REGIONAL DEDICATED TRANSIT LANES STUDY

APRIL 2023

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ABOUT SCAG

SCAG is the nation's largest metropolitan planning organization (MPO), representing six counties, 191 cities and more than 19 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future.

VISION

Southern California's Catalyst for a Brighter Future

MISSION

To foster innovative regional solutions that improve the lives of Southern Californians through inclusive collaboration, visionary planning, regional advocacy, information sharing, and promoting best practices.

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TABLE OF CONTENTS

LIST OF ACRONYMS

APTA American Public Transportation Association
AVCJPA Arroyo Verdugo Communities Joint Powers Authority
BAT Business Access and Transit
BIL Bipartisan Infrastructure Law
BRT Bus Rapid Transit
BS Baseline Scenario

Caltrans California Department of Transportation
CBO Community-Based Organization
CDP Census Designated Place
CEQA California Environmental Quality Act
CIP Capital Improvement Program
COG Councils of Government
CPA Community Planning Areas
CTC County Transportation Commissions
CVAG Coachella Valley Association of Governments

DOT Department of Transportation

EB Eastbound
EW East-West

FAST Fixing America's Surface Transportation
FTA Federal Transit Administration
FTIP Federal Transportation Improvement Program

GCCOG Gateway Cities Council of Governments
GCT Gold Coast Transit
GHG Greenhouse Gas
GIS Geographic Information Systems

HOV High-Occupancy Vehicle
HPI Healthy Places Index
HOT High-Occupancy Toll (Lane)

IIJA Infrastructure Investment and Jobs Act
ICTC Imperial County Transportation Commission
IVAG Imperial Valley Association of Governments

LAC Los Angeles County
LADOT Los Angeles Department of Transportation
LA Metro Los Angeles County Metropolitan Transportation Authority
LCTOP Low Carbon Transit Operations Program
LTF Local Transportation Fund

MPO Metropolitan Planning Organization
MUTCD Manual on Uniform Traffic Control Devices

NCTC North County Transportation Coalition
NE North-East
NS North-South

OCCOG Orange County Council of Governments
OCTA Orange County Transportation Authority
OEHHA Office of Environmental Health Hazard Assessment

PS Planned Scenario

QA/QC Quality Assurance, Quality Control

RCTC Riverside County Transportation Commission
RHNA Regional Housing Needs Assessment
ROW Right-of-way
RTA Riverside Transit Agency
RTP/SCS Regional Transportation Plan and Sustainable Communities Strategy

SBCOG San Bernardino Council of Governments
SBCTA San Bernardino County Transportation Authority
SCAG Southern California Association of Governments
SCCP Solutions for Congested Corridors Program
SCS Sustainable Communities Strategy
SFVCOG San Fernando Valley Council of Governments
SGVCOG San Gabriel Valley Council of Governments
STA State Transit Assistance
STIP State Transportation Improvement Program
SW South-West

TAC Technical Advisory Committee
TAZ Traffic Analysis Zone
TBOS Transit Bus on Shoulder
TDA Transportation Development Act
TIP Transportation Improvement Program
TIRCP Transit and Intercity Rail Capital Program
TOC/TOD Transit Oriented Communities/Development
TSP Transit Signal Priority

UCLA University of California Los Angeles

VCOG Ventura Council of Governments
VCTC Ventura County Transportation Commission
VMT Vehicle Miles Traveled

WB Westbound
WCCOG Westside Cities Council of Governments
WRCOG Western Riverside Council of Governments

EXECUTIVE SUMMARY

People around the world and across the Southern California Association of Governments (SCAG) region rely on public transportation services to get to where they need to go. In 2019, over 30 million transit trips were made every day by people living in the six-county region; on one of over 100 agency or municipal transit operators. Many ride because they do not have access to sufficient and affordable alternative transportation services, while some choose to ride because they value the transit trip over other modes. While reasons may vary, transit riders consistently report that the speed and reliability of services are key factors in their decision-making, along with the safety, security, convenience, and accessibility of the ride.

For regions, encouraging transit travel is an even more acute objective: transit and shared mobility trips not only ease automobile congestion on overtaxed and underinvested public infrastructure; they lead to improved economic, climate, and public health benefits for the region. Beyond that, providing high-quality transit services contributes to restoring equitable outcomes by creating broader access and a more comparable travel experience to those in disadvantaged communities as to those who are not.

With all of these factors and benefits in hand, observing transit ridership decline across Southern California for over a decade has proved disheartening. Transit ridership in the SCAG region has been falling since 2007[1] and has declined from pre-pandemic levels even as auto travel has returned. These phenomena are unsurprising given how much public infrastructure and policy in Southern California have been designed to accommodate auto travel. Everything from through lanes to parking regulations and to land use and housing policy have traditionally favored personal vehicular travel. As a result, even people in disadvantaged communities will seek out auto options when available to improve the accessibility and convenience of travel.

Several communities and transit operators, including many in the SCAG region, have therefore sought to reverse these trends by recognizing that a foundational element of bringing new travelers to transit and improving services for those who ride is delivering the very values of speed, reliability, safety, and convenience afforded the auto trip through a commitment to infrastructure and operations that support the trip. As a result, transit ridership increases; delay in congested corridors decreases; and societal benefits for equity, climate, and health are more in reach. **Dedicated transit lanes and related transit priority treatments are proven methods to meet individual and community objectives, often delivered faster and cheaper than larger capital investments.**

14% LOSS

in SCAG region **TRANSIT RIDERSHIP** in the decade prior to pandemic

Source: National Transit Database.

30% ADDITIONAL LOSS

in SCAG region **TRANSIT RIDERSHIP** since the start of the pandemic

Source: APTA Ridership Trends powered by Transit.

