TRANSPORTATION SYSTEM

ACTIVE TRANSPORTATION

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

CONNECT SoCal

TECHNICAL REPORT

DRAFT FOR PUBLIC REVIEW AND COMMENT

CONNECT SoCal

TECHNICAL REPORT

ACTIVE TRANSPORTATION

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TRANSPORTATION SYSTEM

Active Transportation

EXECUTIVE SUMMARY

With its temperate climate and wide array of stunning natural and built environments, the Southern California Association of Governments (SCAG) region holds great potential for active transportation initiatives. Walking and bicycling are accessible forms of transportation for people of all ages, abilities and socioeconomic backgrounds. Communities that are built to support walking and bicycling trips tend to be healthier, have greater social cohesion and are safer for people using all modes of transportation.

This Active Transportation Technical Report (Report) to Connect SoCal, the 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), outlines some of the most prominent reasons for investing in active transportation and reviews the impacts that supporting active modes can have on regional transportation mode share and how the development of active transportation infrastructure intersects with issues of equity, safety, demographic changes, public health, land use and climate change.

Currently, a quarter of trips that are two miles or less in the SCAG region are made by walking or bicycling, a number that grows even more for trips under a mile. If gaps in the existing pedestrian and bicycle networks are addressed, walking and bicycling mode share for these short trips could be increased significantly. While it makes sense that short trips are the most common for walking and bicycling, thoughtful and inclusionary planning can make these active modes a more common element of longer, regional trips. By developing better access to transit (first-last mile) through improved walking

and bicycling infrastructure, the region can improve both active transportation and transit ridership.

Improving infrastructure for walking and bicycling is especially important for addressing inequitable traffic safety impacts. To identify where most of the collisions are occurring, SCAG created a High Injury Network at a regional scale. High Injury Networks identify stretches of roadways where the highest concentrations of collisions occur on the transportation network. Currently, the majority of the High Injury Network is in areas identified as being disadvantaged communities, with approximately 66 percent of auto-pedestrian and auto-bicycle fatal and serious injury collisions occurring in these areas. Households making less than $35,000 per year are 80 percent more likely to make walking trips than those earning more than $35,000. This increased walking mode share, paired with increased traffic related injuries highlights the need for safer infrastructure in areas where people rely on active transportation for their daily trips.

The SCAG region has made significant progress, both planning for and implementing active transportation projects, since adoption of the 2016 RTP/SCS. Currently, nearly 80 percent of the cities in the SCAG region have completed bicycle plans and the number of cities with pedestrian and safe routes to school plans continues to grow. Additionally, almost 500 bikeway miles have been built in the region since the last plan. These efforts are dispersed across the region, with a focus on plans and projects that improve active transportation mode share and safety for disadvantaged communities. Since the adoption of the 2016 RTP/SCS, SCAG has worked closely with impacted communities and partnered with community-based organizations to ensure that plans and projects are designed to best address the issues that people walking and bicycling in each community face.

There is still significant work to be done to make the SCAG region safe and attractive for walking and bicycling. This Report highlights strategies to improve active transportation in the region as well as needs to be addressed in order to fulfill the vision for the future as outlined by Connect SoCal. This Report also strives to be flexible and open to innovations and trend changes in regional transportation. The transportation needs in 2045 are hard to fully predict, but people will still need to move around the region and should be able to walk, bicycle or take a new form of active transportation with the confidence that they will get where they need to go safely and comfortably.

INTRODUCTION

Active transportation trips, including walking, bicycling and other personal wheeled devices (both manual and electric) provide clean, sustainable and healthy options for accessing essential destinations and connecting people to transit and other modes across the SCAG region. Every day, millions of people use these modes to get where they are going, see the people they want to see and traverse their communities. Each trip taken using active modes improves the region's health, economy and environment.

Improving the regional transportation network to support additional trips by active transportation will provide a number of important opportunities for the region but also comes with a number of difficult challenges. Increased rates of walking and bicycling will reduce chronic disease rates and improve public health outcomes, expand accessibility to local destinations and connections to transit, and improve the regional economy by reducing transportation and health care costs. However, to achieve these outcomes we will need to ensure that new investments are made equitably with robust community input. Plans and projects will need to be implemented to mitigate gentrification, take into account increased heat days from climate change and support the daily needs of an aging population. In order to achieve our goals, we must also secure the funding necessary to create networks of safe and protected facilities that will support users of all ages and abilities.

Connect SoCal lays out a vision for accomplishing the promise of active transportation in the SCAG region, but it will be up to county and local agencies to implement the needed changes to their streets, develop safe routes to school programs that promote walking and bicycling to school, develop better access to transit and support micro-mobility options when and where appropriate. SCAG will continue to be a partner to local agencies by providing planning funding and access to state Active Transportation Program dollars,

providing technical support and expertise through its *Go Human* Education and Encouragement Campaign and advocating for additional resources for active transportation.

VISION

The role of the Active Transportation Technical Report is to support the 2045 Regional Transportation Plan, titled Connect SoCal, by providing an in-depth discussion of current conditions and future developments related to active transportation. Beyond meeting the statutory requirements of Connect SoCal, this Report will serve as guidance for local and county agencies to outline the existing conditions and needs of the region related to active transportation. It will also provide stakeholders an understanding of the opportunities and challenges the region will face over the next 25 years in implementing the projects proposed. Finally, this Report seeks to provide stakeholders with critical data, examples of best practices and a common framework for discussing the complex relationships between the built environment and our daily travel choices.

DEFINING ACTIVE TRANSPORTATION

"Active transportation" refers to human powered transportation and low-speed electronic assist devices. Examples include but are not limited to: bicycle, electric bicycle (e-bike), tricycle, wheelchair, scooter, electric scooter (e-scooter), skates, skateboard, push scooter, trailer and hand cart.

The California State Bicycle and Pedestrian Plan (CSBPP) defines a bicyclist as any person riding a bicycle or tricycle, including Class I and II e-bikes, cargo bicycles, recumbent bicycles or other variations. Motorized scooters or mopeds are not considered bicycles.

The CSBPP also defines a pedestrian as any person walking, skateboarding, using a wheelchair or other personal mobility device or any other form of human-powered transportation other than a bicycle. Motorized wheelchair users are also considered pedestrians. All pedestrians are implied when this Report uses "walking," as many of these modes primarily travel on sidewalks and other walking facilities.

For the purposes of this report, the analysis will generically refer to active transportation trips as bicycle and pedestrian trips, since these represent the majority of active transportation trips, and a growing body of data and research is available to support the analysis of the effects of these trips on the broader transportation system.

"Micro-mobility" devices refer to small, manually or electrically powered devices used to travel short distances and share much of the same infrastructure and trip characteristics to traditional active transportation. Examples include e-bikes, scooters, e-scooters, one-wheels and skateboards. These mobility devices have captivated new audiences and have the potential to greatly increase the number of people walking and bicycling and thus will play an important role in the future of these modes. Micro-mobility devices are also at the center of many shared mobility programs throughout the region and around the world.

In 2018, the National Association of City Transportation Officials developed the following definitions for shared micro-mobility modes:[1]

- **Bike sharing** provides users with on-demand access to bicycles at a variety of pick-up and drop-off locations for one-way (point-to-point) or roundtrip travel. Bike sharing fleets are commonly deployed in a network within a metropolitan region, city, neighborhood, employment center, and/or university campus.
- **Scooter sharing** allows individuals access to scooters by joining an organization that maintains a fleet of scooters at various locations. Scooter sharing models can include a variety of motorized and non-motorized scooter types. The service provider typically provides charge (in the case of motorized scooters), maintenance, and may include

1 National Association of City Transportation Officials (2018). Shared Micro-mobility in the U.S.

parking. Users typically pay a fee each time they use a scooter. Trips can be roundtrip or one way.

PLAN GOALS

Active transportation supports the goals of Connect SoCal by creating healthy, economically competitive and sustainable communities. **TABLE 1** lists the Connect SoCal goals and a brief summary of how active transportation supports or will be impacted by each one.

OVERVIEW OF SCAG AND REGIONAL PLANNING

The SCAG metropolitan region is comprised of 191 cities and six counties within 38,000 square miles. Currently, over 19 million people live in the SCAG region and demographic projections estimate an additional 3.7 million are expected by 2045. With this expanded population will come other challenges for the region, including a rapidly aging population, the transformation of the transportation sector due to emerging mobility technologies and changes to our economy due to automation. At the same time, the region also faces extensive challenges related to affordable housing, high rates of chronic diseases and the steadily growing effects of climate change.

Against this backdrop, the region is set to make historic investments in its transportation sector and is undergoing deep discussions about how we will develop our future land use patterns. Each RTP/SCS cycle, SCAG has expanded and improved its analysis of active transportation planning processes to better integrate people walking and bicycling into the regional transportation network and highlight their benefits in relation to the challenges facing the region.

- 2008 Non-Motorized Transportation Report developed a regional network of existing and proposed bikeways based on local plans.
- 2012 Active Transportation Appendix developed the first ever regional bikeway route structure and proposed improvements in pedestrian networks and local bikeway plans.
- 2016 Active Transportation Appendix further defined the regional bikeway route structure, identifying Greenway Networks (bikeways and cycle tracks); further refined a first-last mile to transit strategy, developed short trip strategies, and better integrated active transportation and land-use planning.
- 2020 Active Transportation Technical Report focuses on refining and implementing strategies from previous plan by addressing concerns related to equity and public health, expanding analysis and data availability where possible and refining modeling efforts to take into account recent changes in shared mobility.

ORGANIZATION OF THE REPORT

This Report is composed of six main sections that outline SCAG's data collection, outreach activities, analysis and modeling efforts related to active transportation activities and projects across the region.

REGIONAL SIGNIFICANCE

The Regional Significance section provides a high level overview of the major policy considerations, challenges and opportunities facing the region related to implementation of the active transportation networks proposed in the plan.

REGULATORY FRAMEWORK

The Regulatory Significance section outlines federal and state regulatory actions that impact the provision of active transportation projects and programs in the region. In addition, it highlights current state level plans, Caltrans district planning efforts, a summary of local planning efforts and local policy efforts identified through SCAG's Bottom-Up Local Input and Envisioning Process.

ANALYTICAL APPROACH

The Analytical Approach section describes in detail the steps taken for each analysis component of the report. Core components of the Report include outreach, data analysis and modeling.

TABLE 1 Plan Goals and Active Transportation Impacts

Goal	Active Transportation Impact
Encourage regional economic prosperity and global competitiveness.	Active transportation provides a low cost and healthy means of connecting to destinations. Reducing health care costs active transportation can make the region more economically competitive by providing a healthier and more productive workforce.
Improve mobility, accessibility, reliability, and travel safety for people and goods.	Improving active transportation networks improves accessibility and safety for vulnerable road users. By creating networks of high quality sidewalks, crosswalks and bikeways, roadways can be made safer and more appealing for people interested in taking bicycling and walking trips.
Enhance the preservation, security, and resilience of the regional transportation system.	Active transportation trips that replace automobile trips reduce wear and tear on the roadway and thus reduce costs for system preservation.
Increase person and goods throughput and travel choices within the transportation system.	Increased rates of bicycling and walking can reduce vehicle use and thus reduce congestion. In addition, goods movement firms are piloting the use of e-bikes for last mile delivery within dense urban areas to reduce Vechile Miles Traveled (VMT) and improve service. Finally, active transportation provides an alternative for short trips for accessing essential destinations without causing congestion and pollution.
Reduce greenhouse gas emissions and improve air quality.	Shifting trips or portions of trips from driving to active transportation and micro-mobility can reduce VMT and vehicle emissions. This can be especially important around sensitive receptors such as schools, where Safe Routes to School programs can reduce the number of parents waiting in line to drop off their children.
Support healthy and equitable communities.	Active transportation provides opportunities for physical activity which has been shown to effectively improve chronic disease rates. Funding for active transportation and solutions for minimizing displacement can be prioritized to support disadvantaged communities.
Adapt to a changing climate and support an integrated regional development pattern and transportation network.	By reducing VMT, active transportation can support strategies to reduce greenhouse gas emissions and climate change. It will also support land use changes that support short trips by providing a zero emissions option to access local destinations. The changing climate may however impact the number of trips taken by walking and bicycling due to increased extreme heat events.
Leverage new transportation technologies and data-driven solutions that result in more efficient travel.	Active transportation networks can provide for integration of micro-mobility options. Class 4 protected bikeways and slow speed lanes will allow for a variety new innovative transportation solutions to use the roadway safely.
Encourage development of diverse housing types in areas well supported by multiple transportation options.	Infill development and the development of walkable neighborhoods will support access to an expanded number of destinations using a variety of short trip strategies including active transportation and micro-mobility.
Promote conservation of natural and agricultural lands and restoration of critical habitats.	Conservation of these lands will depend on the region's ability to support and promote infill development. Active transportation trips will be supported by infill development due to improved access to local destinations using short trip strategies.

EXISTING CONDITIONS

The Existing Conditions section documents the travel trends, existing networks, and recent and ongoing regional and local efforts related to active transportation. Additionally, this section looks at emerging trends in transportation that are impacting or expected to impact active transportation, such as micro-mobility, changes in last mile delivery of goods that may impact the number of trips taken using active transportation. This section also looks at deficits in the existing network, in data collected and in funding for active transportation projects.

ACTIVE TRANSPORTATION STRATEGIES

The Active Transportation Strategies section looks at what steps should be taken in order to achieve the vision of a walkable and bikeable Southern California. With such a large and diverse area covered by the SCAG region, it is essential to develop frameworks to distribute investments where they are most needed and will have the greatest impact. This section outlines the primary planning frameworks used to direct growth and investment in Connect SoCal and in the Active Transportation Technical Report. Within the planning frameworks, strategies are identified to address specific issues and types of active transportation trips. These strategies address equity, short and regional trips, planning, data collection, technology and micro-mobility, complete streets, education and encouragement, and safety. Coupled with the strategies is a list of actions that SCAG can take to support the development of active transportation networks and programs across the region.

NEXT STEPS

The Next Steps section includes an overview of actions SCAG will undertake to implement Connect SoCal between 2020 and 2024, an outline of additional strategic investments that could support additional active transportation trips and a look at what changes we might see beyond 2045.

LINK TO MAIN PLAN AND TO OTHER REPORTS

Many of the topics included in the Active Transportation Technical Report are expanded upon in other technical reports for Connect SoCal. Please visit the other technical documents for additional background and technical information.

ENVIRONMENTAL JUSTICE

The Environmental Justice Technical Report includes technical analysis related to active transportation on a number of topics including Concentrations of Bicycle and Pedestrian Hazard, a Distance-Based Accessibility analysis, Geographic Distribution of Transportation Investments, a Displacement Analysis and a Jobs Housing Balance and Travel Burden analysis. These analyses are referenced in this report because they provide insight into how modal decision-making is impacted from a variety of factors.

DEMOGRAPHIC CHANGES

The Demographics and Growth Forecast Technical Report includes extensive information on how the Southern California region is expected to grow and how the population will age. As people age, their ability to embrace bicycling and micro-mobility devices will likely be dependent on the availability of safe routes and appropriate infrastructure. Providing ADA compliant pedestrian infrastructure becomes more important for individuals who have limited mobility. The addition of 3.7 million people to the region will change land use patterns as housing is developed and job centers are created and expanded. This may create more walkable and bikeable communities or it may further increase dependency on automobile trips.

TRANSPORTATION SAFETY

The Transportation Safety and Security Technical Report includes an expanded analysis of collision rates and locations for all modes and additional information on active transportation related incidents.

PUBLIC HEALTH

The Public Health Technical Report provides detailed information on the benefits of physical activity and current chronic disease rates through the lens of health equity. In addition, it includes information on the impacts of air quality and climate change which both impact active transportation users. Given the importance of physical activity and its impacts on health outcomes, it is imperative to provide equitable access to healthy transportation options to ensure that all communities have the opportunity to choose active modes when appropriate.

GOODS MOVEMENT

The Goods Movement Technical Report includes an in depth discussion of the future of last mile delivery. One possible innovation is using electric bicycles for delivery services.

EMERGING TECHNOLOGY

The Emerging Technology Technical Report includes a detailed discussion of the projected impacts of new transportation technologies including scooter and bike share. It also discusses the impacts that automation will have on our future transportation system that may affect issues such as street parking and the safety of vulnerable road users.

SUSTAINABLE COMMUNITIES STRATEGY

The Sustainable Communities Strategy Technical Report details a vision for how the region could grow over the next 25 years. Land use changes will directly impact the number of short trips that can be accomplished by walking and bicycling. In addition, this report details some of the impacts the region may face related to climate change, of importance will be the impacts of additional extreme heat days, which will limit the ability of people to safely walk and bicycle.

PERFORMANCE MEASURES

The Performance Measures Technical Report details the plan's performance linked to multiple metrics related to trip length, mode, safety and health. In addition, it includes information on how each of these metrics is calculated and the data sources used.

PROJECT LIST

The Project List Technical Report includes all the planned projects for the plan. Many of the active transportation projects funded through the Active Transportation Program can be found here.

TRANSPORTATION FINANCE

The Transportation Finance Technical Report details the expected expenditures and revenues included in the plan. It includes additional detail on how revenues are expected to be spent on each mode over the course of the plan.

REGIONAL SIGNIFICANCE

Walking and bicycling are essential parts of the regional transportation system. Active transportation is low-cost, does not emit greenhouse gases, can help reduce roadway congestion and expands transit ridership. Complete streets projects that enhance active transportation infrastructure also improve safety for all roadway users. Designing an active transportation network that is safe and accessible for everyone can help the region meet its economic, housing, environmental and public health goals.

POLICY CONSIDERATIONS

The diverse SCAG region needs a comprehensive transportation network that serves the needs of all ages and abilities. Facilities to support active transportation are key components of a multi-modal transportation network and need to be built to support a wide variety of pedestrians and bicyclists,

including people of all ages, socioeconomic backgrounds and physical ability levels. The section below outlines some of most prominent reasons for investing in active transportation and outlines the impact that supporting these trips can have on the Southern California region.

ACTIVE TRANSPORTATION TRIPS

Nearly everyone is a pedestrian at some point during the day and bicycling increases the mobility for those without motor vehicles dramatically. Use of these modes of transportation can provide a number of significant benefits related to health, reduced travel costs and improved air quality. Understanding when and why people choose to walk and bicycle is vital for developing plans to encourage additional active transportation trips as well as to ensure that investments are being made in a manner that meets the needs of the region as well as the needs of specific communities.

The number of people who walk, bike and use micro-mobility devices varies greatly depending on trip type and local land use patterns. **FIGURE 1** illustrates that active transportation is used most frequently for non-commute trips. Bicycling is used much more for discretionary trips while walking has a more even split between school, errand and discretionary. More urban areas tend to have higher rates of walking and biking, due to closer proximity to goods, services and jobs.[2] Therefore, it is important to consider how future land use patterns can be influenced to support short trips to a variety of destinations.

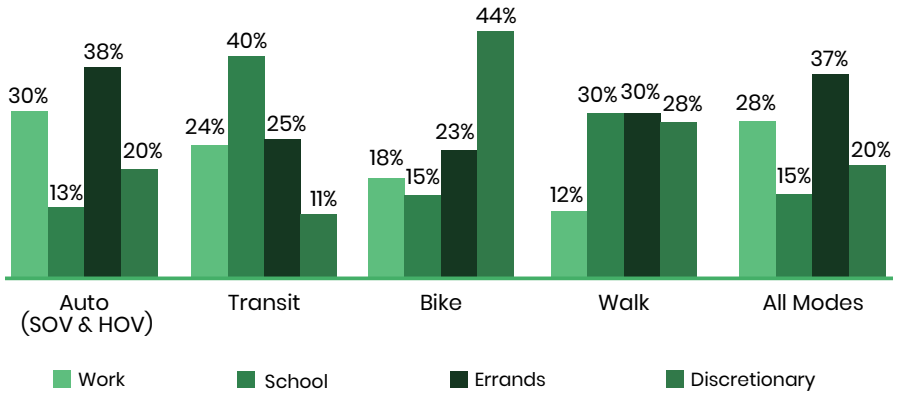
The number of people who chose to walk, bike and use micro-mobility devices also varies considerably by the type and quality of infrastructure provided. For pedestrians, missing sidewalks or poor quality sidewalks in need of repair may discourage walking. This can be addressed by bringing sidewalks, roadway shoulders that should be sidewalks and crossings into compliance with the Americans with Disabilities Act (ADA). For bicyclists, emphasis has recently been placed on creating more separated bicycle facilities that can work for people of all ages and abilities, including those using new micro-mobility travel options.[3] Finally, other community factors such as income levels, prevalence of crime and access to automobiles/transit can influence the propensity for people to walk and bicycle.

To evaluate where to build bikeways or pedestrian infrastructure, and which types of facilities to build, it's important to understand the needs of people who walk and bicycle and when these trips make the most sense to get people to their destinations. As noted in **FIGURE 2,** the vast majority of short trips are non-work trips. Errands, which include escorting, shopping and maintenance,

2 California Department of Transportation. (2013). *2010-2012 California Household Travel Survey Final Report*.

3 Short, A. (2019). Separated Bike Lanes Means Safer Streets, Study Says.

FIGURE 1 Daily Trips Taken by Purpose

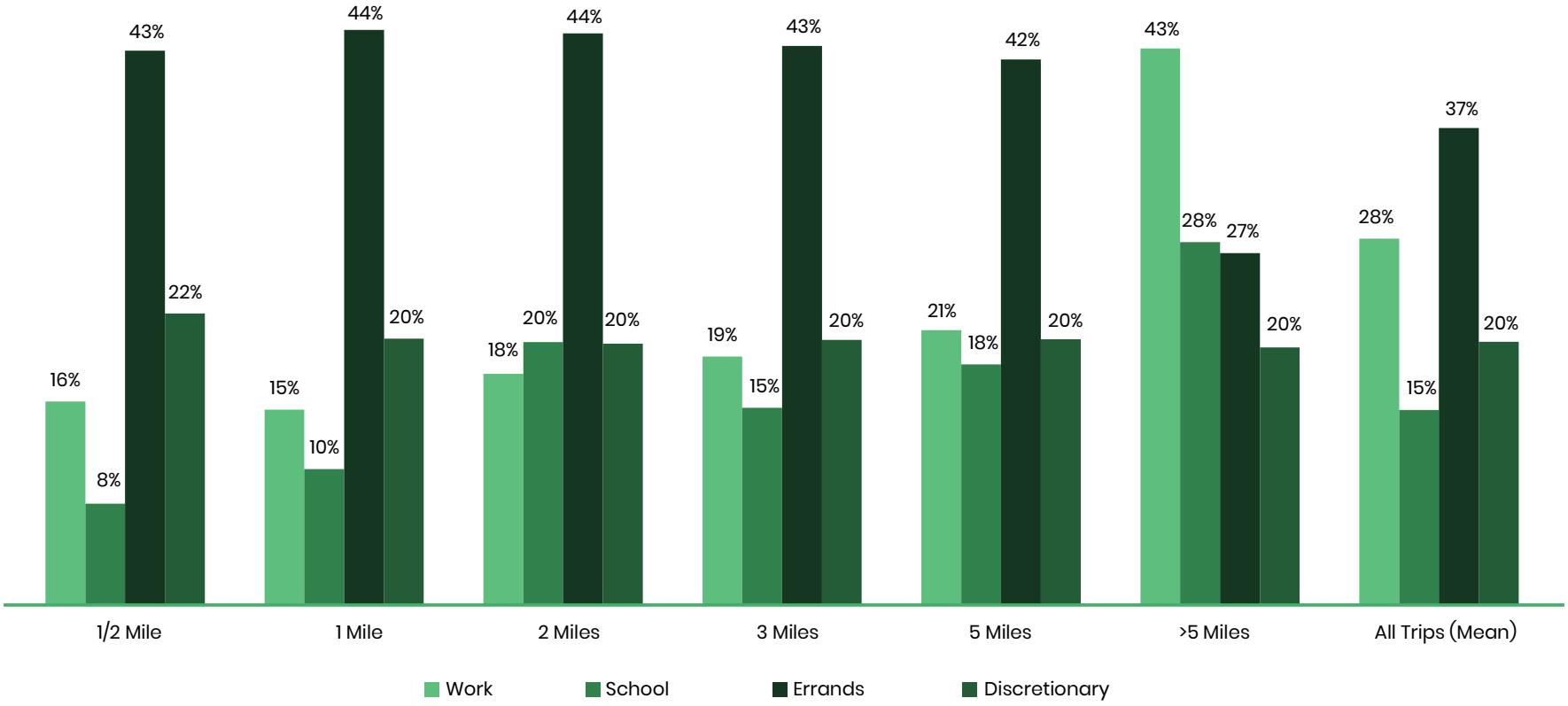


Source: California Household Travel Survey (2012)

and discretionary trips make up 44 percent of all trips two miles or less. In addition, this type of non-commute trip is more frequently made by those identifying as female (58 percent) than male (42 percent). Understanding this gender imbalance can encourage planners and policymakers to expand efforts and funding beyond commute-oriented projects and programs to build more inclusive transportation systems.

The rate of trips taken using active transportation varies by race/ethnicity, as illustrated in **FIGURE 3.** As detailed in the Demographics and Growth Forecast Technical Report, the racial/ethnic composition of the SCAG region population will change over the plan horizon, with growth in Hispanic and Asian & Others, non-Hispanic populations. These populations currently use active transportation at higher rates than others. **FIGURE 4** shows that rates of active transportation vary by income with lower income people reporting higher rates of active transportation than people with higher incomes.

FIGURE 2 All Modes Trip Purpose by Distance



Source: California Household Travel Survey (2012)

ENVIRONMENTAL JUSTICE

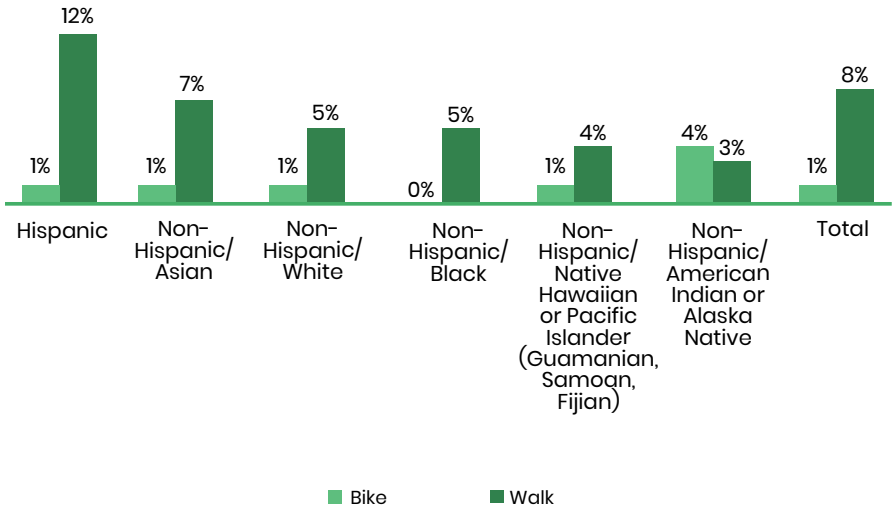
As noted previously, land use, the transportation network and demographic factors all impact the number of people walking, bicycling and using micro-mobility devices. This leads to varying rates of walking and bicycling by community based on the built environment characteristics, historic investments in the transportation system and income levels. Low-income communities and disadvantaged communities have been shown to have higher rates of walking and bicycling, yet also have higher rates of fatalities and collisions.

Opportunities exist to support disadvantaged communities by allocating resources for active transportation and other grant funding to support people already walking and bicycling. Currently, the statewide Active Transportation Program gives additional weight to project applicants in these communities. While applying for and managing grants can be a challenge for these communities due to limited staffing resources, technical assistance from state, county and regional agencies have delivered successful projects. Building opportunities to support these communities through technical and grant management assistance has recently been a focus of the California Transportation Commission, advocacy groups and agencies such as the Los Angeles County Metropolitan Transportation Authority (Metro) which has hired grant writers on behalf of cities within its jurisdiction.

There are also opportunities for supporting mobility of disadvantaged community members by providing access to micro-mobility options. The City of Los Angeles' pilot program, the Dockless On-Demand Personal Mobility One-Year Permit,[4] has provided incentives for scooter providers to place additional scooters in areas defined by Cal EnviroScreen 3.0 Disadvantaged Communities (DAC).[5] Likewise, Metro has looked into options for providing cash options for people without access to credit or debit cards for its bike share program.[6]

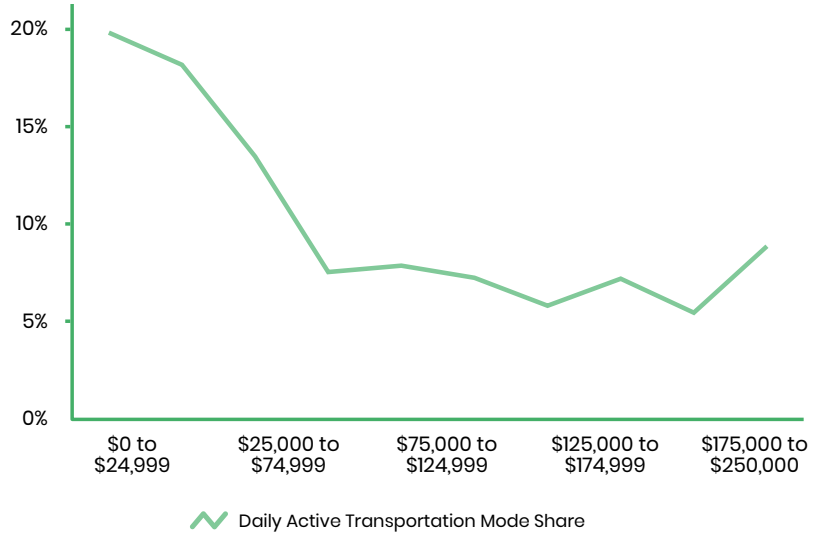
4 Los Angeles Department of Transportation. (2018). *LADOT Dockless On-demand Personal Mobility One-Year Permit*.
5 Los Angeles Department of Transportation. (2019*). LADOT Expands Dockless Scooter And Bicycle Program To Be Largest in Country*.
6 LA Metro. (2018). *Metro Bike Share Business Plan FY19-20.*

FIGURE 3 Active Transportation Mode Share by Race/Ethnicity



Source: California Household Travel Survey (2012)

FIGURE 4 Active Transportation Trips as a Percentage of all Trips, by Income



Source: California Household Travel Survey (2012)

SAFETY

As the most physically vulnerable road users, people who walk and bicycle are at a much greater risk of serious injuries in collisions. In the SCAG region, bicyclists and pedestrians account for 8.9 percent of all daily trips, not including first-last mile trips, but account for 27 percent of fatalities. While overall traffic fatalities have decreased nationwide and in California, the number of bicyclists and pedestrian injuries has increased in recent years. The number of fatalities for pedestrians in 2016 was 50 percent higher than it was in 2011, the most recent low point.[7]

FIGURE 5 displays safety trends for biking and walking trends 2006 to 2016.

In addition, fatalities and serious injuries are mostly occurring in areas with high concentrations of Disadvantaged Communities (DAC) and Communities of Concern (CoC). Additional information on active transportation and safety can be found in the Transportation Safety and Security Technical Report.

Strategies such as complete streets, protected bikeways and safe routes to school infrastructure projects have shown to improve safety for vulnerable road users as well as drivers. The number of cities that have adopted complete streets as part of their general plans has increased and is currently implemented in approximately 40 percent of jurisdictions who participated in SCAG's Local Input Survey. The number of cities that have adopted pedestrian, bicycle or safe routes to school plans has continued to increase across the region. Additional information on the number of cities that have adopted complete streets and active transportation plans can be found in the Existing Conditions section as well as the Transportation Safety and Security Technical Report.

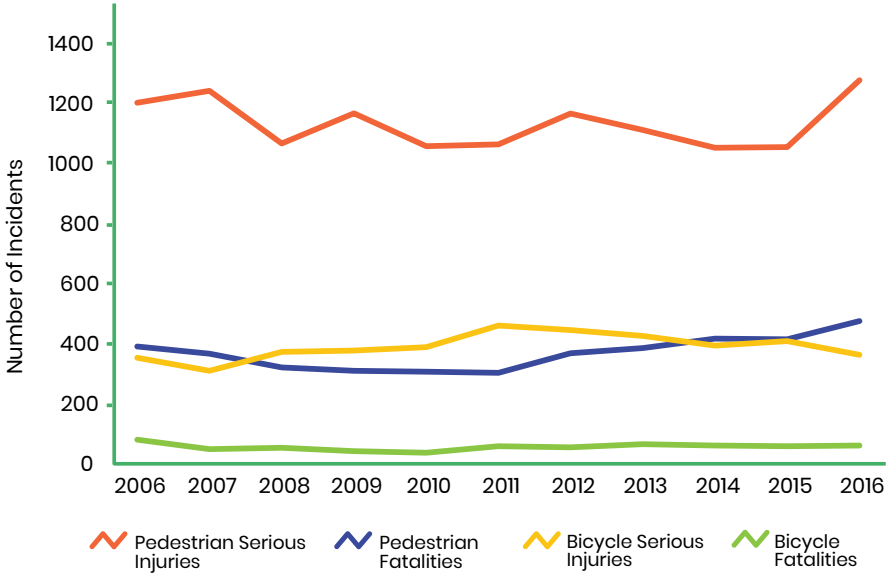
DEMOGRAPHIC CHANGES

Between 2016 and 2045, the SCAG region will undergo substantial demographic transitions, including the addition of approximately 3.7 million more residents and an aging population. Each of these will have implications for the way we travel and how people can access their destinations.

As the region's population continues to grow, additional strain will be placed on our transportation network as people attempt to access their destinations. However, if we are able to concentrate much of that growth as outlined in the Sustainable Communities Strategy Technical Report, many of these trips will be shorter in nature making them ideal for active transportation and micro-mobility modes. Likewise, given the additional demand on our streets to convey this expanded population, alternatives to single occupancy travel will become increasingly necessary.

Between now and 2045, SCAG anticipates minimal growth in the number of children and adolescents, modest increases in the number of middle-aged adults, but substantial increases in the senior population—especially those over 85. This will require the region to adapt to provide added services for

FIGURE 5 Safety Trends for Walking and Bicycling



7 Southern California Association of Governments. (2017). *Transportation Safety Regional Existing Conditions.*

these individuals to meet their transportation needs. As noted by the Center for Disease Control, "Older adults interact with the built environment in ways that reflect changing lifestyles and changing physical capabilities. After retirement, people have more time to enjoy parks, recreational activities and other community facilities. At the same time, conditions such as chronic diseases and limited vision may limit mobility and create special needs. For example, an older adult who is no longer able to drive but lives in an area with buses, transit, and other transportation options has the ability to stay mobile well beyond the capacity of many in suburban communities."[8]

The design of the built environment will also be important to allow these individuals to "age in the community" so that they are not forced to relocate due to limited mobility or rising housing costs.[9] This may require affordable housing close to destinations, good sidewalks and separated bicycle facilities to allow for continued physical activity, access to paratransit or shared ride services equipped to work with older adults to ensure they can remain independent, active and engaged. New developments such as e-bikes may also make it possible for some of these individuals to continue to travel by active modes later into their lives although overall rates of bicycling will likely be lower for the age group as compared to the others.

HEALTH AND PHYSICAL ACTIVITY

There is an opportunity to improve physical activity rates to support reductions in chronic disease rates which have been worsening or are worsening or remaining constant for many of the indicators reported on in the 2016 RTP/SCS. The built environment has a direct effect on opportunities for people to live active lifestyles. Community design factors such as mixed land uses, retail within close proximity, and other essential services help to increase the likelihood for people to engage in physical activities. Other factors such as supportive policies for locating transportation within short distances to homes also helps to encourage and facilitate physical activity.

The U.S. Department of Health and Human Services released new guidelines on physical activity in 2018 recommending adults to engage in moderate intensity cardio for at least 150 minutes a week or at least 75 minutes of vigorous intensity cardio weekly.[10] The guidelines also highlighted that physical activity has many benefits, including reduced risks of chronic diseases such as cardiovascular disease, type 2 diabetes and several types of cancer.[11] The benefits of physical activity also increase as intensity and duration of activities increase.

Creating supportive policies, community conditions and facilities that encourage active transportation provide opportunities for residents to increase their rates of physical activity by walking and bicycling to their destinations. Since public transportation is often accessed by active transportation modes, transit trips also include physical activity at the beginning and end of the trip. Providing communities with mixed land uses and retail options within short distances to people's homes also increases the likelihood they will walk or bicycle for these short trips.

In 2016 SCAG completed an Active Transportation Health and Economic Impact Study,[12] which showed that the investments in the 2016 RTP/SCS would result in an additional $113 billion in economic outcome for the region over the life of the plan, 70 percent of which would be from reduced health care costs and improved worker productivity. SCAG conducted a similar analysis as part of Connect SoCal and found that the plan, including active transportation and non-active transportation investments, would provide $352 million in health care savings. Additional information on the physical activity rates and benefits of Connect SoCal is outlined in the Public Health Technical Report.

MICRO-MOBILITY

In recent years, it has become clear that developed economies are entering

8 Center for Disease Control. (2009.). Healthy Aging & the Built Environment.
9 Arigoni, D. (2018). Preparing for an Aging Population.
10 U.S. Department of Health and Human Services. (2018). *Physical Activity Guidelines for Americans (2nd edition)*.
11 U.S. Department of Health and Human Services. (2018). Physical Activity Guidelines for Americans (2nd edition).
12 Southern California Association of Governments. (2016). Active Transportation Health and Economic Impact Study.

into a new era of personal mobility that will be uniquely defined by the rapid emergence and evolution of new transportation technologies and business models. A myriad of converging factors, related to both market trends (demand) and advancements in technology (supply), have enabled this shift in personal mobility. Micro-mobility devices including scooters, e-bikes and bike share have expanded across the region over the past few years. The rapid expansion of some of these technologies comes with challenges as well opportunities. On the one hand, cities have had to scramble to develop pilot program and address ADA compliance. On the other hand, these devices are offering a new mobility option that is reducing vehicle trips and expands the constituency for protected lanes for vulnerable road users.

While no one can predict what the future of personal mobility will look like in the SCAG region with complete certainty; local and regional jurisdictions have the ability to deliver efficient, thorough, and informed responses to changing conditions if given the opportunity. For example, the City of Los Angeles in partnership with the City of Santa Monica have developed a Mobility Data Standard which will allow the cities to track and regulate the providers of these micro-mobility providers to ensure they are meeting city goals and regulations.

LAND USE

Land use patterns play a key role in determining the number of trips taken by walking and bicycling since these modes are very sensitive to trip length. Conventional suburban neighborhoods inhibit walking and biking since destinations are often too far to comfortably reach with these modes. A more connected configuration of streets, blocks and land uses encourages walking and bicycling by reducing the distance between trip origins and destination and providing access to a variety of destinations. According to the 2012 California Household Travel Survey, about 44 percent of trips in the SCAG region less than a half mile are walking trips, but walking rates decline rapidly beyond a half mile. The time to bicycle one mile is about five minutes at a casual speed, but only 2.7 percent of all trips less than one mile are bicycling trips.[13] As the region continues to grow, adding 3.7 million new residents by 2045, the success of creating walkable and bikeable communities, both through land use and infrastructure, will determine how many trips will be made using active transportation modes.

CLIMATE CHANGE

An increase in active transportation mode share has the potential to significantly reduce greenhouse gas emissions. Each single occupancy vehicle trip that is replaced with a walking, bicycling or multi-modal trip that combines active transportation and transit can reduce the release of vehicle emissions.[14] If the improvements outlined in Connect SoCal are implemented, the share of people walking and bicycling could be increased by 28 percent compared with the baseline, which will reduce vehicle miles traveled and lower greenhouse gas emissions. This reduction in emissions can significantly improve air quality and public health throughout the region.

CONCERNS ABOUT GENTRIFICATION

Improvements made to the built environment may bring up concerns over gentrification. Active transportation infrastructure improvements can be perceived as a step towards gentrification if actions are not taken to proactively and meaningfully engage with stakeholders and prioritize need-based and equitable implementation of infrastructure improvements.[15] Utilizing an equity and environmental justice framework when planning for active transportation projects is particularly important for active transportation planning due to the cumulative factors such as higher rates of fatalities and serious injuries and current lack of access to transportation options for low-income and disadvantaged communities. This technical report highlights

13 California Department of Transportation. (2013). *2010-2012 California Household Travel Survey Final Report*.
14 Handy, S., Tal, G., Boarnet, M. G. (2014). *Impacts of Bicycling Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions.*
15 Stein, S. (2011). Bike Lanes and Gentrification. *Progressive Planning*. 188.

strategies addressing gentrification concerns, equity and environmental justice in later sections.

PUBLIC OPINION

Many jurisdictions have plans for active transportation improvements that could result in significant increases in mode share and safety for all roadway users, but find themselves in a stand-still or scaling back planned improvements in the face of negative stakeholder feedback. Many people in the SCAG region identify traffic as a major issue with the transportation system. However, SCAG regional outreach efforts have rated traffic safety lower than issues covered more frequently in the media, such as healthcare, gun control and immigration.

While obtaining broad community support to complete streets projects can be a challenge, SCAG has seen through its *Go Human* Campaign that communities often welcome change when they are invited to shape it. SCAG launched *Go Human* in 2016, hosting dozens of demonstration projects in partnership with local cities and counties. These projects provide an opportunity for residents to test out their streets with many potential improvements including protected bike lanes, curb bulb-outs and pedestrian scrambles. During 2018, an average of more than 80 percent of event attendees supported the infrastructure on display. Through the Go Human event series, thousands of participants have provided feedback to their local jurisdiction, helping ensure future planning efforts and infrastructure projects align with community priorities.

