urban Development: HUD Exchange-Resource Library
7. U.S. Department of Housing and Urban Development: Continuum of Care Program

10.2.10 COMMUNITY-BASED INFRASTRUCTURE AND PLACEKEEPING

- Create and maintain existing linear parks that connect to neighborhoods and communities
- Conduct an open and green spaces assessment on existing areas that can provide space for residents and community members and perform a separate evaluation to identify locations with a lack of green and open spaces
- Create a community-informed cultural asset map to document and build on the strengths of a neighborhood, such as the one created by Promise Zone Arts in Los Angeles (See resource #8)
- Construct more open and green spaces within urban centers, community hubs, and near essential facilities such as hospitals, schools, daycares, and nursing homes
- Provide and support spaces for artists and community members to engage and participate in ephemeral and performing arts such as live art performances, street art, and public galleries
- Test out pop-up placekeeping and safety features to inform future investments (Examples could include murals, artistic crosswalks, festivals, etc. and temporary placekeeping can become long-term improvements and uplift public interest for uses)
- Consider limiting siting of new sensitive uses such as playgrounds, daycare centers, schools, residences, medical facilities within 1,000 feet from warehouses, industrial zones, heavy volume of traffic, and freeways. Projects that will introduce sensitive receptors within 500 feet of freeways and other sources should consider installing high efficiency of enhanced filtration units and other mitigation measures as appropriate and feasible
- Remove any hostile design to encourage community gatherings and safety for all community members

Resources and Examples:

1. Urban Institute, Creative Placemaking and Community Safety
2. Lee Kuan Yew World City Prize, Creative Place Making Medellin Cable Car Pylon
3. Nurture Development, Asset Based Community Development
4. Roberto Bedoya, Placemaking and the Politics of Belonging and Dis-belonging
5. Project for Public Spaces, What makes a successful place?
6. City of San Francisco, Art Element
7. Americans for the Arts, Cultural Placekeeping Guide: How to Create a Network for Local Emergency Action (2017)
8. Promise Zone Arts, Los Angeles
9. Robert Rosenberger, On hostile design: Theoretical and empirical prospects [\(2019\)](#)

10.2.11 FOOD ACCESS, SUPPLIES, AND SYSTEMS

- Prioritize healthy food supplies in economic development efforts, especially in areas where a healthy food supply, farmer's market, or community garden is not located within a walkable distance (i.e., half to a quarter mile away)
- Partner with or support local government or nonprofit organizations that offer food pantry delivery services to those who might not be able to travel to available supermarkets, pantries, or community gardens
- Support developments near public transportation that allows for direct access to supermarkets, pantries, or community gardens
- Set up school-or-community-based programs that integrate gardening and nutrition, and make the connection between healthy food choices and locally grown fresh produce
- Revise the zoning code to restrict the amount of national fast-food chain restaurants, drive-thrus, and other food retailers that promote low-nutrient dense-foods near sensitive land uses
- Encourage the development of healthy food establishments in areas with a high-density of establishments selling high-calorie fast food and junk food relative to healthier food options
- Permit more community gardens and food pantries by decreasing restrictions on development within the land use section of the zoning code
- Integrate community gardens and food pantries into all land use designations such as in industrial zones
- Create an Urban Agriculture Incentive Zone (UAIZ) Program by setting up an application process and provide information sessions for potential landowners to develop vacant land for agricultural purposes (See resource #3 and #4)
- Support local farmers and urban agriculture entrepreneurs in adopting regenerative agricultural practices, including those that sequester carbon, such as by offering training, technical assistance, and/or financing and adopting County policies that support regenerative agriculture
- Expand the number of low-income Community-Supported Agricultural models to increase fresh food access in low-income areas, while fairly compensating farmers for their products
- Permit the use of certain fruit trees in public right of way and public open spaces
- Implement Good Food Purchasing Policy and/or other model policies that promote local, fair and sustainable production of agricultural products and seafood, prioritizing vendors with certifications for sustainable agricultural practices related to water, public health, energy use pesticides, and workers' rights

Resources and Examples:

1. American Planning Association, Planning for Food Access and Community-based Food Systems [\(2012\)](#)
2. California FreshWorks Food Access Report [\(2016\)](#)
3. Assembly Bill No. 551 Chapter 406: Urban Agriculture Incentive Zones (2013)
4. City of Los Angeles City Planning: Urban Agriculture Incentive Zone (UAIZ) Program [Factsheet](#)
5. Los Angeles Community Garden Council
6. Kristen Cooksey-Stowers, Marlene B. Schwartz, and Kelly D. Brownell, Food Swamps Predict Obesity Rates Better Than Food Deserts in the United States [\(2017\)](#)
7. Let's Get Healthy California

10.2.12 REDUCE FOOD WASTE

- Conduct a food waste and loss assessment to measure and evaluate the amount of food waste and loss and to determine food waste sources
- Integrate food waste reduction practices through wastewater treatment plants, compost hubs, food recycling centers, and food banks
- Collaborate with locally owned supermarkets, grocery stores, restaurants, and farms to donate all uneaten/intact food to community food banks and pantries
- Provide educational resources and community workshops to inform community members of the impact of food waste and loss and how to reduce food oversupply and food waste

Resources and Examples:

1. U.S. EPA, Sustainable Management of Food Basics
2. U.S. EPA, Preventing Waste Food At Home
3. Governor's Office of Planning and Research, Food Waste Prevention
4. Los Angeles County Sanitation Districts, Food Waste Recycling
5. Los Angeles County Fight Food Waste

10.3 ENVIRONMENT

Relevant General Plan Elements

- *Land Use* ● *Conservation* ● *Open Space*

Historically, people of color have been provided less protection from poor environmental conditions and are more likely to be exposed to pollution because they live closer to highways, highly traveled roads, industrial plants, and other sources of pollutants. Impacts from climate change like wildfires, extreme heat, and others, exacerbate air quality and affect residents' health. In addition, pollution continues to be a major public health concern in the region, as pollutants exacerbate chronic conditions and disproportionately affect vulnerable populations (children, pregnant women, older adults, outdoor workers, and people with disabilities). The goal of the Environment Section is to provide recommended practices and approaches focused on climate resilience, air quality, land stewardships and noise impacts, to create healthier and more resilient communities and help those who are disproportionately impacted by the effects of climate change, air quality, and other stressors.

10.3.1 CLIMATE RESILIENT COMMUNITIES

ADOPT CLIMATE RESILIENCY STRATEGIES AND RESPONSE PLANS

- Define resilience in climate action plans and climate resilience-centered policies to inform residents and community members of local jurisdictions' capacities to respond and anticipate to the effects of climate change
- Prioritize and recognize the most vulnerable populations and communities overburdened by climate hazards. This may include identifying communities vulnerable to climate effects and hazards, assess vulnerability hazards, and mapping disadvantaged communities
- Equitably distribute resources to vulnerable communities so that communities can respond to shocks and stressors
- Build strong partnerships that involves coordinating across multiple sectors, scales, and stakeholders to ensure people have access to socioeconomic, healthy, and physical benefits of the natural and built systems
- Provide resiliency preparedness and recovery education, trainings, and resources for all community members and residents
- Collaborate with industry sectors and areas of expertise to support research on solutions and response development
- Apply ecosystem-based approaches by preserving ecosystems services, practicing sustainable resource management, and enhancing preservations and protections of natural and working lands
- Support the use of systems-based risk-management methods and tools for implementation
- Maximize mutual benefits that requires supporting resilience and conservation initiatives
- Continuously update climate resilience policies and programs to provide effective and current mitigation measures and response methods to the growing effects of climate change
- Host meetings and roundtables for climate vulnerable communities so that they can provide feedback on climate resilient policies and projects. Make sure to promote active listening and cultural responsibility when engaging and interacting with the community during these forums
- Increase weather proofing for public infrastructure and transit-oriented developments to protect residents and passengers and withstand extreme heat, flooding, and storms
- Conduct a climate vulnerability assessment on public infrastructure, parks, open spaces, schools, libraries, community centers, transit routes, and bus stops to determine which areas are most susceptible to the effects of climate change
- Integrate natural vegetation such as trees, shrubs, and grassland into public infrastructure and transit-oriented developments to provide passive cooling techniques and flooding resilience

Resources and Examples:

1. California Environmental Justice Alliance, SB 1000 Implementation Toolkit: 5.9 Reduce Impacts of Climate Change (2018)
2. C40 Knowledge, Reducing climate change impacts on walking and cycling ([2020](#))
3. California Department of Public Health, California Building Against Resilience Against Climate Effects (CalBRACE) Initiative
4. Center for Climate and Energy Solutions, Policy Options for Climate-Resilient Infrastructure (2018)
5. U.S. EPA, Green Infrastructure for Climate Resiliency
6. City of Los Angeles, LA Sanitation: Residential Solutions
7. Organization for Economic Co-operation and Development, Environment Policy Paper No. 14: Climate-Resilient Infrastructure (2018)
8. County of San Bernardino, Resiliency Strategy (2019)

ADOPT EXTREME HEAT RESILIENCY AND ADAPTATION STRATEGIES

- Conduct priority planting site analyses to identify potential areas for tree planting to combat soil degradation and erosion
- Encourage planting large-stature trees with wide canopies to produce larger amount of shades
- Encourage more urban greening and forestry to increase tree and vegetation cover
- When building new structures or remodeling old structures, promote cool/green roofs, reduce impervious surfaces, and use new and innovative cooling technology like solar reflective pavements (See resource #6)
- Preserve native vegetation in wildland areas and constructed landscapes to reduce vulnerability to extreme heat and wildlife associated with climate change
- Encourage diverse tree species to develop greater resiliency and develop pest resistance
- Provide cooling centers with reliable power sources in areas with vulnerable communities. Use community hubs such as libraries, schools, faith-based locations, parks and recreation sites, and public buildings and consider providing free public transportation for vulnerable communities to access cooling centers
- Construct public infrastructure such as public parks, public pools, playgrounds, walking/biking infrastructure using materials that lowers urban heat island effect

Resources and Examples:

1. County of Ventura, Tree Permits and Tree Protection Ordinance
2. City of Sacramento, Urban Tree Canopy Assessment (2018)
3. City of Santa Monica, Santa Monica's Urban Forest Master Plan (2017)
4. City of Long Beach, Long Beach Tree Planting Program
5. Tree People and Loyola Marymount University Center for Urban Resilience, Los Angeles County Tree Canopy Coverage
6. Ariane Middel, V. Kelly Turner, Florian A. Schneider, Yujia Zhang, and Matthew Stiller, Solar reflective pavements – A policy panacea to heat mitigation? (2020)
7. City of Riverside, Heat Response Plan
8. U.S. EPA, Cool Pavements to Reduce Heat Islands
9. County of San Bernardino, Heat Wave Plan/[Procedures \(2007\)](#)

ADOPT COASTAL RESILIENCY STRATEGIES

- Conduct a vulnerability assessment for coastal communities to better understand climate change impacts and develop adequate climate resiliency and adaptation plans
- Create a sea level rise adaptation plan to protect communities and resources and ensure that the plans are regularly updated to monitor any environmental and social changes
- Conduct dune restoration and adaptation to maintain natural line of defenses against sea level rise
- Rebuild natural infrastructure to prevent coastal floodings such as the integration of barrier islands, oyster, coral reefs, mangroves, seagrass, and salt marshes
- Protect communities near tidelines by elevating existing residential areas and relocating parking lots and pedestrian and bike paths away from tidelines
- Maintain living shorelines by protecting them from stormwater runoff

- Require new developments in and near flood-prone areas to use permeable paving, rain gardens, and other low-impact development strategies to slow down floodwaters and promote groundwater infiltration, especially in vulnerable communities who have less economic opportunity to move out of flood-prone areas

Resources and Examples:

1. UC Santa Barbara, California Coastal Adaptation Planning [Inventory Storymap \(2022\)](#)
2. California Coastal Dune Science Network
3. Sea Level Rise Organization
4. UC Santa Barbara, Ocean and Coastal Policy Center: Climate Change and Coastal Resilience

ADOPT WILDFIRE RESILIENCE STRATEGIES

- Create a needs assessment for areas that do not have an established evacuation route, wildfire resiliency strategies, wildfire response strategies, and lack of fire safety infrastructure
- Design fire-safe roadways and evacuation routes for communities, neighborhoods, and urban areas especially in areas with vulnerable populations
- Distribute information and alerts through social media by ensuring that residents have access to the local jurisdiction's page and post timely updates during wildfires or about wildfire preparedness
- Provide residents, especially those with mobility needs or have limited access, to various modes of transportation with emergency transportation services in the event of an evacuation
- Provide residents emergency preparedness education and resources such as first-aid kits, radios, flashlights, emergency blankets, and rations especially for vulnerable communities
- Consider hosting education sessions in community hubs at libraries, schools, and faith-based locations
- Develop defensible spaces by using vegetation such as grass, trees, and shrubs as buffers between residential areas and buildings.
- Research and install fuel breaks as a wildfire suppression method (installed fuel breaks are designated areas with a reduced fuel load that create a barrier to prevent fire spread).
- Conduct prescribed burning in areas that are considered wildfire hazards and routinely clear fallen trees
- Restore previously burned land to ensure that dried and burnt areas do not contribute to potential wildfires
- Create a wildfire home hardening program to retrofit homes with fire-resistant materials, especially in low-income communities and communities of color that do not have access to such programs or funding
- Develop sustainable microgrids to operate after wildfire-caused power outages to ensure emergency facilities and neighborhoods can still operate