1.5%

REGIONAL ROUTE MILES currently with any transit priority

75

Corridors **PRIORITIZED FOR IMPLEMENTATION** of new priority treatments

1,240

NEW CENTERLINE MILES of transit priority

THE CASE FOR IMPROVING REGIONAL TRANSIT TRAVEL

The SCAG region has ambitious goals to reduce greenhouse gas emissions (GHG) in transportation, the number one cause of climate change, in part, by reducing single-occupancy vehicle trips and increasing transit mode share. A key step toward meeting these goals, as well as local and county goals for mobility and equity, can come from improving the speed and reliability of transit services throughout the region.

This *Regional Dedicated Transit Lanes Study* explores the opportunities, needs, challenges, and best practices for developing a regional network of dedicated bus lanes and other transit priority treatments. This regional transit priority network is intended to enable enhanced transit services, improved mobility, accessibility and sustainability, and advance implementation of Connect SoCal.

The study's objectives were to identify:

- The key benefits of dedicated bus lanes and the primary factors for successful implementation.
- Provide a preliminary assessment on where dedicated bus lanes might be most feasible and beneficial in the SCAG region.
- Provide recommendations and guidance for local jurisdictions that are seeking to pilot or implement dedicated bus lanes.

Meeting these objectives represents a significant opportunity for the region. Of the 23,000 centerline miles of roadway across six counties, only about 1.5 percent of route miles have some form of dedicated transit priority treatment, such as a bus lane or transit signal priority. Because there are so few existing treatments, there are myriad possibilities for where and how to implement transit priority treatments. There also are many ways to improve travel time, speed, and reliability for transit riders, while respecting the vast diversity in design, density, and desire from expansive rural communities to dense urban neighborhoods. Regardless of community size and shape, a priority treatment that can improve travel and access as congestion worsens.

SCAG and its regional, county, city, and transit agency partners identified six goals for expanding the network of regional transit priority corridors. Goals 1 and 2 are the fundamental reasons for implementing priority treatments, and Goals 3 through 6 are important considerations for prioritizing investment:

1. ***Improve Transportation System Performance***
2. ***Increase People throughput and Attract Riders***
3. ***Improve Access for Equity-Focused Communities***
4. ***Promote Local Plans and Priorities***
5. ***Integrate with the Built Environment***
6. ***Improve Climate and Health Outcomes***

These goals informed the selection, screening, and evaluation process of corridors where priority treatments would bring the greatest benefit to the region. Over 15,000 viable miles of roadway in the SCAG region were examined to identify 75 new corridors to complement 29 existing and 30 planned priority corridors. Implementing these corridors would add over 1,240 centerline miles to the region's existing transit priority network, increasing the regional priority network nearly fivefold.

THE POWER OF TRANSIT PRIORITY

Transit ridership is low in the SCAG region in part because a majority of the region's built environment is designed to facilitate the movement of private vehicles. Taking public transit today is not convenient for most people. As SCAG's report on *Falling Transit Ridership: California and Southern California* (2018) succinctly puts it, as long as driving in the SCAG region is the easiest way to get around, people will drive more (often at a considerable cost burden) and ride transit less.

However, in order to meet regional and State climate goals around GHG emission reductions, we need to increase transit ridership. Transit priority treatments accomplish this by adapting the built environment to provide a better user experience for transit riders, and in so doing increase the mobility of people through a given corridor. It refers to a category of design and operational tactics that can improve transit travel times, create safer travel environments, provide schedule reliability, and create a service that riders can rely on to get where they need to go. Transit priority is all about increasing transit **speed** and improving **reliability**.

Transit priority treatments reduce common barriers that prevent people from using transit services. These include lack of confidence in when the bus will arrive, concern about the being stuck in traffic, uncompetitive travel times compared to auto trips, and variable trip travel times that waste customer time by forcing them to arrive too early to their destination if they want to ensure they are on time.

Improving transit priority can help solve many issues that the SCAG region faces. The majority of people drive personal vehicles to meet their daily travel needs (93 percent of all trips currently are taken by auto[2]). There is a limit to how many people can use our roadways at once. Providing effective transit options increases the capacity of our roadways, allowing more people to get where they need to go.

Reliable and fast transit improves mobility and accessibility for current bus riders and equity populations that may not be able to afford other means of travel. It also encourages people to shift from other modes to ride transit, increasing sustainability in the region by reducing GHG emissions and allowing for less land dedicated to storage of private vehicles. Improved service also can attract new bus riders, increasing revenues to potentially offset some of the costs of improved service.

There are many types of transit priority treatments. As part of this study, SCAG has published a *Transit Priority Best Practices Report* (2022), providing a technical review of transit priority treatments, design guidelines, and best practices for implementation. For the purpose of this analysis, SCAG has not been prescriptive about what type of treatment should go on every corridor, recognizing that different corridors and communities have different needs.

MORE THAN JUST BUS RAPID TRANSIT

Bus rapid transit, or BRT, is a powerful and effective mode often consisting of multiple priority treatment applications, but it's not the only one. There are a vast number of less invasive applications, often labeled tactical transit treatments, that can improve transit speed and reliability on both arterial and freeway corridors.