FUNDING AND RESOURCES

Limited resources often hinder the ability of local jurisdictions to implement transformative projects that would significantly improve safety and encourage active transportation mode shift. Additional funding is being made available for these projects through the California Active Transportation Program (ATP). The ATP, created by Senate Bill 99 (Chapter 359) and Assembly Bill 101 (Chapter 354), consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SRTS), into a single program with a focus to make California a national leader in active transportation. The ATP is administered jointly by the California Transportation Commission (CTC) and Caltrans Division of Local Assistance, Office of State Programs." The ATP and other similar grant programs are becoming more and more competitive, demanding more staff time to develop applications. In Cycle 4 of the ATP, more than 550 applications were received and only about 10 percent of the projects (those scoring 89 or better) received funding in the statewide component. Many cities struggle to find resources to apply for these opportunities and therefore do not receive funding necessary to implement projects.

While grant funding is becoming more and more competitive, funding available for active transportation projects is also increasing. Through California Senate Bill 1 (SB1), an additional $100 million per year to support active transportation improvements. In the SCAG region, 48 projects will receive approximately $230 million in funding through the program in Cycle 4. Local and county jurisdictions are also starting to prioritize active transportation funding. In the SCAG region, local funding initiatives like Measure M in Los Angeles County and Transportation Development Act (TDA) funds in Orange County, San Bernardino County and Ventura County, are dedicating sales tax or other revenue to active transportation projects.

DATA AVAILABILITY

Accurate and robust data sources are necessary in order to identify where to make improvements and which types of facilities will result in increased mode share and improved safety. Historically, performing bike and pedestrian counts has been cumbersome and costly, resulting in a lack of important data. This lack of bicycle and pedestrian volume data makes it difficult to understand facility utilization and determine accurate crash rates for prioritizing safety improvements. A lack of comprehensive street-level data makes it difficult to determine the level of traffic stress for bicycles. Likewise, few cities and counties in the SCAG region have dedicated resources or created sidewalk inventories, which makes identifying gaps difficult. Finally, without good data it is difficult to determine the effectiveness of different project interventions and build a solid case for future investments. In response to this, SCAG has released the

Active Transportation Database (ATDB),[16] which includes tools for collecting bicycle and pedestrian data. SCAG will also be pursuing additional resources to develop tools for active transportation planning over the coming years to support local efforts.

TECHNOLOGY AND MICRO-MOBILITY

Technology has the potential to significantly impact the way people travel. Since the release of SCAG's 2016 RTP/SCS, a plethora of micro-mobility companies have already started to change the way people travel and think about transportation in Southern California. Moving forward, new developments should be anticipated in micro-mobility, goods movement and demand for slow mobility networks. New technologies present an opportunity for local governments to implement active transportation improvements. Platforms that streamline data collection, like SCAG's new ATDB, can help cities gather information and analyze the need for new infrastructure in their communities, and help planners find information to support funding applications. Additionally, data from micro-mobility providers can help cities identify where people want and need to travel using bikes or scooters. Infrastructure that benefits bicyclists and pedestrians will also benefit riders of shared and personal e-scooters and e-bikes. The growing popularity of electric mobility devices will likely impact the average length of bicycle and scooter trips taken in the region, as users will be able to go faster and with less effort than on non-motorized devices. It is anticipated that the growing availability and popularity of e-mobility will increase active transportation commute trips.[17]

CLIMATE CHANGE AND HEAT IMPACTS

Most of the SCAG region experiences moderate temperatures and sunshine throughout the year, making it an ideal location for walking, bicycling and using micro-mobility devices. However, the impacts of climate change will lead to an increased number of extreme weather conditions including extreme heat days—days in which temperature exceeds the 98th percentile of maximum temperature for a given location—which will likely impact whether or not people choose to utilize active transportation modes. According to current projections, temperatures and extreme heat days will increase in frequency, intensity and duration, with an estimated increase in annual average temperature by 2030 of five degrees Fahrenheit and up to 10 degrees Fahrenheit in California by the end of the century.[18] It is expected that all areas of the region will at a minimum experience 15 more extreme heat days with some regions experiencing up to 43. Of particular concern will be those individuals who do not have a choice when making their travel decision but will be forced to walk and bicycle under these conditions. Heat stroke, heat exhaustion, dehydration, and premature deaths resulting from cardiovascular or respiratory diseases are all heat-induced illnesses. As extreme heat days increase, it is likely that increases in these serious conditions will also occur. For these reasons, and to reduce urban heat islands, it is important for cities in the region to implement urban greening plans. These plans should focus on popular pedestrian and bicycling routes, and particularly routes that connect to transit stops.

REGULATORY FRAMEWORK

Connect SoCal is required to meet federal and state requirements related to land use, transportation, air quality and greenhouse gas emissions. This section outlines how federal and state statutes were considered in drafting the Active Transportation Technical Report. In addition to federal and state statutes, the region has conducted an extensive number of planning studies at the county, sub-regional, and local level that detail proposed active transportation strategies and projects. SCAG has compiled a list of local and regional planning efforts and has reviewed them to ensure that Connect SoCal will support local and regional visions of how the region will implement active transportation projects moving forward.

16 Southern California Association of Governments. (2018). *Active Transportation Database.*
17 Dekker, M. (2016). Can E-bikes Revolutionize Long-Distance Commuting? *The Guardian.*
18 California Department of Public Health. (n.d.). *California Building Resilience Against Climate Effects (CalBRACE) Project.*

STATUTORY REQUIREMENTS

SCAG is required to meet and follow federal and state statutes when developing the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Within California, there are a variety of legislative and planning initiatives that will impact the future of active transportation efforts across the region. This section includes a brief overview of the adopted legislation, guidelines and initiatives that SCAG reviewed in developing the Active Transportation Technical Report.

FEDERAL REQUIREMENTS

The Fixing America's Surface Transportation (FAST) Act, which updated the regulatory and guiding principles set by the 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21), was signed into law in 2015. The FAST Act continues the MAP-21 legacy of making the funding and planning processes of Federal surface transportation performance-based and multimodal in effort to address challenges facing the transportation system. The FAST Act requires metropolitan planning organizations (MPOs) to review and consider multiple factors, including, but not limited to increasing safety, security, accessibility, mobility, sustainability and connectivity, while supporting economic vitality of the metropolitan area.

In an effort to promote safety, the FAST Act authorized alternative design standards and guidelines for roadway infrastructure in 2016 to better accommodate pedestrian and bicyclists and directed the Department of Transportation to identify best practices that adequately accommodate all users of surface transportation. The FAST Act eliminated the MAP-21 Transportation Alternatives Program, which had previously been used to fund active transportation, and replaced it with a set-aside of the Surface Transportation Block Grant (STBG) program, for which States and MPOs participate in a competitive selection process to receive funding. In California, this funding is allocated through Caltrans' Active Transportation Program (ATP) which was created under Senate Bill 99. SCAG supports the distribution of the regional portion of the ATP as described below.

STATE REQUIREMENTS AND ADOPTED LEGISLATION

Adopted state legislation that impacts the development and implementation of Connect SoCal ranges from SB 375 which mandates the Sustainable Communities Strategy portion of Connect SoCal to AB 1358, the Complete Streets Act, which requires local cities to consider complete streets when they update the mobility elements of their general plans. The State also mandates that SCAG address the California Coastal Trail access completion into its regional transportation planning process.

California legislature continues to evaluate and adopt new policies that support active transportation development and investment. A more detailed explanation of relevant adopted legislation can be found in **APPENDIX 1**. The legislation discussed in **APPENDIX 1** is not exhaustive but rather highlights some of the major planning considerations that will influence the implementation of the active transportation networks proposed in Connect SoCal.

COMPLETE STREETS IMPLEMENTATION ACTION PLAN: DD-64-R2 (2014)

Caltrans Complete Streets efforts include a variety of policy requirements to support increased mobility and access for travelers of all ages and abilities as outlined in the Complete Streets Implementation Action Plan. DD-64-R2 (2014) expanded the action list to a total of 182 items which included the development of a State Bicycle and Pedestrian Plan, collecting complete streets data and performance measures.

GENERAL PLAN GUIDELINES (2017)

General Plan Guidelines are published by the Office of Planning and Research (OPR) and require local governments to periodically update their general plan which serves as a long-term blueprint for the community's vision of future development and growth. General plans are required to include a circulation element that must address the needs of all users of the surface transportation

network and correlate with the land use element. Senate Bill 1000 (Leyva, 2016) requires jurisdictions that have identified disadvantaged communities to also address environmental justice in their general plans. The updated guidelines contain new requirements and guidance around climate change and health. Investments in active transportation can yield direct effects to improve public health and strengthen social cohesion within communities. More information regarding OPR requirements related to public health can be found in the Public Health Technical Report.

STATE AND LOCAL PLANNING EFFORTS

State and local jurisdictions adhere to legislative requirements and affirm their dedication to sustainable transportation strategies by developing numerous studies, guidance documents, and plans that outline best practices in developing active transportation projects and programs. This section includes a brief overview of notable state and local planning efforts that promote active transportation investments and strategies.

STATE PLANNING EFFORTS

The State of California has undertaken several comprehensive planning efforts that guide the development of regional and local plans. The following statewide plans and programs strive to make the state a leader in active transportation.

CALIFORNIA TRANSPORTATION PLAN 2040 (2016)

This plan outlines statewide goals to improve accessibility and safety, promote social equity and sustainability, and support a vibrant economy and multimodal system. Caltrans acknowledges the increasing trend of including bicycle and pedestrian facilities as standard elements in large and small transportation projects and utilizes the integration of active transportation facilities as a method to address GHG reduction goals and accommodate changing demographics such as aging populations. Caltrans is also in the process of updating the statewide California Transportation Plan 2050 that will establish an aspirational vision for transportation in the region focusing on improved multi-modal mobility, accessibility and reduction of greenhouse gas emissions.

TOWARD AN ACTIVE CALIFORNIA (2017)

Toward an Active California is California's first statewide bicycle and pedestrian plan. This plan outlines the policies and actions that Caltrans and its partner agencies will take to achieve the department's ambitious statewide goals to double walking and tripling bicycling trips by 2020. Strategies are separated into four sections: safety, mobility, preservation and social equity. Strategies support the efforts to improve and encourage active transportation such as promoting efficient land use in coordination with connected and comfortable active transportation networks.

CALTRANS DISTRICT LEVEL ACTIVE TRANSPORTATION PLANS (IN PROGRESS)

These plans will build on the 2017 California State Bicycle and Pedestrian Plan, *Toward an Active California*, to evaluate bicycle and pedestrian needs on and across the State Transportation Network, and prioritize improvements to develop and support an integrated bicycle and pedestrian network. Caltrans will develop one plan for each district in the SCAG region (Districts 7, 8, 11 and 12).

COMPLETE STREETS ELEMENTS TOOLBOX

In order to address multi-modal street design and complete streets throughout the state, Caltrans developed the Complete Streets Elements Toolbox in 2018 to provide detailed guidance on the development of complete streets projects. This toolbox is designed to help with implementation of Deputy Directive 64-R2 (2008) which calls for Caltrans to "provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system."

STATE HIGHWAY SAFETY PLAN

The State Highway Safety Plan (2015) is a requirement of MAP-21, establishing the Highway Safety Improvement Program that required states to develop Strategic Highway Safety Plans (SHSPs). California's ultimate goal is to reach zero deaths on our highways—a concept known as "Toward Zero Deaths" (TZD). California aims to achieve a three percent per year reduction for the number and rate of fatalities and a 1.5 percent per year reduction for the number and rate of severe injuries. The SHSP outlines various actions that state agencies and local agencies can take to reduce fatalities such as Vision Zero initiatives.

LOCAL AND REGIONAL PLANNING EFFORTS

The SCAG region is making steady progress in planning for active transportation but more work is still needed to identify gaps in the system, especially for pedestrian and Safe Routes to School trips. Through grant sources such as the Active Transportation Program, SCAG's Sustainable Communities Program and Caltrans Sustainability Planning Grants, 68% of cities within SCAG's region have adopted bicycle master plans. The number of cities with Safe Routes to School and pedestrian master plans have doubled since 2016 **(FIGURE 6).** For a current list of existing and planned bicycle, pedestrian and safe routes to school plans within the SCAG region see **APPENDIX 2**.

Since 2016, county transportation commissions and councils of governments within SCAG's region have also completed notable active transportation planning initiatives including countywide pedestrian plans, multi-jurisdictional bicycle master plans, comprehensive Safe Routes to School plans, active transportation plans, and first-last mile policies and plans. More information on specific efforts can be found in the Existing Conditions section of this report and Appendix 3. These plans serve to guide county and local efforts when applying for grants and planning future investments.

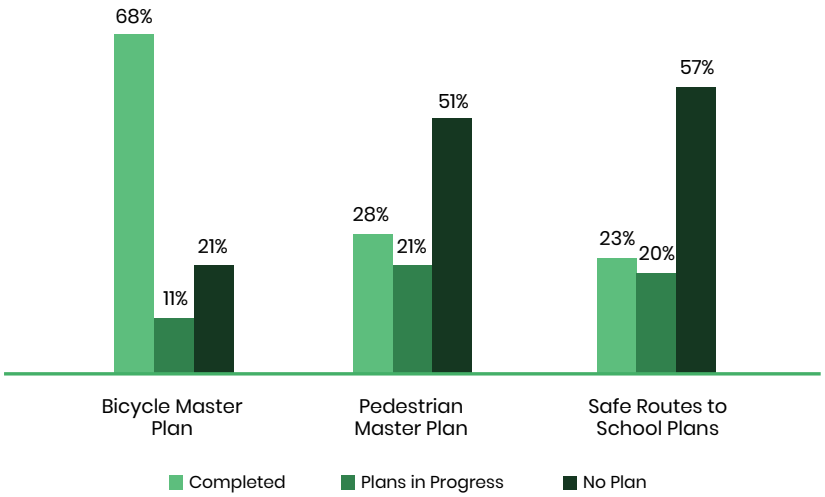
LOCAL INPUT SURVEY

In fall 2017, SCAG kicked off our Bottom-Up Local Input and Envisioning Process to solicit local feedback on existing conditions, plans and anticipated demographic changes. In addition to providing geographical and demographic reviews, the 197 towns, cities and counties in the region were given a survey to identify the rates of adoption of specific policies and plans. The following represents data collected from the Local Input Survey responses.

Complete Street policies improve user safety, manage traffic congestion, enhance economic development and address social justice. Forty-two percent of survey respondents identified the adoption of a complete streets policy within their jurisdiction **(FIGURE 7).**

Only five jurisdictions have adopted Vision Zero policies that outline a commitment to eliminate all traffic deaths and reduce severe injuries by supporting streets improvements prioritizing human life. These include the cities of El Monte, Calabasas, Laguna Beach, the City of Los Angeles and Wildomar. The County of Los Angeles is currently developing a Vision Zero policy as well.

FIGURE 6 Regional Active Transportation Planning Progress



First-Last Mile Strategies identify methods to improve safety and improve access to transit via walking and biking. The majority of First-Last Mile strategies have been implemented within Los Angeles County **(FIGURE 8)**.

Approximately sixty percent of the jurisdictions throughout the SCAG region have implemented a safe routes to school plan or program and invested in traffic calming measures to protect all users of the road **(FIGURE 9)**.

Transportation demand management plans and ordinances outline strategies, such as access to transit, car sharing, bicycling and walking, in order to reduce the use of single occupancy vehicle trips to reduce emissions and congestion. Transportation demand management programs have been adopted by approximately 47 percent of respondents **(FIGURE 10)**.

Bike share programs are available in five of the six counties within the SCAG region, but only serve twelve percent of the jurisdictions. Cities that currently have bike share programs include Bellflower, Beverly Hills, Long Beach, Los Angeles, Manhattan Beach, Monrovia and Walnut in Los Angeles County,

FIGURE 8 Regional First-Last Mile Policies

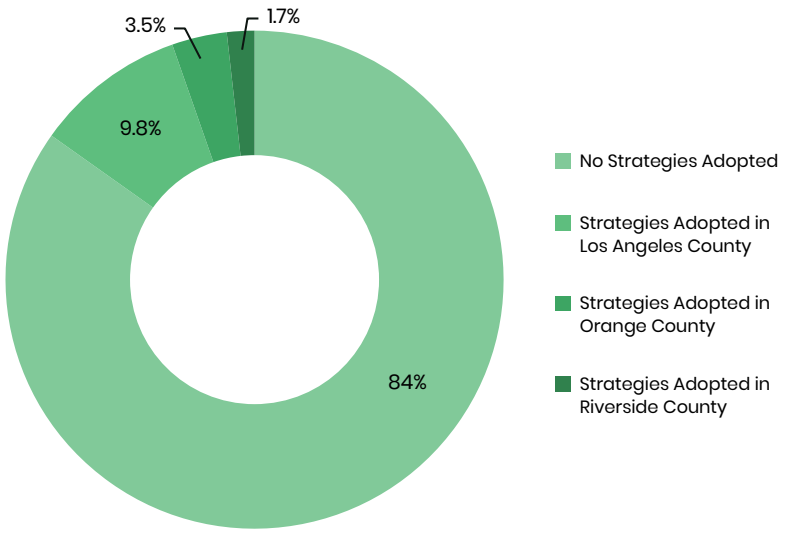


FIGURE 7 Complete Streets Policies Adopted

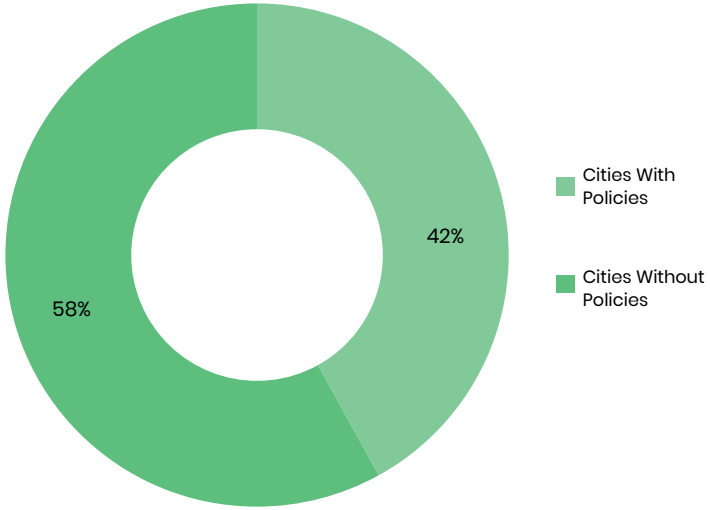
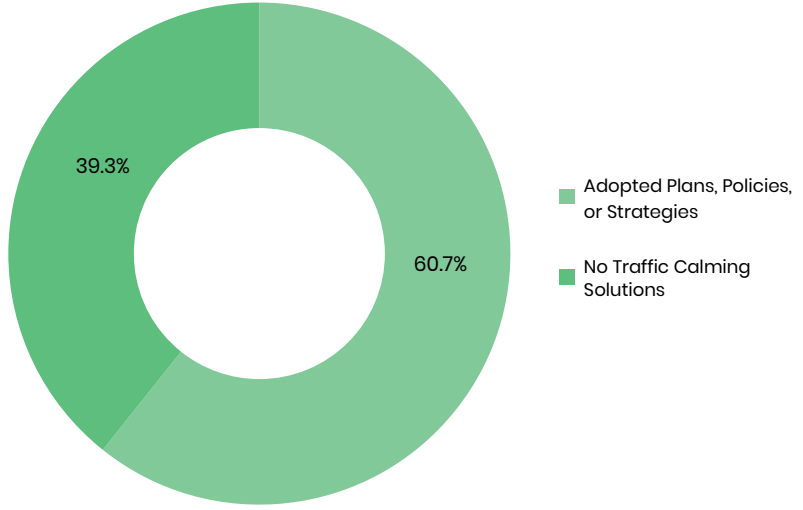


FIGURE 9 Complete Streets Policies Adopted



Irvine and Orange in Orange County, Moreno Valley, City of Riverside and Palm Springs in Riverside County, and Fontana in San Bernardino County.

A majority of local jurisdictions throughout the SCAG region are keenly supporting active transportation investments by utilizing local return revenue to fund the improvement of pedestrian facilities (81 percent) and the installation of bicycle lanes (64 percent). Riverside is leading the region with 92 percent of the county setting aside funds for bicycle lanes, and 100 percent of local jurisdictions within Riverside County dedicate some funds for pedestrian improvements **(FIGURE 11).**

ANALYTICAL APPROACH

Data and input for this report were collected through an extensive combination of outreach processes and data gathering efforts, including but not limited to SCAG's local input process with cities, county agencies, councils of governments; SCAG's facilitation of working groups and technical advisory committees that review active transportation projects and programs; input collected through the scenario development process from agency partners, health departments, community based organizations and members of the public; and input gathered through SCAG's *Go Human* events between the adoption of the 2016 RTP/SCS and development of Connect SoCal. Information gathered from these groups was also incorporated where appropriate in the development of this report to help provide a holistic view of active transportation projects and activities across the region.

GENERAL SCAG OUTREACH

Since the adoption of the 2016 RTP/SCS, SCAG has conducted a variety of outreach efforts related to active transportation. Through these efforts, the agency has engaged with agency staff, community based organizations and the general public to collect input on the types of programs and projects that

FIGURE 10 Regional Traffic Demand Management Plans

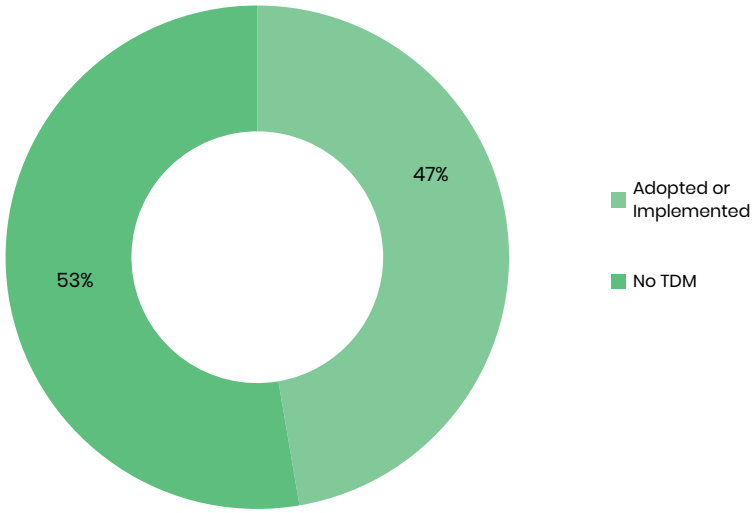
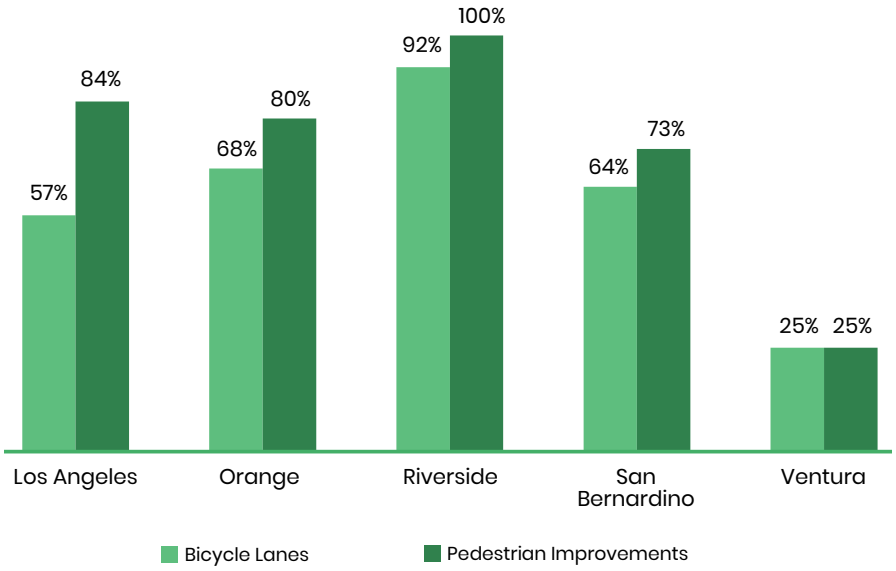


FIGURE 11 Regional Traffic Demand Management Plans



the region needs to support active transportation. While not all of these efforts are directly related to the development of Connect SoCal, input received has been used by SCAG staff to identify trends in public opinion, highlight significant projects that will transform local communities and identify key topic areas for the plan.

ACTIVE TRANSPORTATION WORKING GROUP

The Active Transportation Working Group (ATWG) provides a platform to facilitate information exchange and policy development around active transportation among planners from the six county transportation commissions, representatives from Caltrans Districts 7, 8, 11 and 12, and other local stakeholders. The ATWG has met on a quarterly basis since the adoption of the 2016 RTP/SCS to discuss regional programs, strategies, funding opportunities and other active transportation initiatives.

TOOLBOX TRAININGS

Since 2015, SCAG has conducted Toolbox Trainings (formally known as Toolbox Tuesdays) as a strategy to provide free, professional trainings developed for local government staff of SCAG-member local governments and other SCAG partners. Members of the public, such as non-profit staff, academics, students and private sector planners are welcomed to attend as well. Toolbox Trainings, which are available online and in-person, cover practical planning approaches and the use of planning-related software, and serves as a venue to keep neighboring jurisdictions apprised on sustainable planning techniques successfully implemented throughout the region. At these trainings, SCAG has received feedback about developments in active transportation planning as well as changes in transportation modes due to the impacts of new mobility solutions. Examples of informational sessions provided through the Toolbox Training format include “Complete Streets in Suburban and Rural Communities,” “Bicycle Parking Ordinance,” “Complete Streets Legislation Overview,” “Funding and Implementing First/Last Mile Access to Metrolink Stations” and “Rural Pedestrian Planning in Lake Los Angeles.”

ACTIVE TRANSPORTATION PROGRAM SUBCOMMITTEE

The Active Transportation Subcommittee is comprised of representatives from the county transportation commissions and Caltrans districts located within the SCAG region and provides guidance on SCAG’s implementation of Caltrans’ Active Transportation Program including the development of the ATP Regional Guidelines. The ATP is a significant funding source for many of the projects outlined in Connect SoCal.

GO HUMAN

SCAG’s *Go Human* Campaign is a community outreach and advertising campaign with the goals of reducing traffic collisions within the SCAG region and encouraging people to walk and bike more. *Go Human* has involved a variety of stakeholders and data collection techniques that have informed the development of Connect SoCal.

The *Go Human* Steering Committee meets quarterly, and has met since its inception in 2015, to facilitate regional coordination across each of the six counties in effort to provide and inform strategic direction for all elements of the campaign and program.

Since 2016, SCAG has supported over thirty *Go Human* events throughout the region. SCAG works with local partners to identify new opportunities to acknowledge and promote how a community’s culture can be integrated with active transportation, and implement effective engagement techniques, including, but not limited to multi-lingual program materials, pop-up active transportation infrastructure, family-friendly games and activities, and opportunities to provide input to planning organizations and advocate groups. SCAG conducts surveys at each of these events that provide insights on to community travel preferences.

In 2018, SCAG reassessed the *Go Human* Campaign strategy to align with Vision Zero initiatives across the region. Over the course of approximately two months during the summer of 2018, SCAG’s *Go Human* Campaign strategy doubled

its outreach footprint compared to the number of impressions delivered in 2017. The *Go Human* Campaign utilized a bi-lingual approach to provide safety advertising in radio, social media, gas pump ads, billboards, and other print media across nearly 700 unique locations.

REGIONAL AGENCY ENGAGEMENT

In preparation for the development of Connect SoCal, SCAG met with the six California Transportation Commissions and four Caltrans Districts located within the SCAG region to discuss active transportation initiatives. SCAG reviewed current planning efforts as well as major projects currently underway in each county. Planning agencies across the region are proactively taking steps to adopt active transportation initiatives such as the Caltrans District Level Plans, SBCTA's Sidewalk Inventory project, OC Active, strategic first-last mile plans for Los Angeles and Riverside counties, and numerous other county-wide safe routes to school plans, active transportation plans and pedestrian and bicycle projects.

SCAG REGIONAL COUNCIL AND POLICY COMMITTEES

SCAG's 87-member governing board and policy committees meet monthly to address policy considerations and review recommendations related to regional issues. Numerous policy topics, including active transportation, have been presented to the Regional Council and the Policy Committees since the adoption of the 2016 RTP/SCS. Direction and comments received have been incorporated into Connect SoCal.

CONNECT SOCAL OUTREACH

SCAG's development of Connect SoCal and the Sustainable Communities Strategy relied on the input of several different stakeholder groups and outreach efforts, some of the key outreach efforts are detailed below and in further detail in the Public Participation technical report.

SUSTAINABLE COMMUNITIES WORKING GROUP

The Sustainable Communities Working Group was created in May 2018 as a forum to discuss sustainability policies and strategies with local stakeholders. This group consists of staff from member jurisdictions, transit agencies, planning consultants and non-profit advocacy groups, and has met four times since May 2018. Feedback from this group was used to inform initial scenario development principles and is the foundation for refining land use strategies and policies for inclusion in the plan.

COMMUNITY BASED ORGANIZATION ENGAGEMENT

SCAG partnered with community based organizations to help increase the diversity of perspectives that are included in the development of Connect SoCal. A detailed report on this participation can be found in the Public Participation Technical Report. These partners helped to promote the public Connect SoCal Workshops and convened their own stakeholders for focused discussions on the issues and strategies in Connect SoCal.

CONNECT SOCAL WORKSHOPS

In May and June of 2019, SCAG held 28 Connect SoCal Workshops across the region to solicit input from the general public about the issues and policy choices facing the region. More details can be found in the Public Participation Technical Report. The results from attendees and the survey helped to inform the development of Connect SoCal. Active Transportation was frequently supported at these workshops and in the online survey results.

THE BOTTOM-UP LOCAL INPUT AND ENVISIONING PROCESS

The Bottom-Up Local Input and Envisioning Process was launched in fall 2017 to include local agencies in the regional transportation planning process and develop a clear vision of regional transportation goals, objectives and strategies.

SCAG successfully engaged with all 197 towns, cities, and counties in the region to collect data and receive input on local conditions. The local input process provided an opportunity for jurisdictions to offer their local knowledge and input to inform SCAG's regional datasets which are used to inform technical aspects of Connect SoCal. Active transportation data collected through this process included bikeway route information, local complete streets policies and adopted active transportation plans.

DATA

Data for Connect SoCal comes from a variety of local, state and federal sources. This section provides a high-level overview of the major sources that supplemented the Bottom-Up Local Input and Envisioning Process for the active transportation analysis of the plan.

TRIP AND SAFETY ANALYSIS

The California Household Travel Survey (CHTS), National Household Travel Survey (NTHS), and U.S. Census Bureau's American Community Survey (ACS) provide information regarding travel trend behavior and informed SCAG's on-model and off-model analyses of active transportation impacts and trends. Detailed information on regional travel behavior can be found in the Existing Conditions section of this technical report.

Safety is a key goal in the plan. Vulnerable roadway users, such as pedestrians and bicyclists, are street users that lack the protection operators and passengers of motor vehicles take for granted. SCAG utilized information from this assessment in conjunction with the Statewide Integrated Traffic Reporting System (SWITRS) data to prepare Connect SoCal. Detailed information on the safety metrics for active transportation users can be found in the Transportation Safety and Security Technical Report.

NEW MOBILITY

The SCAG region is experiencing an expansion of new transportation options that allow users to select micro-mobility methods to complete short trips. Bike share, electric scooters, e-bikes and other small vehicles serve as low-emission mobility options to support a more diverse, convenient and accessible transportation network. SCAG coordinated with jurisdictions who implemented bike share programs and/or adopted regulations for shared mobility services to assess the quantity of new transportation options available to the community.

Some local government-operated bike share programs feature pedal assist and electric bicycles, with the choice of utilizing a docked, dockless or hybrid system. The cities of Santa Monica, Beverly Hills, and Riverside and Los Angeles County Metropolitan Transportation Authority (LA Metro) provided bike share station information to be included in Connect SoCal to analyze future projections of shared mobility opportunities. Jurisdictional regulations for shared mobility devices, such as permits for electric scooters (e-scooters), informed SCAG of how the new mobility trend may grow throughout the coming years. The Los Angeles Department of Transportation's Mobility Data Specification captures detailed micro-mobility device use within its jurisdiction for independent analysis. SCAG analyzed service areas for bike share and e-scooter systems, ridership data from public partners, and aggregate data, such as average bike share/scooter share one-way travel distance.

HEALTH

Public health indicators were categorized into seven social determinants of health focus areas: accessibility to essential services, affordable housing, air quality, climate adaptation, economic opportunities, physical activity and transportation safety. Data collected for the indicators was chosen based on the most recent available and reputable sources. Much of the data utilized for the report is from the ACS; census data reported directly by the federal government; public health departments, government agencies, or universities, including the California Health Interview Survey (CHIS). For more information, see the Public Health Technical Report.

COST ASSUMPTIONS AND MODE SHIFT

SCAG performed a literature review of completed active transportation projects and programs implemented throughout urban and rural settings to analyze for Connect SoCal. This analysis helped to develop cost estimates and mode shift rates. Cost estimates for bike infrastructure, which support Class 1-4 bikeways, were assessed by reviewing Bicycle Master Plans recently developed throughout the SCAG region; elasticities and impacts on ridership were determined by analyzing post-installation reports and conducting additional literature review. Safe Routes to School Plans for nearly 200 schools within the SCAG region, and 13 first-last mile plans for projects throughout the SCAG region were analyzed to identify cost estimates, participation rates and other factors to inform future planning efforts. Additional information, such as proximity to growth allocation strategy areas, described in the Modeling Methodology, and schools with high rates of free and reduced lunch **(EXHIBIT 1),** were considered in the cost estimate process. To illustrate a more comprehensive forecast for active transportation related mode shift, SCAG evaluated both on- and off- model values to estimate future bicycling and walking rates.

ENVIRONMENTAL JUSTICE ANALYSIS

This Environmental Justice Analysis examined a range of topics that intersect with multiple Connect SoCal Technical Reports. Safety, accessibility and equity metrics most notably influence active transportation initiatives. Vehicle collision data for safety analysis for the State of California maintained by the Transportation Injury Mapping System (TIMS). Some of the variables used when evaluating the job-housing balance, displacement within Transit Oriented Communities, and other equity concerns include but are not limited to: CalEnviroscreen 3.0, median household income from the ACS, schools with free/ reduced lunch, land use data from the Bottom-Up Local Input and Envisioning Process and street network data from a variety of sources. For a more detailed analysis, see the Environmental Justice Technical Report.

MODELING METHODOLOGY

In order to estimate the benefits of Connect SoCal, SCAG developed a methodology to compare the plan at build-out in 2045 with several other scenarios. Modeling for these scenarios used a combination of SCAG's transportation, land use and off model approaches to understand the impacts that changes in the built environment, and the transportation network would have on active transportation trips.

REGIONAL GROWTH FORECAST

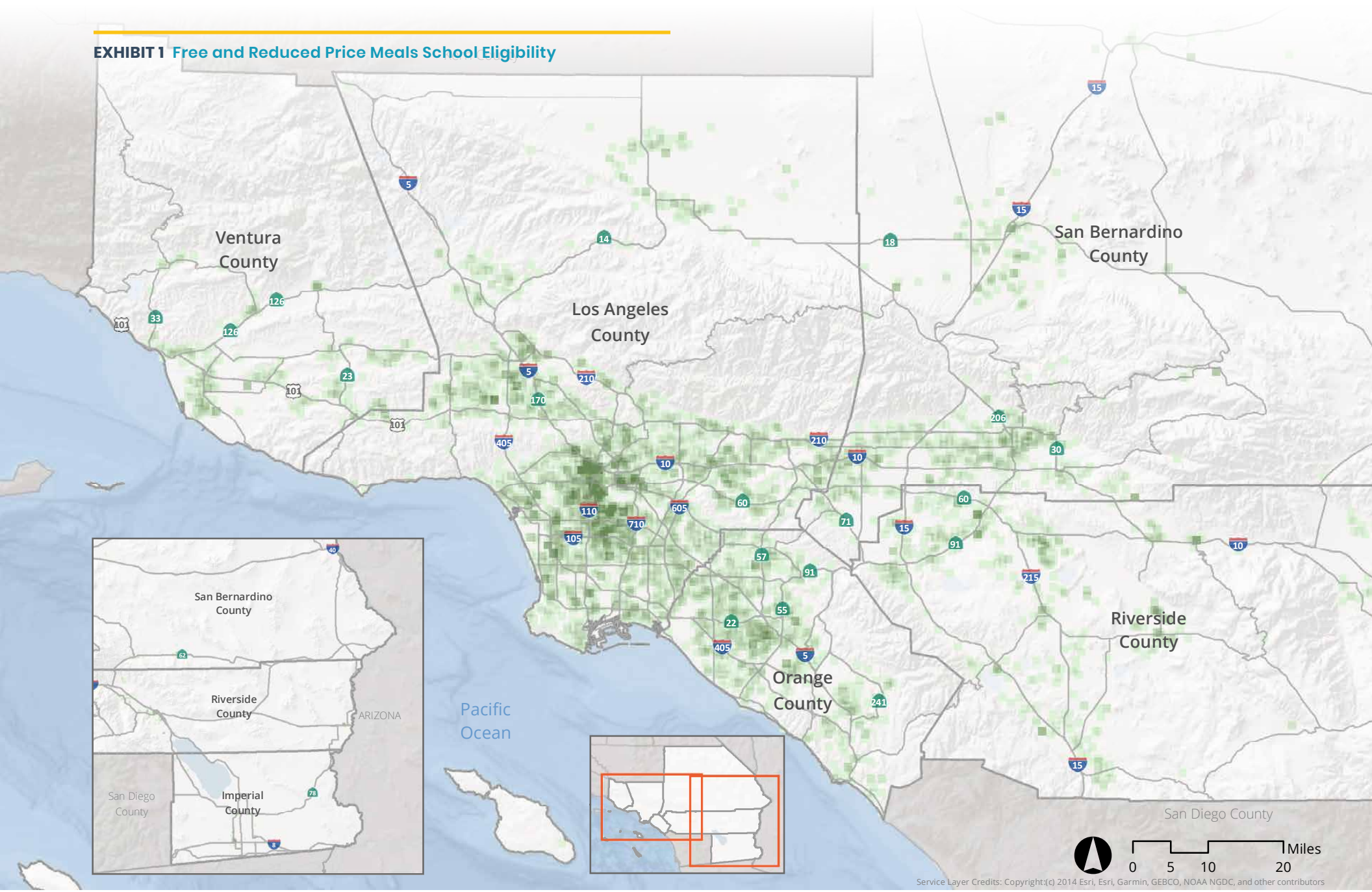
SCAG's Regional Growth Forecast provided socio-economic demographic data that informs the methodology for on- and off-Model analysis. A panel of regional economic and demographic experts provided technical and advisory assistance in the development of the growth forecast, of which all 197 local jurisdictions were solicited for input regarding the forecast's three major indicators: employment, population and households.

To develop a preferred scenario for the region in 2045, SCAG generated three preliminary planning scenarios for the region's future—each one representing a different vision for land use and transportation in 2045. Each scenario was made of a unique combination of growth allocation strategies, programs, initiatives and input from local jurisdictions. After receiving input through the public workshops and other stakeholders, SCAG developed the final plan scenario using the following growth allocation strategies:

TRANSIT PRIORITY AREAS (TPAS)

An area within one-half mile of a major transit stop that is existing or planned (existing rail transit station, a ferry terminal served by bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods).

EXHIBIT 1 Free and Reduced Price Meals School Eligibility



County Boundaries

City Boundaries

Freeway

Source: CSCD, CDE, 2016

Frequency of Schools with ≥75% Free or Reduced Price Lunch

High — Low

HIGH QUALITY TRANSIT AREAS (HQTAS)

Areas within one-half mile of a high quality transit corridor, which is a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

LIVABLE CORRIDORS

This arterial network is a subset of the high quality transit areas based on level of transit service and land use planning efforts with a few additional arterials identified through corridor planning studies funded through the Sustainability Planning Grant program (currently the Sustainable Communities Program).

NEIGHBORHOOD MOBILITY AREAS (NMAS)

Areas with high intersection density (generally 50 intersections per square mile or more), low to moderate traffic speeds, and robust residential retail connections that can support the use of active transportation for short trips.

JOB CENTERS

Areas with significantly higher employment density than surrounding areas. Over 60 subareas throughout the region are identified as having peak job density. These are identified at fine, medium and coarse scales (1/2, 1 and 2 km) to capture locally significant job centers within the region.

ACTIVITY-BASED MODEL

For Connect SoCal, SCAG transitioned its Travel Demand Model to an activity-based model (ABM) to replace the trip-based model, which was used over previous decades. The ABM's enhanced methodology integrates the evaluation of multiple variables, such as land use and mobility choice, into one system to produce greenhouse gas emissions reductions based on scenarios inputs. The on-model analyses for the bicycle infrastructure strategies were conducted by assigning elasticity factors, evaluating bicycle infrastructure densities and reviewing the implementation of planned bicycle networks.

OFF-MODEL

SCAG conducted off-model analyses on a variety of active transportation-related variables, including Safe Routes to School, First-Last Mile Improvements, Pedestrian Infrastructure Improvements, and Bike Share and Micro-Mobility. Off-model analysis utilized a combination of literature reviews, GIS analysis and household travel survey data to model outputs including vehicle miles traveled and greenhouse gas emission reduction estimates.

SAFE ROUTES TO SCHOOL

Safe Routes to School programs include a wide variety of strategies based on the 6 Es of Encouragement, Education, Evaluation, Enforcement, Engineering and Equity. The off-model analysis of this strategy reviewed elasticity factors, participation rates, and adopted infrastructure and encouragement programs that have shown to reduce the number of single occupant vehicle trips to schools and/or shorten commute trips where one stop of the trip is at a school.