Resources and Examples:

1. Forest Management Task Force, California's Wildfire and Forest Resilience Action Plan (2021)
2. City of San Diego, Climate Resilient SD [Plan](#)

ADOPT SEISMIC RESILIENCY STRATEGIES

- Conduct a seismic risk of city assets and management programs to identify infrastructure in need of retrofiting, replacements, and improvements
- Consider mandatory retrofits for all housing and additional building typologies that were built pre-1980s
- Develop new occupancy building codes for new buildings for residents to reoccupy buildings more quickly following an earthquake
- Explore funding opportunities to offset the cost of seismic retrofitting, structural reinforcements, and bolting for existing buildings
- Fortify water pipe systems by working with engineering, sanitation, gas companies, and other agencies to plan for resilient and updated pipeline infrastructure in the event of an earthquake and after an earthquake to address potential impacts
- Protect water storage by ensuring dams are maintained in a safe manner and conduct regular evaluations of seismic safety on dams, inundation maps, and reservoirs
- Educate vulnerable communities, specifically those who live near or on fault lines regarding the importance to prepare for during and after an earthquake through social media, publications, and events. Consider distributing educational resources and hosting sessions at community hubs such as schools, libraries, and faith-based locations
- Incorporate the use of social media to alert residents of seismic activities and locations of emergency shelters
- Provide funding for reconstruction and rebuilding infrastructure especially for housing after an earthquake
- Establish support services such as telecommunications, first aid, temporary shelter, food supplies, search parties, insurance inquiries, and hygiene necessities for individuals displaced due to earthquake damage or a fire as a result of an earthquake

Resources and Examples:

1. State of California Seismic Safety Commission, Guide to Identify and Manage Seismic Risks of Buildings for Local Governments (2020)
2. California Earthquake Authority Strategic Plan (2017-2018)
3. City of Los Angeles, Resilient Los Angeles (2018)

10.3.2 AIR POLLUTION IMPACTS

ADDRESS AIR QUALITY AND AIR POLLUTION EXPOSURE IMPACTS

- Identify and assess existing air quality conditions for vulnerable communities and exposure risks by using tools such as the California Air Resources Board's Pollution Mapping Tool, U.S. EPA's Toxic Release Inventory, or CalEnviroScreen, to develop appropriate mitigation and strategies to combat adverse impacts of air pollution (See e.g., 2024 PEIR Air Quality Mitigation Measures)
- Adopt policies that can help reduce air pollution exposure and create monitoring systems or requirements to ensure residents are aware of pollution exposure, specifically in vulnerable communities
- Partner with local air districts, community organizations, local governments, housing organizations, legal services centers, lead poisoning prevention, and EJ organizations to conduct outreach to residents and gather input to establish mitigation monitoring programs. Consider

hosting information sessions for vulnerable communities to provide education on the effects of air pollution such as high asthma rates, respiratory diseases, and cardiovascular diseases

- Adopt ordinances that can help ameliorate or remove existing sources of pollution from communities (i.e., amortization ordinance). Such ordinances can authorize a process for public agencies to remove a polluting land use from a community
- Partner with co-regulators to enhance lead paint enforcement in areas with vulnerable communities so that these partnerships can improve the potential for state or tribal authorization of Lead Activities and RRP rules and for building capacity of local jurisdictions to reduce lead exposures (See resource #5)
- Prioritize investigations and inspection of tips and complaints of violations in vulnerable communities and toxic dwellings. Make sure to prioritize investigations of authorities that are most applicable to rental properties and to include local health departments and code enforcement authorities in the investigation processes
- Create and participate in lead paint hazard abatement projects directed towards vulnerable communities (See resource #6)

Resources and Examples:

1. Assembly Bill 617
2. CARB, Community Air Protection Program (CAPP)
3. CARB, Map for Local Air District Websites
4. EPA, Environmental Justice Toolkit for Lead Paint Enforcement Programs (2023)
5. EPA, Lead-Based Abatement and Evaluation Program Overview
6. Identifying Violations Affecting Neighborhoods Air Monitoring Network, Imperial County-Community Air Quality Monitors
7. County of San Diego, Westside Specific Plan
8. South Coast Air Quality Management District, Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning (2005)
9. Ventura County Air Pollution Control District, Air Monitoring Network Report (2017)

DEVELOP INFRASTRUCTURE TO REDUCE AIR POLLUTION

- Devise strategies to reduce traffic emissions such as traffic signal synchronization and speed limit reduction on high-speed roadways
- Increase and install vegetation such as trees, shrubs, and forests for air particulate matter dispersion
- Restrict certain heights of buildings to avoid creating pockets of pollution buildup along street corridors
- Provide effective distances between highly traveled corridors or roadways and sensitive land uses such as sound walls or landscaping
- Encourage that all new access roads, driveways, and parking areas serving new commercial and industrial development be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of the use
- Require construction of new buildings to provide healthier indoor air quality with indoor high-efficiency filtration system

- Create strategies to reduce exposure to air pollution affecting essential facilities like schools, hospitals, daycares, and workplace settings like upgrade filtration systems, locate air intakes away from pollution sources, and provide training to team members on indoor air quality ventilation
- Avoid strenuous activities, such as long periods of physical activity during peak traffic times
- Consider improvements to site layout such as locating classrooms, hospital beds, outside dining areas, playgrounds, open spaces, and gardens further from roadways
- Consider installing solid or vegetative barriers

Resources and Examples:

1. CARB, Air Quality and Land Use Handbook: A Community Health Perspective (2005), and technical supplement, Strategies to Reduce air Pollution Exposure near High-Volume Roadways (2017)
2. California Department of Education, Indoor Air Quality – A Guide for Educators

INTEGRATE ADOPTABLE MEASURES FROM CARB

- Require clean fuels and reduce petroleum dependency
- Pursue near-term advanced technology demonstration and deployment
- Pursue long-term advanced technology measures
- Conduct corridor-level analysis for proposed projects in areas where air quality impacts may be concentrated among climate vulnerable communities
- Participate in statewide and regional discussions seeking to balance multiple policy objectives affecting air quality and the siting of transit-oriented development

Resources and Examples:

1. Imperial County Air Pollution Control District, Carl Moyer Grant Program
2. San Diego County Policy, Reduce Vehicular Trips While Maintaining Community Character (page 312)
3. San Joaquin Valley APCD, Community Engagement and Protection
4. Chula Vista Policy, Provide Developer Incentives for Air Pollution Reduction (page 331)

10.3.4 LAND STEWARDSHIP

- Create and support land stewardship programs to increase agricultural and economic viability and to help local farmers in need of land support and to preserve sacred, cultural, and historical sites significant to Indigenous communities
- Identify existing land uses to determine if it is feasible to convert the existing land use to a project-specific use or convert to an agricultural land use
- Develop measures to reduce the impact the land stewardship may have on existing agricultural lands and nearby habitats and give priority to appropriate public lands and existing conservation lands
- Consider implementing good neighbor policies such as writing an agreement that establishes buffer zones, develop compensation funds to protect landowners from endangered species liabilities, and managing the project lands to avoid impacts
- Consider designing the project to optimize the use of all contiguous parcels for farming or co-stewardship for Indigenous communities
- Design the project to allow continual farming after the completion of the project and provide alternative access routes, drainage, and irrigation if existing access will be affected by the project

- Consult with Indigenous communities and tribal governments before designating land stewardship at the earliest phases of the planning and decision-making to provide an opportunity for Tribes to shape the direction of land management activities
- Ensure Indigenous communities and local farmers are included in the development process of land stewardship programs and to establish consultations with existing Indigenous communities and farmers to ensure the environmental quality of the land is not affected
- Develop land stewardship help centers to provide technical assistance and guidance for applicants on creating a conservation plan and implement practices and policies

Resources and Examples:

1. California Department of Water Resources, Agriculture and Land Stewardship Framework and Strategies
2. California Landscape Stewardship Network
3. Agriculture and Land Stewardship Framework and Strategies (2018)
4. First Nations Development Institute, Recognition and Support of Indigenous California Land Stewards, Practitioners of Kincentric Ecology Report (2020)
5. Riverside-Corona Resource Conservation District, Sustainable Planning and Land Stewardship Efforts
6. County of San Bernardino, Land Stewardship Special Districts

10.3.5 NOISE IMPACTS

- Conduct project-specific noise evaluation and identify appropriate mitigation measures (See e.g., 2024 PEIR Noise Mitigation Measures)
- Install sound walls, berms, quieter pavements, walls and fence, thick plantings of trees and shrubs for noise mitigation when needed
- Incorporate noise compatibility planning in land uses such as restrictions on developments adjacent to freeways and active streets
- Construct roadways, where appropriate and feasible, so that they are depressed below-grade of the existing sensitive land uses to create an effective barrier between the roadway and sensitive receptors.
- Encourage road diets and other strategies to reduce vehicle speeds on roads to minimize auto noise impacts
- Consider noise mitigation measures like increased setbacks as development standards, soundwalls, and landscaped berms along freeways or highly travelled corridors
- Research and apply innovative strategies like quiet pavements to reduce noise pollution

Resources and Examples:

1. U.S. Department of Transportation Federal Highway Administration, The Audible Landscape: A Manual for Highway Noise and Land Use
2. Caltrans, Quieter Pavement Research Plan
3. City of Irvine, Noise Evaluation
4. City of Jurupa Valley General Plan, Minimize Mixed Uses Noise Transfer

10.4 ECONOMY

Relevant General Plan Elements

- *Land Use* ● *Economic Development*

Impacts from the COVID-19 pandemic highlighted the importance of protecting and improving economic health and opportunities, especially for the disadvantaged and most at-risk residents in the SCAG region. Achieving equity will require new approaches and strategies that address social and environmental factors influencing the economy. The Economy section provides recommended practices and approaches around job training, protecting small businesses and workers, building commercial districts, and implementing road pricing, to address economic disparities and inequities brought on by systemic factors, market fluctuations, and socioeconomic imbalances that directly impact vulnerable communities.

10.4.1 JOB TRAINING AND WORKFORCE DEVELOPMENT

- Support job training, placement, and transitional programs for groups that face barriers to employment, such as individuals with prior justice system involvement, low-income communities, communities of color, people with disabilities, undocumented workers, and youth in foster care systems
- Establish local hire policies that encourage or require hiring residents and local businesses
- Host vocational training programs at high schools and community colleges to help people obtain skills to qualify for higher paying jobs
- Create resources and advanced skills training opportunities for new internships, work programs, and jobs due to changing times and emerging and innovative technologies
- Provide culturally relevant and diverse training for educational and service industry workers
- Create a multilingual language access team to provide translation services for workplaces that hire and engage with multilingual employees and consumers and compensate these teams fairly for their services
- Explore new approaches to workload balance and benefits for multilingual employees who are often asked to apply their special skills to tasks beyond their job requirements
- Host trainings, forums, and discussions with staff focused on creating a workplace that is sensitive and flexible to the needs of employees, particularly people with disabilities
- Explore options to coordinate community development with workforce development and recruitment in areas with high rates of unemployment, lack of access to education, and populations with persons affected by the justice system
- Research and implement ways to create a safe environment when conducting job fairs, training programs, information sessions and workshops by including community representatives, language interpreters, and translators.

Resources and Examples:

1. Alhambra Unified School District, Early College Program
2. City of Santa Ana, CaliforniaForAll Youth Employment Program
3. Orange Regional and Local Plans PY (2017-2021) – Two Year Modifications
4. San Bernardino and Riverside County Workforce Development Boards, New Hope Prison to Employment Service
5. City of Long Beach, [Blueprint for Economic Development: Creating Economic Opportunities for Workers, Investors, and Entrepreneurs](#)
6. City of Santa Ana, General Plan Economic Development