- **Common LANE Treatment Types:** dedicated bus lanes, peak-only bus lanes, business access and transit (BAT) lanes, freeway or HOV/toll/ bus lanes
- **Common INTERSECTION Treatment Types:** transit signal priority, queue jumps/bypass lanes, right turn lanes
- **Common STOP Treatment Types:** bus bulb outs, level boarding platforms, off-board fare collection, all-door boarding, bus stop location balancing, routing adjustments

Peak-only bus lane sign

Separated bus lane

Queue jump/ intersection bypass lane signage

Bus on highway shoulder

Bus bulb out with level boarding platform

Bus stop with off-board fare tapping and amenities

THE VISION FOR A REGIONAL PRIORITY NETWORK

To identify where transit priority treatment corridors would provide the greatest benefit, SCAG convened a Technical Advisory Committee (TAC) comprising 58 representatives from transit operators, councils of government (COG), County Transportation Commissions (CTC), and cities across the SCAG region (see Appendix C for a full list of organizations). In addition to providing accurate information on existing plans, they also provided local knowledge about potential corridors, community priorities, and on-the-ground conditions.

A two-stage process was used to arrive at a set of corridors considered most promising to study further for transit priority treatments. The first stage, **Corridor Identification and Screening**, considered the universe of corridors within the SCAG region and from the over 15,000 miles of feasible roadways, narrowed down to just over 300 corridors that could be candidates for priority treatments. Around 100 of these corridors, as determined by potential performance and TAC feedback, were promoted to a second stage **Corridor Evaluation** process that simulated a priority treatment on the corridor to assess likely performance.

GOALS AND CRITERIA FOR PRIORITY CORRIDORS

The TAC and the study team worked together to create a set of prioritized goals for transit priority corridors in the region (Table 1). These goals were used to identify, screen, and evaluate roadways in the SCAG region to see where transit priority treatments would have the most impact. The TAC identified Goal Areas 1 and 2 as essential to why priority treatments are implemented; namely, to maximize mobility through speed and reliability improvements to the transit network. Goal Areas 3 through 6 were considered to be ideal outcomes of the most well-designed priority treatments.

Within each of these six goal areas, the TAC identified key criteria that would be useful for determining whether that goal might be realized on a given corridor (Table 2). In the screening and evaluation stages, the study team then assigned quantifiable metrics that correlated to each criterion, and weighted each based on its relative contribution to a given goal.

TABLE 1. GOALS FOR TRANSIT PRIORITY CORRIDORS

Goal Areas	Goal Considerations
*Transit Priority Treatments should **always**:*	
1. Improve Transportation System Performance	Will this corridor improve transit speed and reliability while minimizing traffic and safety impacts to improve regional connectivity?
2. Increase People Throughput and Attract Riders	Is this corridor located where people live and work? Are people using it to travel and take transit today? Where will these be implemented in the future?
*Transit Priority Treatments should **ideally**:*	
3. Improve Access for Equity-Focused Communities	Where are equity-focused communities located and where are the destinations that they need to get to?
4. Promote Local Plans and Priorities	What corridors are already aligned with local priorities, existing plans, and studies? Where is it financially feasible to install treatments?
5. Integrate with the Built Environment	Is the corridor close to transit supportive land uses and transit oriented development? Is it technically feasible to install a treatment on this roadway? Is it located near existing and planned active transportation networks?
6. Improve Climate and Health Outcomes	Will this corridor help reduce greenhouse gas and other emissions? Will it help create healthy places?

TABLE 2. CRITERIA FOR TRANSIT PRIORITY CORRIDOR SCREENING AND EVALUATION

Goal Area	Criteria
1. Improve Transportation System Performance	Transit Speed and Reliability Potential, Minimize Traffic and Safety Impacts, Promotes Regional Connectivity
2. Increase People Throughput and Attract Riders	Population and Employment Density, Travel Markets/Trip Intensity, Transit Ridership
3. Improve Access for Equity-Focused Communities	Equity Populations (Race (non-white)), Equity Populations (Income), Proximity to Schools and Civic Institutions
4. Promote Local Plans and Priorities	Identified Plans and Studies, Financial Feasibility, Jurisdictional Feasibility
5. Integrate with the Built Environment	Transit Supportive Land Use and Transit Oriented Development, Supportive First/Last Mile and Bike Network, Technical Feasibility
6. Improve Climate and Health Outcomes	Greenhouse Gas and other Emissions Impacts, Benefits to Healthy Places