FIRST-LAST MILE IMPROVEMENTS

SCAG utilized the Active Transportation Tool (AT-Tool) developed by the 2016 RTP/SCS to analyze travel effect of first-last mile improvements on increasing transit ridership and the number of walking and bicycling trips taken to transit.

PEDESTRIAN INFRASTRUCTURE

SCAG utilized similar methodology to the AT-Tool to analyze travel effects of pedestrian infrastructure improvements on the number of walking trips. Estimates for sidewalk coverage were developed by evaluating places types, reviewing existing sidewalk inventories, and utilizing forecasted mode share rates.

BIKE SHARE AND MICRO-MOBILITY

SCAG developed the methodology that was reviewed by ARB staff to evaluate the benefits of bike share and micro-mobility. The primary variables for this off-model analysis are the population growth, bike share stations and micro-mobility devices (i.e.: e-scooters).

CALIFORNIA PUBLIC HEALTH ASSESSMENT MODEL

The California Public Health Assessment Model (C-PHAM) was introduced in the 2016 RTP/SCS to proactively incorporate public health more broadly into the planning process and assess the plan's impacts on physical activity. C-PHAM allows SCAG to assess and predict how built environment (transport and land use) strategies will impact chronic diseases, including heart disease, hypertension and diabetes. It draws upon built environment, travel, and health outcome data and integrates it into SCAG's scenario-planning platform. For more information, see the Public Health Technical Report.

EXISTING CONDITIONS

The state of active transportation networks and levels of walking and biking across the region vary dramatically from county to county, local jurisdiction to local jurisdiction and neighborhood to neighborhood. While walking and biking are often viewed as localized activities, the condition of the network and level of use have significant implications for regional mobility. It is beyond the scope of a regional plan to analyze conditions at the ground level across the entire region. Instead, Connect SoCal attempts to describe regional trends and challenges in order to determine what strategies are necessary to improve safety and increase the numbers of bicyclists and pedestrians.

CURRENT TRENDS

Data on the number of people walking, bicycling and using micro-mobility devices for all trips is difficult to attain. However, the American Community Survey (ACS) tracks the number of people walking and bicycling to work in the SCAG region, which can be used to track general trends. It is important to note that this data may not provide a comprehensive understanding of the total number of trips being taken by bicycle since work trips are generally longer trips and the ACS data therefore does not reflect the complete travel patterns of active transportation users. In addition to the ACS, which is conducted every year, the SCAG region can look to more region-specific data from the California Household Travel Survey (CHTS), which is updated every ten years. The most recent CHTS was conducted in 2012, so it is most useful for looking at general trends rather than precise travel type data. Generally, commute trips are a smaller share of active transportation, with non-commute outpacing commute for both walking and bicycling. **(FIGURE 12).**

The 2005 to 2009 commute share averages an estimated 2.7 percent of commuters walked and bicycled to work in the SCAG region. This estimate dropped in the 2013 to 2017 average to an estimated 2.5 percent. While there was a drop across the region, certain counties had marginal growth in the share of active transportation commuters. **(FIGURE 13).**

ACCESSIBILITY

Walking and bicycling are two very accessible forms of transportation for people of all ages, abilities and socioeconomic backgrounds. Driving is often considered the status quo in the SCAG region, but many factors can impact a person's ability to drive, such as age, physical ability or ability to purchase a car. As shown in **FIGURE 14,** people under ages twenty are the most likely to walk and more likely than average to ride a bicycle. Walking and bicycling mode share also increase for those over age 65, likely due to change in lifestyle after retirement. If the transportation system is built around the assumption that most people will drive, then these populations are left out and often put in dangerous positions when trying to reach their destinations.

While a person with no mobility impairment may have minimal issues traversing most sidewalks and intersections in the SCAG region, many people—including those with impaired mobility, parents with strollers and travelers with luggage—

may find them impassible due to poor sidewalk condition, missing curb ramps or obstacles such as trash bins, cars jutting out from driveways or overgrown foliage. Ongoing efforts to assess the condition of sidewalk networks, such as those by the Orange County Transportation Authority, the City of Los Angeles and the San Bernardino County Transportation Authority, are an important step to understand the scale of work to be done to improve sidewalk accessibility in the region.

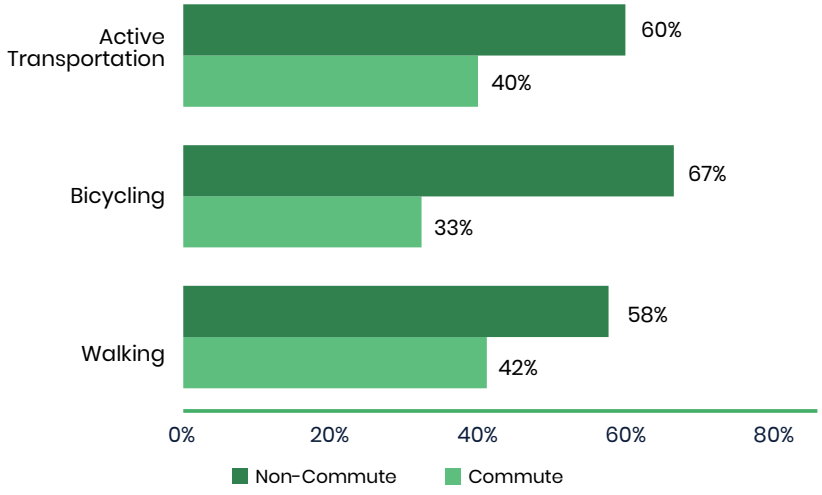
WALKING

Pedestrians differ by ability and willingness to walk in different settings. Some people require assist devices or rest stops to complete their journey. Meeting the needs of these users through Americans with Disability Act requirements and careful placement of utility poles, trees, bus stops and other necessary items will satisfy the needs of other users as well. This is referred to as the 8-80 concept, based on the premise that if you build a community that is great for an 8-year-old or an 80-year-old, then you will build a community that is accessible for everyone. [19]

The California Household Travel Survey shows walking is the most popular form of transportation for all trips up to half a mile, with 43 percent of all trips this length made by walking. The slower speed and hyper-local range of walking makes it a great way for neighbors to get to know each other and can help to build community. In the same survey, walk trips as a percentage of all trips averaged 8 percent for the region (**FIGURE 15).** Walking trips make up 3.4 percent of all commute trips and walking commute trips average 1.7 miles. Walking is the second most commonly used form of transportation for trips to school, with 15.9 percent of all trips to school walked compared with 63.7

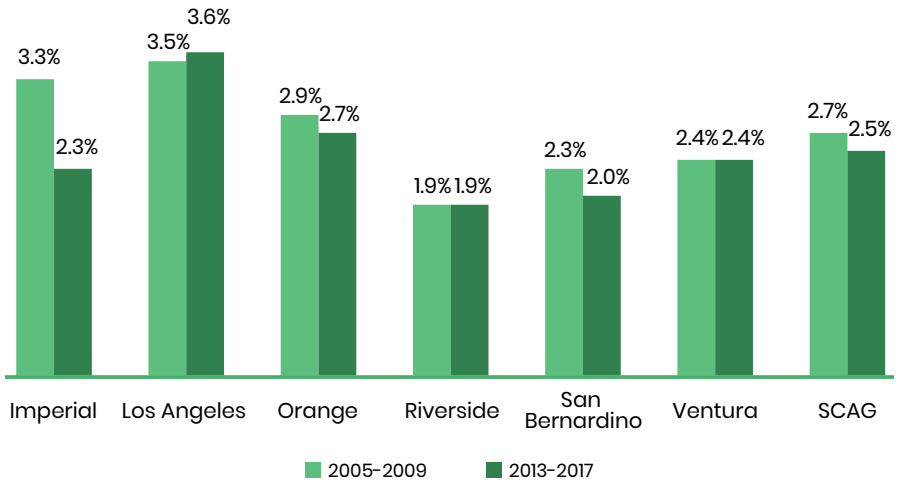
19 Penalosa, G. (2015). *Building an 8-80 City, A Simple Concept for Creating Great Cities for All.*

FIGURE 12 Active Transportation for Commute and Non-Commute Trips



Source: California Household Travel Survey (2012)

FIGURE 13 Change in Active Transportation Commute Mode Share



Source: American Community Survey (2005-2009, and 2013-2017)

percent driven. Roughly 32 percent of all walking trips are less than a half mile and 59 percent of walking trips are less than one mile, as shown in **FIGURE 16.**

The lowest income households report the highest walking rates with the share dropping significantly as incomes rise, until the highest income bracket where rate of walking increases by a small share **(FIGURE 17).** This aligns with research finding that households with an annual income of less than $25,000 are almost nine times more likely to be a zero-vehicle household than households with incomes greater than $25,000.[20] Whether a household owns a vehicle significantly impacts walking mode share, as well as the total number of trips taken by any mode, significantly. Households with no vehicles walk for 34.5 percent of all trips, compared with 13 percent for households with one vehicle and six percent for those with two **(FIGURE 18).**

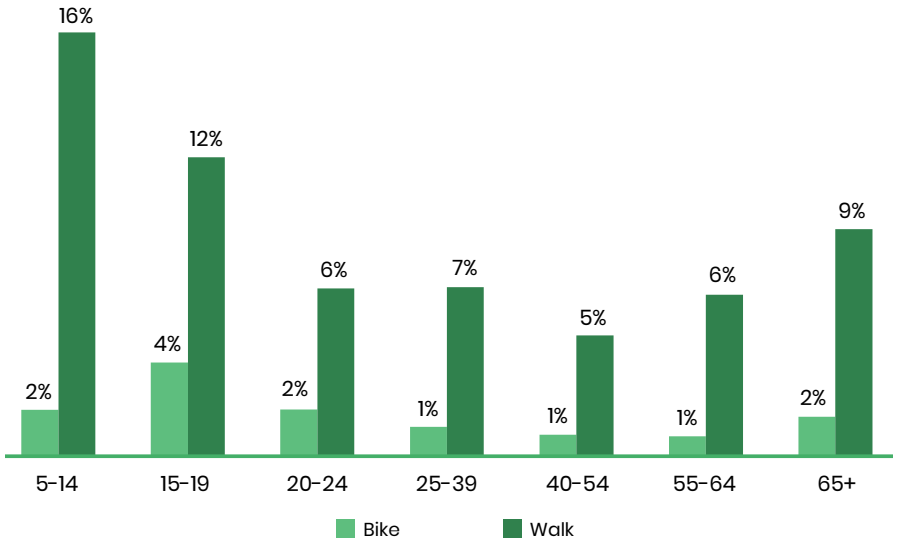
20 Bureau of Transportation Statistics (2017). *Household, Individual, and Vehicle Characteristics*.

The survey respondents' identified that walking mode share varies by race/ethnicity. Respondents identifying as Hispanic are the most likely to walk, with 11.8 percent of all trips are made by walking, compared to the average for all respondents of 8.1 percent. Respondents identifying as other races/ethnicities were all below the average **(FIGURE 19).**

In the SCAG region, nearly 44 percent of all pedestrian injuries are at intersections.[21] To improve intersection safety, the California Department of Transportation (Caltrans) and local agencies are now utilizing a complete streets approach to intersections.[22] The complete streets approach to intersection design has one controlling assumption: "assume bicyclists and

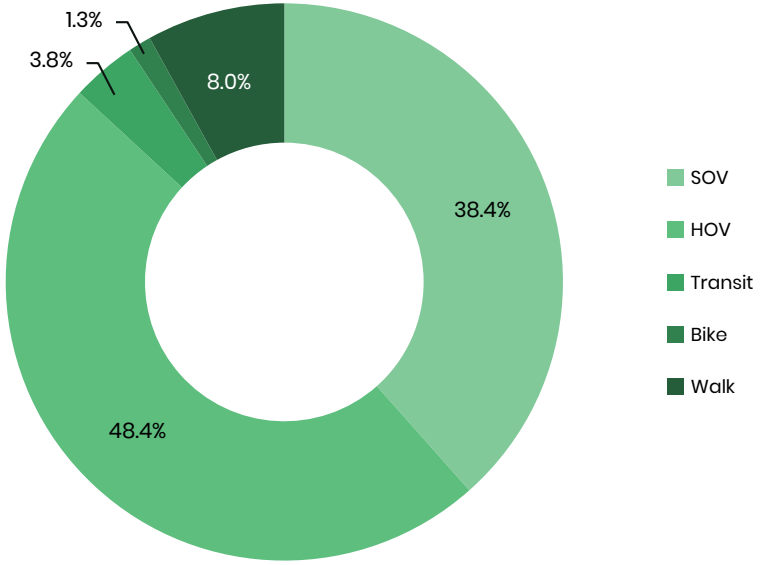
21 California Highway Patrol (2012). *California Statewide Integrated Traffic Records System*.
22 California Dept. of Transportation (2010). *Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians*.

FIGURE 14 Walking and Bicycle Trips as a Percentage of all Trips, by Age



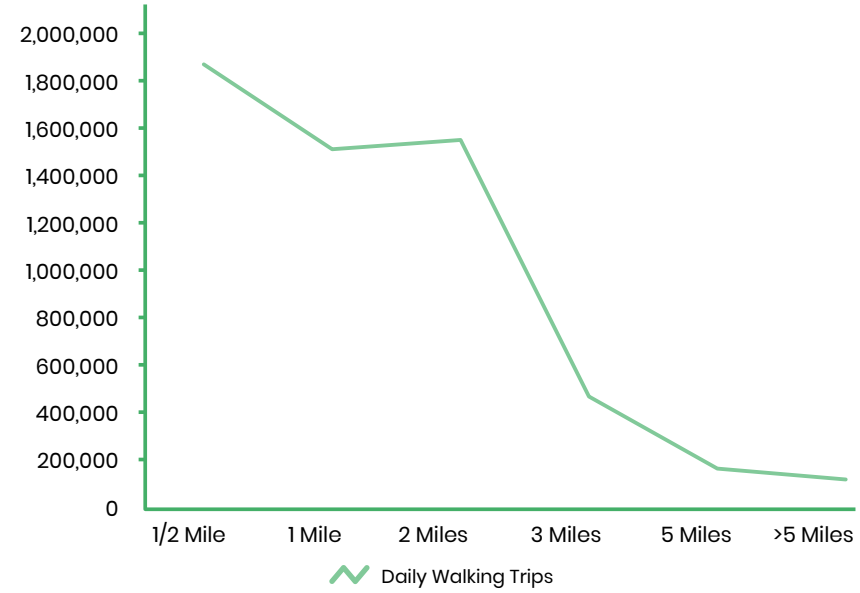
Source: California Household Travel Survey (2012)

FIGURE 15 Mode Split for All Trips



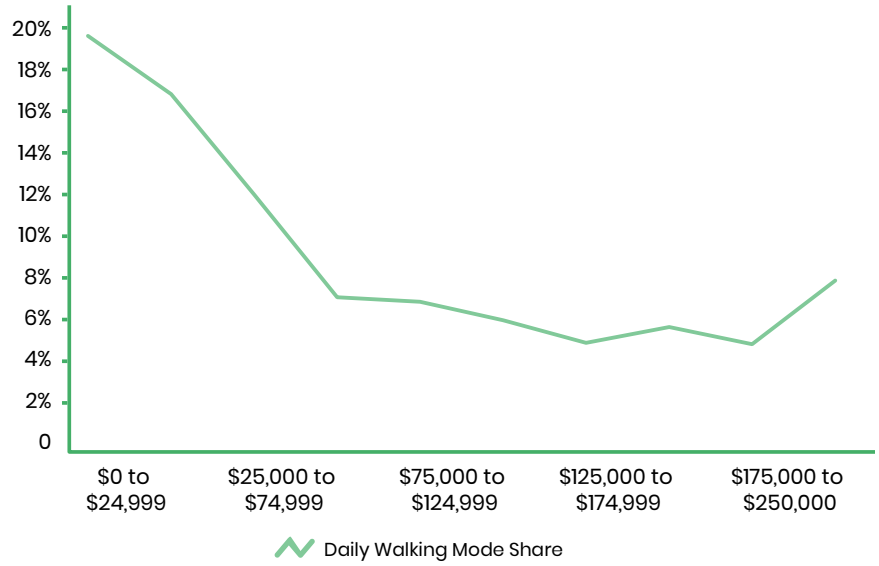
Source: California Household Travel Survey (2012)

FIGURE 16 Total Number of Walking Trips, by Distance



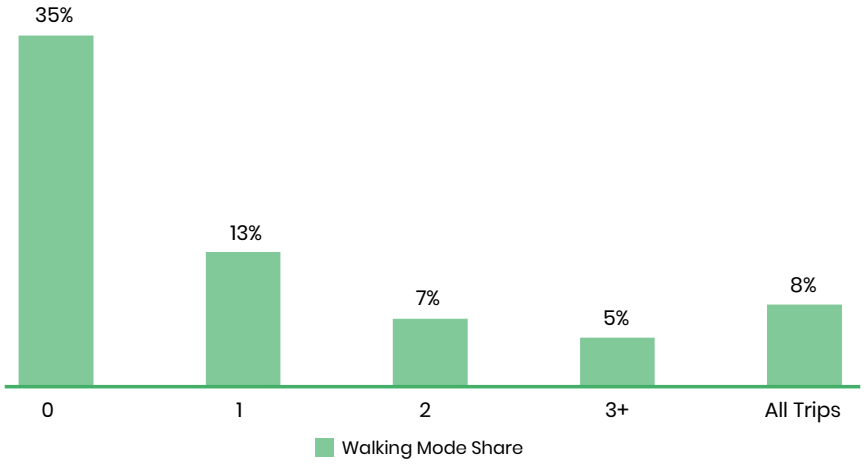
Source: California Household Travel Survey (2012)

FIGURE 17 Walking Trips as a Percentage of all Trips, by Income



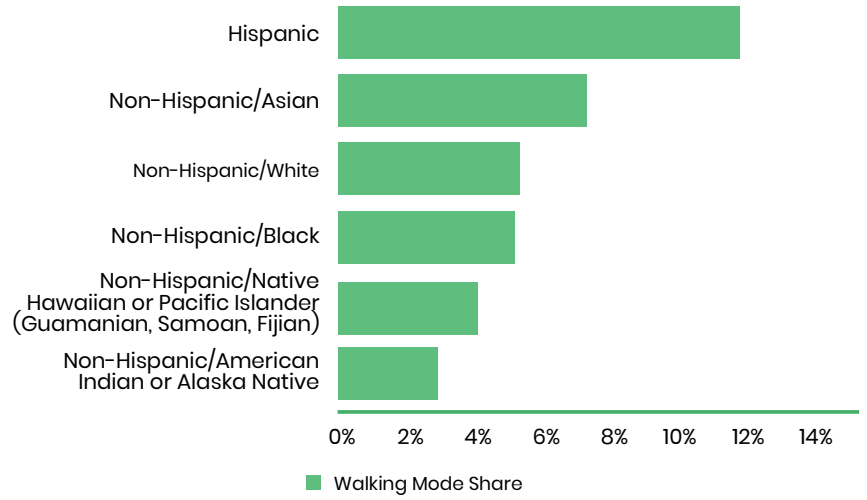
Source: California Household Travel Survey (2012)

FIGURE 18 Walking Trips as a Percentage of all Trips, by Household Vehicle Ownership



Source: California Household Travel Survey (2012)

FIGURE 19 Walking Trips as a Percentage of all Trips, by Race/Ethnicity



Source: California Household Travel Survey (2012)

pedestrians will be there." This complete streets approach involves reducing speed for turning movements, improving sight lines for crosswalks and reducing crossing distances.

BICYCLING

A comprehensive bicycle network aims to serve the needs of bicyclists of all abilities, covering a wide range of trip purposes and accommodating the needs of bicyclists at different comfort levels. Mekuria, Furth and Nixon[23] proposed a scheme for classifying road types by one of four levels of traffic stress that corresponds to the needs of different types of bicyclists **(TABLE 2).** The level of stress is determined by the physical criteria of a roadway as well as traffic conditions and their contributions to the experience bicyclists have when riding. The Mekuria, Furth and Nixon study also noted that their research did not consider factors other than traffic that might impose stress on bicyclists, such as perception of crime, pavement quality, noise, lighting, snow removal or aesthetics of surroundings. Additionally, there are differences and crossover amongst those who cycle for different purposes and what level of traffic stress they may be willing to tolerate such as those who cycle for commuting, recreation, people moving goods or cargo, people riding bike share, seniors, and others.

The California Household Travel Survey results, when compared with 2012 Vehicle Miles Traveled, indicate four million bicycle trips/day in the SCAG region, averaging 0.95 miles/trip, as shown in **FIGURE 20**. The region had a bicycle commute rate of 0.8 percent in 2012 with an average commute distance of 5.2 miles **(FIGURE 21).** When considering all trips, not just commute trips, more than 80 percent of bicycle trips take 30 minutes or less and bicycle trips make up 1.3 percent of all trips. With the majority of bicycle trips less than one mile, bicyclists may be limiting their exposure to motor vehicle traffic. Efforts to increase the percentage of bicyclists beyond the core committed bicyclists would likely require investments in new bikeways and increased connectivity.

Similar to trends for ridership based on comfort level described above, the California Household Travel Survey shows significant differences in ridership based on gender. Respondents identifying as male made 73 percent of all bicycle trips in the region, a third of which were classified as commute trips. Respondents identifying as female made up 27 percent of bicycle trips and of all bicycle trips made by these respondents, only 24 percent were commute trips **(FIGURE 22).**

Households with no vehicles bicycle for 3.5 percent of all trips, compared with 2.2 percent for households with one vehicle and approximately one percent for those with two or more **(FIGURE 23).**

The bicycle ridership rates by income shows there are very diverse bicycling populations with distinct economic profiles, with very low income and very high income people riding at higher rates. **(FIGURE 24).**

Respondents identifying themselves as American Indian or Alaska Native are most likely to bicycle, with four percent of all trips made by bicycle compared to the average for all respondents of 1.3 percent **(FIGURE 25).**

There is an outsized number of fatalities and serious injuries for bicyclists in the SCAG region. While bicyclists make up 1.3 percent of all trips in the region, they make of five percent of all fatalities and eight percent of serious injuries **(FIGURE 26).** The Transportation Safety and Security Technical Report includes more details on bicyclist safety in the SCAG region.

ENVIRONMENTAL JUSTICE

In order to ensure that improvements to active transportation in the region are equitably distributed to low-income and minority communities, SCAG analyzes the locations of projects and project funding in comparison to Areas of Concern **(TABLE 3).**

Additionally, SCAG conducts detailed analysis into the safety and accessibility of identified subsets of the regions where there are higher low-income and minority populations. Analysis of impacts on these communities can be found in

23 Mekuria, Furth and Nixon. (2012). *Low Stress Bicycling and Network Connectivity.*

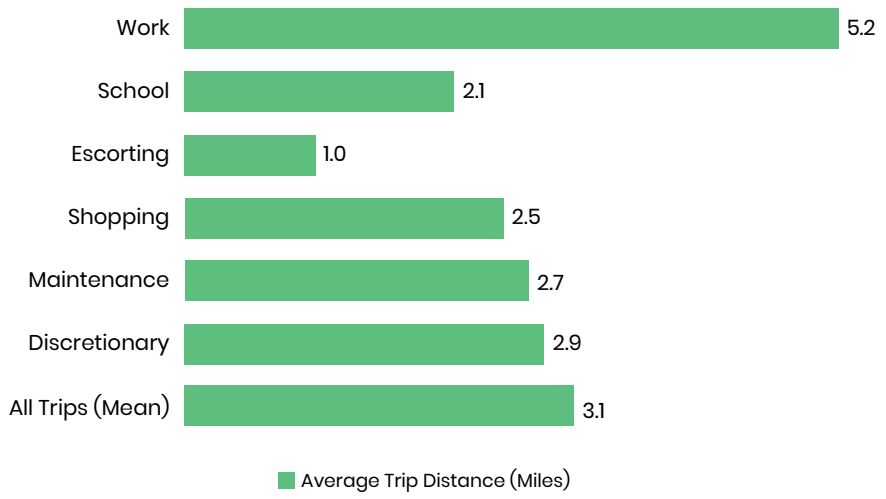
TABLE 2 Cyclist Classification - Level of Traffic Stress

Level of Traffic Stress (LTS)	Description
LTS 1	The level that most children can tolerate and at which riders of all ages feel comfortable. Corresponds to riding in Class I Bikeway (bicycle path, shared-used path or bicycle trail) completely separated from motor vehicles.
LTS 2	Suitable to most adult cyclists but demanding more attention than might be expected from children. Corresponds to riding in Class IV bikeway (physically separate bicycle lane) or a shared road with occasional motor vehicles.
LTS 3	Level comparable to riding in Class II Bikeways (non-physically separated bicycle lanes) or Class III bikeway (bicycle routes) with moderate or low-speed.
LTS 4	Level corresponding to riding in mixed traffic at 35 mph or more or in bike lanes or shoulders next to traffic at highway speeds.

FIGURE 20 Number of Daily Bicycle Trips by Distance

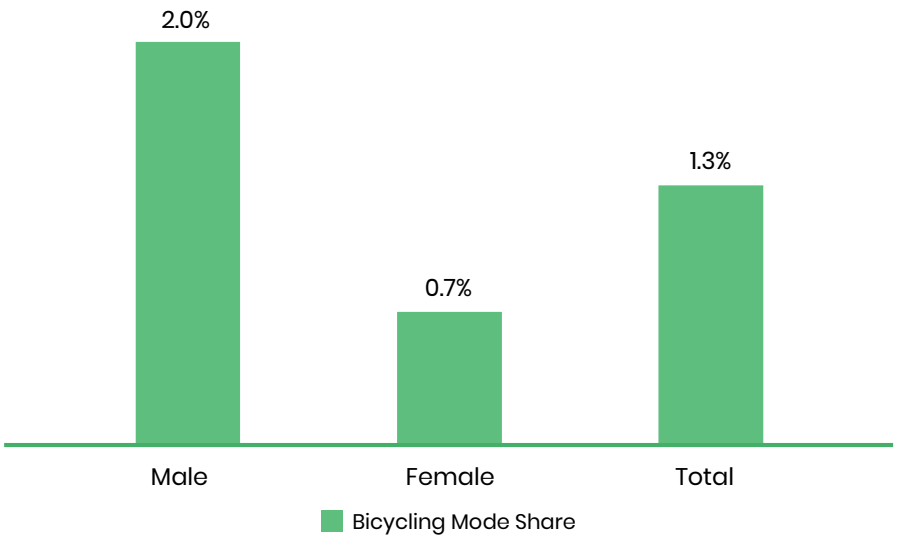
Source: California Household Travel Survey (2012)

FIGURE 21 Average Bicycle Trip Distance by Trip Purpose



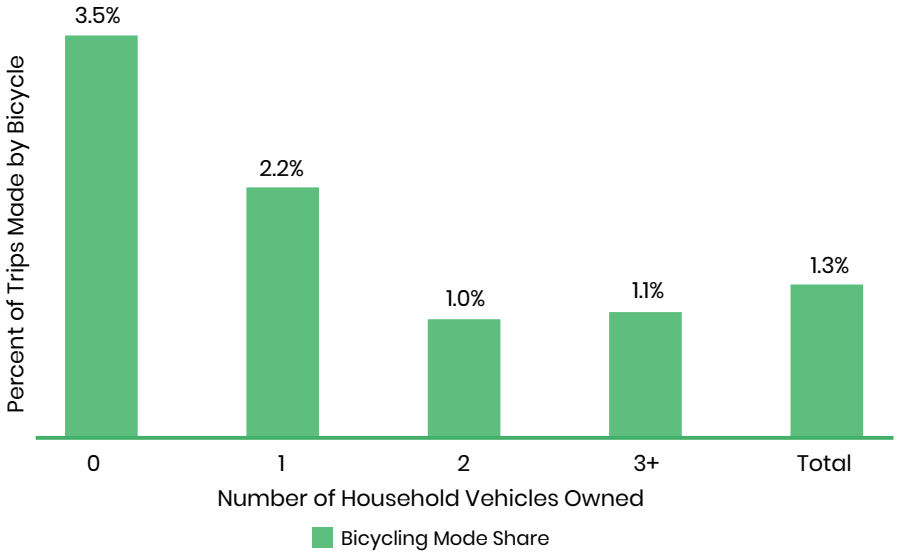
Source: California Household Travel Survey (2012)

FIGURE 22 Bicycling Trips as a Percentage of all Trips, by Gender



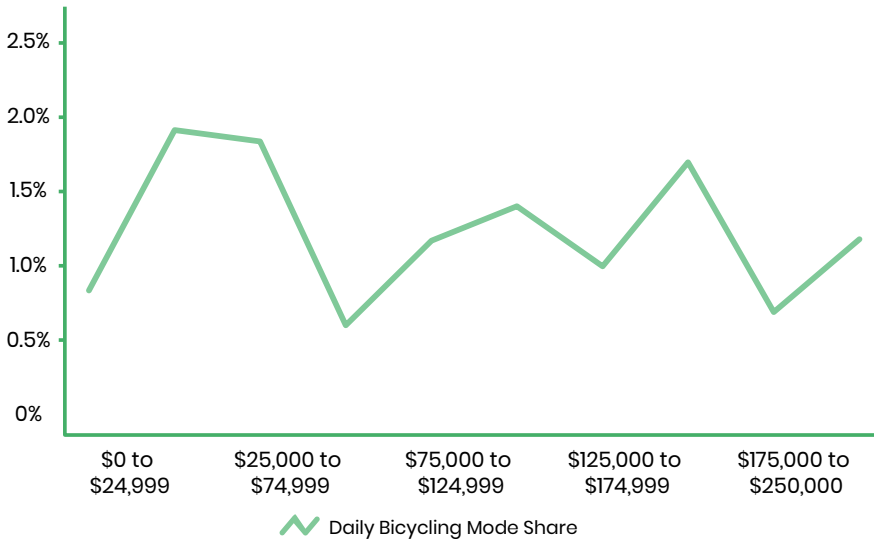
Source: California Household Travel Survey (2012)

FIGURE 23 Bicycling Trips as a Percentage of all Trips, by Household Vehicle Ownership



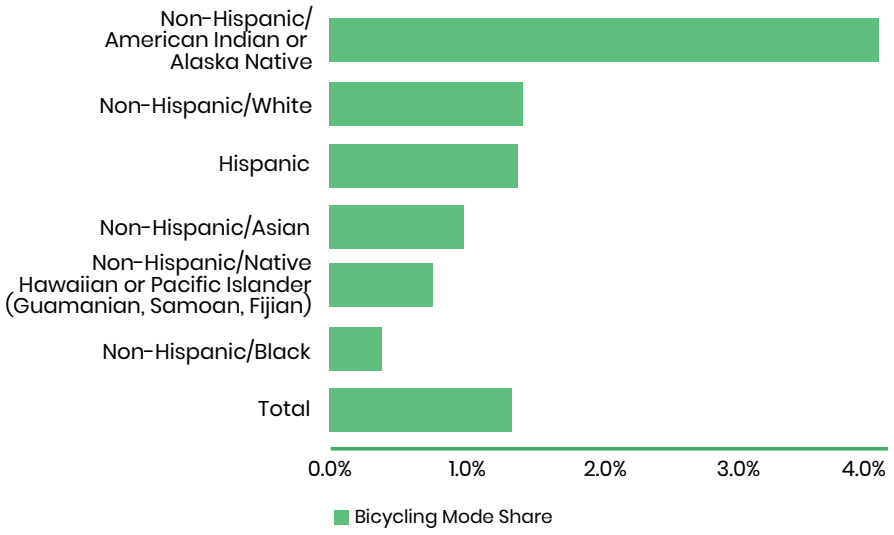
Source: California Household Travel Survey (2012)

FIGURE 24 Bicycling Trips as a Percentage of all Trips, by Income



Source: California Household Travel Survey (2012)

FIGURE 25 Bicycling Trips as a Percentage of all Trips, by Race/ Ethnicity



Source: California Household Travel Survey (2012)

detail in the Environmental Justice Technical Report.

One significant source of funding for active transportation projects in the region is Caltrans' Active Transportation Program (ATP). As the region's metropolitan planning organization, SCAG manages a portion of the program funding and collaborates with the county transportation commissions to allocate the funding. Since the start of the program in 2014, 82 percent of all projects given funding in the SCAG region were in, or would positively impact, Disadvantaged Communities. Scoring for the ATP considers the potential positive and negative impacts that a project could have on a wide variety of demographic groups. Demographic indicators and at-risk population assessments reviewed include Median Household Income **(EXHIBIT 2),** CalEnviroscreen 3.0 **(EXHIBIT 3),** Communities of Concern **(EXHIBIT 4)**, Environmental Justice Areas **(EXHIBIT 5),** Federally Recognized Tribal Lands **(EXHIBIT 6)** and the Healthy Places Index **(EXHIBIT 7).**

Concerns over gentrification and displacement are important factors to consider when developing active transportation projects in these communities. The National Environmental Justice Advisory Council (NEJAC), a committee of non-government, community-based stakeholders that helps steer EPA policies, described six recommendations for addressing unintended impacts from

FIGURE 26 Bicycle Fatalities and Serious Injuries, by Year

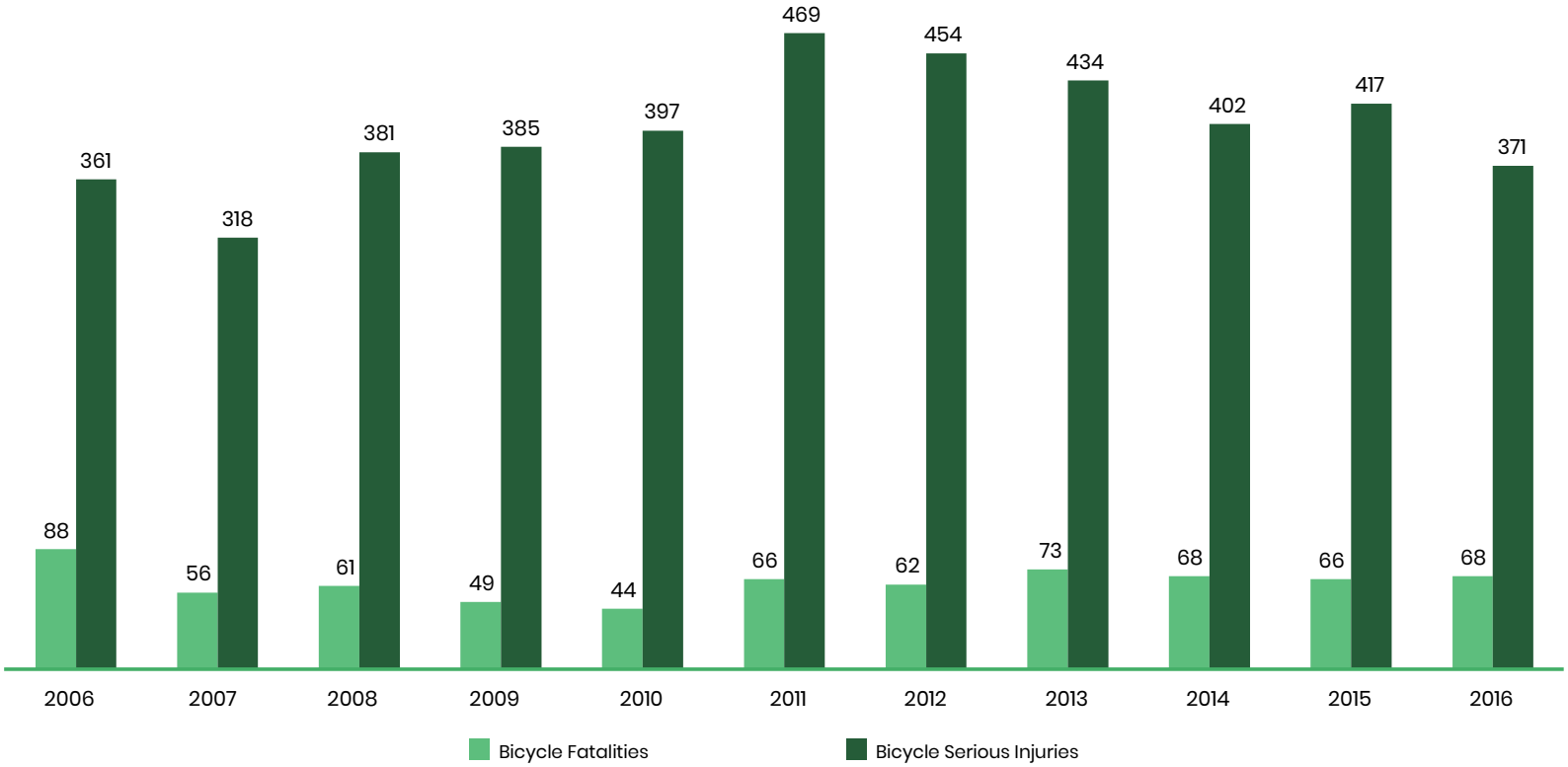
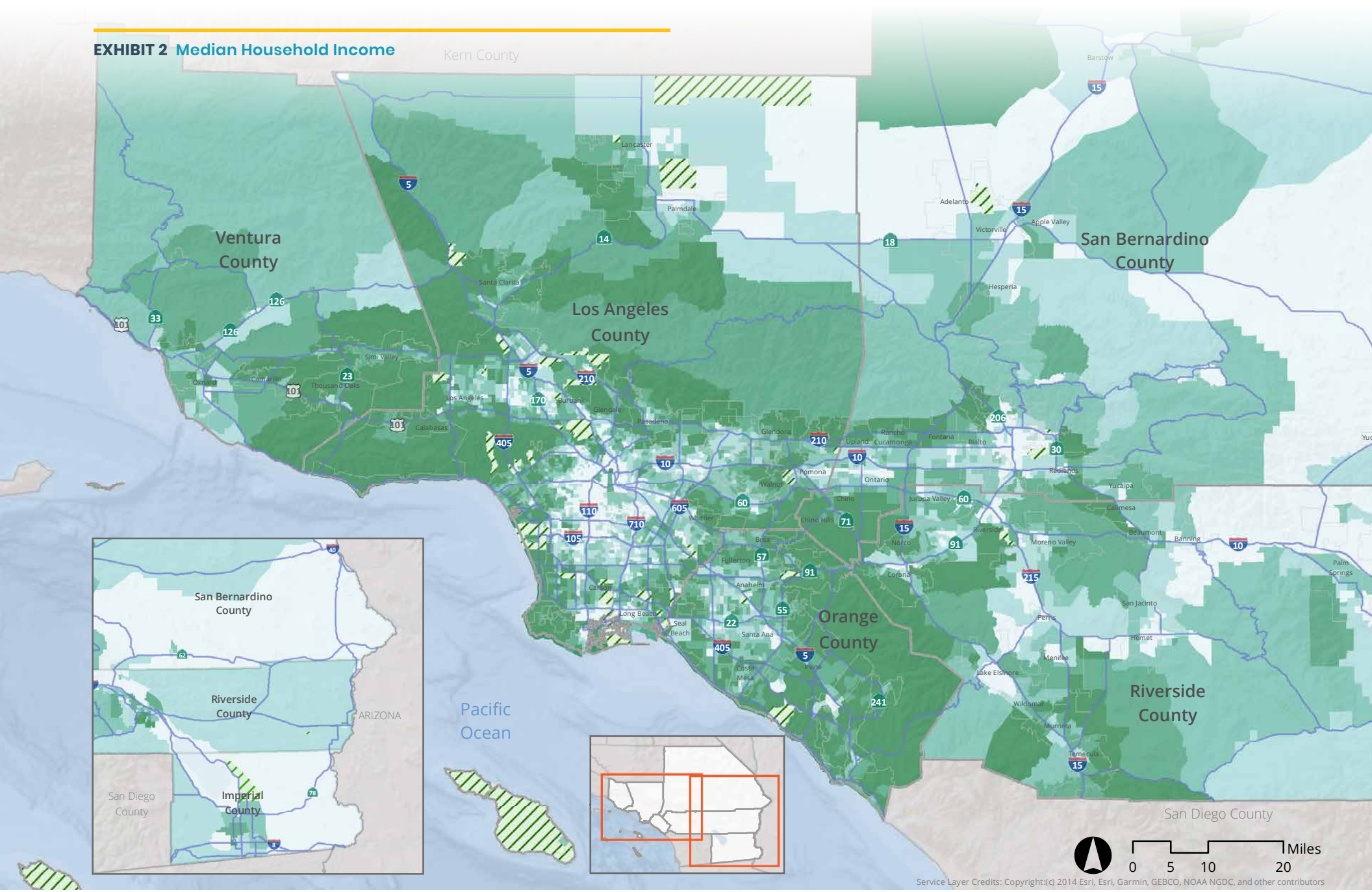