7. Seattle 2035: Comprehensive Plan Managing Growth to Become an Equitable and Sustainable City 2015-2035

10.4.2 SMALL BUSINESSES

- Conduct a local business needs assessment to assess workforce needs and requirements and economic and regulatory barriers
- Implement strategies that expand access to public sector contracts and local supply chains for small, women-and people of color-owned businesses
- Support local and small businesses by practicing anti-displacement methods such as designating neighborhood service zones, limiting or prohibiting formula businesses and retail chains, encouraging affordable rents, and capping lease increases for small businesses
- Preserve local and small businesses with funding programs and historical nominations to foster cultural identities within the community
- Expedite small business applications and approvals
- Host start-up and small business mixers, and other programming, to help small businesses establish connections in the local community
- Create small business divisions within local jurisdictions to provide guidance and support for potential and current small business owners
- Seek federal and state funding specifically for small and local businesses, such as construction disruption or business interruption funds, to support local businesses in communities that are seeing new infrastructure investment (See resources #2 and #3)

Resources and Examples:

1. SCAG Inclusive Economic Recovery Strategy
2. SCAG Inclusive Procurement Toolkits (Anticipated November 2023) [Temporary Link]
3. City of San Francisco, Office of Small Business
4. Small Business Anti-Displacement Network
5. LA Metro, Business Interruption Fund
6. Los Angeles County Comprehensive Economic Development Strategy 2020-2025 [\(2020\)](#)

10.4.3 VULNERABLE WORKERS PROTECTIONS

- Support policies and provide information on how vulnerable workers, like migrant, seasonal farmworkers, youth, and limited English proficiency workers, can access healthcare and career development services
- Conduct outreach with community cultural representatives that can provide translations and interpretations on local jurisdictions' policies on street vending, labor unions, and migrant/farmworker support services
- Start a street vending certificates program, collaborate with public health departments to streamline the street vending application and verification process, and establish protections for street vendors and designated street-vending friendly locations (See resources #4 through #7)
- Coordinate with labor centers in development of emergency response plans that support immigrant workforce during times of emergencies as immigrant workforce are often the frontline responders

Resources and Examples:

1. California Employment Development Department, Migrant and Seasonal Farmworker Outreach Program
2. California Department of Internal Relations, DIR/CHSWC Young Workers' Program
3. California Street Vendors
4. County of Los Angeles Department of Economic Opportunity, Helping LA County Sidewalk Vendors Start, Growth, and Thrive
5. Inclusive Action for the City California Street Vendor Campaign
6. City of Los Angeles, Streets LA: City of Los Angeles Sidewalk and Park Vendor Permit Program
7. Los Angeles Public Library, Be A Successful Street Vendor
8. Platform for International Cooperation on Undocumented Migrants, Ten Ways to Protect Undocumented Migrant Workers [\(2005\)](#)
9. National Day Laborer Organizing Network, Desde Abajo Labor Enforcement (DALE) Campaign

10.4.4 DOWNTOWNS AND COMMERCIAL DISTRICTS

- Support downtown areas with clean, safe, and walkable environments to attract more business owners and visitors with professional services, retailers, technology companies, cultural, historic, entertainment, tourist, and convention hubs
- Designate and support Business Improvement Areas to create environments ripe for marketing, commerce, retail, and economic development
- Adopt policies that encourage local procurement businesses, such as grocery stores with locally sourced products and personal services within downtown areas
- Incentivize small and local business owners to operate within the downtown area
- Consider alternative street and parking schemes in downtown areas to encourage more foot traffic and economic activity

Resources and Examples:

1. City of Alhambra, Alhambra Place Specific Plan
2. City of Glendale, Downtown Specific Plan
3. City of Ontario, Merrill Commerce Center
4. City of Pasadena, Central District Plan
5. City of San Francisco, Vacant to Vibrant Program

10.4.5 ROAD PRICING PROGRAMS

- Engage and involve diverse parties such as businesses, truck drivers, residents, and environmental and community-based organizations when assessing impacts and developing road pricing programs
- Incorporate equity considerations across all income groups and communities during the development of road pricing programs
- Adjust mitigation of negative impacts on vulnerable communities to reflect the specific impacts of pricing programs and local conditions

Resources and Examples:

1. AB 3059, Implementation of Go Zone Demonstration Programs
2. SCAG, Mobility Go Zone & Pricing Feasibility Study Report
3. SCAG, Mobility Innovations and Pricing: An Initiative to Elevate Equity in Planning (2022)
4. LA Metro, Traffic Reduction Study

5. UCLA Institute of Transportation Studies, Congestion Pricing for Climate Capacity, or Communities? Measuring the Environmental Justice Impacts of Congestion Pricing Los Angeles Report (page 52)
6. TransForm, Pricing Roads, Advancing Equity Report (2019)

11. ENDNOTES

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