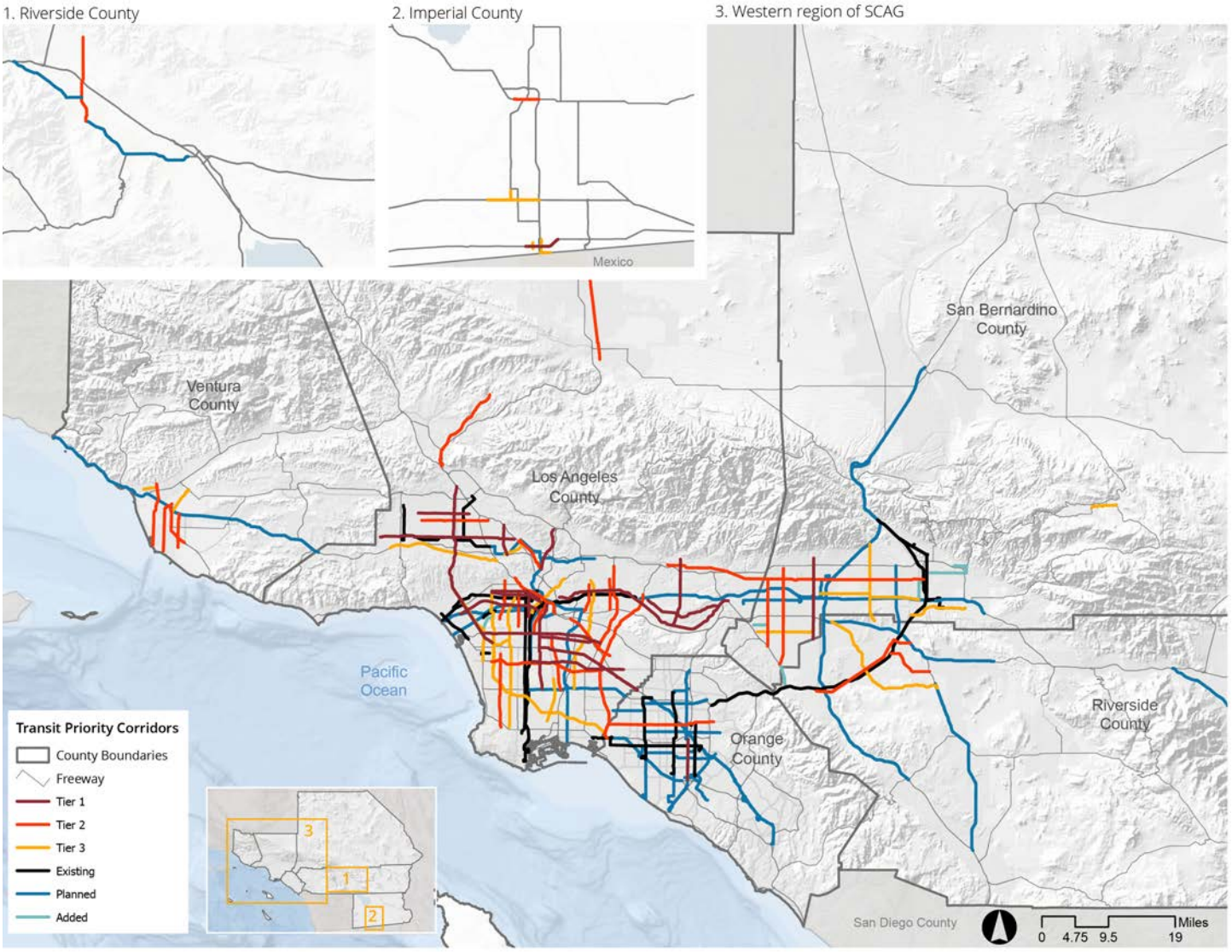
THE SCAG REGION TRANSIT PRIORITY NETWORK

The final existing and proposed corridors span the SCAG region (Figure 1). Ultimately, 75 corridors were ranked using the evaluation process, and 67 corridors were included as either existing (29), planned (30), or added (8) by the TAC after analysis (a complete list of corridors can be found in Chapter 4). Of the new corridors that were fully evaluated as the strongest opportunities for development, 21 corridors were ranked Tier 1, 30 were ranked Tier 2, and 24 were ranked Tier 3. If implemented in total, these corridors would expand SCAG's regional transit priority network by 1,240 centerline miles.

AN ABUNDANCE OF OPPORTUNITY

While analysis revealed a final set of 75 corridors primed for immediate consideration by local leaders, it identified another *185 potential corridors* that are also worthy of consideration. Appendix B documents these additional corridors, detailing the full extent of possibility for the SCAG region with a concentrated focus on priority treatment development.

FIGURE 1. NETWORK OF TRANSIT PRIORITY CORRIDORS



County	Total Corridors	Tier 1	Tier 2	Tier 3	Existing	Planned	Added
Imperial	8	1	1	5	-	1	-
Los Angeles	74	17	16	10	21	9	**1**
Orange	19	1	2	-	5	11	-
Riverside	9	-	3	1	1	4	-
San Bernardino	25	2	4	6	2	4	**7**
Ventura	7	-	4	2	-	1	-
Total	**142**	**21**	**30**	**24**	**29**	**30**	**8**

THE JOURNEY TO A RENEWED TRANSIT FUTURE

Creating a regionwide network of reliable and fast buses will take coordination between cities, counties, COGs, and transit agencies; and in some cases, the California Department of Transportation (Caltrans). SCAG undertook this study with the purpose of exploring where and how transit priority treatments could have a positive influence in the region. It is up to local actors to make this vision a reality. To advance the work that this study begins, SCAG recommends two key next steps:

1. Incorporate a regional transit priority network into the development of Connect SoCal 2024 and related regional planning efforts.

SCAG currently is in the development phase of Connect SoCal 2024, the 2024 – 2050 Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS) and long-range visioning plan for the region. This important planning document allows project sponsors in the SCAG region to qualify for federal funding. In addition, it will identify a combination of transportation and land-use strategies to reach State GHG emission reduction goals and Federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, and support goods movement.

Improving the speed and reliability of public transit through transit priority treatments is a vital part of SCAG's long-range strategy. As such, this study—and the over 500 percent expansion to the regional transit priority network it imagines—helps inform Connect SoCal 2024 and SCAG's long-range transportation planning efforts moving forward. Further, identification of corridors through this study may provide the basis for inclusion in Federal Transportation Improvement Program (FTIP) updates and future federal and state funding programs.

2. Promote the corridors identified through this study into local planning efforts, stakeholder discussions, and funding and grant opportunities.

Planning and implementing transit priority treatments can be complex. It involves close collaboration between multiple governmental parties, especially public infrastructure owners and transit operators. Further, since transit priority treatments frequently consist of adapting the design and use of the existing built environment, corridor development must absolutely consider the voice and needs of local stakeholders, such as community groups, business owners, residential associations, and the general public.

Fortunately, a variety of traditional and new funding and grant opportunities exist to support the planning and implementation of priority treatments, which are cheaper and faster to build than larger capital projects. In just the last few years alone, the State of California has enacted several new laws and regulations that ease requirements for dedicated lanes and priority treatments on both arterial roadways and freeways.