EXHIBIT 2 Median Household Income



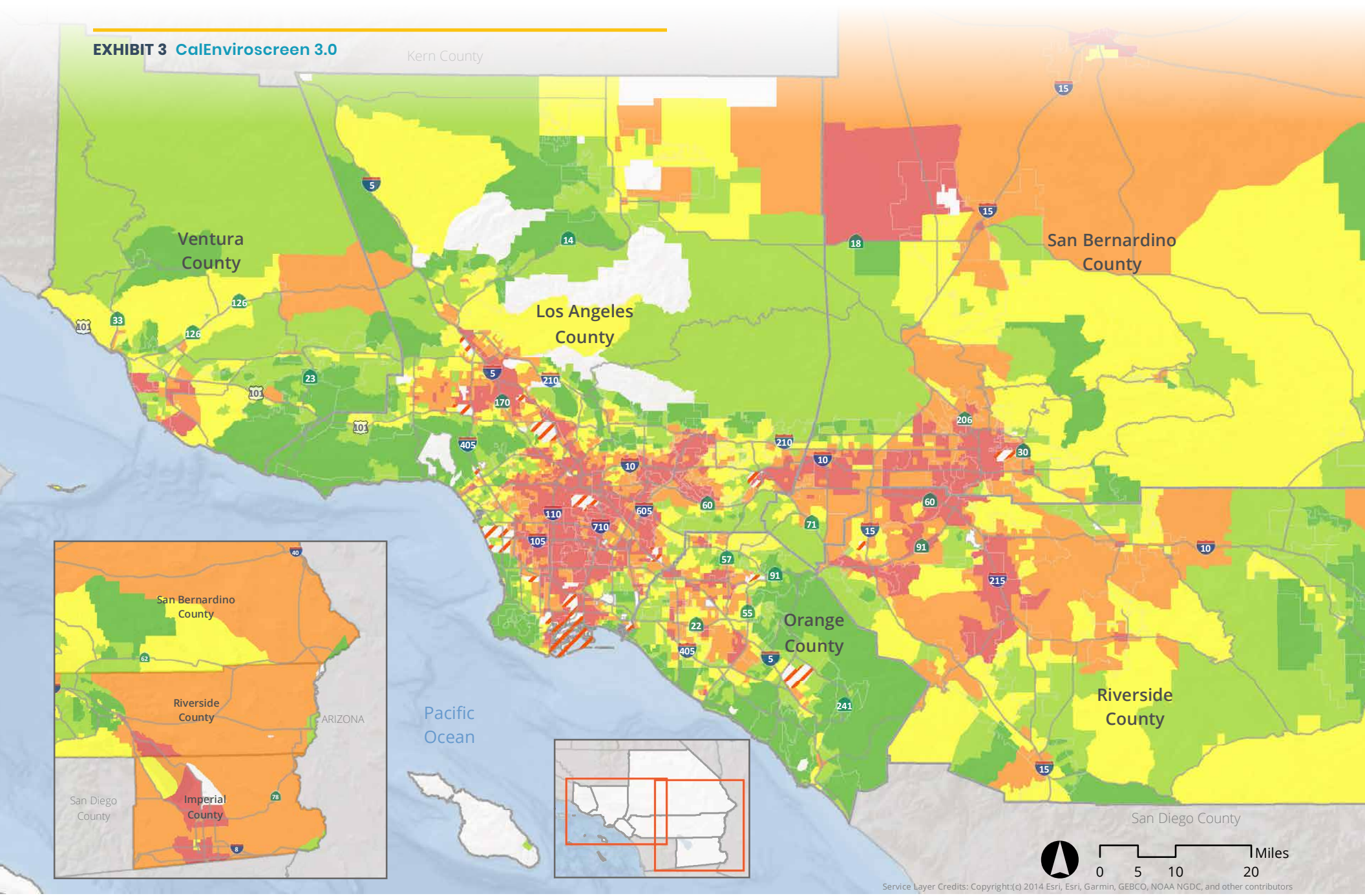
County Boundaries
City Boundaries
Freeway

Median Household Income (2017)

Quantile 1: $5,682.00 - $41,476.00
Quantile 2: $41,476.01 - $55,203.00
Quantile 3: $55,203.01 - $70,486.00
Quantile 4: $70,486.01 - $92,873.00
Quantile 5: $92,873.01 - $221,635.00
No Data

Source: 2013-2017 ACS Year Estimates

EXHIBIT 3 CalEnviroscreen 3.0



Pollution Burden Percentile

- Insufficient Data
- High Pollution, Low Population

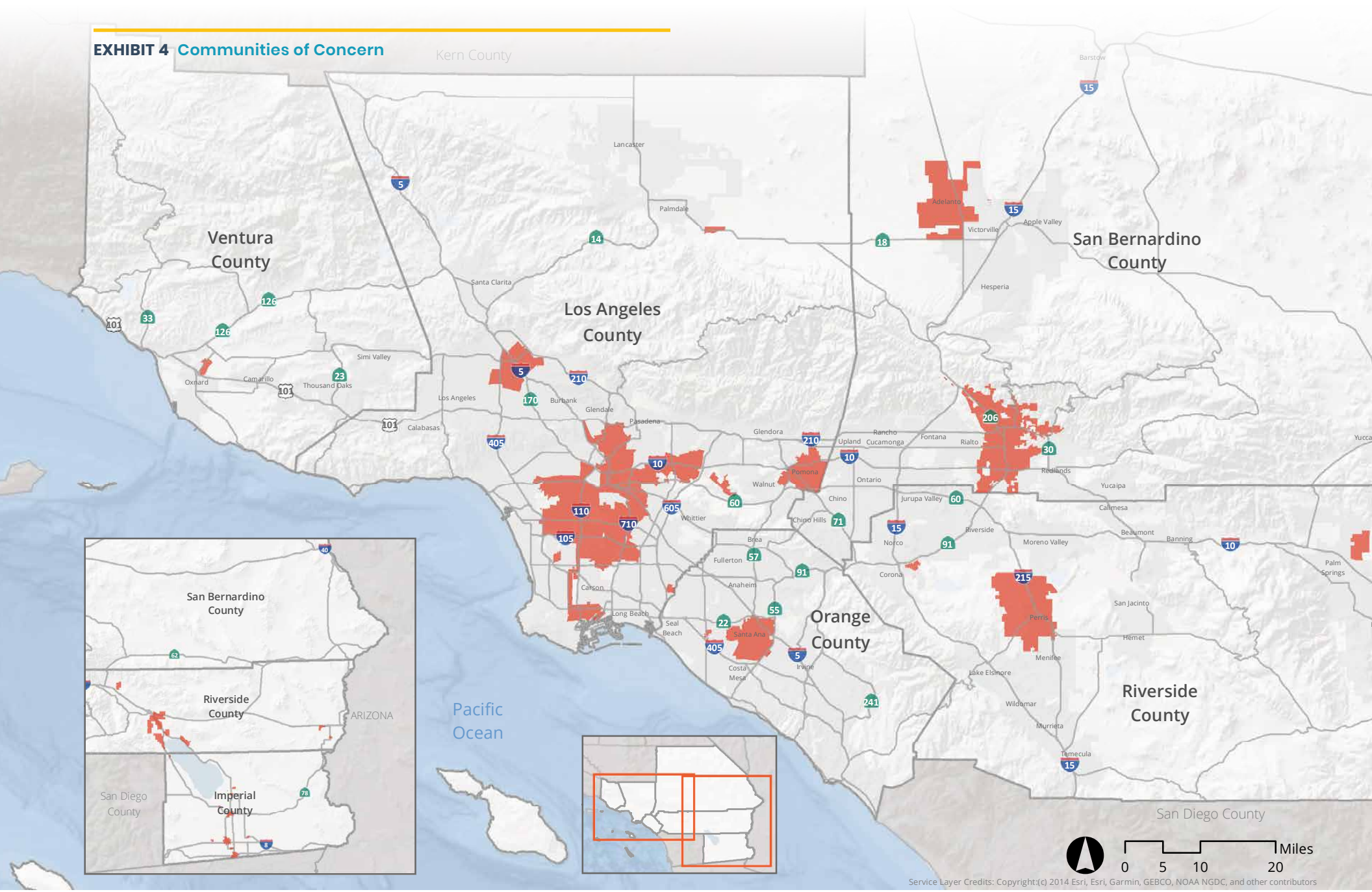
CalEnviroScreen 3.0 Percentile

- 1 - 20%
- 21 - 40%
- 41 - 60%
- 61 - 80%
- 81 - 100%

CalEnviroScreen is a screening tool that evaluates the burden and potential vulnerability to pollution. Communities with "High Pollution, Low Population" scored 90% or higher with the pollution burden percentile metric, but does not have an assigned CalEnviroScreen 3.0 Percentile.

Source: CalEPA, OEHHA, CalEnviroScreen 3.0, 2017

EXHIBIT 4 Communities of Concern



County Boundaries

City Boundaries

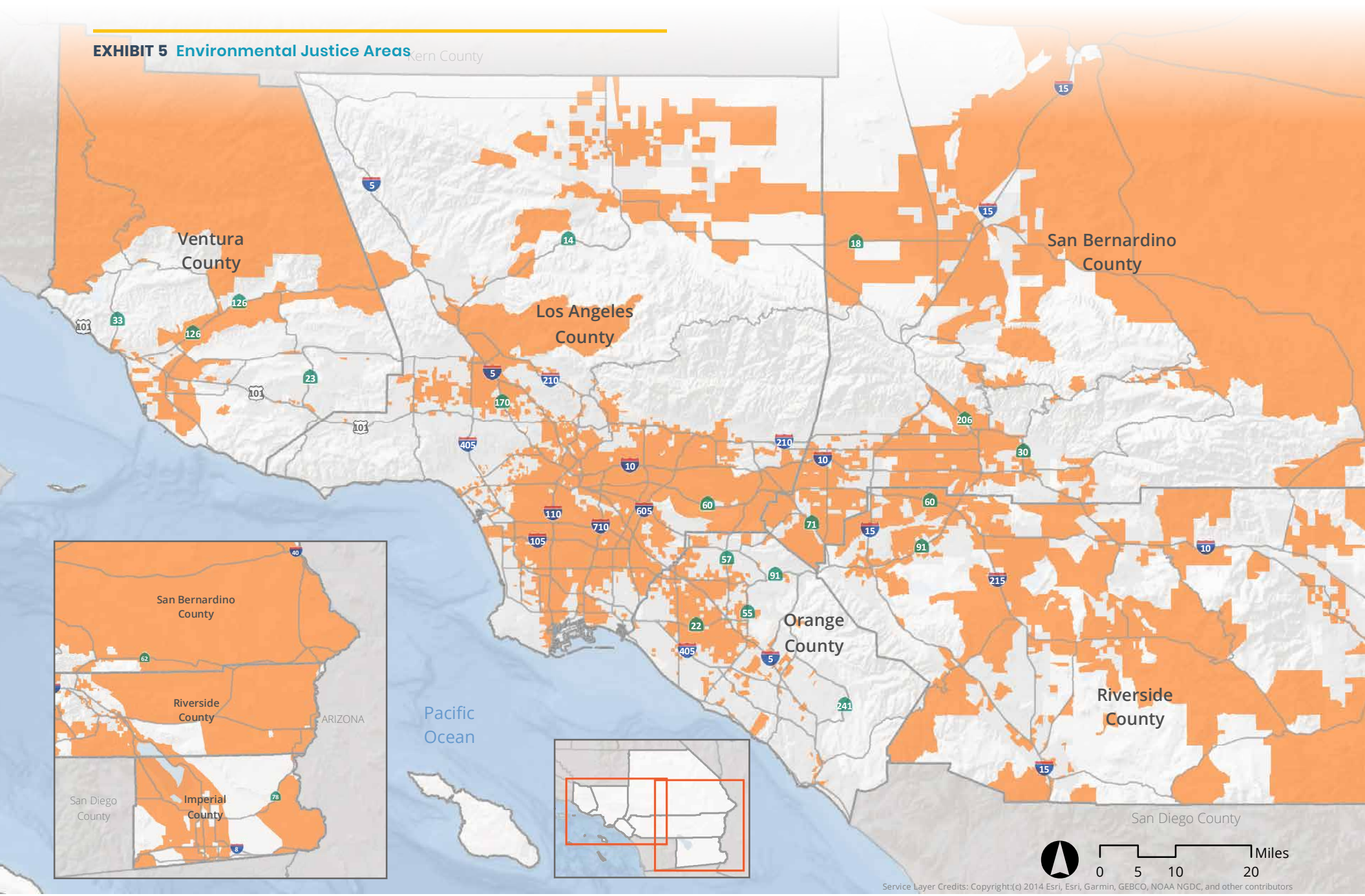
Freeway

Communities of Concern

Includes all Census Designated Places and City of Los Angeles Community Planning Areas that have the highest concentration (top third) of minority and households in poverty throughout the entire region.

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

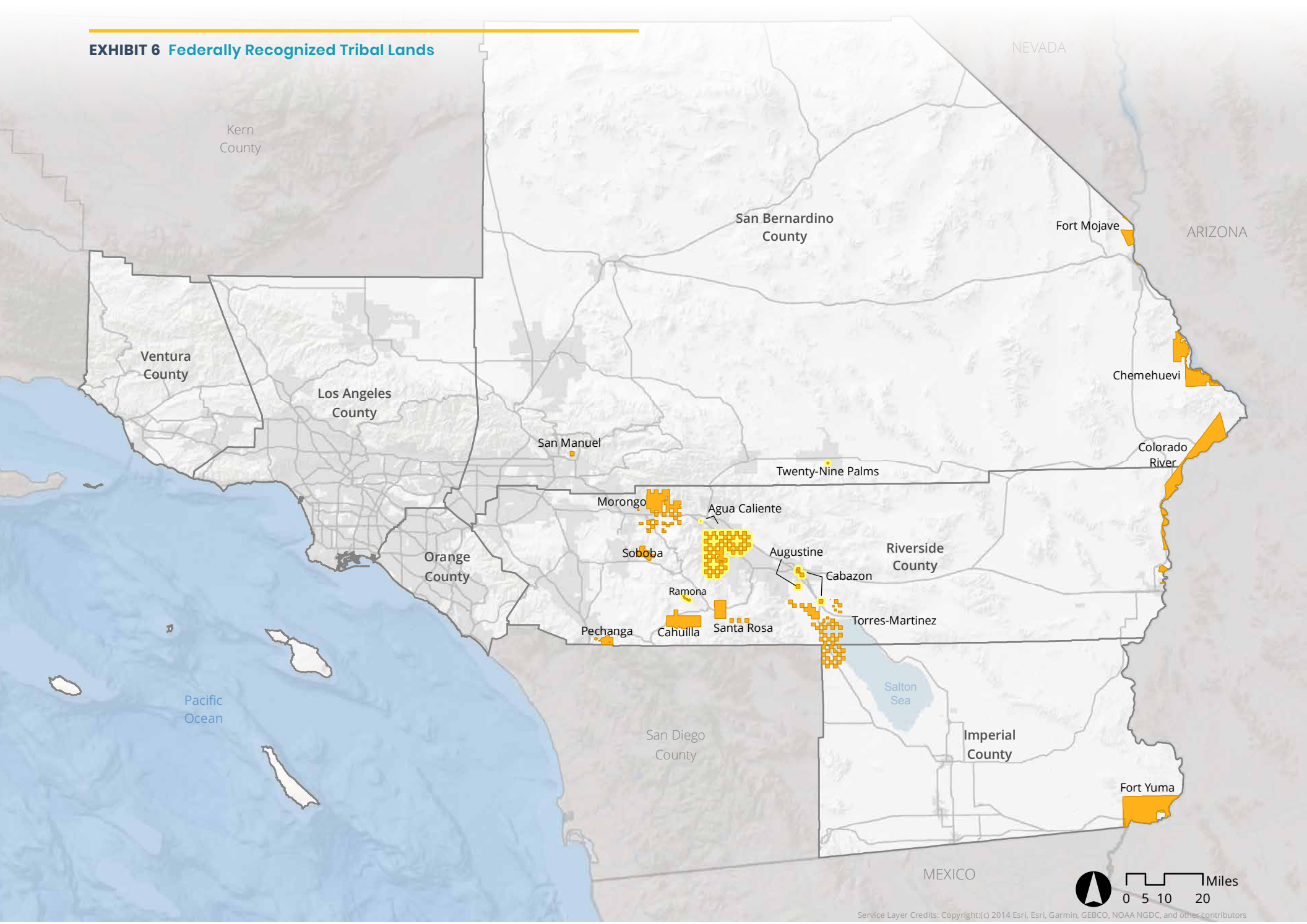
EXHIBIT 5 Environmental Justice Areas



County Boundaries | City Boundaries | Freeway | Environmental Justice Areas

Source: Census PUMS, SCAG, 2019

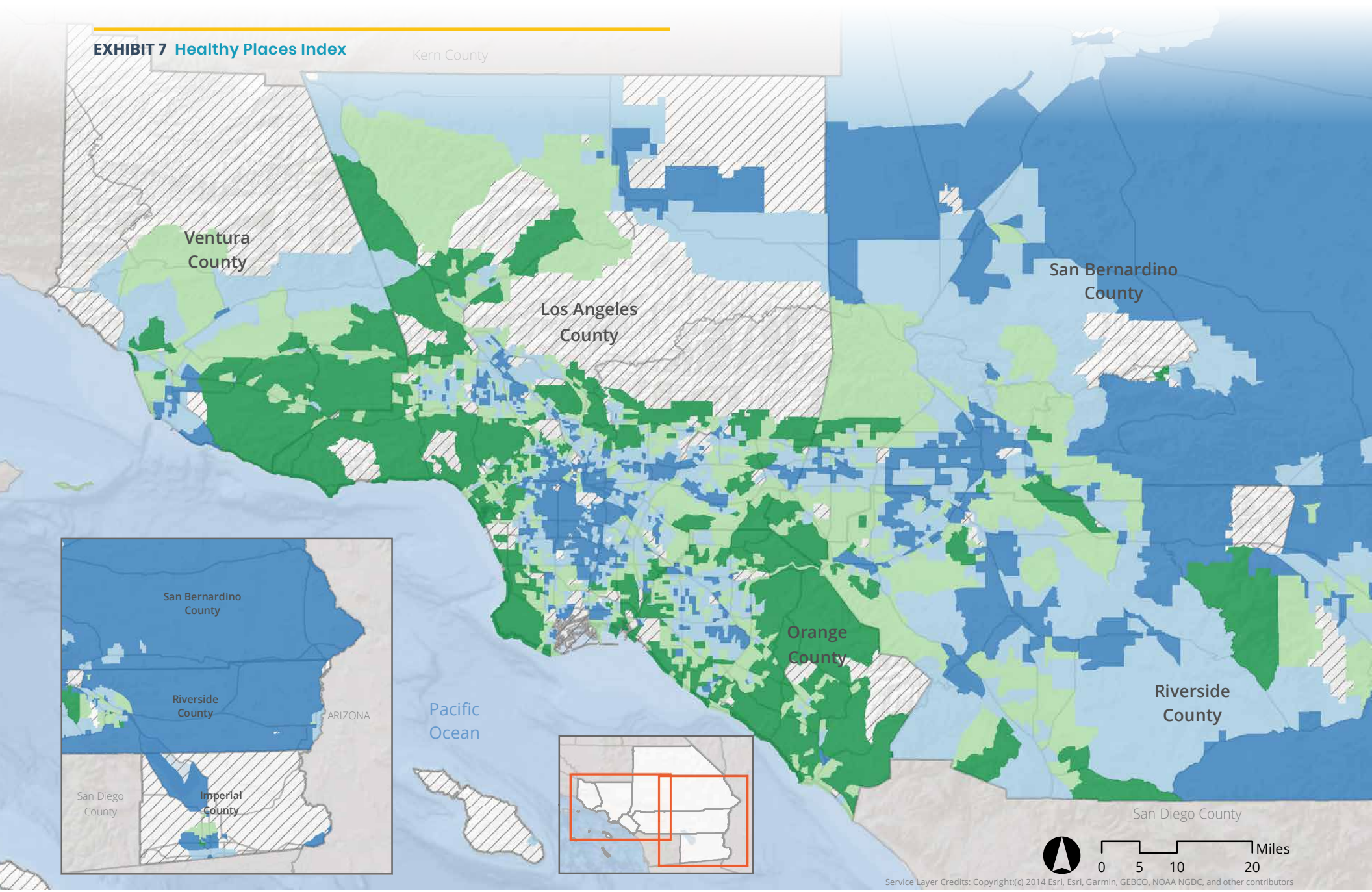
EXHIBIT 6 Federally Recognized Tribal Lands



County Boundaries | City Boundaries | Freeway | Federally Recognized Tribal Lands | Highlights Smaller Tribal Lands

Source: SCAG, 2019

EXHIBIT 7 Healthy Places Index



County Boundaries | City Boundaries | Freeway

HPI Score Percentile

0 - 25 | 25 - 50 | 50 - 75 | 75 - 100 | No Data Available

Source: Public Healthy Alliance of Southern California, 2017

redevelopment and revitalization on environmental justice communities.[24] Some of the key recommendations from NEJAC include fostering trust between community members and local jurisdictions and involving community members proactively, creatively, authentically, and meaningfully. For example, Metro's Blue Line First-Last Mile Plan for all 22 Blue Line stations was developed in partnership with a coalition of community-based organizations. The plan not only comprehensively recommends access improvements for an entire transit line, it also pilots an inclusive, participatory and equity-focused community engagement process.

24 National Environmental Justice Advisory Council (2006). *The Unintended Impacts of Redevelopment and Revitalization Efforts in Five Environmental Justice Communities*

SAFETY

As outlined in detail in the Safety and Security Technical Report, fatalities and serious injuries are increasing in the SCAG region and are disproportionately impacting people walking and bicycling. While in 2016, only about 8.9 percent of all daily trips were made via walking or bicycling, 27 percent of all those killed in traffic collisions were walking or bicycling. Pedestrian fatalities, after a brief period of annual declines, have increased each year since 2012 and are now 50 percent higher in 2016 than they were in 2011, the most recent low point. The number of pedestrians sustaining serious injuries has also recently increased from a recent low of 878 in 2011 to a high of 1,046 in 2016, an 18 percent increase.

Safety for pedestrians and bicyclists differs across the region. SCAG developed the High Injury Network to identify where fatal and serious injury (FSI) collisions occurred. Approximately 66 percent of Auto-Pedestrian and Auto-Bicycle FSI collisions within the High Injury Network are located in disadvantaged communities.

TABLE 3 Environmental Justice Areas Analyzed

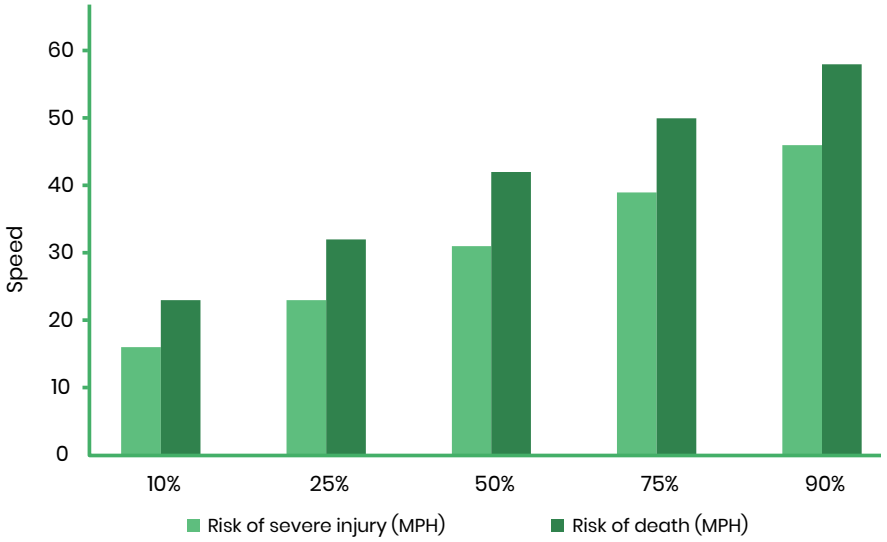
Environmental Justice Areas	Transportation Analysis Zones (TAZs), which are similar to Census Block Groups, that have a higher concentration of minority population OR low-income households than is seen in the region as a whole. The inclusion of this geography helps to fulfill SCAG's Title VI requirements, along with other state and federal environmental justice guidelines (EXHIBIT 5).
Disadvantaged Communities	Census tracts that have been identified by the California Environmental Protection Agency (Cal/EPA) as Disadvantaged Communities (DACs) based on the requirements set forth in SB 535, which seek to identify areas disproportionately burdened by and vulnerable to multiple sources of pollution (EXHIBIT 8).
Communities of Concern	Census Designated Places (CDPs) and City of Los Angeles Community Planning Areas (CPAs) that fall in the upper one-third of all communities in the SCAG region for having the highest concentration of minority population AND low income households (EXHIBIT 4).
Urban Areas	Urban Areas in the SCAG region represent densely developed territory, and encompass residential, commercial and other non-residential Urban land uses where population is concentrated over 2,500 people in a given locale.1 For the purpose of this report, SCAG will be analyzing the 2010 Adjusted Urban Areas, which are developed by the U.S. Census Bureau and updated by Caltrans with guidance from FHWA.
Rural Areas	Rural locales consist of all of the areas within the SCAG region that are not within Urban Areas.

At the state and local levels, several policies and programs have been adopted, or are being adopted, to create a safer transportation system. The State of California is working toward a goal of Toward Zero Deaths. The state's goals are to reduce the number and rate of fatalities by three percent per year and to reduce the number and rate of severe injuries by 1.5 percent per year. One of the most significant factors influencing the severity of a collision between a person driving and a person walking or bicycling is vehicle speed[25] **(FIGURE 27).** In an effort to address these trends, the California State Legislature has mandated the development of a Zero Traffic Fatalities Task Force charged to develop a report analyzing current policies regarding speed limits and any related changes that should be made to current policies to reduce traffic fatalities.[26]

HEALTH

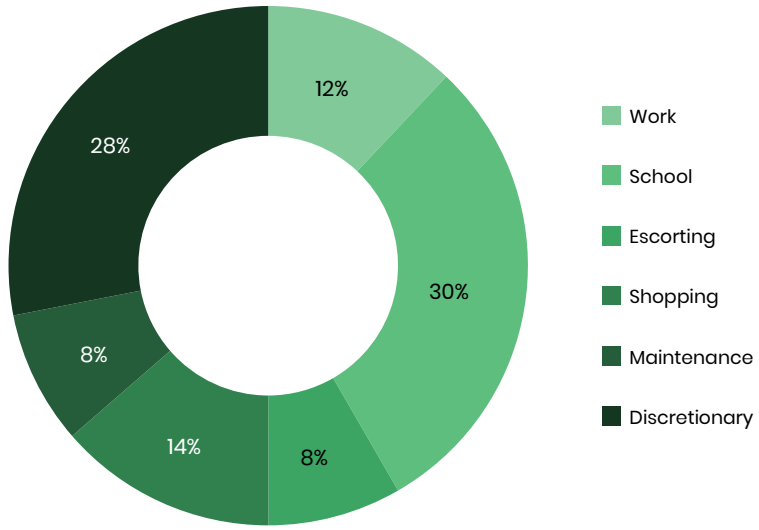
Most adults in the SCAG region are not meeting the recommended physical activity levels. Only 38 percent of individuals in the SCAG region are regularly walking for transportation, fun and/or exercise, as shown in **FIGURE 28**. Ventura County ranked slightly above the regional average with 44.4 percent of respondents reporting that they walked regularly for transportation, fun and/or exercise.[27] In most counties, slightly above a third of respondents were walking regularly. In the SCAG region, 20.4 percent of surveyed adults responded being active for at least 20 minutes a day 7 days a week and 19.9 percent of people in the region responded not being active at all. Individuals are most likely to be active between 3 to 4 days per week, with 25.8 percent of individuals reporting they are active 3-4 days a week.[28]

FIGURE 27 Risk of Serious Injury and/or Death to Vulnerable User based on Vehicle Speed



Source: "Tefft. (2011). Impact Speed and Pedestrian's Risk of Severe Injury or Death. American Automobile Association. https://aaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/"

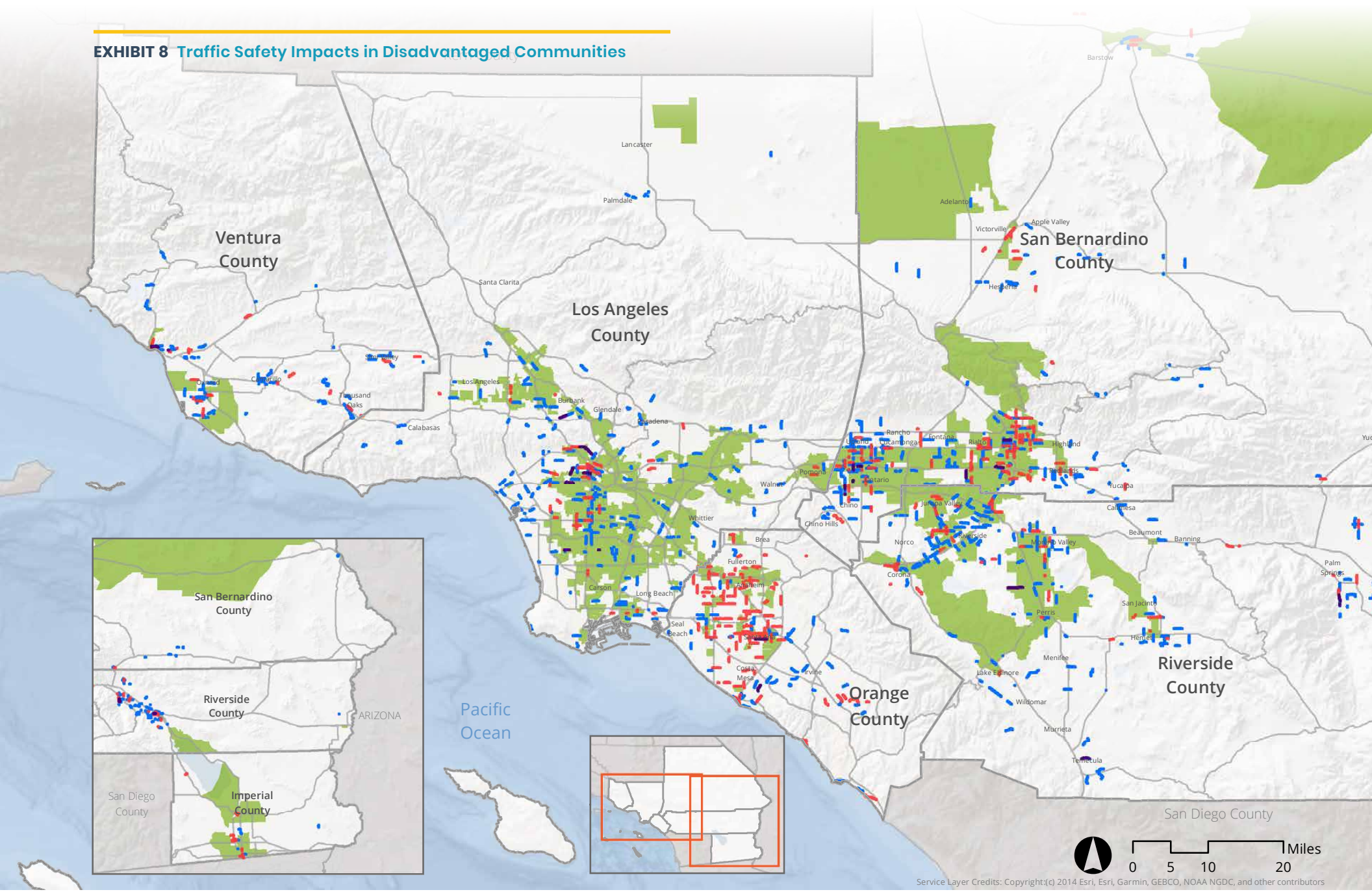
FIGURE 28 Walking Rates by Purpose



Source: California Household Travel Survey (2012)

25 Forbes, G.J., Gardner, T., McGee, H., Srinivasan, R. (2012). *Methods and Practices for Setting Speed Limits: An Informational Report.*
26 Electricity procurement, A.B. 2363. (2014).
27 California Health Interview Survey (2016). *Regularly walked for transportation, fun, exercise.*
28 California Health Interview Survey (2017). *Number of days physically active at least 20 minutes (at a time).*

EXHIBIT 8 Traffic Safety Impacts in Disadvantaged Communities



Service Layer Credits: Copyright:(c) 2014 Esri, Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

- County Boundaries
- Disadvantaged Communities
- Freeway
- Auto-Bicycle FSI
- Auto-Pedestrian FSI
- Auto-Bicycle and Pedestrian FSI

Source: CalEPA, OEHHA, CalEnvironscreen 3.0, 2017; SWITRS, TIMS, SCAG, 2019

SCAG analyzed the areas where the fatal and serious injury (FSI) collisions occurred. Approximately 66% of Auto-Bicycle and Auto-Pedestrian FSI collisions within the High Injury Network are located in disadvantaged communities.

Two of the major impacting factors influencing the number of active transportation trips taken are the availability of infrastructure like sidewalks and bicycle lanes and the land use of potential destinations.[29] In the Active Transportation Health and Economic Impact Study conducted by SCAG in 2016, the California Public Health Assessment Model (C-PHAM) was used to estimate the number of additional cases of obesity, diabetes, hypertension and heart disease that would occur without the active transportation mode of travel. For more information, see the Public Health Technical Report.

EXISTING NETWORKS

Active Transportation networks include sidewalks, walking paths, bikeways, regional trails, and other transportation infrastructure that can be used by people walking and bicycling. These networks have not always been well documented and throughout the region efforts are underway to develop a full accounting of the existing networks. It is also important to consider that not all walking and bicycling infrastructure is equal, so the classification of type of bikeway, sidewalk width or the presence of curb ramps and regular and adequate crossings is essential. For active modes in particular, a connected network can make the difference in whether a person chooses an active mode versus driving or taking public transit.

CURRENT PEDESTRIAN NETWORK

Walking is the most basic form of transportation. It is the most affordable and environmentally friendly transportation mode. Walking can be for utilitarian, commute, recreational or fitness purposes. At this point, no comprehensive inventory of pedestrian facilities exists for the SCAG region. Some jurisdictions, such as the Orange County Transportation Authority, the City of Los Angeles and the San Bernardino County Transportation Authority, have recently completed or are in the process of creating inventories of existing sidewalks and detailed sidewalk needs assessments to better inform planning efforts.

Across the region, there are significant gaps in the pedestrian network including missing sidewalks, sidewalks in poor repair, missing curb ramps that hinder accessibility and excessive spacing between safe crossings that cause people walking to go far out of their way or put themselves in danger crossing mid-block. Additionally, people walking in the region often encounter sidewalks blocked by utility poles, utility boxes, cars jutting out of driveways, trash bins, a-frame signs or improperly parked micro-mobility devices.

Some physical infrastructure, signal planning and changes to traffic laws that can make walking a safer, more accessible and more enjoyable experience include **(TABLE 4):**

In order to address these issues, nearly half of the cities in the SCAG region have developed, or are in the process of developing, pedestrian master plans that aim to improve the existing pedestrian networks and fill in gaps to get more people safely walking.

CURRENT BIKEWAY NETWORK

There are about 5,075 bikeway miles in the region, compared with 70,000 miles of roadway, with the majority in Los Angeles County, followed by Riverside County, then Orange County as seen in **TABLE 5.** Nearly 500 additional miles of bikeways were built since the last plan. Local jurisdictions and counties have developed series of bikeway routes to improve the connectivity of the overall existing bikeway network **(EXHIBIT 9).** More information regarding existing and proposed bikeway networks can be found in Appendix 3.

The Caltrans Highway Design Manual currently classifies bicycle lanes, bicycle paths, and routes by the following method:

CLASS I BIKEWAYS

Also known as bicycle paths, shared-use paths or bicycle trails, a Class I bikeway provides a completely separated right-of-way designated for the exclusive use of bicyclists and/or pedestrians.

29 Southern California Association of Governments (2016). *Active Transportation Health and Economic Impact Study.*

CLASS II BIKEWAYS

Often referred as a bicycle lane, a Class II bikeway provides a striped lane for one-way bicycle travel on a street or highway. Buffered bicycle lanes included a greater striped separation from travel lanes than traditional bicycle lanes.

CLASS III BIKEWAYS

Also known as bicycle routes, Class III Bikeways provided for shared use with pedestrians and/or motor vehicle traffic, designated by signs or pavement markings, but have no separated bicycle right-of-way or lane striping.

CLASS IV SEPARATED BIKEWAYS

Also known as cycle tracks, Class IV Bikeways provide a right-of-way designated exclusively for bicycle travel within a roadway and which are protected from other vehicle traffic with devices, including, but not limited to, grade separation, flexible posts, inflexible physical barriers, or parked cars.

Region wide, the existing network is fractured, both on a regional basis, with significant gaps, and between jurisdictions, with small gaps of less than a quarter mile. This lack of connectivity discourages bicycling and increases the risks to bicyclists as they attempt to navigate the gaps in the system. For many bicycle riders, the most stressful portion of a bicycle trip, no matter the relative size of that portion, defines the overall stress of the trip.[30] So, while the total number of bikeway miles is an important indicator of progress towards creating a better bicycle network in the region, small improvements to address the gaps between bikeways are just as important to consider.

A combination of infrastructure to fill the gaps between existing bicycle infrastructure (whether between bikeways, river bicycle paths or other), gaps between bicycle infrastructure and transit stations, and wayfinding

30 Goffman, E. (2017). *Closing Gaps in Low-Stress Networks to Bring Bicycling to More People.*

TABLE 4 Infrastructure Improvements for Improving Pedestrian Safety

Improvements	Benefit
Narrowed Intersections, Curb Bulbouts, Median Sanctuary Islands	Reduce crossing distances and improve visibility.
Scramble Crossings	Close the entire intersection to vehicle traffic for one signal cycle to allow pedestrians cross in all directions.
Countdown Pedestrian Timers	Let pedestrians know how much time is left to finish crossing.
Leading Pedestrian Intervals	Allow pedestrians to start crossing before cars are given the green signal imporve visibility of pedestrians and to prevent right hand turn collisions.
Protected Left-turn Phasing for Cars, Banning Right Turns on Red	Avoid conflicts between pedestrians in the crosswalk and turning cars.
Midblock Crossings (Using Pavement Flashers and Hi Intensity Activated Crosswalk Signals)	Provide clear indication for where crossing the street should occur and warn drivers that pedestrians are crossing the roadway.
Roundabouts and Chicanes	Slow vehicle traffic and reduce the intensity of collisions.
Improved Street Lighting	Better illuminates pedestrians during night time conditions.

signage to make those connections as intuitive as possible are essential to get more people bicycling. In addition to the presence or absence of bikeways, many physical factors can influence a person's decision of whether to travel by bicycle **(TABLE 6).**

All roads in the SCAG region permit bicyclists, including some freeway shoulders, although for most freeways in the region bicycling is explicitly prohibited. Just because bicycling is permitted on some streets does not mean that a majority of potential bicyclists would consider it safe or comfortable for bike riding.[31] Rough road surfaces can deter bicycle usage. Poor maintenance can cause a bicyclist to unpredictably swerve or be thrown into traffic. The 2018 California Local Streets and Roads Needs Assessment estimated the average pavement condition for each of the six SCAG counties.[32] The estimate suggests that five of the six SCAG counties have roadways that are "at risk" of falling into poor or failed condition. This is an increase from the 2016 report, which only estimated that four of the six counties fell into this category.

CURRENT FIRST-LAST MILE PROJECTS

Public transportation agencies typically provide bus and rail services that may frame the core of trips. But users must complete the first and last portion on their own; they must first walk, roll or drive themselves to the nearest stop. This is referred to the first and last mile of the user's trip. Simply put, all transit riders must contend with the first-last mile challenge, and the easier it is to access the system, the more likely people are to use it.[33]

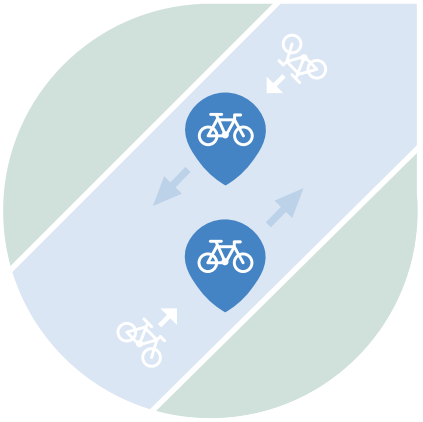
Connect SoCal plans for improvements within High Quality Transit Areas and Transit Priority Areas, throughout the SCAG region by 2045. There are currently 246 square miles of Transit Priority Areas in the region. As of 2016, 37 percent of people in the SCAG region lived within a High Quality Transit Area or a Transit Priority Area. By 2045, an estimated 46 percent of all people in the SCAG region will live in a High Quality Transit Area or a Transit Priority Area. SCAG has developed strategies to improve these first-last mile connections to make it easier for people to access and use transit.

31 Mekuria, M. C., Furth, P. G., and Nixon, H. (2012). Low-Stress Bicycling and Network Connectivity.
32 Save California Streets (October 2014). California Local Streets and Road Needs Assessment 2014 Update.
33 Southern California Association of Governments and Los Angeles County Metropolitan Transportation Authority (2014). First/Last Mile Strategic Plan and Planning Guidelines.

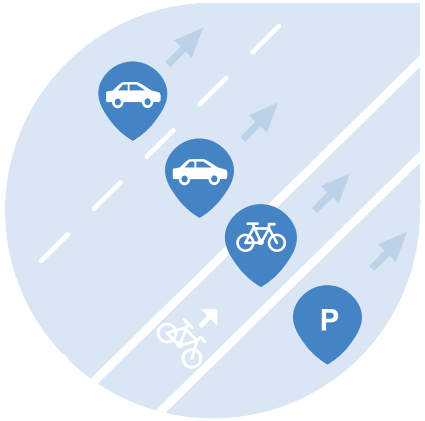
TABLE 5 Bikeway Mileage by County

Class - Status	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura
Class 1 - Existing	1.33	351.51	267.11	44.07	103.71	77.99
Class 1 - Planned	75.65	343.64	207.23	438.52	379.00	28.09
Class 2 - Existing	13.39	1186.43	774.70	334.03	308.40	382.21
Class 2 - Planned	486.74	1651.81	383.86	1163.43	1127.49	41.53
Class 3 - Existing	77.91	657.65	105.12	157.57	121.54	94.58
Class 3 - Planned	44.15	1838.11	110.00	216.53	261.19	15.16
Class 4 - Existing	-	9.57	-	-	-	6.20
Class 4 - Planned	-	289.55	-	8.70	7.31	-

Class I Bikeways



Class II Bikeways



Class III Bikeways

Class IV Separated Bikeways

Source: FHWA

In order to address this key segment of most transit trips, Metro, in collaboration with SCAG, developed the First Last Mile Strategic Plan in 2014 to identify strategies to expand access, improve safety and enhance visual aesthetics to benefit transit users. Less than six years after implementing the Strategic Plan, Metro has adopted eight projects or plans which include connecting transit to open space, investing along the Blue, Gold, Green, Orange, and Purple lines, and completing the transit "Gateway" to LAX.

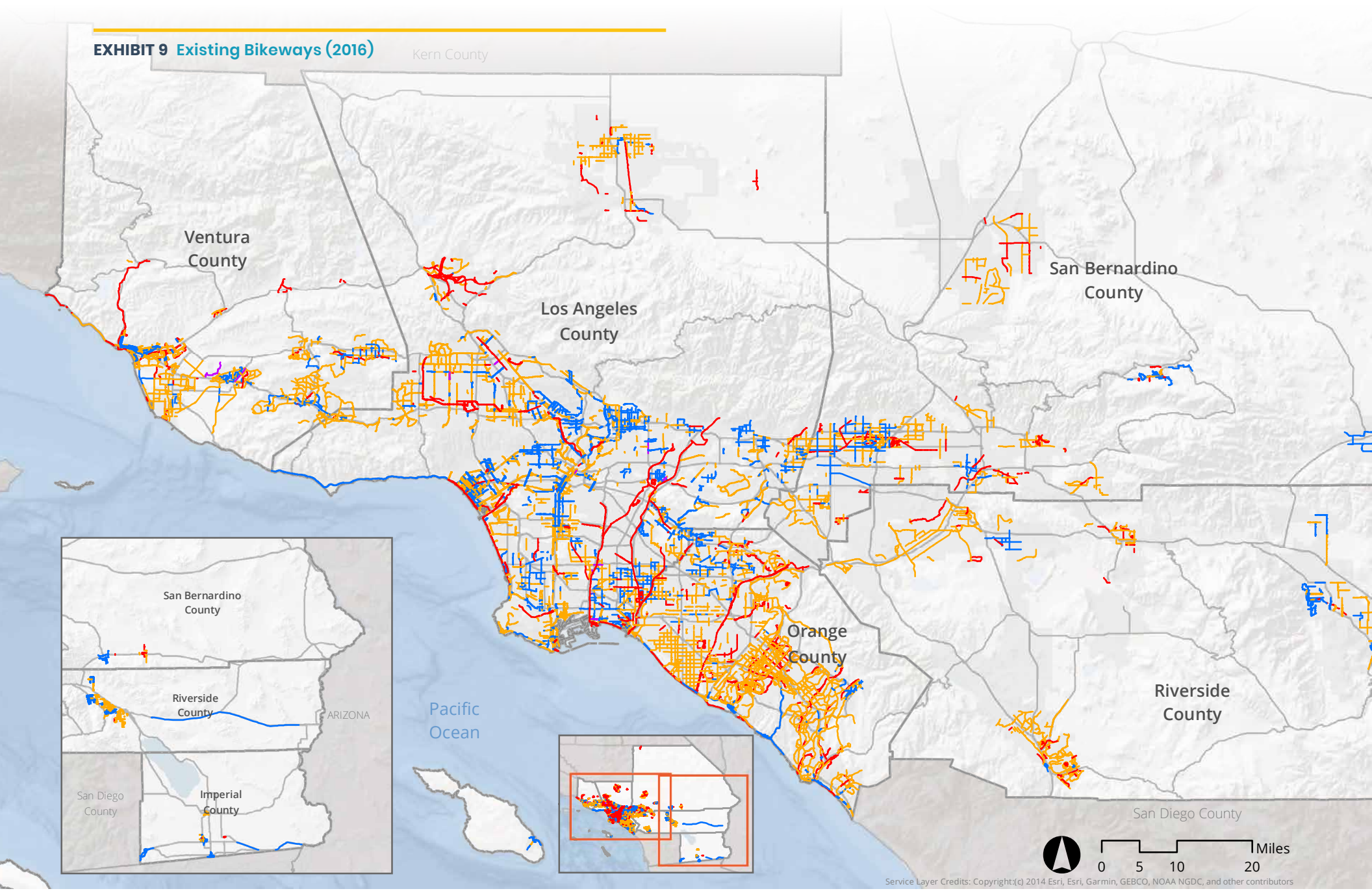
REGIONAL EFFORTS

Throughout the SCAG region, counties and cities have developed and are in the process of developing a substantial number of plans, programs and projects to improve active transportation infrastructure and mode share. Some representative plans, programs and projects completed or in progress in each of the six SCAG counties are listed in this section.

TABLE 6 Physical Factors Influencing Personal Comfort Bicycling

Factor
Absence or presence of dedicated bikeways
Roadway or shoulder widths
Number of travel lanes
Speed of traffic
Average daily traffic
Presence of on-street parking
Road condition/quality of pavement
Frequency of driveways

EXHIBIT 9 Existing Bikeways (2016)



County Boundaries
City Boundaries
Freeway
Class I
Class II
Class III
Class IV

Source: SCAG, 2019

CITIES AND COUNTIES

The California Active Transportation Program, started in 2014, awards active transportation funding for both infrastructure and non-infrastructure (plans and programs) projects statewide. In addition to funding allocated directly by the California Transportation Commission, a significant share of total funding is dispersed to the state's metropolitan planning organizations (MPOs). SCAG, the largest of California's 18 MPOs, has distributed more than $340 million to more than 180 projects over the four cycles plus an extra phase of Cycle 3 following the passage of SB 1 in 2017, which provided extra funding for the Active Transportation Program. Cycle 4 statewide guidelines emphasized transformative projects, which resulted in more funding per project, but fewer projects awarded overall.

Funding is distributed across the six counties in the SCAG region based on county population **(TABLE 7).** In alignment with the goal from SB 99, which created the Active Transportation Program, to "ensure that disadvantaged communities fully share in the benefits of the program," 82 percent of all projects funded in the SCAG region are in Disadvantaged Communities (DAC).

PUBLIC HEALTH DEPARTMENTS

Public health departments across the SCAG region have also been actively involved in supporting and implementing active transportation projects and program. For example, the PLACE program of Los Angeles County Department of Public Health is currently working on a Vision Zero policy for the county. Likewise, the Riverside County and San Bernardino County health departments are both actively engaged in providing safe routes to school programming to schools within their counties.

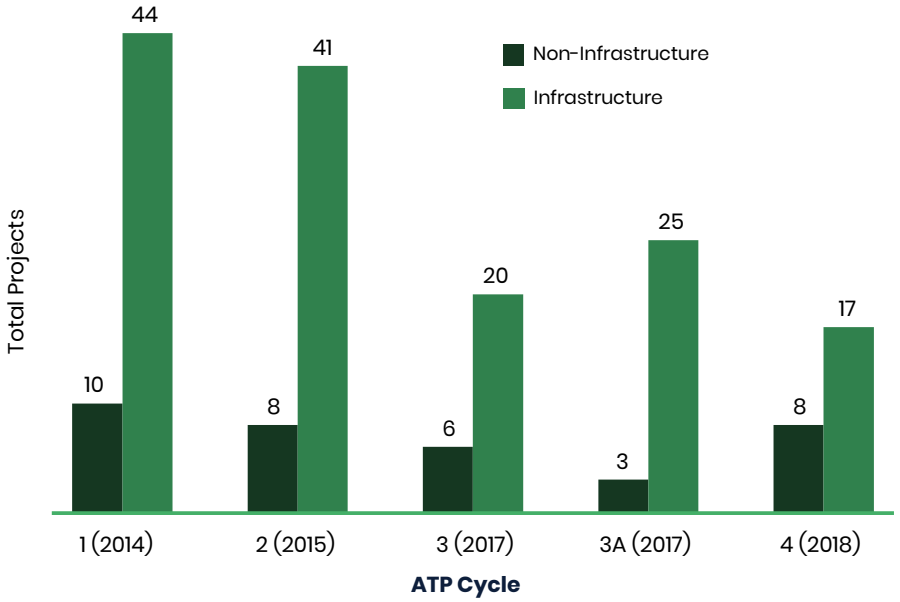
COMMUNITY-BASED ORGANIZATIONS

Local and regional public agencies and departments are integral in the development and implementation of active transportation plans and projects, but the work they do is improved by coordination with community-based organizations (CBOs). CBOs often have strong networks within communities,

TABLE 7 SCAG Region ATP MPO Component Funding by County (in thousands)

County	Cycle 4 Funding
Imperial	$640
Los Angeles	$23,400
Orange	$1,600
Riverside	$11,500
San Bernardino	$9,000
Ventura	$4,000
Various	$2,600

FIGURE 29 SCAG Region ATP Allocation by Project Type



understand the unique needs of the community and can help to foster trust and enthusiasm for active transportation projects.

Active SGV is one such organization that often partners with SCAG for active transportation plans and projects in the San Gabriel Valley. Their mission is to support a more sustainable, equitable and livable San Gabriel Valley. SCAG, along with many jurisdictions in Los Angeles County, also partners frequently with the Los Angeles County Bicycle Coalition (LACBC) on plans and projects to create better bicycling infrastructure and programs in the county.

EDUCATION AND ENCOURAGEMENT

GO HUMAN

Go Human is a nationally recognized community outreach and advertising campaign coordinated by SCAG that aims to improve pedestrian and bicyclist safety, and encourages people to use human powered transportation more. The campaign was launched to create safer and healthier cities through education, advocacy, information sharing and events that help Southern California residents re-envision their communities.

The *Go Human* event series engages communities to promote walking and biking through temporary safety demonstrations and opens streets events. Residents experience their streets in a new way and become better equipped to engage with elected officials and city staff to create safer roads, improve mobility, enhance air quality, and make their communities more livable. Since the launch of the event series in 2016, more than a third of the projects have secured funding for permanent improvements and nearly all partner communities have expedited efforts to create safer streets and healthier communities.

The *Go Human* Campaign has been recognized with the Federal Highway Administration's Transportation Planning Excellence Award and the Los Angeles County Office of Sustainability's Green Leadership Award, among others. Additionally, multiple past Go Human projects have been highlighted as innovative design and outreach approaches by the American Planning Association at state and national annual conferences.

SAFE ROUTES TO SCHOOL

Safe Routes to School is a strategy aimed at encouraging children to walk and bicycle to school. It includes a wide variety of implementation strategies centered on the "6 Es" – Education, Encouragement, Engineering, Enforcement, Evaluation and Equity. When implemented, the 6 Es improve safety, reduce congestion and vehicle miles traveled, improve air quality and increase the physical activity rates of students and parents across all demographic groups which improves public health outcomes.

The SCAG region is home to nearly four million public and private school K-12 students, representing about 21 percent of the region's population.[34] The travel demands of these students have significant impacts on the regional transportation system. Schools act as major trip generators during the morning peak period, and they also have direct impacts on the performance of the transportation system in the afternoon when students are released. **FIGURE 30** provides an indication of the distances children travel when going to school.

The impact of schools on transportation congestion is important to understand given trends of parents increasingly choosing to drive their children to schools,[35] school busing cuts[36] [37] and the tendency for new schools to be built on the outskirts of communities where land is cheaper. Planning for school transportation has become increasingly important in the wake of many school districts eliminating their busing programs throughout California due to budget cuts.

34 Southern California Association of Governments (n.d.). SCAG's Regional, County and City Population and Employment Estimates and Projections.
35 National Center for Safe Routes to School (2011). How Children get to School: School Travel Patterns from 1969-2009.
36 Surface Transportation Policy Project, Transportation and Land Use Coalition and Latino Issues Forum (2003). Can't Get There from Here - The Declining Independent Mobility of California's Children and Youth.
37 California State Auditor (2007). Home to School Transportation Program: The Funding Formula Should be Modified to be More Equitable.

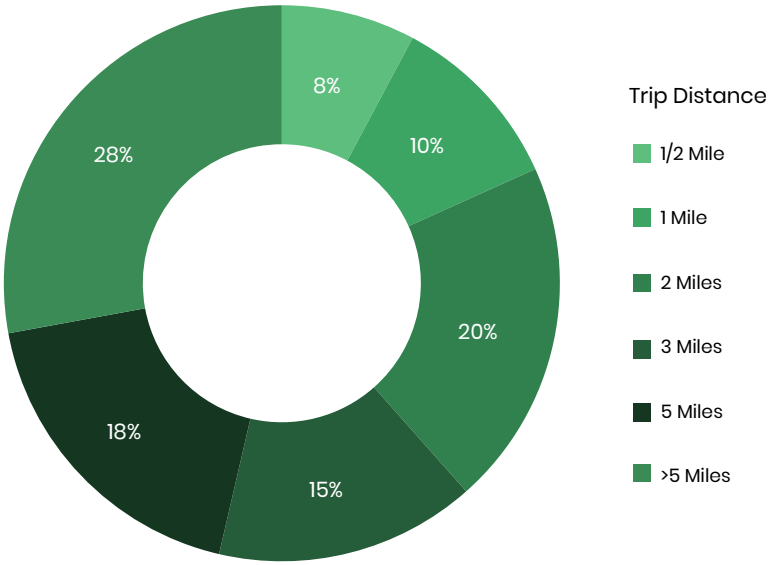
EMERGING TRENDS

The landscape of personal mobility is rapidly shifting across Southern California. With the introduction of bike share, scooters and transportation network companies, people have more options than ever before. The impacts of these devices have yet to be studied in detail; however, recent transit trends and primary data on micro-mobility devices show that the way people are traveling is changing.

MICRO-MOBILITY

Micro-mobility devices including scooters, e-bikes and bike share have expanded across the region over the past few years and provides opportunity to address some short trip needs. A complete understanding of how these modes are used in the region is challenging to develop due to a lack of shared data.

FIGURE 30 Distance Traveled to School, All Modes



Source: California Household Travel Survey (2012)

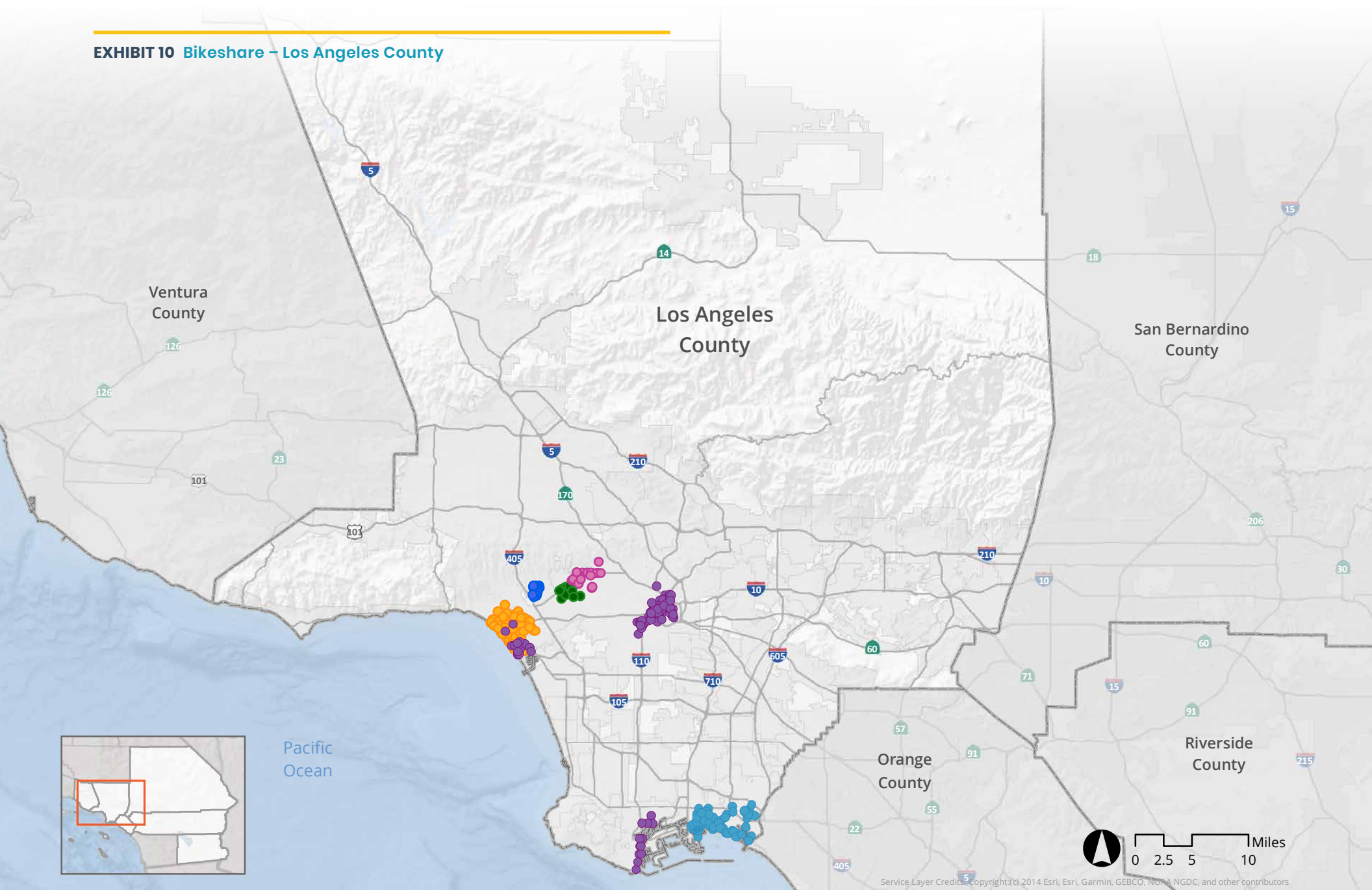
Metro Bike Share launched in July of 2016 with 61 stations in Downtown Los Angeles. Metro's 2017 bike share expansions extended service to the City of Santa Monica, the Port of Los Angeles area, and City of Pasadena (who has since withdrawn from the program). The station-based system has grown to around 1,400 bikes that average approximately one ride per day. Angelenos have also had the choice of private systems; Lime, Spin, Jump and ofo have all operated dockless bike share within LA. Some of the bike share options available throughout Los Angeles County can be found in **EXHIBIT 10.** Breeze is another long-term bike share fixture in the City of Santa Monica, with over 60 lock-based bicycles and the ability to lock to standard bike racks. In September of 2018, the City once again expanded bike share options for residents and visitors with the approval of its joint e-scooter and e-bike program. In addition to the deployment of e-scooters, the program authorized Lyft and Jump (owned by Uber) to add 1,000 dockless electric bikes to the City's network.

The introduction of e-bike technology is known to facilitate longer bike share trips in studied urban markets. A 2019 study which examined the e-bike use of adults in the seven European cities found that e-bikers take longer trips and that physical activity gains from active travel are similar in people using e-bikes versus as standard bicycles.[38] Additionally, e-bikes are believed to make bike share systems more accessible to limited fitness and elderly riders. Early studies of e-bike ownership have revealed that purchasers of electric bicycles are disproportionally likely to be older adults. MacArthur et al.'s 2014 report on North America's e-bike market found that 71 percent of owners included in the study were 44 years of age or older.[39]

These new mobility options are also supporting improved access to transit by providing first-last mile connections. Many riders on the Metro bike share system use the bikes to transfer to a bus, train, or light rail as part of their use of bike share. In Santa Monica, where users are less likely to use bike share to get to work, only 17 percent transfer to transit.[40] Bike share is influencing mode

38 Castro, A., Gaup-Berghausen, M., Dons, E., et al. (2019) Physical activity of electric bicycle users compared to conventional bicycle users and non-cyclists: Insights based on health and transport data from an online survey in seven European cities.
39 MacArthur, J., Dill, J. and Person, M. (2014). E-Bikes in the North America: Results from an online survey.
40 Southern California Association of Governments, LA Metro, City of Santa Monica, Alta Planning + Design (2019).

EXHIBIT 10 Bikeshare – Los Angeles County



Bike Share Stations

- Bike Share Connect
- Beverly Hills Bike Share*
- Breeze Bike Share*
- Bruin Bike Share*
- Long Beach Bike Share
- Metro Bike Share

Source: Metro, City of Santa Monica, City of Beverly Hills, City of Long Beach, SCAG, 2019

* Bike Share Connect provides access to multiple systems with one membership. Users can choose to rent from and/or return bikes to stations within the following service areas: Beverly Hills, Santa Monica, UCLA, and West Hollywood.

choice. Around 60 percent of both Metro and Santa Monica users indicated that bike share has decreased the number of trips made in their personal vehicles. Similarly, approximately two-thirds of the users of both programs felt that bike share has improved their health. Fifty-seven percent of Metro users and 36 percent of Santa Monica users said that bike share has increased their use of transit. Half of users reported that bike share has decreased their use of ride hailing services (identified as Lyft and Uber in the survey).

With the advent of scooter share and additional smart bike and dockless bike share systems, cities in the SCAG region have begun permitting micro-mobility programs. In September 2018, Santa Monica began a pilot program allowing four scooter share vendors to operate on the public right-of-way. In December 2018, Los Angeles Department of Transportation (LADOT) issued a One Year "Dockless On-Demand Personal Mobility Conditional Use Permit," which includes scooter share, e-bikes, manual bikes and adaptive bikes. Three vendors currently offer 22,500 e-scooters, an additional three vendors are pending with 4,000 scooters and 5,000 e-bikes, and another five vendors are being considered which would add another 2,100 scooters and 500 bicycles.

GOODS MOVEMENT

SCAG is involved with the development of last mile delivery pilot project concepts throughout the region. These include cargo e-bikes and other zero- and near-zero emission vehicles, off-peak delivery strategies, locker package delivery consolidation and other curb management strategies. Newer technologies are also being assessed ranging from the following:

- Transportation network companies (TNCs) providing delivery services through digital markets and applications;
- Localized robot deliveries in dense areas complimenting traditional food order deliveries;
- Autonomous vehicle deliveries for groceries and office supplies supporting local businesses and residences;
- E-commerce driven bulk item deliveries to businesses and residences; and,
- Continued testing for drone delivery services.

As new, smaller technology is being tested and deployed to move goods there is more demand put on our region's sidewalks and curbs. Easier goods delivery can reduce the need for additional trips on the individual level, but if not properly planned for, the use of the sidewalk and curb for goods movement could have negative impacts on active transportation needs. Conversely, added demand for sidewalk space and bike lanes for goods movement could result in more street right-of-way space being reallocated for active transportation.

LAND USE CHANGES

Planning for more housing and jobs near transit was a strategy incorporated in SCAG's first 2012 RTP/SCS and carried forward in the 2016 RTP/SCS with the focus on high quality transit areas (HQTA). Between 2008 and 2016, nearly 50 percent of household and employment growth occurred within high quality transit areas (47.1 percent and 47.8 percent respectively). While these statistics are largely the result of existing local policy and market demand, these recent trends underscore that the region is moving towards a more sustainable development pattern that will support additional short trips.

Housing development post-recession is continuing to increase. Overall, the share of new housing that is multifamily has also been increasing in recent years, averaging about 57 percent[41] of all new housing permits, in comparison to an average of about 22 percent in the mid 1990's.[42]

Connect SoCal's allocation of growth for increased density, added multifamily housing, and growth near transit as well as near jobs and destinations is well

Metro Bike Share and Santa Monica Breeze Performance Analysis.

41 Average of 2014-2018, Construction Industry Research Board.
42 Average of 1993-1997, State of the Cities Data Systems (SOCDS), HUD

suited for an expanded active transportation network. As seen in the Existing Conditions section, walking and bicycling are most popular for shorter trips and for non-commute trips. As there is increased density in areas where people can get where they need to, either by transit or using a robust active transportation network that helps people make the choice to walk or bicycle rather than drive.

AUTOMOBILE OWNERSHIP

The Southern California region added 2.1 million vehicles between 2000 and 2015, or just under one vehicle for every new resident.[43] During this time, the share of households with no vehicles fell by 30 percent, and the share of households with less vehicles than adult residents fell by 14 percent.

As vehicles ownership rates rise, the number of trips made by walking or bicycling drop significantly **(FIGURE 31).** For households with no vehicles, walking makes up 34 percent of all trips and bicycling 3.5 percent. The addition of even one vehicle to a household is correlated with a nearly 40 percent drop in walking rates to 13 percent and a 60 percent drop in bicycle rates to just over two percent of all trips.[44]

NEEDS ASSESSMENT

Moving forward, the region will need to be strategic in its investments to ensure that active transportation trips can be maximized. This will require strategic investments in data collection, improved outreach and engagement strategies, additional funding for planning and infrastructure and additional considerations to ensure that equity is considered throughout the planning process.

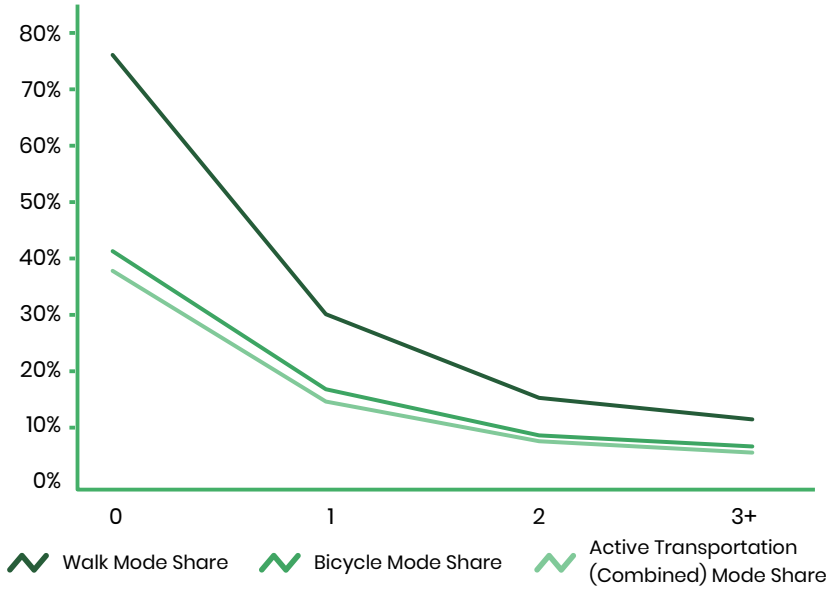
DATA

Robust data about walking and bicycling trips in the region is one of the most significant data needs for ensuring that new investments are meeting their desired outcomes. Currently, the lack of data prevents comprehensive analysis which would allow for safety hot spot analysis and infrastructure gap identification. A comprehensive understanding of walking and bicycling networks would help cities and counties to prioritize investment in areas that need it most. Likewise, applications for grant funding have become more competitive in recent years often requiring detailed data such as before and after count data.

PLANNING

Many cities in the SCAG region have developed or are in the process of developing active transportation plans. Approximately 75 percent have or are

FIGURE 31 Correlation of Number of Household Vehicles Owned to Active Transportation Mode Share



Source: California Household Travel Survey (2012)

43 Manville, M., Tylor, B.D., and Blumenberg, E. (2018). Falling Transit Ridership: California and Southern California.
44 California Department of Transportation (2013). 2010-2012 California Household Travel Survey Final Report.

developing a bicycle master plan, just under 50 percent have or are developing a pedestrian master plan, and just over 40 percent have or are developing a Safe Routes to Schools plan. Encouraging all cities and counties in the SCAG region to develop either a comprehensive active transportation plan or individual modal plans for walking, bicycling and Safe Routes to School will help to identify the current need for investments in these modes and ensure that investments are based on data driven decision making.

FUNDING

In order to achieve the goals of this plan, significantly increased funding is necessary. Recent increases to active transportation funding through the Active Transportation Program, have supported the construction of additional projects, but demand for these dollars still far outpaces the supply. In the most recent Active Transportation Program call for projects, a record $2.2 billion was requested but only $445 million was available. Likewise, Measure M in Los Angeles county set aside some dedicated funding for active transportation but the funding is not expected to meet the current demand for pedestrian and bicycle improvements within the county.

EQUITY

Additional research on the relationship between active transportation projects, gentrification and displacement is needed. Additional strategies should be identified to build active transportation projects where they are most needed and reduce potential negative impacts.

OUTREACH

Additional outreach and engagement strategies will be necessary to support behavior change and support people changing their trip patterns to include more walking and bicycling. These could include expanded education and encouragement campaigns such as Go Human, additional engagement of community based organizations for outreach and engagement efforts and more demonstration projects to give residents an understanding of what their streets could look like in the future.

ACTIVE TRANSPORTATION STRATEGIES

Achieving the projected results of Connect SoCal related to mode shift, improved health outcomes and emissions reductions will require investments in a variety of active transportation strategies. In developing the Plan, SCAG made assumptions based on expected levels of investment for each strategy within the land use planning frameworks outlined through the scenario planning process. This allowed SCAG to respond to stakeholder feedback and input from regional funding agencies about the expected mix of strategies that could be achieved within the plan's horizon year of 2045.

BASELINE FORECAST

The baseline forecast includes a business as usual scenario for active transportation. This would rely on current levels of funding (largely from the Active Transportation Program and county sources) and a lack of coordinated investments. Likewise, the current scenarios would not include the implementation of separated bikeway networks or the large programmatic investments needed to shift behavior change significantly over time. Instead, the region would continue to experience a patchwork of infrastructure improvements and programmatic efforts limited by grant funding cycles **(FIGURE 32).**

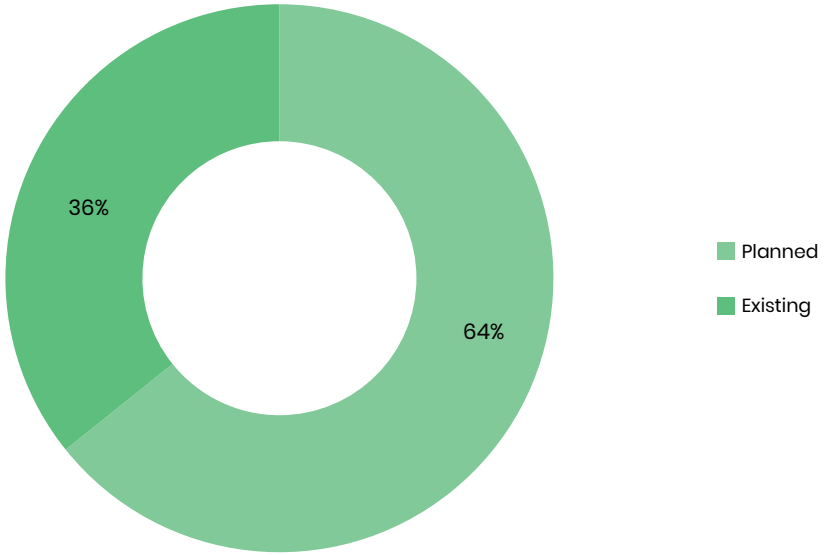
If the region continues along its current implementation rate, conditions for walking, bicycling and micro-mobility devices will improve, but many of the benefits proposed in Connect SoCal will not materialize. It is expected that under this forecast rates for walking would decrease from 7.1 percent to 6.7 percent and rates for bicycling would increase from 1.2 percent to 1.4 percent.

PLAN PERFORMANCE

As detailed in the Sustainable Communities Technical Report, SCAG conducted modeling on multiple scenarios. Across the scenarios, SCAG tested the impacts of accelerated investments in active transportation. These investments include the completion of planned improvements in local and regional plans, as well as regional initiatives designed to accelerate the adoption of walking, bicycling and micro-mobility modes. Investments were concentrated in Transit Priority Areas, High Quality Transit Areas, Job Centers and Livable Corridors. Investments were prioritized based upon feedback from SCAG's outreach efforts detailed in the Analytical Approach section of this report as well as building off of existing initiatives and trends.

Through these investments, SCAG predicts that the rates of walking and bicycling across the region will increase from 8.3 percent to 10.4 percent **(FIGURE 33).** This will represent a significant number of short trips being completed by these modes. Investments in Safe Routes to School strategies also represent a shift in how students will arrive at school. Below is a discussion of how the plan performs for applicable performance measures and what the expected impacts will be on active travel.

FIGURE 32 Current Rate of Bicycle Infrastructure Built vs. Planned



LAND USE CHANGES

The land use changes envisioned by Connect SoCal include additional jobs and residents being located in job centers and transit rich areas. This strategy of investments will result in shorter trip lengths and additional use of transit, both of which will support additional active transportation trips. In addition, the reduction of trip length for work trips will also increase the number of short trips that can be achieved by walking and bicycling **(TABLE 8).**

TRAVEL CHOICES

Active Transportation currently accounts for 8.9% of all trips taken in the SCAG region. Without Connect SoCal, that number would drop to 8.6%. With Connect SoCal investments, active transportation mode share will grow to 11.1%. With additional population located in transit-rich locations, the number of first-last mile trips will also increase.

SAFETY

While SCAG does not currently model the safety outcomes of the plan, SCAG is required to set safety targets for reducing collisions for all transportation modes. In addition, SCAG monitors changes in collision patterns across the region to provide policy makers information on current trends. Connect SoCal has set a target to reduce traffic fatalities for all modes by three percent and serious injuries by 1.5 percent by 2050.

HEALTH AND ECONOMY

Connect SoCal is expected to improve rates of chronic diseases and reduce spending on health care costs across the region. It is expected that the

investments in transportation and land use strategies in Connect SoCal will reduce the number of adult cases of heart disease by 0.08%, obesity by 0.16% and diabetes by 0.49%, resulting in a reduction of over 83,000 number of cases. Together these actions will result healthcare savings of approximately $352 million by 2045. These reductions in health care costs, along with investments in active transportation, will create over 20,000 jobs per year over the life of the plan. By investing in healthy communities and safe infrastructure promoted by Connect SoCal, people may see the benefit of choosing to use an active mode of transportation for daily trips **(TABLE 9).**

ENVIRONMENTAL JUSTICE

The Environmental Justice Technical Report analyzed impacts on 18 key performance indicators for base year and future conditions and outlines current issues faced by low-income, minority, and other vulnerable population across multiple environmental justice communities related to (i) accessibility to essential goods, (ii) neighborhood change and displacement, and (iii) active transportation hazards.

FIGURE 33 Connect SoCal Performance

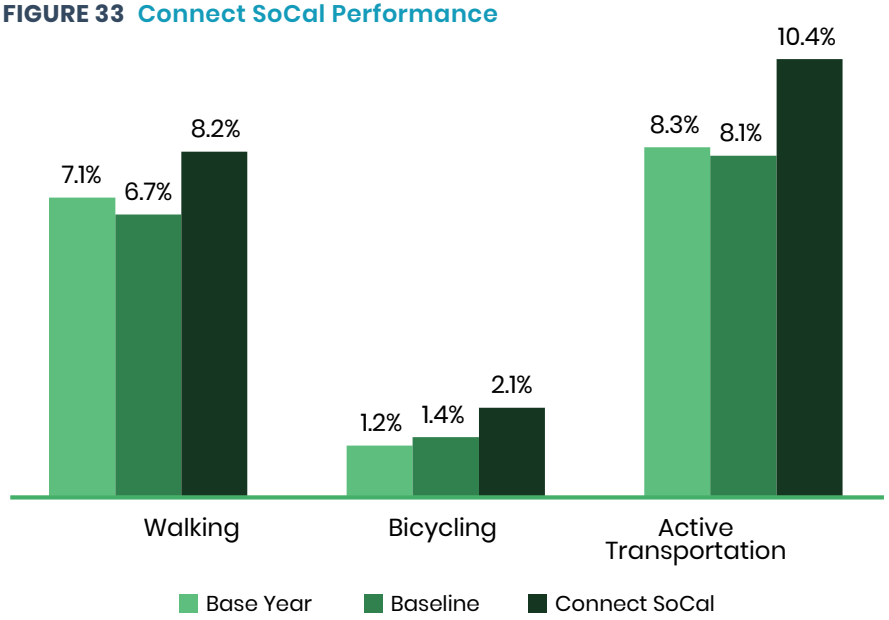


TABLE 8 Impacts of Land Use Changes on Active Transportation Performance Measures

Performance measure	Category	2045 Performance results		
		Baseline	Connect SoCal	Trend
Share of growth in high quality transit areas (HQTA)	HQTA household growth	44.6%	54.1%	+9.5%
	HQTA employment growth	46.3%	70.6%	+24.3%
Land consumption	Greenfield lands converted to urban use	101 square miles	65 square miles	-35.6%
Vehicle miles traveled (VMT) per capita	Automobiles & light-duty trucks	21.9 miles	21.0 miles	-4.1%
Average Commute Time (minutes)	Walking	31	30.8	-0.5%
	Bicycling	12.2	12.4	1.5%
Average distance traveled (all modes)	Work Trips	16.9 miles	16.7 miles	-1.2%
	Non-Work Trips	5.5 miles	5.4 miles	-1.2%
Percent of trips less than 3 miles	Work Trips	14.1%	14.6%	+0.5%
	Non-Work Trips	41.0%	41.9%	+0.9%
Work trip length distribution	Trip Length: 10 miles or less	44.5%	44.8%	+0.3%
	Trip Length: 25 miles or less	78.8%	78.9%	+0.1%

The scenarios outlined in Connect SoCal will improve accessibility by reducing trip length and increasing active transportation to transit. In addition, investments in disadvantaged communities made through the Active Transportation Program will improve safety for existing and future users.

IMPLEMENTATION STRATEGIES

The strategies outlined in this section describe the types of active transportation projects and programs that are needed to achieve the goals in Connect SoCal. Development of these implementation strategies involved significant feedback from stakeholders and working groups. Each section outlines both a general description of the strategy and several actions that agencies, stakeholders and communities could take to implement the plan. Strategies listed herein should not be considered to be exhaustive and SCAG encourages innovation to achieve the goals of the plan.

ENVIRONMENTAL JUSTICE STRATEGIES

Environmental Justice strategies would address both the provision of resources as well as mitigating any negative impacts from the implementation of pedestrian and bicycle projects and programs. These strategies would rely heavily on community engagement and substantive input into the planning and implementation of projects to ensure that active transportation improvements benefit the entire community and address community-identified needs and concerns.

- Strategy 1 – Engage with and fund community-based organizations and/or trusted community partners to conduct education and outreach for plans, programs and infrastructure projects.
- Strategy 2 – Promote community participation and input during project conceptual phases and throughout implementation to ensure the projects benefit the community.
- Strategy 3 – Use data-driven decision-making that incorporates consideration of historical inequities when identifying needs and allocate resources to appropriately address those needs.
- Strategy 4 – Incorporate equity metrics or policies developed in collaboration with community members into plans and projects to ensure outcomes benefit communities in need.
- Strategy 5 – Analyze and address the likelihood of gentrification due to project implementation and incorporate strategies to ensure displacement does not occur.
- Strategy 6 – Ensure that projects will support users of all ages, abilities and demographic categories to maximize benefits, including safety.

SHORT TRIP STRATEGIES

The following short trip strategies will reduce automobile vehicle miles traveled, support transit, and support mode shift by increasing the number of trips

TABLE 9 Health and Economic Impacts of Active Transportation

Performance Measure	Result of Plan		
	2045 BASELINE	2045 PLAN	DIFFERENCE (BASELINE VS. PLAN)
Air Pollution - Related Health Incidences, annual	194,373	185,713	-4.7%
Air Pollution - Related Health Costs, annual	$3,500 million	$3.345 million	-4.6%
Mode share of walking (all trips)	7.1%	8.7%	22.5%
Mode share of bicycling (all trips)	1.6%	2.3%	43.8%
Percent of Work Trips Less Than 3 Miles	1409.0%	14.6%	3.6%
Percent of Non-Work Trips Less Than 3 Miles	41.0%	41.9%	2.0%

accomplished by walking and bicycling. Short trips strategies include building physical infrastructure and the implementation of new technology. In addition to reducing vehicle miles traveled, these strategies will improve air quality and public health by reducing emissions and increasing levels of physical activity. Finally, they will have a positive economic impact on the region by reducing transportation and health care costs.

PEDESTRIAN INFRASTRUCTURE

The installation of sidewalks, paths, Americans with Disabilities Act (ADA) required infrastructure, and other pedestrian facilities will support safe conditions for people walking trips and encourage additional walking trips. This strategy is closely aligned with the first-last mile strategy and the Safe Routes to School strategy, but has a broader focus on the development of larger pedestrian networks as well as focused improvements in job centers and other essential destinations.

Much of the transportation network currently includes sidewalks, however, there are often gaps in the network, sidewalks in need of repair due to tree roots and other impacts, and in some cases, sidewalks installed that do not meet current ADA requirements. Providing complete sidewalk networks allows for safe travel for walking trips and encourages walking for a variety of short trip purposes. Investments will improve safety outcomes for pedestrians and reduce vehicle miles traveled by shifting short trips to walking modes.

Investments related to pedestrian infrastructure will include the installation of new sidewalks, repair of existing sidewalks, improvement of intersection designs, installation of ADA compliant infrastructure, and traffic calming projects that reduce vehicle speeds.

- Strategy 1 – Close network gaps and repair sidewalks to develop complete networks that provide access to essential destinations for users of all ages and abilities.
- Strategy 2 – Complete ADA and similar improvements to ensure universal access for people with disabilities and those who require mobility assistance devices.
- Strategy 3 – Implement traffic calming and complete streets projects to reduce vehicle speeds and improve safety at intersections and other crossing locations.

LOCAL BIKEWAY INFRASTRUCTURE

Expanding the bicycle network will include building new bicycle facilities to support additional trips taken by bicycle. This strategy is expected to be applied at different intensities (network density, upgrade in class) to align with land use plans and transit investments. This strategy is also closely aligned with the first-last mile, technology and micro-mobility, and Safe Routes to School strategies. A key difference is that the bicycle infrastructure investments will be focused on the development of a base network of on-street facilities designed for the completion of short trips and network connections for longer bicycling trips.