This report is meant to inspire jurisdictions to explore transit priority treatments on regional corridors. While not a prescriptive list, it does provide a six-county view of where treatments could improve mobility and access, and provides a starting point for local communities as they embark on improving transit speed and reliability in their communities.

Today less than 2 percent of the roadways buses operate on in the region prioritize their movement in any way. Adding nearly 1,000 centerline miles of dedicated bus lanes and transit priority treatments would profoundly transform the SCAG region at a fraction of the cost of larger capital projects. They would provide existing transit riders with reliable and fast service, and in doing so attract new transit riders. Using them to fill in major transit gaps, improving first/last mile conditions, addressing transportation infrastructure connectivity, and increasing awareness of public transit options would combat auto dependency in the region; and provide better and more equitable access to employment, education, health care, and public outdoor space.

Transit priority treatments are a vital tool to provide quality service to existing riders, attract new riders, improve regional mobility and safety, and reach our ambitious equity and climate goals. The opportunity is vast. The faster municipal jurisdictions and transit agencies act, the better chance the region has to reverse 15 years of falling transit ridership and usher in a new era where transit vehicles, and the people who rely on them, are the priority.

AFFORDABLE INVESTMENTS THAT BENEFIT THE WHOLE COMMUNITY

Some communities and stakeholders are skeptical that repurposing existing public space for transit operations can take place without degrading auto travel, parking availability, or business access; however, research has shown that corridor treatments can be thoughtfully implemented in ways that improve mobility, safety, and economic benefits for all.

1.0 INTRODUCTION

The Southern California Association of Governments (SCAG) region contains more than 100 transit operators, serving over 19 million people across 6 counties. The region's transit operators, similar to those across the Nation, were grappling with ridership declines prior to the COVID-19 pandemic. To understand these trends, SCAG worked with the University of California Los Angeles (UCLA) in 2018 to examine patterns of transit service and patronage over time and across the region. The UCLA study concluded that the most significant factor driving the downward trends was increased motor vehicle access, particularly among low-income households that traditionally constituted the region's most frequent and reliable transit users.[3] Low-income households take on a considerable transportation cost-burden to gain and maintain private motor vehicle access because cars help them reach a significantly larger number of jobs than transit. The study provided two main recommendations: first, transit agencies need to work harder to convince discretionary riders to occasionally take transit instead of driving; and second, transit agencies need to increase the quality of service to make transit more appealing to discretionary riders. These recommendations are even more important as the COVID-19 pandemic has exacerbated previous issues and trends.

Compounding the importance of motivating additional transit ridership, the region has ambitious goals to reduce greenhouse gas emissions (GHG) in transportation in part by reducing single-occupancy vehicle trips and increasing transit mode share. Connect SoCal, SCAG's Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), established transit expansion as one of the core visions, contributing to the region's mobility, sustainability, and air quality goals. A key step toward meeting these goals, as well as local and county goals for mobility and equity, can come from improving the speed and reliability of transit services throughout the region. To accomplish these goals, it is critical for SCAG to work in partnership with transit operators.

This *Regional Dedicated Transit Lanes Study* was developed to support continued partnership and plans for improving transit across the region. The Study explores best practices and key benefits of dedicated transit lanes and priority treatments, the primary factors for successful implementation; assesses and recommends a network of corridors in the SCAG region; and provides implementation guidance to local jurisdictions. This regional transit priority network is intended to enable enhanced transit services, improved mobility, accessibility and sustainability, and advance implementation of Connect SoCal 2020.

Of the 23,000 centerline miles of roadway in the SCAG region, only about 1.5 percent of route miles have some form of dedicated transit priority treatment, such as a bus lane, signal priority, or other enhancement like bus queue jumps or limited stop service. Because there are so few existing treatments, there are many opportunities to implement transit priority treatments in the SCAG region and improve travel time, speed, and reliability for transit riders. SCAG and its regional, county, city, and transit agency partners identified six goals for expanding the network of regional transit priority corridors:

1. Improve Transportation System Performance
2. Increase People Throughput and Attract Riders
3. Improve Access for Equity-Focused Communities
4. Promote Local Plans and Priorities
5. Integrate with the Built Environment
6. Improve Climate and Health Outcomes

These goals informed the selection, screening, and evaluation process of corridors where priority treatments would bring the greatest benefit to the region. Over 15,000 viable miles of roadway in the SCAG region were examined to identify 75 new corridors to complement 29 existing and 30 planned priority corridors. Implementing these corridors would add over 1,240 centerline miles to the region's existing transit priority network, increasing the regional priority network nearly fivefold.

The subsequent chapters of this report are organized as follows:

Chapter 2: Best Practices of Transit Priority Treatments

Describes the purpose of Transit Priority Treatments, what types there are, and how to use them.

Chapter 3: Exploring the Region Today

Describes existing and planned Transit Priority Treatments in the SCAG Region, and where transit priority treatments might fit in with existing and future demographics, travel patterns, and built environment features in the region.

Chapter 4: Developing a Regional Vision for Priority Treatments

Describes what a viable network of transit priority treatments connecting and enhancing movement in the SCAG region would look like. Uses data to identify, screen, and evaluate a network of transit priority treatments

Chapter 5: Taking Next Steps for Action

Describes how this report aligns with SCAG's regional transportation planning efforts and how local agencies can use this information moving forward.

SPECIAL THANKS

This report would not have been possible without the diligent review and input from the Technical Advisory Committee (TAC). We thank the members from County Transportation Commissions (CTCs), Councils of Governments (COGs), counties, cities, and transit agencies across the region for their time and dedication to this project. A complete list of participating TAC members can be found in Appendix C.