The region has continued to expand its existing and planned bicycle networks as more cities build projects and complete active transportation planning for their communities. Between the 2016 RTP/SCS and Connect SoCal, the region added approximately 500 miles of bikeways. Moving forward, the region will need to begin developing complete networks of separated facilities that can serve people of all ages and abilities, as well as a range of micro-mobility devices. This may require the removal of vehicle lanes to accommodate a wider range of active transportation uses along certain corridors as well as the completion of traffic calming on neighborhood streets that will serve as connectors between larger facilities.

- Strategy 1 – Close network gaps and develop low-stress protected bikeway networks that provide access to essential destinations for users of all ages and abilities.
- Strategy 2 – Incorporate bikeways into roadway resurfacing and maintenance projects to expedite construction and reduce costs.
- Strategy 3 – Conduct demonstration projects to secure broad public support and provide communities with a tangible experience of proposed infrastructure to reduce public opposition.
- Strategy 4 – Complete short- and long-term bike parking improvements in the form of bike racks, bike lockers or bike hubs at key destinations.

FIRST-LAST MILE INFRASTRUCTURE

This strategy uses a complete streets approach to maximize the number of people walking or bicycling to local transit options (including bus, bus rapid transit and local rail services) by improving active transportation conditions up to three miles from a transit station or stop. Improving conditions includes increasing safety, infrastructure and reducing time it takes to access the transit station. Infrastructure investments would build off of and complement the pedestrian and bicycle network improvements described above and could include dedicated bicycle routes, additional sidewalk enhancements/ traffic calming, mid-block crossings (short-cuts), reduced waiting periods at traffic signals, etc. In addition, the first-last mile infrastructure would include improvements within the stations such as mobility hubs, long term bicycle storage facilities, ADA accessibility improvements, landscaping, streetscape furniture, bus shelters and other improvements. In the future, this will also likely improve strategies for addressing access and parking for micro-mobility devices.

- Strategy 1 – Complete station area pedestrian, bicycle and micro-mobility improvements to improve transit access and safety.
- Strategy 2 – Integrate pedestrian and bicycle network projects into new station area development to ensure networks are fully built upon station openings.
- Strategy 3 – Coordinate availability of micro-mobility devices with station-area demand and incentivize connections to transit with these modes.
- Strategy 4 - Coordinate the development of land use, transit and active transportation strategies in areas expecting growth.
- Strategy 5 – Integrate fare payment across bike share and other micro-mobility options with transit fares.
- Strategy 6 – Implement improvements for transporting bikes on transit and rail in the form of safety features to secure bikes on transit and rail, and expand space in rail cabins for temporary trip storage.

SAFE ROUTES TO SCHOOL INFRASTRUCTURE

Safe Routes to School (SRTS) strategies aim to increase the number of children walking and bicycling to school by implementing infrastructure improvements to the pedestrian and bicycle network within a specified distance from a school. SRTS strategies are comprehensive approaches to reduce the number of Single Occupant Vehicle (SOV) trips to schools and shorten commute trips where one stop of the trip is at a school. SRTS infrastructure strategies include a variety of implementation approaches that complement and build off of the larger pedestrian and bicycle infrastructure strategies by focusing on improvements within school service areas and improvements to school sites themselves. These include crossing and intersection improvements, bikeways, bicycle/skateboard parking, improvements to drop-off and pick-up areas to reduce conflicts, and safety improvements to monitor and reduce traffic speeds.

- Strategy 1 – Complete school-area improvements to pedestrian and bicycle networks, drop-off areas and schools sites to improve safety and reduce conflicts with vehicles.
- Strategy 2 – Install school site improvements for storage of bicycles, skateboards and other micro-mobility devices.
- Strategy 3 – Implement vehicle speed reductions in school zones (e.g., 15 miles per hour) per the California Vehicle Code.

REGIONAL TRIP STRATEGIES

The purpose of the Regional Trip strategies are to provide strategic approaches to developing a regional bikeway/greenway network that connects cities throughout the SCAG region, activity centers, downtowns and commercial areas, the coast and educational institutions. The Regional Trip strategies are comprised of four strategies: first-last mile connections to transit, the Regional Bikeway Network, Regional Greenway Network and California Coastal Trail Access. Regional trip strategies are for those trips that are generally longer than the typical bicycle ride and include trips for commuting or recreation.

FIRST-LAST MILE INFRASTRUCTURE

First-last mile strategies for regional trips mirror the strategies used for short trips but focus on transit options that travel a longer distance such as Metrolink and other commuter rail options. Using a complete streets approach to maximize the number of people walking or bicycling to transit, these strategies improve active transportation conditions up to three miles from a transit station or stop. This strategy works by attracting transit riders by decreasing the door-to-door travel time of a transit trip (creating the conditions that allow people to travel a longer distance in the same amount of time) as well as improving safety. In addition to the strategies listed for short trips, it will be important to provide secure long-term storage options or specialized facilities for bicycles and micro-mobility devices on trains since devices would otherwise be left unattended for the majority of the day or are needed at the opposite end of the rail trip.

- Strategy 1 – Support long-term storage/parking for bicycles and micro-mobility options at transit stations or options for safely bringing devices on-board.
- Strategy 2 – Implement design strategies in station areas to allow easy access to platforms with bicycles and micro-mobility devices.
- Strategy 3 – Implement improvements for transporting bikes on transit and rail in the form of safety features to secure bikes on transit and rail, and for rail, expand space in cabin for temporary trip storage.

REGIONAL BIKEWAY NETWORK

The Regional Bikeway Network (RBN) is a proposed 2,233 mile system of interconnected bicycle routes of regional significance. The RBN connects local jurisdictions and counties, and it serves as a spine for local bikeway networks and the Regional Greenway Network. It includes on- and off-road bikeways that link major origins and destinations directly, or through connectivity to high-quality transit service. The primary purpose of identifying this network is to provide a strategic regional perspective and to highlight the planning priorities of the county transportation commissions. Details on the individual corridors included in the Regional Bikeway Network can be found in Appendix 4. More information on county priorities related to these projects can be found in the Existing Conditions section.

- Strategy 1 – Identify, prioritize and develop regional bikeways linking cities, counties and intrastate/interstate bicycle routes.

REGIONAL GREENWAY NETWORK

The Regional Greenway Network (RGN) includes trails, utility corridors, flood control channels and other off-street facilities that have been, or could be, converted to walking and bicycling facilities. The RGN will support increased rates of physical activity and improve accessibility by providing a low-stress network for recreational trips as well as providing a backbone to the pedestrian and bicycle networks for utilitarian trips. The primary purpose of identifying this greenway network is to provide a strategic regional perspective and highlight the planning priorities of the county transportation commissions. The complete RGN, as well as details on the individual corridors included in the RGN can be found in Appendix 5. More information on county priorities related to these projects can be found in the Existing Conditions section.

- Strategy 1 – Identify, prioritize and develop regional greenways linking cities, counties and intrastate/interstate bicycle routes.
- Strategy 2 – Connect and integrate the Regional Greenway Network with designated historic and scenic trails.

CALIFORNIA COASTAL TRAIL

The California Coastal Trail (CCT), established by the Coastal Act of 1976, is a "continuous public right-of-way along the California coastline; a trail designed to foster appreciation and stewardship of the scenic and natural resources of the coast through hiking and other complementary modes of non-motorized transportation." In 2003, the Coastal Conservancy developed the Completing the California Coastal Trail plan to provide a strategic blueprint to complete the CCT. The CCT currently has 118 miles of trail signed and 374 insignia installed. A map of the CCT can be found in Appendix 4. Pursuant to state law, SCAG is

required to incorporate the California Coastal Trail access and completion into its regional transportation planning process.

- Strategy 1 – Coordinate with the California Coastal Commission to plan, coordinate and implement access to the California Coastal Trail.

PLANNING STRATEGIES

To meet the goals of Connect SoCal, planning for active transportation and micro-mobility will need to be sustained to fill in gaps as well as support the region as land use and technology change the way people travel. This will include completing active transportation plans for cities that have not yet completed any active transportation planning as well as integrating solutions and strategies for micro-mobility into existing frameworks.

- Strategy 1 – Adopt and regularly update active transportation plans that are supported by robust community outreach processes.
- Strategy 2 – Adopt, implement and regularly update first-last mile plans to support access to transit stations.
- Strategy 3 – Adopt building standards that provide secure bicycle parking and amenities for bicyclists.
- Strategy 4 – Update circulation elements to align with Assembly Bill 1358 (Complete Streets Act) and national best practices for designing streets for all ages and abilities.
- Strategy 5 – Utilize regional best practices developed by SCAG and county transportation commissions to reduce the costs of planning and program design and increase implementation rates and public engagement.
- Strategy 6 – Engage youth and the elderly in the planning process to ensure active transportation programs and projects serve users of all ages.

DATA COLLECTION STRATEGIES

In order to ensure that smart investments are made, data-driven decision-making will need to be supported by the procurement and development of new data sources for active transportation. This will include the collection of pedestrian, bicycle and micro-mobility volume data, as well as the integration of validated big data sets. Local cities, county agencies, public health departments and other stakeholders will all benefit from better data sets that provide information on the level of traffic stress, accurate collision rates and information on the types of users utilizing these modes. Finally, state and local legislation will continue to impact land use and building standards and will shape the ability to create walkable and bikeable communities. This may require updates to zoning codes, general plan elements, and other provisions that support short trips and end of trip facilities such as bicycle parking.

- Strategy 1 – Develop ongoing counting programs to provide pedestrian and bicycle volume counts, including the installation of systems of automated counters as part of infrastructure development.
- Strategy 2 – Coordinate with the county transportation commissions to access and utilize big data (such as cell phone data) for active transportation planning purposes.

TECHNOLOGY AND MICRO-MOBILITY STRATEGIES

As the transportation landscape continues to evolve through the addition of new technologies and micro-mobility innovations, cities and counties will need to remain flexible while focusing on solutions that provide data, scalability and modal integration. This will require collaboration and best practice sharing between and among agencies to ensure that these new technologies are deployed in a manner that mitigates disruption and maximizes the benefits. Micro-mobility strategies in particular will need to address where and when devices are used and how they share the roadway network with other modes.

Micro-mobility strategies seek to support the inclusion of new technologies and strategies into the existing transportation mix by providing shared

infrastructure and regulation frameworks to ensure that these devices can be used safely and responsibly. These strategies could range from incentives for the purchase of e-bikes, to equity policies for the distribution of private micro-mobility devices to ensure access for low-income communities. While it is expected that many if not most of these devices will be provided through the private sector, they will still use public streets and will likely increase demand for separated facilities that are safe for all ages and abilities. Local cities will likely be tasked with the regulation of these devices and will likely need to manage the locations where parking is allowed and on what facilities they can be ridden.

- Strategy 1 – Incorporate requirements for data provision through the Los Angeles and Santa Monica Mobility Data Standard into any pilot or licensing programs for private micro-mobility devices.
- Strategy 2 – Develop equity strategies and incentives to ensure low-income and underserved communities can access micro-mobility devices.
- Strategy 3 – Provide designated micro-mobility parking locations and develop data analysis processes such as geo-fencing to regulate the parking of private sector micro-mobility devices to ensure compliance with ADA requirements.
- Strategy 4 – Adopt pilot programs with private micro-mobility providers and learn from initial deployments prior to developing longer term programs.
- Strategy 5 – Expand or initiate public sector bike share systems to support short trips and access to transit stations.
- Strategy 6 – Adopt equity as a key component of micro-mobility systems to ensure access for low-income and disadvantaged communities.
- Strategy 7 – Pilot innovative curb management programs that test strategies repurposing street parking for micro-mobility and bicycle facilities.

COMPLETE STREETS STRATEGIES

Complete streets strategies will support additional trips being taken by walking, bicycling and micro-mobility devices by calming traffic and providing safer facilities. When incorporating facilities for these modes during the project planning of larger projects, agencies can often save money and reduce the need for costly retrofits. In addition, complete street design in Southern California should consider "green street" elements for capturing storm water and reducing heat island effects.

- Strategy 1 – Incorporate complete streets and networks for pedestrians, bicyclists and micro-mobility users into mobility element updates.
- Strategy 2 – Adopt a complete streets policy and dedicate funding to implement improvements.
- Strategy 3 – Incorporate complete street and "green street" design elements into planning initiation processes for street improvements.
- Strategy 4 – SCAG will support state and regional efforts to expand funding for active transportation and complete streets through the ATP and other funding programs.

EDUCATION AND ENCOURAGEMENT STRATEGIES

A variety of engagement strategies will need to be implemented alongside the infrastructure components of the plan to hasten and support people desiring to walk and bicycle more. These would include Safe Routes to School programs designed to encourage students to walk and bicycle to school, Go Human advertising campaigns to encourage the public to walk and bicycle more or the demonstration of new infrastructure to get communities excited about changing their streets.

- Strategy 1 – Develop and maintain sustainable safe routes to school programs using national and regional best practices to engage the community, school staff and students and support walking, bicycling and micro-mobility trips to school.

- Strategy 2 – Conduct demonstrations of new active transportation infrastructure improvements to engage community members and solidify support for future projects.
- Strategy 3 – Contract with local community-based organizations for outreach and engagement strategies as part of planning and programming projects.
- Strategy 4 – Partner on regional encouragement campaigns to promote walking, bicycling, micro-mobility and transit. When possible, prioritize providing programming to schools in disadvantaged communities and areas with high rates of collisions.
- Strategy 5 – Implement bicycle-friendly business districts to promote, encourage and incentivize the use of bicycles for short trips.

SAFETY STRATEGIES

Safety strategies include a range of policy, programmatic and enforcement strategies as well as complete street infrastructure improvements. These strategies will help institutionalize planning for safety in project design and ensure that adequate resources are available for traffic safety public education and enforcement. While some areas of the SCAG region have already adopted Vision Zero policies, others will likely need to pursue alternative strategies focused on complete streets, safe routes to school or traffic calming prior to adopting such policies.

- Strategy 1 – Collaborate with the county transportation commissions or county public health departments to conduct public safety campaigns that provide comprehensive active transportation safety education for all road users.
- Strategy 2 – Develop a safety action plan, adopt a Vision Zero policy or conduct a high injury network analysis to identify active transportation collision hot spots and appropriate counter measures.
- Strategy 3 – Regularly educate local and county law enforcement professionals using regional resources on the rules of the road related to pedestrians, bicyclists and micro-mobility users and support community engagement strategies grounded in equity.
- Strategy 4 – Regularly educate agency engineering staff to implement the latest innovations in street design that prioritize safety.
- Strategy 5 – Partner on regional safety campaigns to improve driver awareness of the needs and rights of vulnerable road users.
- Strategy 6- Use safety data to identify high priority locations for active transportation projects within school zones or adjacent to schools, parks and other youth and adult-serving facilities, and High Quality Transit Corridors.
- Strategy 7- Pair major infrastructure changes and enforcement activities with messaging to communicate to community members the importance of traffic safety.

PLAN INVESTMENTS

Connect SoCal proposes a variety of active transportation investments to improve conditions for people who walk, bike and use micro-mobility. The investments assume a variety of actions will be taken by cities, counties and other regional agencies to achieve the benefits achieved by the plan and have been informed by trends in funding, reviewing countywide and local plans, and through the local input process. The funding categories listed in **TABLE 10** incorporate the majority of strategies outlined above and attempt to provide a comprehensive understanding of the amount of funding that will be necessary to complete regional active transportation networks as well as provide needed educational and encouragement programs. Investment costs were calculated using average costs from current plans from across the state and the region. See the analytical approach section for more detail regarding how average costs were calculated.

Current rates of funding and the speed of implementation will need to be accelerated to complete the proposed projects within Connect SoCal and secure the benefits outlined in the plan. This will require additional engagement with communities through programs like Go Human to build support for changes to roadway networks as outlined in the strategies above. While this accelerated funding and implementation rate will present a challenge, active transportation investments are relatively low cost compared to other transportation

investments which means the amount of additional funding that would need to be identified is achievable. In addition, interest in funding and building active transportation projects has increased in recent years as can be seen in the over subscription to the Active Transportation Program in every cycle as well as Metro's inclusion of an active transportation set aside in Measure M.

NEXT STEPS

Implementing Connect SoCal will require a concerted effort on the part of SCAG, state, sub-regional, county and local agencies to implement active transportation infrastructure improvements and programs. Below are specific actions that SCAG can take between 2020 and 2024 to advance these efforts. In addition, further work will need to be done to track implementation of networks across the region, requiring performance monitoring and collaboration with county agencies on data collection. Finally, Connect SoCal seeks to begin conversations about what is needed to further improve conditions for and maximize the benefits of active transportation beyond the constrained funding forecasted within the plan.

RECOMMENDED ACTIONS

SCAG has identified a number of implementation actions that the agency can pursue to implement the active transportation strategies found in Connect SoCal. Actions were identified through outreach efforts with the county transportation commissions, the Active Transportation Working Group, one on one meetings with regional and local agencies, and the public workshop process for Connect SoCal. These actions will serve as broad direction for the agency. Any future projects implementing these actions will require approval by the Regional Council or need to be included in SCAG's Overall Work Program as required by SCAG's internal policies.

ACTIONS TO SUPPORT EQUITY

- SCAG will incorporate equity considerations for disadvantaged communities into future funding opportunities including the Sustainable Communities Program and the regional portion of the Active Transportation Program.
- SCAG will incorporate equity considerations for disadvantaged communities into planning and Go Human Campaign activities.

TABLE 10 Active Transportation Investments

Connect SoCal Active Transportation Cost Assumptions	
Strategy	**Inflation Adjusted Connect SoCal Investments (in millions)**
Environmental Justice Strategies	$11
Short Trips Strategies	
Pedestrian Infrastructure	$5,027
Local Bikeway Infrastructure	$2,519
First-Last Mile Infrastructure	$1,783
Safe Routes to School Infrastructure	$3,920
Regional Trips Strategies	
First-Last Mile Infrastructure	$837
Regional Bikeway Network	$3,817
Regional Greenway Network	$1,091
California Coastal Trail	$545
Planning and Data Collection Strategies	$271
Technology and Micro-Mobility Strategies	$153
Education and Encouragement Strategies	$2,489
Safety Strategies	$37
Total	$22,498

- SCAG will conduct research, identify best practices and host trainings for stakeholders on incorporating equity considerations for disadvantaged communities into the active transportation planning and project delivery process.
- SCAG will identify strategies to support low resourced agencies and communities in accessing grant funding opportunities and implementing grant funded projects.

ACTIONS TO SUPPORT SHORT TRIPS

- SCAG will continue to manage the regional portion of the Active Transportation Program (ATP) in partnership with the ATP Subcommittee to provide jurisdictions access to funding for active transportation projects.
- SCAG will continue to provide innovative solutions for community engagement through the Go Human Campaign.
- SCAG will conduct research into the possible benefits of reducing VMT from school travel through Safe Routes to School, community transit/ shuttle and school bussing programs.

ACTIONS TO SUPPORT REGIONAL TRIPS

- SCAG will work with each county to identify regional corridors and greenways and support efforts for prioritizing planning and implementation for projects in these corridors.
- SCAG will support and encourage the development of first-last mile plans through the Sustainable Communities Program, including the planning of micro-mobility programs within station catchment areas.
- SCAG will collaborate with local jurisdictions to help plan, coordinate and implement access to the California Coastal Trail.

ACTIONS FOR PLANNING

- SCAG will provide technical and grant funding assistance for developing active transportation plans, including pedestrian, bicycle, Safe Routes to School, First-Last Mile plans, micro-mobility plans and regional corridor plans.
- SCAG will develop tools and templates for active transportation planning to reduce the cost to develop plans and to improve outreach.
- SCAG will provide technical assistance to disadvantaged communities to ensure access to planning and implementation funding for active transportation projects.
- SCAG will work with tribal governments within the SCAG region to ensure development and implementation of active transportation plans.
- SCAG will continue to track the adoption of active transportation plans across the region.
- SCAG will identify the impacts that congestion pricing or other pricing strategies may have on active transportation trips.

ACTIONS FOR DATA COLLECTION

- SCAG will continue work to develop the agency's active transportation modeling capabilities; specifically, SCAG will work to improve its modeling for pedestrian improvements, Safe Routes to School and micro-mobility.
- SCAG will update and maintain the Active Transportation Database and expand its functionality based on user and stakeholder input.
- SCAG will coordinate with the county transportation commissions and other agencies to develop regional multi-modal volume data-collection programs and develop the sharing of aggregate date to inform planning.
- SCAG will develop an active transportation big data action plan to ensure that the agency has access to and can utilize big data in future planning studies and provide support for local projects.

ACTIONS FOR TECHNOLOGY AND MICRO-MOBILITY

- SCAG will work with Caltrans to develop strategies for micro-mobility and guidelines for incorporating new modes into existing active transportation networks.
- SCAG will conduct research, host trainings and create models for engaging with new technologies and micro-mobility operators for local jurisdictions.

ACTIONS FOR COMPLETE STREETS

- SCAG will continue to track the number of jurisdictions with complete streets policies through the local input process.
- SCAG will conduct research, host trainings and provide best practices for local jurisdictions interested in implementing complete streets and other active transportation strategies.

ACTIONS FOR EDUCATION AND ENCOURAGEMENT

- SCAG will explore opportunities to provide Go Human resources for local communities interested in promoting active transportation.
- SCAG will support regional efforts to develop sustainable safe routes to school programs.

ACTIONS FOR SAFETY

- SCAG will develop and maintain a high injury network-mapping tool to support planning efforts related to active transportation safety.
- SCAG will develop a Level of Traffic Stress mapping tool to support planning efforts related to active transportation safety.
- SCAG will work with local jurisdictions to provide active transportation safety education opportunities through its Go Human Campaign.
- SCAG will continue to represent Southern California on the California Walk Bike Technical Advisory Committee, the Active Transportation Program Technical Advisory Committee and the California Strategic Highway Safety Plan (SHSP) Steering Committee and active transportation emphasis areas.
- SCAG will support regional safety efforts including Vision Zero policies and plans.

IMPLEMENTATION MONITORING

As noted above, SCAG has limited ability to implement infrastructure projects since these projects happen on local streets, which are under the jurisdiction of member cities. However, SCAG does seek to provide guidance, data, best practices and funding opportunities to support its local agencies.

PERFORMANCE MEASURES

SCAG tracks several indicators related to active transportation to understand the progress made between plans. **TABLE 11** outlines performance measures tracked by SCAG related to active transportation. For more information, see the Performance Measures Technical Report. Moving forward, SCAG will provide online dashboards and other tools for tracking the implementation of Connect SoCal through the Active Transportation Database.[45]

OPPORTUNITIES FOR IMPLEMENTATION

Multiple funding sources currently exist at the state, county and local level for implementing active transportation projects. These range from the statewide Active Transportation Program to the Local Streets and Roads funding provided by SB1. A list of current funding sources can be found in Appendix 6.

45 Accessed at: https://atdb.scag.ca.gov/Pages/Home.aspx

In addition, SCAG, the county transportation commissions, and public health departments provide resources and technical assistance for a variety of planning and programing activities. For example, SCAG provides funding resources for planning and non-infrastructure projects through the Sustainable Communities Program as well as Go Human resources for education and encouragement programs and demonstration projects.

STRATEGIC PLAN

Connect SoCal contains approximately $22.5 in investments in active transportation between 2020 and 2045. However, this represents only a portion of the need, based upon available funding. If the region were to fully develop its active transportation network and provide the supportive programing (such as Safe Routes to School and Go Human advertising), it is likely the costs will exceed the projections included in this plan.

However, finding the additional funding for these efforts should be a priority of policy makers, advocates and the public due to the enormous public health benefits, air quality benefits and other outcomes that could be achieved by doing so. It is projected that meeting the state of California's goals to double walking and triple bicycling could result in significant reductions in chronic diseases saving the state up to $6 billion in annual medical costs and reducing greenhouse gas emissions by up to 14 percent. The greatest benefits shown in this study would be for the SCAG region.[46]

SCAG projects that the total costs of building out the active transportation network and providing needed safety education, enforcement and encouragement activities would cost approximately $28 billion over the life of the plan. However, the costs of even this expanded investment would still cost the average SCAG resident less than 15 cents per day and would result in significant health care and transportation savings while creating substantial benefits to the regional economy.

TABLE 11 Monitoring Active Transportation Performance Measures

Performance Measure	Category	2045 Performance Results		
		Baseline	Connect SoCal	Trend
Walking and bicycling mode share (by trip type)	Walk share (work trips)	2.0%	2.5%	+0.5%
	Bike share (work trips)	0.8%	1.1%	+0.3%
	Walk share (non-work trips)	7.7%	8.1%	+0.4%
	Bike share (non-work trips)	1.6%	1.8%	+0.2%
	Walk share (all trips)	6.5%	6.9%	+0.4%
	Bike share (all trips)	1.4%	1.7%	+0.3%
Physical activity-related health measures	Daily per capita walking	4.5 mins	4.8 mins	6.40%
	Daily per capita biking	0.4 mins	0.5 mins	20.50%
	Daily per capita driving	46.1 mins	43.1 mins	-6.60%
	Obesity rate	30.60%	30.30%	-0.90%
	Hypertension rate	26.30%	26.10%	-0.60%
	Heart disease rate	4.34%	4.32%	-0.40%
	Diabetes (Type 2) rate	7.80%	7.60%	-3.00%
Collision rates per 100 million vehicle miles (by severity)	Serious injuries	N/A	1.97	N/A
	Fatalities	N/A	0.12	N/A

46 Milet, M. (2017). Quantifying the Health Impacts of Active Transport: The Integrated Transport & Health Impacts Model (ITHIM).

Implementing these improvements would likely require significant changes to roadways, require expansion of agency capacity to deliver these projects and require significant investments in public outreach and engagement to ensure projects can be delivered on time and with public support. Luckily, much of the work that needs to be done can be done using a complete streets approach to incorporate active transportation elements into bigger projects. However, even when using complete streets, current funding levels fall far short of being able to complete even currently planned improvements.

BEYOND 2045

The transportation needs in 2045 are hard to fully predict, but people will still need to move around the region and should have the choice to walk, bicycle or take a new form of active transportation without fear that they might not make it home. In addition to active transportation used for personal transport, there is increasing use of active transportation for goods movement. With pilot projects already underway for drones and automated delivery robots, paired with developments in share, electric and automated transportation, it will be increasingly important for planners and policymakers to plan for new ways of allocating the roadway to meet these multi-modal needs. Strategies outlined in this report, which make walking and bicycling easier, more comfortable and safer, can very easily be applied to making our transportation system more versatile facilitating the needs of the Southern Californian populous in 2045.

CONCLUSION

Active Transportation investments can help local jurisdictions meet the transportation needs of all of their residents. Improving infrastructure for people walking bicycling often also improves safety for people who drive. Investing in active transportation improvements can result in significant economic benefits throughout the region by improving public health and reducing costs associated with collisions and diseases that can be prevented by walking and bicycling. Additionally, a robust active transportation network can help the SCAG region meet its greenhouse gas emissions reductions targets.

There is currently legislative support for active transportation at the state and local levels of government. Caltrans is expanding its role in planning for these modes through existing and upcoming planning efforts that will impact how it plans and maintains its roadway network throughout the state. In addition, local cities within the SCAG region have adopted active transportation plans and are supporting the implementation of these plans through a variety of policy and funding sources.

While progress has been made towards making the Southern California region a better place to walk, bicycle and ride micro-mobility devices, there is still significant work to be done. With a region as large and diverse as SCAGs, there is no one-size-fits-all strategy for active transportation improvements. It will take a concerted effort from cities, counties, community organizations and regional agencies like SCAG to plan for and implement the walking and bicycling future outlined in this plan. Likewise, serious challenges related to changing public opinion, data availability, the impacts of climate change and a lack of funding may make achieving these goals difficult.

As the networks highlighted in this report are completed, and as city and county active transportation plans are implemented, this region will become a safer, more accessible and healthier place to live, work and play. Southern California is a vast and diverse region that attracts people from across the world. It is a region of visionary thinkers and innovators. Now is the time to implement our vision for a multi-modal future designed for all of the people that make this region great.

APPENDIX 1 OF 6

California State Laws Impacting Active Transportation

The California State Legislature have been taking proactive steps to develop, incorporate and adopt active transportation policies that will support projects and programs that reduce reliance on single occupancy vehicle trips and provide a safe, accessible route for pedestrians, cyclists and other active users. This appendix will provide an overview of adopted legislation related to active transportation.

SENATE BILLS

SENATE BILL 1 (BEALL, 2017)

The Road Repair and Accountability Act expanded and allocated funds for projects which support the State's transportation systems, incentivize smart growth and promote equitable community development. The successful passage of SB 1 provides an additional $100 million annually from the Road Maintenance and Rehabilitation Account to be directed to the ATP. Cities may also submit active transportation projects through the Local Streets and Roads Program overseen by California Transportation Commission (CTC).

SENATE BILL 99 (CHAPTER 359, 2013)

SB 99 created the statewide ATP by consolidating several federal and state transportation programs into a single program with the goal to encourage increased use of active modes of transportation. The CTC administers the program and distributes funds through a competitive program in partnership with the MPOs. A minimum of 25 percent of the ATP must benefit disadvantaged communities. The ATP provides approximately $235 million per year to Safe Routes to School, bicycle and pedestrian investments.[47]

SENATE BILL 743 (STEINBERG, 2013)

SB 743 was passed in 2013 and revised the transportation impact assessment requirements of California Environmental Quality Act (CEQA). The Governor's Office of Planning and Research recommended CEQA transportation impacts to be measured using Vehicle Miles Traveled (VMT) rather than the previously methodology of Level of Service (LOS). The new guidelines promote infill development and mitigation efforts to include investments in public transit, pedestrian and bicycle facilities.

SENATE BILL 375 (STEINBERG, 2008)

SB 375 mandated the state board establish the state's greenhouse gas (GHG) emission reduction goals, as set forth by Assembly Bill 32[48] the California Global Warming Solutions Act, and determine per capita GHG emission reduction targets for each California MPO. Each MPO must prepare a Sustainable Communities Strategy (SCS) that demonstrates how the region will meet its GHG reduction target through integrated land use, housing and transportation planning. Active transportation measures and policies act as one strategy to reduce GHG emissions from the transportation network.

SENATE BILL 908 (CHESBRO, 2001)

SB 908 stimulated the development of the California Coastal Trail (CCT) and authorized the distribution of grants and assistance to public agencies and nonprofit organizations to establish and expand inland trail systems that may be linked to the CCT. Transportation planning agencies located within the coastal zone are required to include provisions for the California Coastal Trail in its regional plan.[49]

ASSEMBLY BILLS

ASSEMBLY BILL 390 (SANTIAGO, 2017)

AB 390 amended the Vehicle Code to decriminalize the act of beginning pedestrian crossings during the red countdown segment of the signal.

47 Caltrans Division of Local Assistance (n.d.). Active Transportation Program (ATP).

48 Assembly Bill 32, the California Global Warming Solutions Act of 2006, sets greenhouse gas reduction targets to achieve goals for the reduction of greenhouse gas emissions from all sectors and allowed the formation of market-based compliance mechanism to comply with the regulations.

49 Cal. Gov't. Code §65080.1.

ASSEMBLY BILL 1218 (OBERNOLTE, 2017)

AB 1218 extends CEQA exemptions for bicycle transportation plans and projects with a specific scope for urbanized areas from January 1, 2018 to January 1, 2021.

ASSEMBLY BILL 1371 (BRADFORD, 2017)

AB 1371 protects public safety and promotes participation in active transportation by mandating that motorized vehicles leave a three-foot margin while passing a cyclist if practicable.

ASSEMBLY BILL 672 (FULLER, 2017)

AB 672 indefinitely extended the requirement for cities, counties, and Caltrans to incorporate technologies to detect bicycle or motorcycle traffic on the roadway whenever new or modified installations were made of traffic actuated traffic signals.

ASSEMBLY BILL 1096 (CHIU, 2015)

AB 1096 created the designation of Class 3 Electric Bicycles, defined regulations for manufacturers, required Class 3 users to wear a helmet, and prohibited the operation of Class 3 Electric Bicycles on specified paths, lanes or trails, unless that operation is authorized by a local ordinance.

ASSEMBLY BILL 1193 (TING, 2014)

AB 1193 introduced cycle tracks or separated bikeways to be classified as Class IV bikeways, and established minimum safety Class IV bikeway design criteria with consideration for the safety of vulnerable road users.

ASSEMBLY BILL 1358 (LENO, 2008)

AB 1358, the Complete Streets Act of 2008, requires cities and counties to incorporate the concept of Complete Streets in the circulation element of the local jurisdiction's general plan update. The circulation element is required to identify a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel.

APPENDIX 2 OF 6

City-Level, County Level, and Multi-Jurisdictional-Level Plans

Since the 2016 RTP/SCS, jurisdictions within the SCAG region have amplified efforts to develop and implement active transportation plans and projects. This appendix provides a list of the most current information available during the development of Connect SoCal for the following types of active transportation plans: Bicycle Master Plan, Pedestrian Master Plan and Safe Routes to School Plan. Some plans were developed at the local-level, regional-level or by stakeholders such as a public health agency. The following will identify which level served as the lead for the development of the plan.

TABLE 12 Bicycle Master Plans

County	Level	Agency	Plan Name	Year
Imperial	Local	Brawley	City of Brawley Non-Motorized Transportation Plan	2013
Imperial	Local	Calexico	Calexico Bicycle Master Plan Update	2018
Imperial	Local	Calipatria	Railroad Corridor Multi-Use Bikeway Master Plan	In Progress
Imperial	Local	El Centro	City of El Centro Active Transportation & Safe Routes to School Plan	2018
Imperial	Local	Holtville	City of Holtville Bicycle Master Plan	2014
Imperial	Regional	County of Imperial	Imperial County Bicycle Master Plan Update: Final Draft	2011
Imperial	Regional	County of Imperial	Active Transportation Plan	2018
Los Angeles	Local	Avalon	City of Avalon Master Active Transportation Plan	In Progress
Los Angeles	Local	Bell	City of Bell Bicycle Master Plan	2016
Los Angeles	Local	Bell Gardens	Bell Gardens Citywide Complete Streets Plan	In Progress
Los Angeles	Local	Bellflower	Bellflower and Paramount Joint Active Transportation Plan	In Progress
Los Angeles	Local	Beverly Hills	Beverly Hills Complete Streets Plan	In Progress
Los Angeles	Local	Burbank	City of Burbank Bicycle Master Plan Update	2009
Los Angeles	Local	Calabasas	Calabasas Bicycle Master Plan	2013
Los Angeles	Local	Carson	Carson Comprehensive Master Plan of Bikeways	2013
Los Angeles	Local	Cerritos	Cerritos Citywide Master Plan	2015
Los Angeles	Local	Commerce	Active Trans. & Safe Routes to Schools Plan	In Progress
Los Angeles	Local	Compton	City of Compton Bicycle Master Plan	2015
Los Angeles	Local	Covina	City of Covina Bicycle Master Plan	2011
Los Angeles	Local	Culver City	Culver City Bicycle & Pedestrian Master Plan	2010
Los Angeles	Local	Downey	City of Downey Bicycle Master Plan	2015

TABLE 12 Bicycle Master Plans - Continued

County	Level	Agency	Plan Name	Year
Los Angeles	Local	Duarte	The City of Duarte's Bicycle Master Plan and Safe Routes to Transit Plan	In Progress
Los Angeles	Local	El Monte	El Monte Vision Zero Action Plan	In Progress
Los Angeles	Local	Glendale	City of Glendale Bicycle Transportation Plan	2012
Los Angeles	Local	Huntington Park	City of Huntington Park Bicycle Transportation Master Plan	2014
Los Angeles	Local	Inglewood	Active Transportation Plan and Safe Routes to School Plan	2016
Los Angeles	Local	Irwindale	Citywide Non Motorized Design Guidelines and Active Transportation Action Plan	In Progress
Los Angeles	Local	La Mirada	La Mirada General Plan	2003
Los Angeles	Local	Lancaster	City of Lancaster Master Plan of Trails and Bikeways	2012
Los Angeles	Local	Long Beach	City of Long Beach Bicycle Master Plan	2017
Los Angeles	Local	Los Angeles	Mobility Plan 2035	2016
Los Angeles	Local	Lynwood	Lynwood Bicycle and Pedestrian Plan	2013
Los Angeles	Local	Monrovia	Bicycle Master Plan	2018
Los Angeles	Local	Monterey Park	Monterey Park Citywide Active Transportation Plan	In Progress
Los Angeles	Local	Palmdale	City of Palmdale - Active Transportation Program Plan	2014
Los Angeles	Local	Paramount	Bellflower and Paramount Joint Active Transportation Plan	In Progress
Los Angeles	Local	Pasadena	Bicycle Transportation Action Plan	2015
Los Angeles	Local	Pomona	Active Transportation Plan: Bicycle Master Plan and Pedestrian Master Plan	2012
Los Angeles	Local	Rosemead	City of Rosemead Bicycle Transportation Plan	2012
Los Angeles	Local	San Dimas	Bicycle Master Plan	2011
Los Angeles	Local	Santa Clarita	Non-Motorized Transportation Plan	2014
Los Angeles	Local	Santa Monica	Santa Monica Bike Action Plan	2011

TABLE 12 Bicycle Master Plans - Continued

County	Level	Agency	Plan Name	Year
Los Angeles	Local	South Gate	City of South Gate Bicycle Transportation Plan	2012
Los Angeles	Local	South Pasadena	Cycle South Pasadena Bicycle Master Plan Update	2011
Los Angeles	Local	Temple City	City of Temple City Bicycle Master Plan	2011
Los Angeles	Local	Vernon	City of Vernon Bicycle Master Plan	2017
Los Angeles	Local	West Covina	City of West Covina Active Transportation Plan	2018
Los Angeles	Local	West Hollywood	West Hollywood Pedestrian & Bicycle Mobility Plan	2017
Los Angeles	Local	Whittier	City of Whittier Bicycle Transportation Plan	2013
Los Angeles	Regional	San Gabriel Valley COG	Greenway Network Implementation Plan	In Progress
Los Angeles	Regional	San Gabriel Valley COG	San Gabriel Valley Council of Governments - Regional Active Transportation Planning Initiative	2019
Los Angeles	Regional	San Gabriel Valley COG	San Gabriel Valley Regional Bike Master Plan	2014
Los Angeles	Regional	Caltrans	I-710 Livability Corridor Plan	In Progress
Los Angeles	Regional	LA County DPW	Bicycle Master Plan	2012
Los Angeles	Regional	Metro	Active Transportation Strategic Plan	2016
Los Angeles	Regional	Metro	Metro Blue Line First/Last Mile Plan	2018
Los Angeles	Regional	Metro	Inglewood First/Last Mile Plan	2019
Los Angeles	Regional	Metro	Gold Line Foothill Extension 2B	In Progress
Los Angeles	Regional	Metro	East San Fernando Valley Transit Corridor First/Last Mile Plan	In Progress
Los Angeles	Regional	Metro	Purple Line First/Last Mile Phases 2 and 3	In Progress
Los Angeles	Regional	Metro	First Last Mile Strategic Plan & Planning Guidelines	2014
Los Angeles	Regional	South Bay Cities COG	South Bay Bicycle Master Plan	2011

TABLE 12 Bicycle Master Plans - Continued

County	Level	Agency	Plan Name	Year
Orange	Local	Aliso Viejo	Streets and Trails Amenities Master Plan	2006
Orange	Local	Anaheim	Bicycle Master Plan	2017
Orange	Local	Brea	City of Brea Central Core Connectivity and Active Transportation Plan	In Progress
Orange	Local	Buena Park	Buena Park Complete Streets Master Plan	2017
Orange	Local	Costa Mesa	Costa Mesa Active Transportation Plan	2018
Orange	Local	Dana Point	City of Dana Point Bicycle and Pedestrian Trails Master Plan	2006
Orange	Local	Fullerton	Fullerton Bicycle Master Plan	2012
Orange	Local	Garden Grove	Garden Grove Active Streets Master Plan	2016
Orange	Local	Huntington Beach	Huntington Beach Bike Plan	2013
Orange	Local	Irvine	City of Irvine Active Transportation Plan	2015
Orange	Local	La Habra	City of La Habra Bikeway Master Plan	2017
Orange	Local	Laguna Beach	Laguna Beach Enhanced Mobility and Complete Streets Transition Plan	2015
Orange	Local	Laguna Niguel	Comprehensive Bikeway and Transportation Connectivity Master Plan	In Progress
Orange	Local	Mission Viejo	Comprehensive Bikeway and Transportation Connectivity Master Plan	In Progress
Orange	Local	Newport Beach	City of Newport Beach Bicycle Master Plan	2014
Orange	Local	Orange	City of Orange Bikeways Master Plan	2001
Orange	Local	San Clemente	City of San Clemente Bicycle and Pedestrian Master Plan	2013
Orange	Local	Santa Ana	Potential Bikeway Master Plan	2012
Orange	Local	Stanton	SCAG's DAC project	In Progress
Orange	Regional	OCTA	2009 OCTA Commuter Bikeways Strategic Plan	2009
Orange	Regional	OCTA	Orange County Active Transportation Plan	In Progress

TABLE 12 Bicycle Master Plans - Continued

County	Level	Agency	Plan Name	Year
Orange	Regional	OCTA	Fourth District Bikeways Strategy	2012
Riverside	Local	Cathedral City	Cathedral City Active Transportation Plan (ATP)	In Progress
Riverside	Local	Corona	Corona Bicycle Master Plan	2001
Riverside	Local	Desert Hot Springs	City of Desert Hot Springs Bicycle and Pedestrian Master Plan	2016
Riverside	Local	Eastvale	City of Eastvale Bicycle Master Plan	2016
Riverside	Local	Indio	Indio Complete Streets Plan	2019
Riverside	Local	Lake Elsinore	Active Transportation Plan	In Progress
Riverside	Local	Menifee	City of Menifee Active Transportation Plan	In Progress
Riverside	Local	Moreno Valley	City of Moreno Valley Bicycle Master Plan Update	2014
Riverside	Local	Norco	Norco Comprehensive Multi-Modal Connectivity Plan	In Progress
Riverside	Local	Perris	SCAG's DAC project	In Progress
Riverside	Local	Riverside	City of Riverside Bicycle Master Plan (Updated 2012)	2012
Riverside	Local	Wildomar	Wildomar Active Transportation Plan	In Progress
Riverside	Local	Mecca	Active Transportation Plan - KDI	In Progress
Riverside	Local	North Shore	Active Transportation Plan - KDI	In Progress
Riverside	Local	Oasis	Active Transportation Plan - KDI	In Progress
Riverside	Local	Thermal	Active Transportation Plan - KDI	In Progress
Riverside	Regional	Western Riverside COG	Western Riverside County Non-Motorized Transportation Plan	2010
Riverside	Regional	Western Riverside COG	Western Riverside Active Transportation Plan	2018
Riverside	Regional	Coachella Valley Association of Governments	Coachella Valley Association of Governments Active Transportation Plan	2016

TABLE 12 Bicycle Master Plans - Continued

County	Level	Agency	Plan Name	Year
San Bernardino	Local	Adelanto	SCAG's DAC project	In Progress
San Bernardino	Local	Barstow	City of Barstow's Active Transportation Plan	In Progress
San Bernardino	Local	Big Bear Lake	Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan	2014
San Bernardino	Local	Chino	City of Chino Bicycle and Pedestrian Master Plan	2016
San Bernardino	Local	Colton	City of Colton - Active Transportation Program Plan	In Progress
San Bernardino	Local	Fontana	City of Fontana - Active Transportation Plan	2017
San Bernardino	Local	Grand Terrace	Active Transportation Program Planning	2018
San Bernardino	Local	Highland	SCAG's DAC project	In Progress
San Bernardino	Local	Ontario	City of Ontario Active Transportation Plan	In Progress
San Bernardino	Local	Rancho Cucamonga	Circulation Master Plan for Bicyclists and Pedestrians	2015
San Bernardino	Local	Redlands	City of Redlands Bicycle Master Plan	2014
San Bernardino	Local	Twentynine Palms	Morongo Basin Active Transportation Plan	2019
San Bernardino	Local	Victorville	City of Victorville Non-Motorized Transportation Plan Compass Blueprint Demonstration Project	2010
San Bernardino	Local	Yucca Valley	Morongo Basin Active Transportation Plan	In Progress
San Bernardino	Regional	San Bernardino County - Morongo Basin	Morongo Basin Active Transportation Plan	In Progress
San Bernardino	Regional	San Bernardino County - Unincorporated	San Bernardino County Non-Motorized Transportation Plan	2018
San Bernardino	Regional	SBCTA (formerly SANBAG)	San Bernardino County Non-Motorized Transportation Plan	2018
Ventura	Local	Camarillo	Bicycle Master Plan	2003
Ventura	Local	Fillmore	Bicycle Transportation Plan	2005

TABLE 12 Bicycle Master Plans - Continued

County	Level	Agency	Plan Name	Year
Ventura	Local	Ojai	Ojai Complete Streets Master Plan	2017
Ventura	Local	Oxnard	City of Oxnard Bicycle and Pedestrian Facilities Master Plan	2011
Ventura	Local	Simi Valley	Simi Valley Bicycle Master Plan	2008
Ventura	Local	Thousand Oaks	Thousand Oaks Active Transportation Plan	In Progress
Ventura	Local	San Buenaventura (Ventura)	City of Ventura Adopted Bicycle Master Plan	2011
Ventura	Regional	VCTC	Ventura County Bicycle Plan	2008

TABLE 13 Pedestrian Master Plans

County	Level	Agency	Plan Name	Year
Imperial	Local	Brawley	City of Brawley Non-Motorized Transportation Plan	2013
Imperial	Local	Calipatria	SCAG's DAC project	In Progress
Imperial	Local	El Centro	City of El Centro Active Transportation & Safe Routes to School Plan	2018
Imperial	Local	Holtville	City of Holtville Complete Streets Plan	2016
Imperial	Regional	ICTC	Imperial County Regional Active Transportation Plan	In Progress
Imperial	Regional	County of Imperial	Imperial County Pedestrian Master Plan	In Progress
Imperial	Regional	County of Imperial	Active Transportation Plan (ATP)	2018
Los Angeles	Local	Avalon	City of Avalon Master Active Transportation Plan	In Progress
Los Angeles	Local	Azusa	City of Azusa: Pedestrian Master Plan	In Progress
Los Angeles	Local	Bell Gardens	Bell Gardens Citywide Complete Streets Plan	In Progress
Los Angeles	Local	Bellflower	Bellflower and Paramount Joint Active Transportation Plan	In Progress
Los Angeles	Local	Beverly Hills	Beverly Hills Complete Streets Plan	In Progress
Los Angeles	Local	Burbank	City of Burbank Complete Streets Plan	In Progress
Los Angeles	Local	Calabasas	Draft Pedestrian Master Plan	2004
Los Angeles	Local	Carson	City of Carson Active Transportation Plan	2015
Los Angeles	Local	Commerce	Active Trans. & Safe Routes to Schools Plan	In Progress
Los Angeles	Local	Culver City	Culver City Bicycle & Pedestrian Master Plan	2010
Los Angeles	Local	El Monte	El Monte Vision Zero Action Plan	In Progress
Los Angeles	Local	Glendale	Citywide Pedestrian Plan	2014
Los Angeles	Local	Huntington Park	Huntington Park Complete Streets Plan	2016
Los Angeles	Local	Inglewood	Active Transportation Plan and Safe Routes to School Plan	2016

TABLE 13 Pedestrian Master Plans - Continued

County	Level	Agency	Plan Name	Year
Los Angeles	Local	Irwindale	Citywide Non Motorized Design Guidelines and Active Transportation Action Plan	In Progress
Los Angeles	Local	Los Angeles	Mobility Plan 2035	2016
Los Angeles	Local	Lynwood	Lynwood Bicycle and Pedestrian Plan	2013
Los Angeles	Local	Monrovia	Monrovia Bike and Pedestrian Interconnected Network Planning	In Progress
Los Angeles	Local	Monterey Park	Monterey Park Citywide Active Transportation Plan	In Progress
Los Angeles	Local	Palmdale	City of Palmdale - Active Transportation Program Plan	2014
Los Angeles	Local	Paramount	Bellflower and Paramount Joint Active Transportation Plan	In Progress
Los Angeles	Local	Pasadena	Pasadena Pedestrian Plan Vol 2 (and Vol 1 linked)	2006
Los Angeles	Local	Pomona	Active Transportation Plan: Bicycle Master Plan and Pedestrian Master Plan	2012
Los Angeles	Local	Redondo Beach	Living Streets Policy	2013
Los Angeles	Local	Rosemead	Rosemead Citywide Complete Streets Plan	In Progress
Los Angeles	Local	Santa Clarita	Non-Motorized Transportation Plan	2014
Los Angeles	Local	Santa Monica	Santa Monica Pedestrian Action Plan	2015
Los Angeles	Local	South Pasadena	South Pasadena Citywide Active Transportation Plan (ATP)	In Progress
Los Angeles	Local	Temple City	Pedestrian Master Plan and Safe Routes to School Plan	In Progress
Los Angeles	Local	West Covina	City of West Covina Active Transportation Plan	2018
Los Angeles	Local	West Hollywood	West Hollywood Pedestrian & Bicycle Mobility Plan	2017
Los Angeles	Regional	LA County DPH	Step by Step	2017
Los Angeles	Regional	San Gabriel Valley COG	Greenway Network Implementation Plan	In Progress
Los Angeles	Regional	San Gabriel Valley COG	San Gabriel Valley Council of Governments - Regional Active Transportation Planning Initiative	In Progress
Los Angeles	Regional	Caltrans	I-710 Livability Corridor Plan	In Progress

TABLE 13 Pedestrian Master Plans - Continued

County	Level	Agency	Plan Name	Year
Los Angeles	Regional	Metro	Active Transportation Strategic Plan	2016
Los Angeles	Regional	Metro	Metro Blue Line First/Last Mile Plan	2018
Los Angeles	Regional	Metro	Inglewood First/Last Mile Plan	2019
Los Angeles	Regional	Metro	Gold Line Foothill Extension 2B	In Progress
Los Angeles	Regional	Metro	East San Fernando Valley Transit Corridor First/Last Mile Plan	In Progress
Los Angeles	Regional	Metro	Purple Line First/Last Mile Phases 2 and 3	In Progress
Los Angeles	Regional	Metro	First Last Mile Strategic Plan & Planning Guidelines	2014
Orange	Local	Aliso Viejo	Streets and Trails Amenities Master Plan	2006
Orange	Local	Brea	City of Brea Central Core Connectivity and Active Transportation Plan	In Progress
Orange	Local	Buena Park	City of Buena Park Comprehensive Active Transportation Plan	In Progress
Orange	Local	Costa Mesa	Costa Mesa Active Transportation Plan	2018
Orange	Local	Dana Point	City of Dana Point Bicycle and Pedestrian Trails Master Plan	2006
Orange	Local	Garden Grove	Garden Grove Active Streets master Plan	2016
Orange	Local	Irvine	City of Irvine Active Transportation Plan	2015
Orange	Local	La Habra	City of La Habra Complete Streets Master Plan	2019
Orange	Local	Laguna Beach	Laguna Beach Enhanced Mobility and Complete Streets Transition Plan	2015
Orange	Local	Laguna Niguel	Comprehensive Bikeway and Transportation Connectivity Master Plan	In Progress
Orange	Local	Mission Viejo	Comprehensive Bikeway and Transportation Connectivity Master Plan	In Progress
Orange	Local	San Clemente	City of San Clemente Bicycle and Pedestrian Master Plan	2013
Orange	Local	Stanton	SCAG's DAC project	In Progress
Orange	Local	Yorba Linda	Yorba Linda Circulation Element	2016

TABLE 13 Pedestrian Master Plans - Continued

County	Level	Agency	Plan Name	Year
Orange	Regional	OCTA	Orange County Active Transportation Plan	In Progress
Riverside	Local	Cathedral City	Cathedral City Active Transportation Plan (ATP)	2019
Riverside	Local	Desert Hot Springs	City of Desert Hot Springs Bicycle and Pedestrian Hot Springs	2016
Riverside	Local	Indio	Indio Complete Streets Plan	2019
Riverside	Local	Lake Elsinore	Active Transportation Plan	In Progress
Riverside	Local	Menifee	City of Menifee Active Transportation Plan	In Progress
Riverside	Local	Moreno Valley	City of Moreno Valley Pedestrian Master Plan	In Progress
Riverside	Local	Norco	Norco Comprehensive Multi-Modal Connectivity Plan	In Progress
Riverside	Local	Perris	SCAG's DAC project	In Progress
Riverside	Local	Temecula	City of Temecula Multi-Use Trails and Bikeways Master Plan	2016
Riverside	Local	Wildomar	Wildomar Active Transportation Plan	In Progress
Riverside	Local	Mecca	Active Transportation Plan	In Progress
Riverside	Local	North Shore	Active Transportation Plan	In Progress
Riverside	Local	Oasis	Active Transportation Plan	In Progress
Riverside	Local	Thermal	Active Transportation Plan	In Progress
Riverside	Regional	Western Riverside COG	Western Riverside County Non-Motorized Transportation Plan	2010
Riverside	Regional	Western Riverside COG	Western Riverside Active Transportation Plan	2018
Riverside	Regional	Coachella Valley Association of Governments	Coachella Valley Association of Governments Active Transportation Plan	2016
San Bernardino	Local	Adelanto	SCAG's DAC project	In Progress
San Bernardino	Local	Barstow	City of Barstow's Active Transportation Plan	In Progress

TABLE 13 Pedestrian Master Plans - Continued

County	Level	Agency	Plan Name	Year
San Bernardino	Local	Big Bear Lake	Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan	2014
San Bernardino	Local	Chino	City of Chino Bicycle and Pedestrian Master Plan	2016
San Bernardino	Local	Colton	City of Colton - Active Transportation Program Plan	Unknown
San Bernardino	Local	Fontana	City of Fontana - Active Transportation Plan	2017
San Bernardino	Local	Grand Terrace	Active Transportation Program Planning	2018
San Bernardino	Local	Highland	SCAG's DAC project	In Progress
San Bernardino	Local	Ontario	City of Ontario Active Transportation Plan	In Progress
San Bernardino	Local	Rancho Cucamonga	Circulation Master Plan for Bicyclists and Pedestrians	2015
San Bernardino	Local	Redlands	Pedestrian and Safe Routes to School Plan	In Progress
San Bernardino	Local	Twentynine Palms	Morongo Basin Active Transportation Plan	2019
San Bernardino	Local	Victorville	City of Victorville Non-Motorized Transportation Plan Compass Blueprint Demonstration Project	2010
San Bernardino	Local	Yucca Valley	Morongo Basin Active Transportation Plan	2019
San Bernardino	Regional	SBCTA	San Bernardino County Non-Motorized Transportation Plan	2018
San Bernardino	Regional	San Bernardino County - Morongo Basin	Morongo Basin Active Transportation Plan	In Progress
San Bernardino	Regional	SBCTA	SBCTA Points of Interest Pedestrian Plan	2017
Ventura	Local	Camarillo	Camarillo Active Transportation Plan	In Progress
Ventura	Local	Ojai	Ojai Complete Streets Master Plan	2017
Ventura	Local	Oxnard	City of Oxnard Bicycle and Pedestrian Facilities Master Plan	2011
Ventura	Local	Thousand Oaks	Thousand Oaks Active Transportation Plan	In Progress
Ventura	Local	San Buenaventura (Ventura)	Active Transportation Mobility Plan	In Progress

TABLE 14 Safe Routes to School Plans

County	Level	Agency	Plan Name	Year
Imperial	Local	Brawley	City of Brawley Non-Motorized Transportation Plan	2013
Imperial	Local	El Centro	City of El Centro Active Transportation & Safe Routes to School Plan	2018
Imperial	Regional	ICTC	Safe Routes to School Regional Master Plan	2016
Los Angeles	Local	Avalon	City of Avalon Master Active Transportation Plan	In Progress
Los Angeles	Local	Baldwin Park	Safe Routes to School Plan for Baldwin Park	2014
Los Angeles	Local	Bell	Safe Routes to School Plan	In Progress
Los Angeles	Local	Bell Gardens	Bell Gardens Citywide Complete Streets Plan	In Progress
Los Angeles	Local	Bellflower	Bellflower and Paramount Joint Active Transportation Plan	In Progress
Los Angeles	Local	Commerce	Active Trans. & Safe Routes to Schools Plan	In Progress
Los Angeles	Local	Compton	Safe Routes to School Plan	In Progress
Los Angeles	Local	Cudahy	Cudahy Safe Routes to School Plan	2015
Los Angeles	Local	Culver City	Culver City Walk and Rollers	In Progress
Los Angeles	Local	Downey	South Downey Safe Routes to School Plan	In Progress
Los Angeles	Local	Glendale	Safe Routes to School Plan for Glendale - 3 Phases	2016
Los Angeles	Local	Hermosa Beach	Safe Routes to Schools	2012
Los Angeles	Local	Inglewood	Active Transportation Plan and Safe Routes to School Plan	2016
Los Angeles	Local	Irwindale	Citywide Non Motorized Design Guidelines and Active Transportation Action Plan	In Progress
Los Angeles	Local	La Canada Flintridge	Safe Routes to School Project	2013
Los Angeles	Local	Lancaster	City of Lancaster - Safe Routes to School Plan Phases I and II	2014
Los Angeles	Local	Long Beach	Safe Routes to School Program	2011
Los Angeles	Local	Los Angeles	Safe Routes to School Action Plan and Progress Report	2016

TABLE 14 Safe Routes to School Plans - Continued

County	Level	Agency	Plan Name	Year
Los Angeles	Local	Malibu	Safe Routes to School	Unknown
Los Angeles	Local	Manhattan Beach	Safe Routes to School Program	2011
Los Angeles	Local	Palmdale	City of Palmdale - Active Transportation Program Plan	2014
Los Angeles	Local	Paramount	Bellflower and Paramount Joint Active Transportation Plan	In Progress
Los Angeles	Local	Rancho Palos Verdes	Peninsula-Wide Safe Routes to School Plan	In Progress
Los Angeles	Local	Rolling Hills Estates	Safe Routes to School	2011
Los Angeles	Local	San Fernando	Safe Routes to School Plan	In Progress
Los Angeles	Local	Santa Clarita	Citywide Safe Routes to School Plan	In Progress
Los Angeles	Local	Santa Monica	Santa Monica Safe Routes to School Program	2012
Los Angeles	Local	South Gate	Safe Routes to School Program	In Progress
Los Angeles	Local	South Pasadena	South Pasadena Citywide Active Transportation Plan (ATP)	In Progress
Los Angeles	Local	Temple City	Pedestrian Master Plan and Safe Routes to School Plan	In Progress
Los Angeles	Local	Walnut Park	Walnut Park Safe Routes to School Action Plan	2018
Los Angeles	Local	West Covina	City of West Covina Safe Routes to School Plan	2011
Los Angeles	Regional	San Gabriel Valley COG	San Gabriel Valley Council of Governments - Regional Active Transportation Planning Initiative	In Progress
Orange	Local	Anaheim	Safe Routes to School	Unknown
Orange	Local	Buena Park	City of Buena Park Comprehensive Active Transportation Plan	In Progress
Orange	Local	Costa Mesa	Bicycle and Pedestrian Safety Education Program	Unknown
Orange	Local	Garden Grove	Safe Routes to School: Phase I Plan	In Progress
Orange	Local	La Habra	City of La Habra Complete Streets Master Plan	2019
Orange	Local	Laguna Beach	Laguna Beach Enhanced Mobility and Complete Streets Transition Plan	2015

TABLE 14 Safe Routes to School Plans - Continued

County	Level	Agency	Plan Name	Year
Orange	Local	Mission Viejo	Circulation Element - Safe Routes to School	2013
Orange	Local	San Juan Capistrano	Safe Routes to School	Unknown
Orange	Local	Santa Ana	Citywide Safe Routes to School Plan	In Progress
Orange	Local	Westminster	Westminster Citywide SRTS Master Plan	In Progress
Orange	Regional	OCTA	Safe Routes to School Action Plan	In Progress
Riverside	Local	Calimesa	Safe Routes to School Plan	In Progress
Riverside	Local	Cathedral City	Cathedral City Active Transportation Plan (ATP)	In Progress
Riverside	Local	Desert Hot Springs	Safe Routes to School Plan City of Desert Hot Springs	2008
Riverside	Local	Indio	Indio Safe Routes to School Plan	In Progress
Riverside	Local	Menifee	City of Menifee Active Transportation Plan	In Progress
Riverside	Local	Moreno Valley	Moreno Valley Unified School District - Safe Routes to School	Unknown
Riverside	Local	Wildomar	Wildomar Active Transportation Plan	In Progress
Riverside	Regional	Riverside Department of Health	Riverside County Safe Routes to School Program	In Progress
San Bernardino	Local	Apple Valley	Apple Valley Safe Routes to Schools Master Plan	In Progress
San Bernardino	Local	Barstow	City of Barstow's Active Transportation Plan	In Progress
San Bernardino	Local	Big Bear Lake	Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan	2014
San Bernardino	Local	Chino	City of Chino Bicycle and Pedestrian Master Plan	2016
San Bernardino	Local	Colton	City of Colton - Active Transportation Program Plan	In Progress
San Bernardino	Local	Fontana	City of Fontana - Active Transportation Plan	2017
San Bernardino	Local	Grand Terrace	Active Transportation Program Planning	2018
San Bernardino	Local	Montclair	Montclair Safe Routes to School Plan	In Progress

TABLE 14 Safe Routes to School Plans - Continued

County	Level	Agency	Plan Name	Year
San Bernardino	Local	Rancho Cucamonga	Healthy RC SRTS Infrastructure Improvement Plan	In Progress
San Bernardino	Local	Redlands	Pedestrian and Safe Routes to School Plan	In Progress
San Bernardino	Local	San Bernardino	San Bernardino Association of Government Safe Routes to School Plan	In Progress
San Bernardino	Local	Twentynine Palms	Morongo Basin Active Transportation Plan	2019
San Bernardino	Local	Yucaipa	Safe Routes to School	Unknown
San Bernardino	Local	Yucca Valley	Morongo Basin Active Transportation Plan	In Progress
San Bernardino	Regional	San Bernardino County - Morongo Basin	Morongo Basin Active Transportation Plan	In Progress
San Bernardino	Regional	SBCTA (formerly SANBAG)	Regional Safe Routes to School Plan Phase II	2017
Ventura	Local	Camarillo	Bicycle Master Plan	2003
Ventura	Local	Fillmore	Bicycle Transportation Plan	2005
Ventura	Local	Ojai	Ojai Complete Streets Master Plan	2017
Ventura	Local	Oxnard	City of Oxnard Bicycle and Pedestrian Facilities Master Plan	2011
Ventura	Local	Simi Valley	Simi Valley Bicycle Master Plan	2008
Ventura	Local	Thousand Oaks	Thousand Oaks Active Transportation Plan	In Progress
Ventura	Local	San Buenaventura (Ventura)	City of Ventura Adopted Bicycle Master Plan	2011
Ventura	Regional	Ventura County Department of Public Health	Safe Routes to School Master Plan	In Progress

APPENDIX 3 OF 6

SCAG Region County Active Transportation Planning Efforts

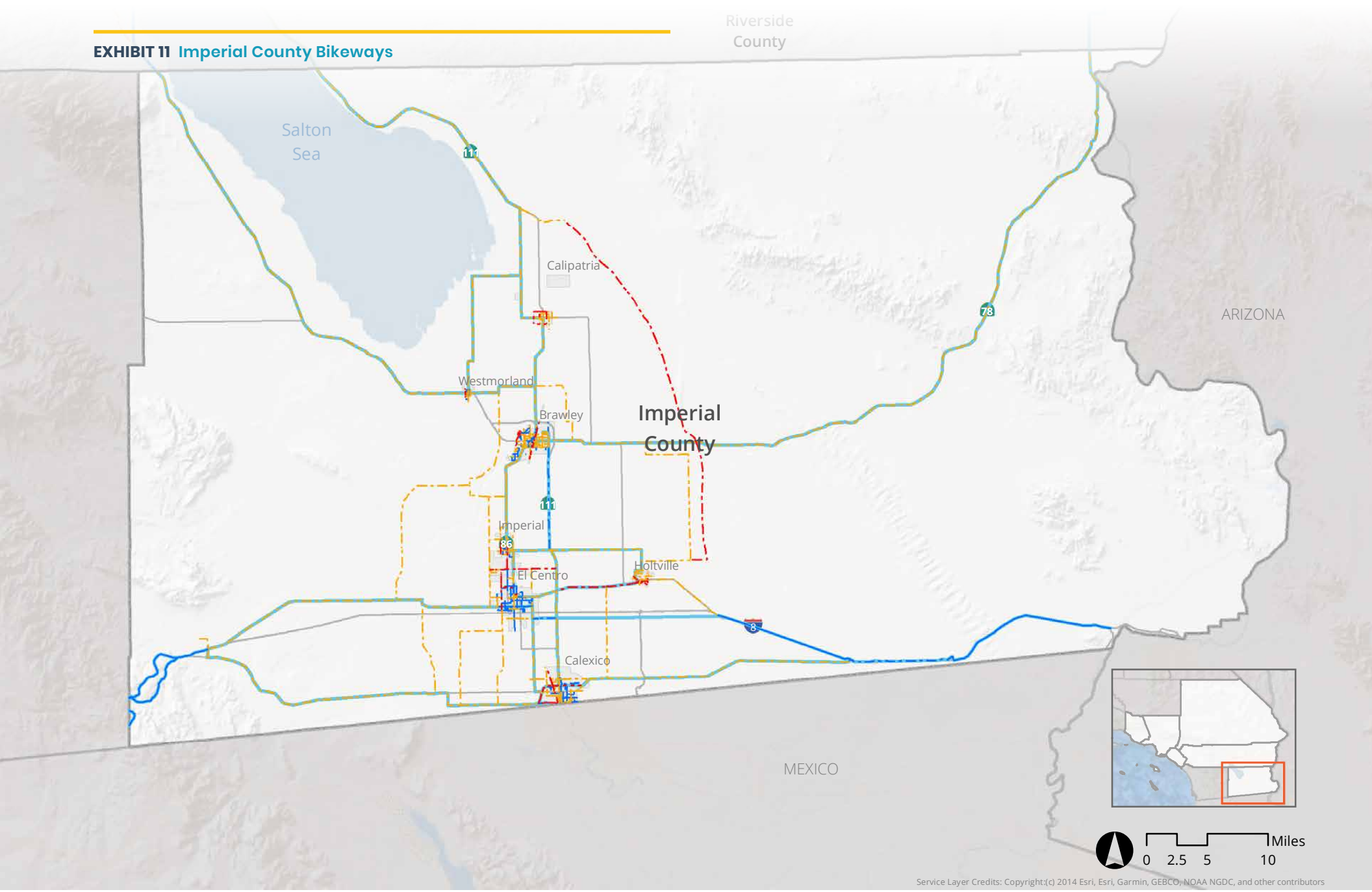
Jurisdictions, agencies and organizations throughout the SCAG region have invested resources to identify and improve the active transportation network. This appendix will highlight a few key projects completed within each county and should not be considered as an exhaustive list of all key active transportation projects.

IMPERIAL COUNTY

The Imperial County Active Transportation Plan, developed in 2019 by Imperial County Public Works Department and Caltrans, analyzes the unincorporated communities within the County and identifies opportunities to develop an active transportation strategy which will catalyze implementation of projects. In addition to the Active Transportation Plan, Imperial County is in the process of developing a Pedestrian Master Plan aimed at improving pedestrian infrastructure and creating a safer and more enjoyable pedestrian environment in Imperial County.

Additionally, the Imperial County Public Health Department is working to implement a Safe Routes to School Master Plan to increase access to Safe Routes to Schools programs and enhanced walkable and bikeable communities in the county.

EXHIBIT 11 Imperial County Bikeways



County Boundaries
City Boundaries
Freeway
Regional Bikeway Network

Existing Bikeways

Class I
Class II
Class III
Class IV

Proposed Bikeways

Class I
Class II
Class III
Class IV

Source: SCAG, 2019

LOS ANGELES COUNTY

Metro's Bicycle Transportation Strategic Plan describes a vision for Los Angeles County that promotes investing in bicycle infrastructure and connectivity and improves overall mobility, air quality and access to opportunities and resources. This plan provides local jurisdictions and transit agencies the relevant planning tools to achieve that vision, such as a list of non-motorized "best practices," audit procedures for bicycle access and a summary of gaps in the inter-jurisdictional bikeway network.

Los Angeles County's Active Transportation Rail to River Corridor Project will link neighborhoods, schools, and other key South Los Angeles destinations by converting an existing, underutilized railroad right-of-way into a multi-purpose pedestrian and bicycle transportation corridor. This approximately 10 mile project is composed of two distinct segments, each in different development phases, and will improve connectivity of Metro transit lines with active transportation facilities.

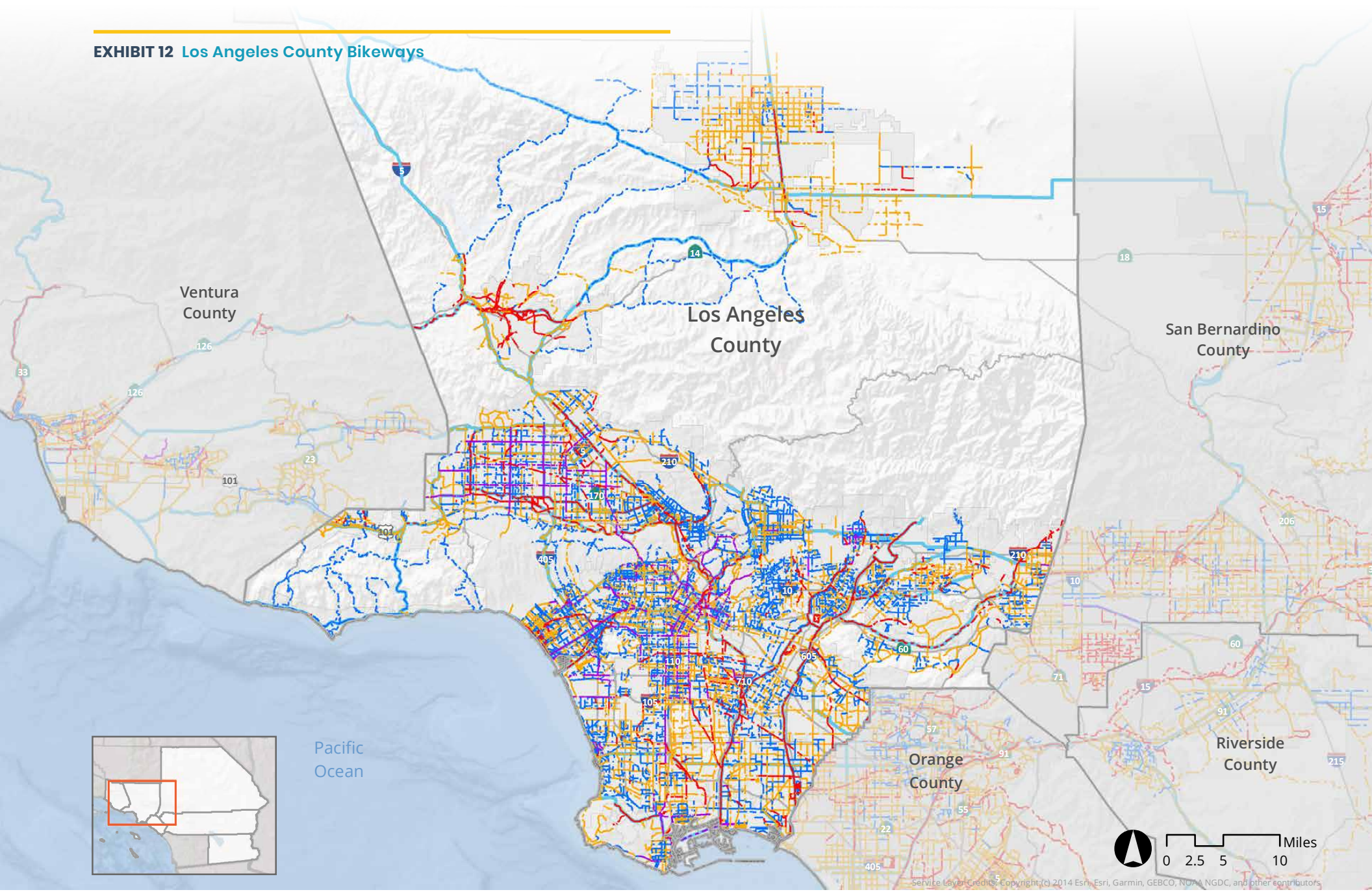
The Metro Bike Share system, launched in 2016, has installed over 120 stations throughout Downtown Los Angeles, Central Los Angeles, Port of Los Angeles and Westside areas. The Bike Share system is integrated with Metro's Transit Access Pass (TAP) and provides a dedicated Bike Share app which streamlines the undocking and release process. To date, the system has logged over two million miles travelled, and Metro plans to expand services and provide Smart Metro Bikes to entice new ridership.

Mar Vista's Venice Boulevard Great Streets project enhanced pedestrian and bicycle safety, and promoted place-making through community art installations. The City of Los Angeles' Vision Zero Action Plan identified a selection of Mar Vista's Venice Boulevard as a Priority Corridor which catalyzed investment and community engagement. The street improvements recreated a lively and walkable downtown, reduced collisions at the busiest intersections by 75 percent, and stimulated $3 million more in economic activity.[50]

In Long Beach, construction is underway for a protected walking and bicycling lane, the Mark Bixby Bike-Walk Path, over the Gerald Desmond Bridge. This path will connect with existing bicycle routes in Long Beach.

50 LADOT et al. (2018). *Venice Boulevard Great Street: One-Year Post Project Evaluation*.

EXHIBIT 12 Los Angeles County Bikeways



County Boundaries
City Boundaries
Freeway
Regional Bikeway Network

Existing Bikeways
Class I
Class II
Class III
Class IV

Proposed Bikeways
Class I
Class II
Class III
Class IV

Source: SCAG, 2019

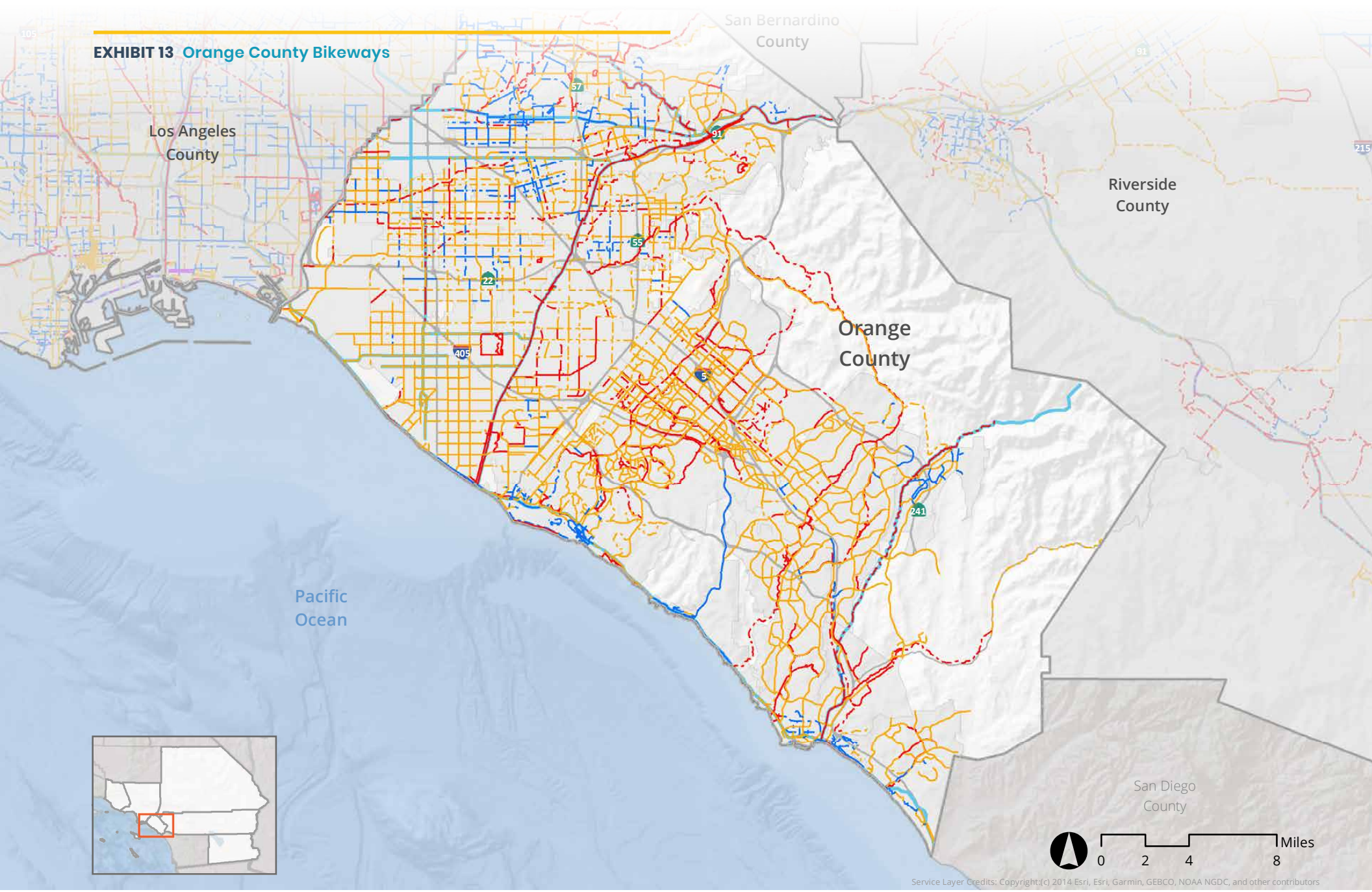
ORANGE COUNTY

The Orange County Transportation Authority (OCTA) developed OC Active (2018), a comprehensive countywide analysis of transportation needs and opportunities for walking and bicycling. OCTA has also made considerable progress on a regional bikeway loop (OC Loop) that will, when completed, provide 66 miles of seamless, off-street trails with minimal stops and crossings for people of all ages and abilities. Full completion of the OC Loop is anticipated by 2027 with 54 miles completed to-date. OCTA has also completed a county wide count program providing a comprehensive data set on walking and bicycling trends across the county.

In 2018, Santa Ana utilized funds from the OCTA, Measure M2 and federal programs to install the city's first protected bike lane along Bristol Street. As a result, the selected area, within the fourth densest city in the country, experienced increased safety and provided alternative modes to circumvent the high costs associated with car ownership.

The Orange County Council of Governments developed Complete Streets Initiative Design Handbook in 2016 to outline policy and design best practices, specifically to provide a resource to ensure Orange County jurisdictions incorporate complete streets requirements in each respective Circulation Element of their General Plan. The handbook was created to be a living document and will be updated periodically to address new funding opportunities and evolving practices.

EXHIBIT 13 Orange County Bikeways



County Boundaries
City Boundaries
Freeway
Regional Bikeway Network

Existing Bikeways

Class I
Class II
Class III
Class IV

Proposed Bikeways

Class I
Class II
Class III
Class IV

Source: SCAG, 2019

RIVERSIDE COUNTY

In 2018, the Western Riverside Council of Governments completed the multi-jurisdictional Active Transportation Plan that outlined 24 regional routes and 44 local routes of regional significance to facilitate mobility and increase access for all cities and neighborhoods.

The Riverside Transit Agency, in partnership with SCAG and Caltrans, published the First-Last Mile Mobility Plan in 2017, which developed Station Typologies to characterize over 2,500 stations, identify strategies and pilot project opportunities and outlined an implementation plan.

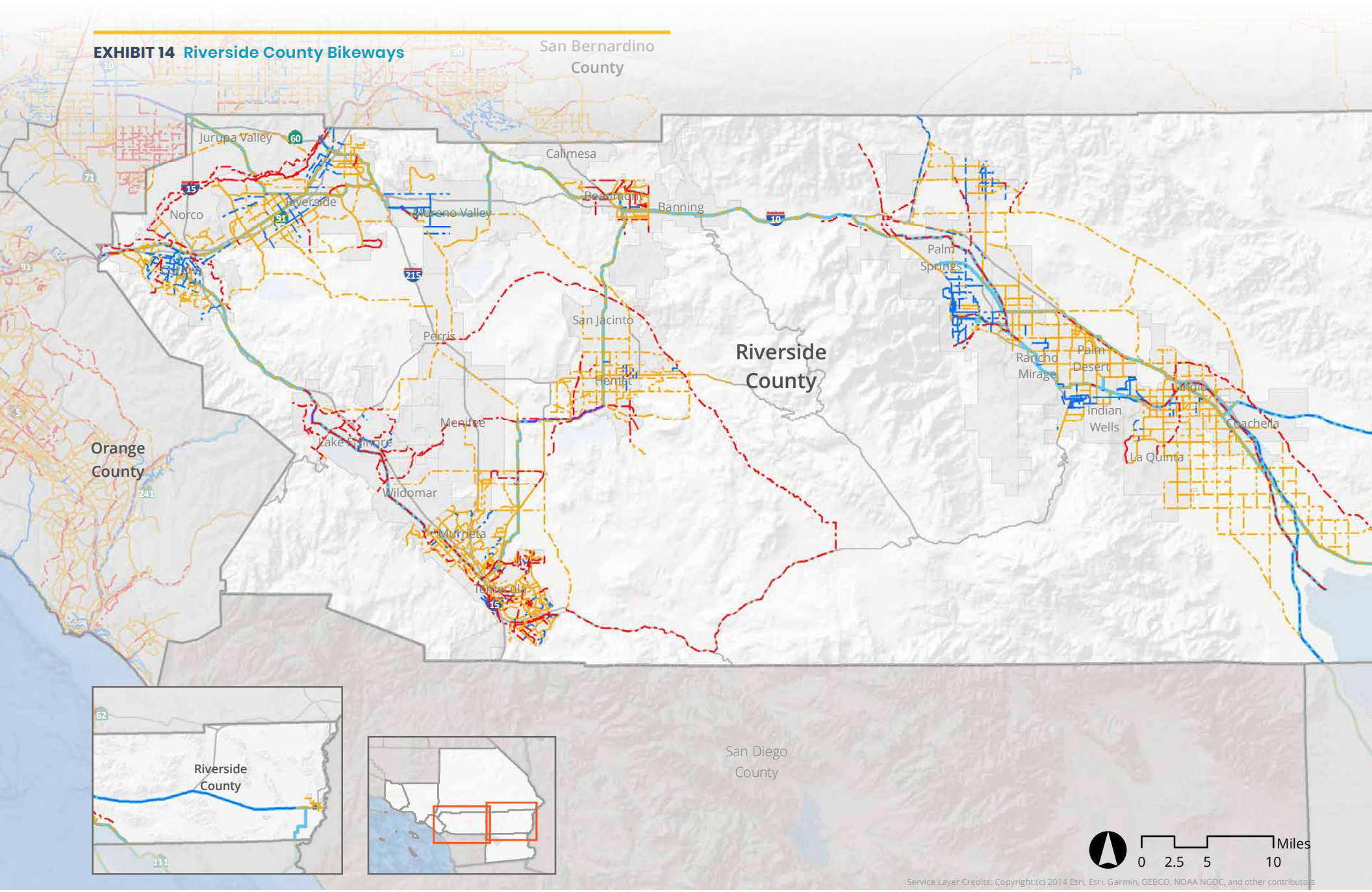
The Coachella Valley Link is a multi-jurisdictional project with the goal to connect Coachella Valley cities, tribal lands and unincorporated properties through constructing a 40-mile separated path serving pedestrians, bicyclists and low-speed electric vehicles alike.