2.0 BEST PRACTICES OF TRANSIT PRIORITY TREATMENTS

Transit priority treatments encompass a broad set of improvements to transportation infrastructure and transit operations and policies, used collectively to improve the speed and reliability of buses traveling within mixed-flow travel corridors.

SCAG's *Transit Priority Best Practices report (2022)* provides a technical review of transit priority treatments, design guidelines, transit performance analysis tools and techniques, and operational best practice documents published by transit operators and stakeholders. This chapter highlights the range of transit priority treatments the SCAG region could use to increase speed and reliability of transit operations.

PURPOSE OF TRANSIT PRIORITY TREATMENTS

The goal of transit priority treatments is to provide a better experience for transit riders and to subsequently increase the mobility of people through a given corridor. It refers to a category of design and operational tactics that can improve transit travel times, create safer travel environments, provide schedule reliability, and create a service that riders can rely on to get where they need to go. Transit priority is all about increasing transit **speed** and improving **reliability**.

Transit priority treatments help to reduce common barriers that prevent people from using transit services. These include lack of confidence in when the bus will arrive, concern about being stuck in traffic, uncompetitive travel times compared to auto trips, and variable trip travel times that waste customer time by forcing them either to arrive too early to their destination if they want to ensure they are on time or late due to unforecasted delays in service.

Transit priority can help address some of the issues the SCAG region faces. Over 19 million people call the region home. The majority of these people drive personal vehicles to meet their daily travel needs (93 percent of all trips currently are taken by auto[4]). Transit priority treatments offer a way to provide effective transit options for everyone in the region. Reliable and fast transit improves mobility and accessibility for current bus riders and equity populations that may not be able to afford other means of travel, and is repeatedly shown to be the most critical factor in attracting and retaining riders. It also encourages people to shift from other modes to ride transit, increasing sustainability in the region by reducing GHG emissions and allowing for less land dedicated to storage of private vehicles. Improved service also can attract new bus riders, increasing revenues to potentially offset some of the costs of improved service.

SPEED is the ability of transit vehicles to move along their routes in reasonable amounts of time.

RELIABILITY means that transit vehicle arrives at stops at consistent and predictable times.

TYPES OF TREATMENTS

Transit priority treatments consist of adaptations to the design of roadway or vehicle infrastructure and/or the operations and technology used by the bus within the travel corridor. **Design treatments** are physical changes to a roadway, intersection, or bus stop that help transit operate more effectively. **Operations or technology treatments** focus on systems that help improve speed and reliability. These include allowing the bus to have priority at stop lights, providing real-time information at stops, and operational adjustments to route alignments or stop locations.

Design, operations, and technology treatments can be applied in various combinations within a corridor to maximize speed and reliability benefits while conforming to the needs of the community and built environment. Treatments frequently include a mix changes to the travel lane or roadway, the intersections of travel, and the transit stop. The extent of benefits to speed and reliability typically is commensurate with the extent of treatment (i.e., lane-level benefits are more impactful than intersection-level benefits, which are, in turn, more impactful than stop-level benefits).

BUS LANE ENFORCEMENT

Enforcement is often needed to ensure that transit-only lanes function as intended. Automated enforcement can be incorporated into transit operations with video cameras on buses capturing license plates of vehicles that are illegally parked or stopped within a dedicated transit lane. Enforcement encourages motorist behavior change and reduces repeat violators. Considerations include, but are not limited to, obtaining authorization to utilize automated detection and enforcement systems and programs under State law, as well as staff training and resource capacity to review captured violations and issue citations.

LANE-LEVEL TREATMENTS

Bus lanes provide a dedicated space for transit vehicles to operate, improving reliability and reducing travel times by keeping buses out of auto traffic. They can have many variations in how they operate in physically and by time of day. They may include barrier separation for dedicated Bus Rapid Transit (BRT) lanes or nonseparated facilities that allow mixed traffic or limited auto operations (e.g., parking or through lanes that turn into a bus-only lane during certain hours of the day). Bus lanes also can be employed on freeways or other limited-access roadways, often either as part of a mixed high-occupancy and/or toll lane or within a shoulder-running lane.

No matter the configuration, dedicated bus lanes have proven travel time savings and greater travel time reliability for riders. These treatments are often deployed in urbanized areas that have an established roadway grid network with alternative routing options for existing auto traffic, and see greatest benefit within corridors that have pervasive congestion along the entire roadway. Other conditions that may warrant bus lanes include, but are not limited to, the following:

- Suburban-urban arterial connectors with sufficient right-of-way (ROW) and traffic conditions that support construction of new bus lanes or conversion of existing underutilized travel lanes.
- Corridors where implementation of BRT or enhanced bus lines with high frequency service have been proposed.
- Future high-density land use patterns and congestion mitigation strategies calling for increased transit service and accessibility.
- Corridors or segments that can support operation of multiple fixed routes that result in high frequency service when headways are combined.
- Support high ridership lines that experience high delay due to traffic congestion, or where increased capacity is warranted to meet demand or mitigate potential crowding at bus stop locations.

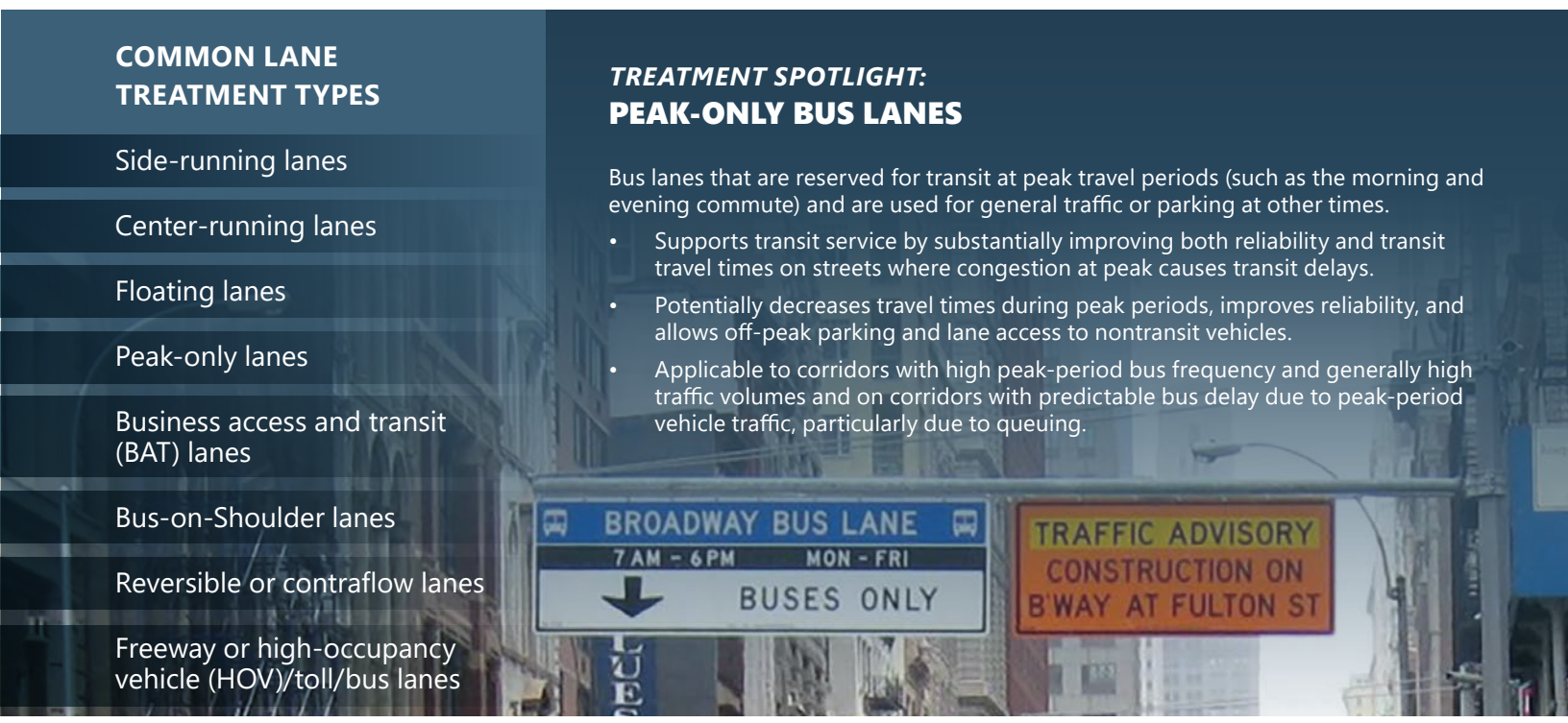
COMMON LANE TREATMENT TYPES

- Side-running lanes
- Center-running lanes
- Floating lanes
- Peak-only lanes
- Business access and transit (BAT) lanes
- Bus-on-Shoulder lanes
- Reversible or contraflow lanes
- Freeway or high-occupancy vehicle (HOV)/toll/bus lanes

TREATMENT SPOTLIGHT: PEAK-ONLY BUS LANES

Bus lanes that are reserved for transit at peak travel periods (such as the morning and evening commute) and are used for general traffic or parking at other times.

- Supports transit service by substantially improving both reliability and transit travel times on streets where congestion at peak causes transit delays.
- Potentially decreases travel times during peak periods, improves reliability, and allows off-peak parking and lane access to nontransit vehicles.
- Applicable to corridors with high peak-period bus frequency and generally high traffic volumes and on corridors with predictable bus delay due to peak-period vehicle traffic, particularly due to queuing.



INTERSECTION-LEVEL TREATMENTS

Intersection treatments typically include a mix of infrastructure and technology changes around the signalized intersections through which the transit vehicle must travel. The goal of any intersection treatment is to minimize the time and likelihood of delay associated with the intersection, which is a significant contributor to the running time and schedule variability of most bus routes.

These could consist of using communications technology for the bus to interact with the traffic signal (e.g., transit signal priority or transit-only signals), or physical infrastructure changes that allot lane space or travel rules for transit vehicles only at an intersection (e.g., queue jump lanes or right-turn only lanes). Freeway ramp bypass treatment is another form of an intersection-level treatment. Intersection treatments are often used in combination with lane-level treatments in a corridor.

COMMON INTERSECTION TREATMENT TYPES

- Transit signal priority
- Bus-only signals
- Queue jumps/ bypass lanes
- Right turn lanes
- Freeway ramp HOV/bus queue jump

TREATMENT SPOTLIGHT:

TRANSIT SIGNAL PRIORITY (TSP)

TSP technology allows buses to move through traffic signals without delay. There are multiple variations including:

- Signal Priority (green extension) prolongs the green light so the bus can clear the intersection.
- Signal Pre-Emption (early green) provides a green signal phase earlier than otherwise programmed to prevent the bus from dwelling by the red light (typically reserved for emergency vehicles).
- Bus-Only Phases and sequence changes triggers a special bus-only green 'through' signal phases (paired with queue jump lanes); or bus-only turn phase at intersections where left turns are made (turn lane may be shared with autos or may be bus-only).
- TSP applied along a stretch of transit corridor allows the bus to take advantage of coordinated signal progression.