The Thermal Oasis Mobility Plan was developed in 2018 to evaluate the community's dangerous lack of sidewalks and inadequate public transport. This resident-driven plan identified specific design options, such as sidewalk installations and improved signage that would best serve the community.

The Santa Ana River Trail (SART) system connects Orange, Riverside, and San Bernardino counties. The Riverside County Transportation Commission, alongside Riverside County Parks and Orange County Public Works, is facilitating the Phase 1 process which will provide pedestrian, equestrian, and cycling trail use with nature-viewing opportunities throughout the Prado Basin. The 2011 SART Master Plan outlined a total of 5 phases which will connect upstream and downstream portions of the existing SART system.

The Juan Bautista de Anza Multi-Use Trail Project received Active Transportation Program funding to close existing gaps and improve access to schools, employment centers, transit routes, and major shopping destinations. It also provides for connections to other regional trail systems within the City of Perris and Lake Perris State Recreational Area. This historic trail generally follows the Juan Bautista de Anza expedition routes extending from San Francisco, CA to Nogales, AZ and when complete, will greatly enhance the active transportation opportunities for Moreno Valley and surrounding communities.

EXHIBIT 14 Riverside County Bikeways



County Boundaries
City Boundaries
Freeway
Regional Bikeway Network

Existing Bikeways

Class I
Class II
Class III
Class IV

Proposed Bikeways

Class I
Class II
Class III
Class IV

Source: SCAG, 2019

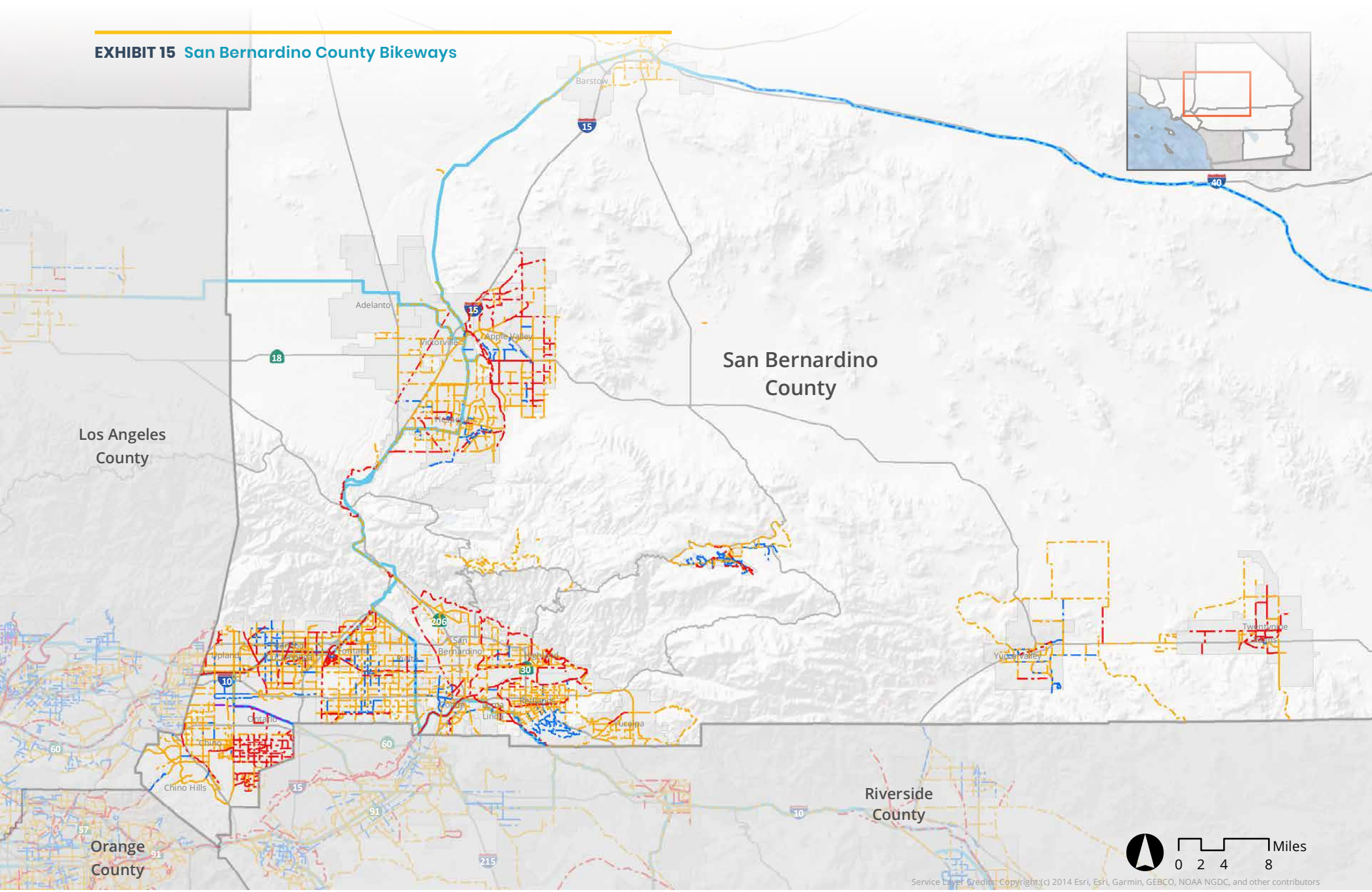
SAN BERNARDINO COUNTY

The San Bernardino County Non-Motorized Transportation Plan, revised in 2018, proposed bikeway facilities at the local level for twenty-six jurisdictions, outlined pedestrian planning processes, and provided design recommendations and plan implementation strategies.

In 2017, the San Bernardino County Transportation Authority (SBCTA) published the Points of Interest Pedestrian Plan (PIPP) with the aim to capture active transportation elements that were not adequately addressed in the Non-Motorized Transportation Plan, SBCTA Complete Streets Strategy, or SBCTA's Safe Routes to School Plan. The PIPP provides best practices, cost estimates and identifies point of interests excluding schools, at the local level for twenty-six jurisdictions.

SBCTA also developed the comprehensive Regional Safe Routes to School Plan Phase II in 2017 by conducting robust outreach and data collection measures, in effort to provide specific engineer recommendations at the local level, which utilize strategies outlined in the plan's "tool box."

EXHIBIT 15 San Bernardino County Bikeways



County Boundaries
City Boundaries
Freeway
Regional Bikeway Network

Existing Bikeways
Class I
Class II
Class III
Class IV

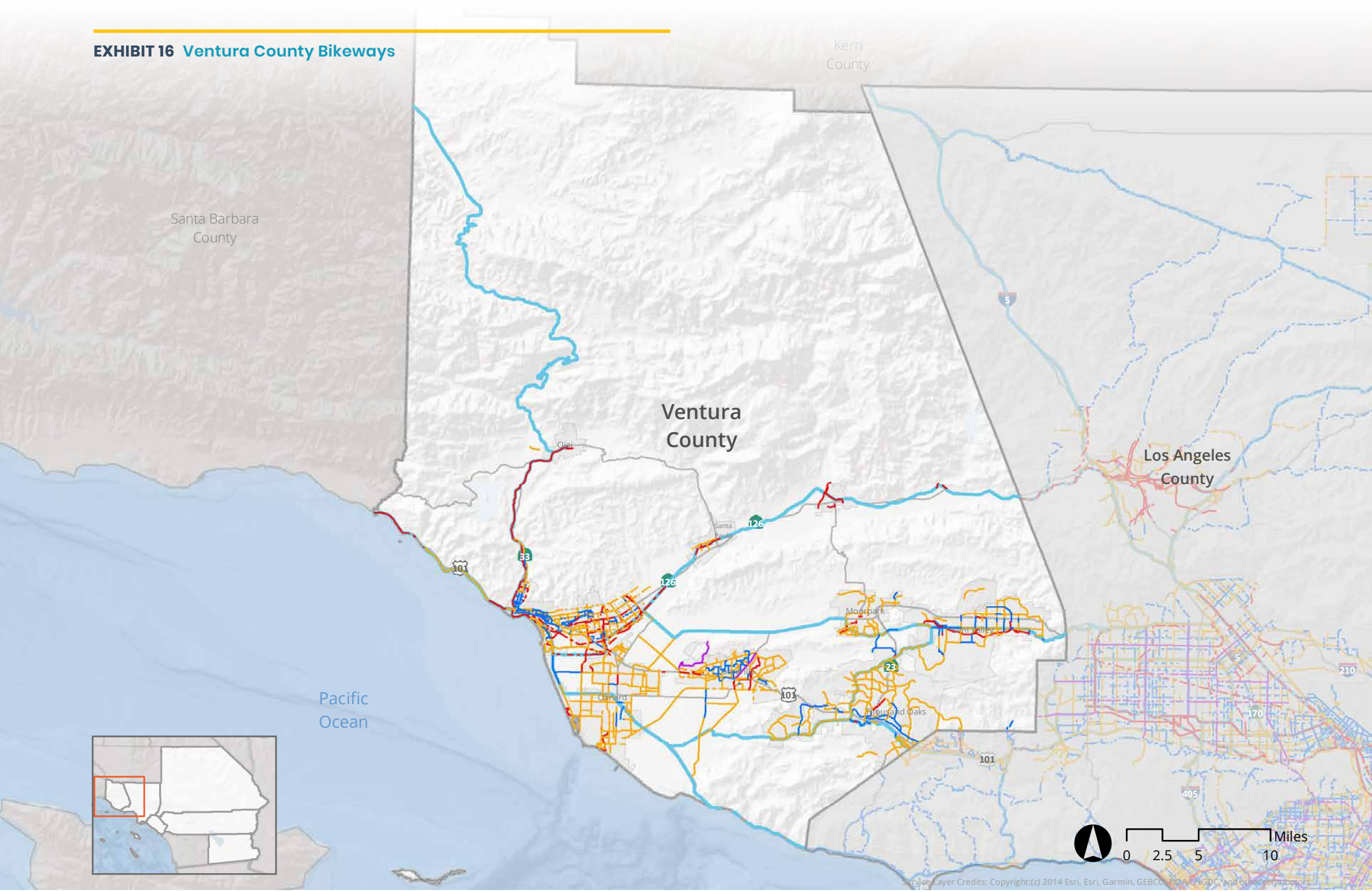
Proposed Bikeways
Class I
Class II
Class III
Class IV

Source: SCAG, 2019

VENTURA COUNTY

The Ventura County Transportation Commission developed a Regional Bikeway Wayfinding Plan to help improve the convenience and safety of people traveling by bike in Ventura County. The plan, prepared collaboratively with county and municipal agencies, stakeholder groups and the general public, serves as a toolkit for the development of a regional wayfinding network. It identifies 17 regional bike routes and to be developed and/or to receive wayfinding signage making up a total of 413 miles of bikeway.

EXHIBIT 16 Ventura County Bikeways



County Boundaries
City Boundaries
Freeway
Regional Bikeway Network

Existing Bikeways
Class I
Class II
Class III
Class IV

Proposed Bikeways
Class I
Class II
Class III
Class IV

Source: SCAG, 2019

APPENDIX 4 OF 6

Regional Bikeway Network

The Regional Bikeway Network (RBN) is a proposed 2,220-mile system of interconnected bicycle routes of regional significance. The RBN connects local jurisdictions and counties serving as a spine for local bikeway networks and the regional greenway network. It includes on-road and off-road bikeways (including the regional greenway network) that link major origins and destinations directly, or through connectivity to high quality transit service. The primary purpose is to serve regional trips, commuting and recreational bicycling, taking local existing and planned bikeways and providing a strategic regional focus **(EXHIBIT 17).**

BICYCLE ROUTE 5

Bicycle Route 5 will travel from Gorman, through the Grapevine and along the shoulder of Interstate 5 until Santa Clarita. Then, using local streets, it connects to the San Fernando Valley and into downtown Los Angeles.

BICYCLE ROUTE 8

Bicycle Route 8 will connect San Diego County to El Centro, Holtville and Yuma, Arizona.

BICYCLE ROUTE 10

Bicycle Route 10 will travel (from east to west) from Blythe, mostly along Interstate 10 freeway shoulders (where legal) into the Coachella Valley, connecting to Western Riverside County. It then links to the Santa Ana River Trail into north Orange County where it leaves the trail and travels to Los Angeles County's south bay.

BICYCLE ROUTE 33

Bicycle Route 33 is a combination of existing trails traversing 18 miles that connect Ventura to Ojai. These routes include: Ventura Beach Trail; Ventura River Trail (Ojai Valley Trail extension); and the Ojai Valley Trail.

BICYCLE ROUTE 66

Bicycle Route 66 is a proposed east-west route from Needles to Santa Monica, traveling along or near the original Route 66. It will be part of the proposed multi-state Bicycle Route 66 being developed by the Adventure Cycling Association and various state departments of transportation. Seven cities along the route in the SCAG region have issued letters of support for the Route, which is a necessary step for designation as a national bike route.

BICYCLE ROUTE 78

Bicycle Route 78, once designated, will connect San Diego County to Imperial County. It is currently part of the Adventure Cycling Association's "Southern Tier" Bicycle Route, connecting California to Florida. It connects to Imperial County along Interstate 8 before traveling to Brawley and then along State Route 78 to Blythe.

BICYCLE ROUTE 86

Bicycle Route 86 will connect the City of Calexico along the Mexican Border to the Coachella Valley in Riverside County, linking to the CV Link trail and Bicycle Route 10. Part of it could be part of a bicycle loop around the Salton Sea.

BICYCLE ROUTE 95

The Pacific Coast Bicycle Route is currently part of a multi-state bicycle route from the State of Washington to Baja, Mexico. The route was developed by the American Cycling Association for bicycle tourists. Once established by local governments and adopted by the California Department of Transportation, the route will become Unites States Bicycle Route 95.

BICYCLE ROUTE 111

Bike Route 111 will connect the local jurisdictions in Imperial County to the Coachella Valley in Riverside County, along the less traveled State Route 111 on the east side of the Salton Sea, and serve as part of a bicycle loop around the Salton Sea.

BICYCLE ROUTE 126

Bicycle Route 126 will connect Lancaster and Palmdale to Santa Clarita and Bicycle Route 5, before traveling along the State Route 126 corridor to Ventura County.

HIGH DESERT CORRIDOR

The High Desert Corridor represents the Complete Streets approach of incorporating active transportation into the initial planning and design of regionally significant projects. As Caltrans continues planning the High Desert Corridor Freeway, a separated bicycle path will be planned/evaluated. A separated bicycle path would serve as a bicycling backbone for the projected 500,000 population growth in that area in the next 20 years. The high desert corridor bicycle path will connect Victorville in the San Bernardino County to Palmdale, Lancaster and Interstate 5 in north Los Angeles County.

OC LOOP

The Orange County (OC) Loop is a planned 66-mile route that will connect the residents and tourists of seventeen OC cities to some of California's most scenic beaches and inland destinations. Currently, approximately 80 percent of the OC Loop is in place, with nearly 54 miles of off-street trails along the San Gabriel River, Coyote Creek, Santa Ana River, and the Coastal/Beach Trail. When complete, the OC Loop will link 650,000 residents and thousands of tourists to 200 parks, 180 schools, and popular destinations, as well as serve as a first and last mile connection to numerous bus stops and three Metrolink stations **(EXHIBIT 18).**

LOS ANGELES RIVER

While technically a greenway, the Los Angeles River Trail connects to the ocean and the California Coastal Trail— it is considered a regionally significant bikeway. Portions of the trail are still being constructed or are in planning stages. The largest segment to be planned is from just north of downtown Los Angeles to the City of Maywood. Rail lines and other commercial development alongside the river require innovative planning to develop greenways.

SAN GABRIEL RIVER TRAIL

While technically a greenway, the San Gabriel River Trails connects the San Gabriel Mountains to the ocean and the California Coastal Trail and is considered a regionally significant bikeway. The trail connects the City of Duarte to Long Beach.

SANTA ANA RIVER TRAIL

The Santa Ana River Trail extends from Huntington Beach through Riverside County to the San Bernardino Mountains and is considered a regionally significant bikeway. The concept of this 110-mile multi-use trail was originally conceived in 1955, and includes paved facilities for bicyclists and pedestrians, as well as unpaved sections for equestrian, hiking and mountain biking use. The Orange County section is largely completed, and the Riverside County Transportation Commission is currently constructing a portion of the trail to address gaps in the system. When completed, the Santa Ana River Trail will bridge three counties, 17 cities, two national forests, and other regionally significant bikeways such as the California Coastal Trail.

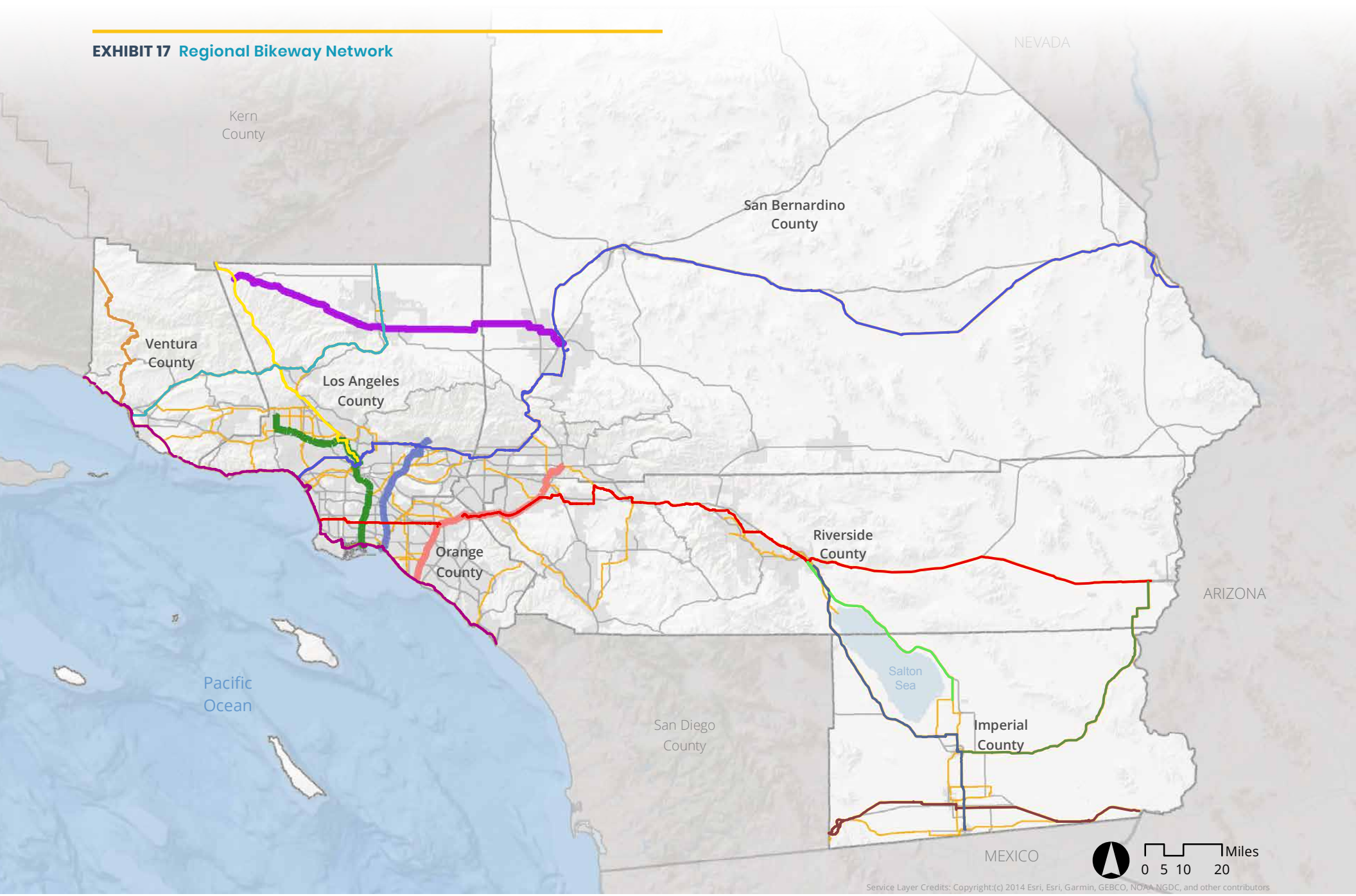
CV LINK

The Coachella Valley Association of Governments has CV Link, a proposed 55-mile bike path, which will serve as the backbone for the Valley, connecting to local routes, and helping to reduce congestion on State Route 111.

CALIFORNIA COASTAL TRAIL

The California Coastal Trail (CCT), established by the Coastal Act of 1976, is a "continuous public right-of-way along the California coastline; a trail designed to foster appreciation and stewardship of the scenic and natural resources of the coast through hiking and other complementary modes of non-motorized transportation." In 2003, the Coastal Conservancy developed the Completing the California Coastal Trail plan to provide a strategic blueprint to complete the CCT. SCAG is required to incorporate the California Coastal Trail access and completion into its regional transportation planning process **(EXHIBIT 19).**

EXHIBIT 17 Regional Bikeway Network

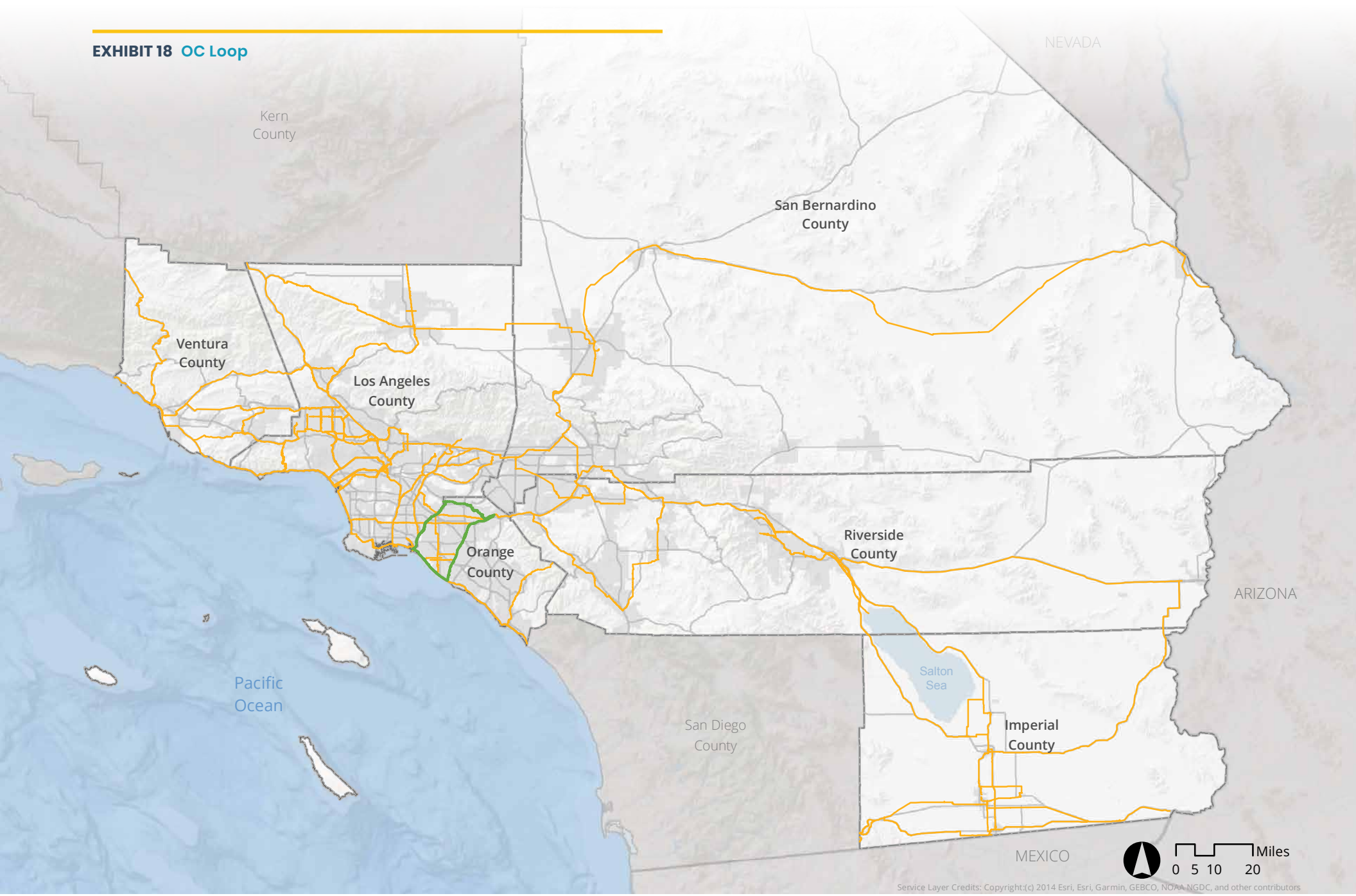


Desert & River Routes
- High Desert Corridor
- Los Angeles River
- San Gabriel River
- Santa Ana River

Bicycle Routes
- Bicycle Route 10
- Bicycle Route 111
- Bicycle Route 126
- Bicycle Route 33
- Bicycle Route 5
- Bicycle Route 66
- Bicycle Route 78
- Bicycle Route 8
- Bicycle Route 86
- Bicycle Route 95, Pacific Coast Highway
- Other Regional Bikeways

Source: SCAG, 2019

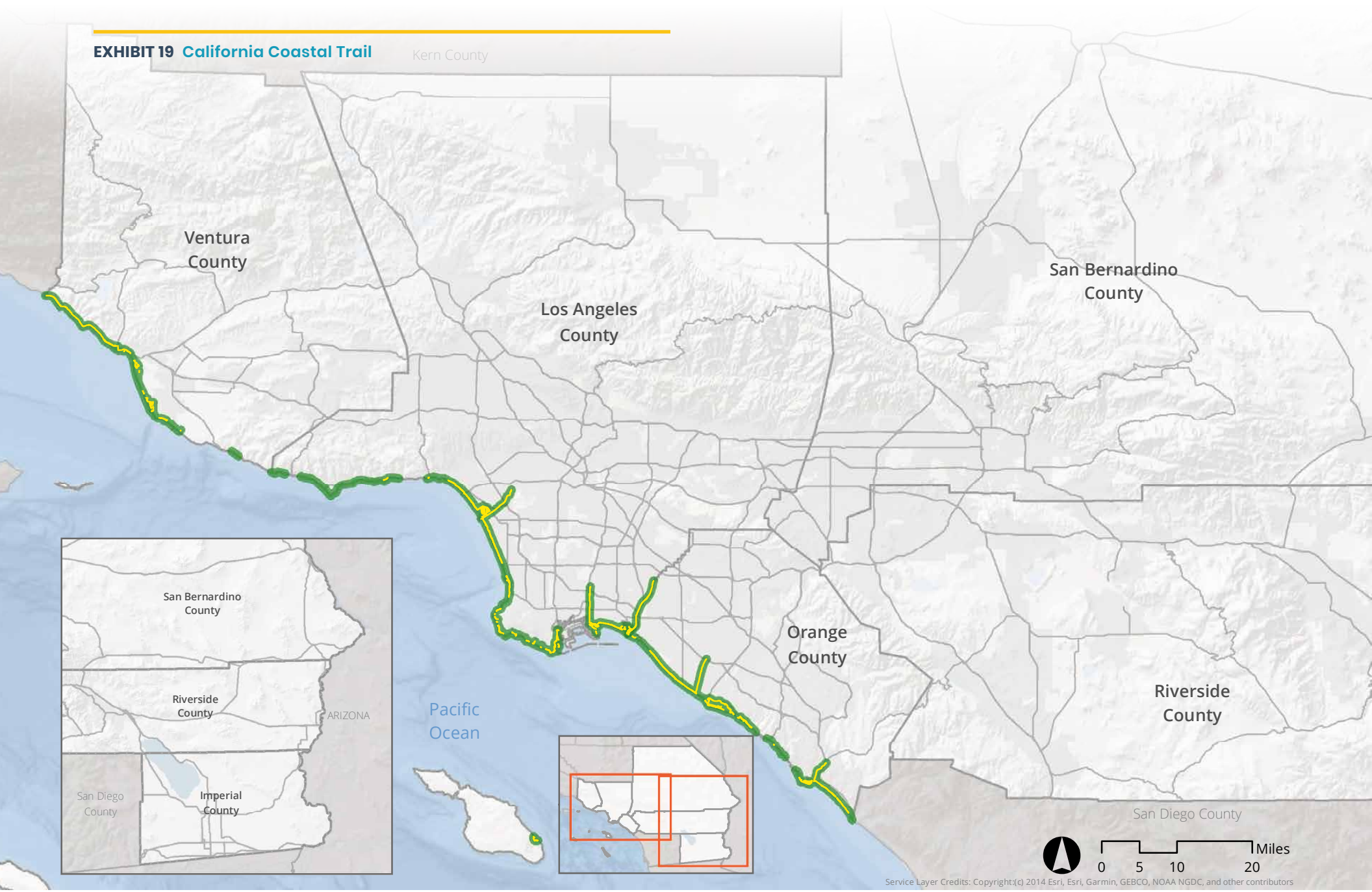
EXHIBIT 18 OC Loop



County Boundaries | City Boundaries | Freeway | OC Loop | Regional Bikeway Network

Source: SCAG, 2019

EXHIBIT 19 California Coastal Trail



County Boundaries | City Boundaries | Freeway | Bike Trail | Other California Coastal Trail Components

Source: California Coastal Commission and State Coastal Conservancy, 2019

APPENDIX 5 OF 6

Regional Greenway Network

The regional greenway network (RGN) is a 2,290-mile network designed to increase walking and biking by creating separated bikeways that are designed for most potential bicyclists. It makes use of available open space such as rivers, drainage canals, separated bikeways and utility corridors. This strategy meets the concerns of bicyclists and pedestrians who do not want to be traveling near motor vehicle traffic. In addition, the network facilitates re-imagining of how to integrate our river systems with active transportation initiatives. Many of the region's riverbeds have been turned into channels designed to handle 500-year floods flushing water runoff to the ocean. The regional greenway network, combined with river restoration efforts, can create a unique opportunity to create open space, greenways or wetlands where not only biking or walking can occur, but also kayaking, fishing and other rare recreation activities for urban environments can flourish. Expanding on the river restoration efforts, the RGN also incorporates Class 1 existing and planned routes, and other notable bikeways highlighted below.

BALLONA CREEK

Ballona Creek Bike Path extends about 7 miles from Culver City to the Coast Bike Path along the beach. This bike path provides multiple entrances to facilitate access to transit, job centers, residential neighborhoods and alternative local bike paths.

BICYCLE ROUTE 33

Bicycle Route 33 is a combination of existing trails traversing 18 miles that connect Ventura to Ojai. This route include; Ventura Beach Trail, Ventura River Trail (Ojai Valley Trail extension) and the Ojai Valley Trail.

CV LINK

The CV Link serves a transportation route and recreational pathway which connects the communities within the Coachella Valley and provides a safer, healthy alternative to cyclist, pedestrians and users of low-speed electric vehicles. This dual pathway route largely follows the Whitewater River Channel and will ultimately span more than 50 miles across nine cities and three tribal governments. The first segment, which stretches from Palm Springs to Cathedral City, opened to the public in February 2018.

THE EMERALD NECKLACE

The Emerald Necklace is comprised of the following Regional Bikeway Network trails; San Gabriel River Trail, Rio Hondo Trail and the L.A. River Trail. Since 2005, local stakeholders have developed and implemented the Emerald Necklace Vision, which identifies a series of proposed trail and greening projects that provide a continuous, looped network of bike paths and multi-use trails along urban waterways. This 17-mile loop connects 10 cities and nearly 500,000 residents along the Rio Hondo and San Gabriel rivers watershed areas of East Los Angeles County to more than 1,500 acres of parks and open spaces.

HIGH DESERT CORRIDOR

The High Desert Corridor represents the Complete Streets approach of incorporating active transportation into the initial planning and design of regionally significant projects. As Caltrans continues planning the 63-mile High Desert Corridor Freeway, a separated bicycle path will be planned. A separated bicycle path would serve as a bicycling backbone for growing communities in Antelope Valley and western San Bernardino County. The high desert corridor bicycle path will connect Victorville in the San Bernardino County to Palmdale, Lancaster and Interstate 5 in north Los Angeles County

OC LOOP

The Orange County (OC) Loop is a planned 66-mile route that will connect the residents and tourists of 17 OC cities to some of California's most scenic beaches and inland destinations. Currently, approximately 80 percent of the OC Loop is in place, with nearly 54 miles of off-street trails along the San Gabriel River, Coyote Creek, Santa Ana River and the Coastal Trail. When complete, the OC Loop will link 650,000 residents and thousands of tourists to 200 parks, 180 schools and popular destinations, as well as serve as a first and last mile connection to numerous bus stops and three Metrolink stations.

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SAN GABRIEL RIVER TRAIL

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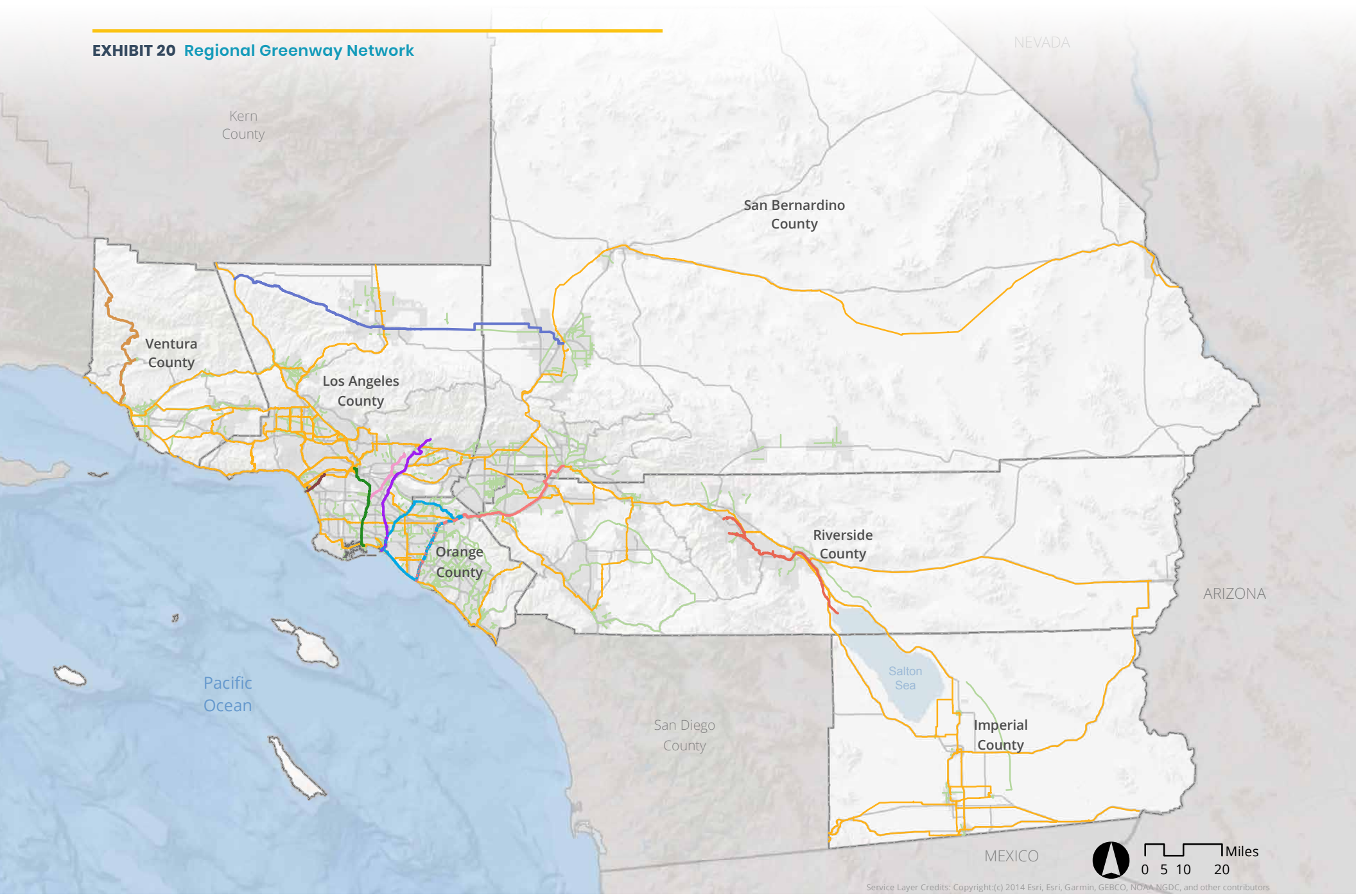
EXHIBIT 20 Regional Greenway Network



County Boundaries
City Boundaries
Freeway

Regional Greenway Network
Ballona Creek Bike Path
Bicycle Route 33
CV Link
High Desert Corridor
Los Angeles River
Rio Hondo Trail
San Gabriel River Trail
Santa Ana River Trail
OC Loop
Other Regional Greenway Network Bikeways
Regional Bikeway Network

Source: SCAG, 2019

APPENDIX 6 OF 6

Funding Opportunities

STATE FUNDING OPPORTUNITIES

Caltrans' Transportation Planning Grant Program provides support for three funding opportunities[51] to encourage local and regional agencies plan more sustainable communities, reduce transportation-related greenhouse gases, and adapt to the effects of climate change. The Strategic Partnerships Grants recently expanded its scope to include a transit component in addition to helping address deficiencies on the State highway system. The Sustainable Communities Grant, awarding $29.5 million for fiscal year 2019-2020 of which a significant portion is available through SB 1, promotes initiatives such as local mobility, complete streets, and active transportation plans.

Active Transportation Program (ATP) allocates state and federal funds to support city and county projects that enhance public health by improving safety and convenience for bicycle commuters, recreational riders and safe routes to school programs. The ATP has historically been funded by a variety of federal and state sources. In 2017, the state legislature nearly doubled the funding capacity of ATP with revenues raised through the adoption of the Road Maintenance and Rehabilitation Program (Senate Bill 1).

51 The three funding opportunities include the Sustainable Communities Grants, the Strategic Partnerships Grants, and the Adaptation Planning Grants.

The California Office of Traffic Safety (OTS) annually awards grants to develop and implement safety programs which will help achieve California's goal "Toward Zero Deaths, every 1 counts"[52] by 2030. SCAG's Go Human Campaign was, in part, supported by OTS funding as it addressed the priority program area of Pedestrian and Bicycle Safety.

Highway Safety Improvement Program (HSIP), (23 U.S.C. §148) is a core federal-aid program to States for the purpose of using a performance-driven process to achieve a significant reduction in fatalities and serious injuries on all public roads or pedestrian pathways through the implementation of infrastructure-related improvements. MAP-21 allows each state to use HSIP funds for education and enforcement activities, as long as those activities are consistent with the state's Strategic Highway Safety Plan.

Greenhouse Gas Reduction Fund (GGRF) (2012) was established to receive the State's portion of Cap-and-Trade auction proceeds for projects that assist the state achieve GHG reduction goals of 1990 levels by 2020. To date, more than $9 billion dollars have been appropriated by the Legislature to State agencies. Senate Bill 535, (Chapter 830, De León, Statues 2012) mandates that a quarter of the proceeds from the GGRF must go to projects that provide a benefit to disadvantaged communities.

The Road Repair and Accountability Act (Senate Bill 1, 2017) expanded and allocated funds for projects which support the State's transportation systems, incentivize smart growth and promote equitable community development. Of note is funding provided through the Local Streets and Roads program which can be used for pedestrian and bicycling improvements.

Transportation Development Act Article 3 provides funding based on a 1/4 percent State sales tax, with revenues made available annually on a per capita basis to support the planning and construction of transit, bicycle, and pedestrian facilities.

52 California Office of Traffic Safety (2013). *California Highway Safety Plan; Toward Zero Deaths, Every 1 Counts.*

Assembly Bill 2766 (Sher, 1990), the Motor Subvention Program, established the **Clean Air Fund** which is generated by a surcharge on automobile registration and allocated to Air Quality Management Districts for distribution to implement projects that reduce mobile source emissions such as Employer Based Work-Related Trip Reduction projects that eliminate single occupancy vehicle trips by encouraging the use of public transit, carpooling, biking, walking, and implementing telecommuting programs.

The Better Utilizing Investments to Leverage Development (BUILD), previously known as Transportation Investments Generating Economic Recovery, has dedicated nearly $7.1 billion of federal funds for ten rounds of incentivizing innovative, collaborative solutions that deliver on five long-term outcomes: safety, economic competitiveness, state of good repair, livability and environmental sustainability.

REGIONAL AND COUNTY FUNDING SOURCES

Sustainable Communities Program (SCP) (previously Sustainable Planning Grants), a SCAG program established in 2005, has awarded approximately $48 million to support 347 local sustainability and active transportation planning projects. A significant portion of the funds for the Program are available through SB1 - the Road Repair and Accountability Act. This program has strengthened partnerships with cities and local municipalities by providing consultant services as well as financial and technical resources, free of charge, which has resulted in local initiatives that promote sustainability through the integration of transportation and land use.

County Funding Opportunities – Every county transportation commission in the SCAG region also funds bicycle and pedestrian projects through other countywide sources and most have regular calls for projects. These are funded either through county level sales taxes or from TDA and CMAQ funding. For example, the Bicycle Corridor Improvement Program (BCIP) administered by OCTA is funded to connect local city and county projects to competitive federal grant programs.

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