STOP-LEVEL TREATMENTS

Stop level treatments focus on improving user experience, speed and reliability, and safety at the bus stop. They can improve bus speeds by allowing vehicles to reach stops quickly, and making it easier for passengers to board vehicles faster (reducing dwell time). Most stop-level treatments have the added benefit of improving customer safety and experience, as well as connectivity with first/last-mile and active transportation options and local residences and businesses.

For example, level-boarding, where the bus stop's platform height matches the floor height of the bus, saves time because buses no longer have to kneel or deploy ramp systems for passengers with mobility devices, and they make it easier for all passenger to get on the bus. Operational improvements to bus stop spacing and routing can help buses avoid more red lights and stop times. Amenities like real-time information, wayfinding signage, and safety lighting have less of a direct effect on the speed and reliability of the bus, but do encourage ridership on bus services.

These treatments can be deployed anywhere, but are ideal for high ridership routes or stops and stops with higher levels of seniors, strollers, and mobility assistance devices. Some treatments, like floating bus islands, are designed to help improve safety between bikes and buses. The goal of stop-level treatments is to reduce dwell time and improve the stop experience.

SCAG's Curb Space Management Study (June 2022) provides more information on bus stops and curb management.

DWELL TIME is the amount of time a bus spends at a stop or station. Reducing dwell time at stops by making it easier to get on the bus helps improve bus speeds

STOP-LEVEL TREATMENT TYPES

- Far-side bus stops
- Bus stop balancing
- Routing adjustments
- Bus bulb outs
- Floating bus islands
- Level boarding
- All-door boarding
- Off-board fare collection
- Real-time information

TREATMENT SPOTLIGHT:

BUS BULB-OUTS

Bus bulbs extend the curb into the parking lane or bicycle lane so buses can pick up or drop off customers without exiting the travel lane.

- Allows buses to make in-lane stops, increasing speeds by 7 percent. In-lane stops reduce dwell time by 15 – 30 seconds per stop by eliminating delays from buses pulling out of lanes at stops and waiting for a gap in traffic to proceed.
- Reduces pedestrian exposure to vehicles by shortening the crossing distance on the intersection leg with the bulb out.
- Creates more space for passenger amenities while maintaining a clear pedestrian path on the sidewalk and provides better access for passengers with mobility devices.

FLOWER STREET PEAK-HOUR BUS LANES

In cases where transit agencies operate independently of the City, coordination is required to make infrastructure improvements.

An example is the Flower Street evening peak bus lane project. The Los Angeles County Metropolitan Transportation Authority (Los Angeles Metro), the bus operator, worked with the Los Angeles Department of Transportation (LADOT), the city street owner, to implement 2 miles of evening peak-hour bus-only lanes. Los Angeles County Measure M funds were used for both the capital and operation (enforcement) expenses. Project highlights:

- 2 miles of evening peak bus lanes.
- Collaboration between Los Angeles Metro and LADOT.
- Los Angeles Metro also alerted other bus operators of the changes coming—Orange County Transportation Authority (OCTA), Torrance Transit, Foothill Transit, and LADOT so they could use the lanes.
- Funded entirely by Measure M.
- All signage and striping installed by LADOT and expensed to Los Angeles Metro ($75,000).
- The largest cost associated with the bus lane was from active enforcement of the lane by officers, which cost Los Angeles Metro approximately $750,000 a month—enforcing all 27 miles of shared-use bus lanes in the County would cost approximately $100,000 a day, or $36.5 million a year.
- LADOT parking officials, city police, and county sheriff vehicles also can use the lanes when on patrol.

Source: A Budding Model: Los Angeles' Flower Street Bus Lane, Eno Center for Transportation, May 2021.

WHERE TO USE TRANSIT PRIORITY TREATMENTS

Transit priority treatments should match both the physical characteristics of a space and the needs of the people riding the service.

Land use and development patterns are a key consideration for selecting the appropriate speed and reliability treatments.

Urbanized areas with a concentration of trip generators (job and activity centers, residential density); high existing bus ridership; and a convergence of fixed-routes along primary thoroughfares are often the ideal location for transit only lanes and BRT treatments. Urban areas typically have dense grids of streets that can provide redundancy and alternative routing options when prioritizing or reallocating ROW for transit-only use.

Suburban and exurban areas often have concentrated travel along major arterials and corridors due to more dispersed and lower density land use patterns and a circuitous roadway network with little redundancy. This limits the availability of alternative roadways for priority modal designations. While the existing roadway conditions may support opportunistic bus only spaces, operational treatments and those that can be applied at specific intersections or stations, such as TSP, are good candidates for this land use context.

Demographics such as people with low incomes, people of color, and households without access to a car are strong indicators of mobility-challenged and potentially disadvantaged communities. Additional indicators of potential mobility need and distressed communities may include, but are not limited to, seniors, persons with disabilities, single parents, people with limited English proficiency, and/or communities with a high pollution burdened. The California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen tool is the preferred data source for this last indicator.

FOCUS ON EQUITY

On May 6, 2021, SCAG's Regional Council adopted the *Racial Equity Early Action Plan*,[5] which guides and sustains SCAG's regional leadership in service of equity and social justice. The Early Action Plan provides a definition of equity and establishes goals, strategies, and a set of early actions to advance racial equity through SCAG's policies, practices, and activities.

Transportation decisions have significant equity impacts. An assessment of equity must consider historic inequities and the lasting impacts of unequal distribution of transportation benefits, such as access to opportunities, and costs, such as but not limited to noise, pollution, indirect service, and travel delays. The Early Action Plan developed a working definition of equity to support the overarching goal of the creation of a just and equitable society.

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

Adopted equity indicators were grouped into categories aligned with the goals of Connect SoCal 2020: Economy, Healthy and Complete Communities, Mobility, and Environment.

To evaluate current equity conditions and the potential transit improvements that can be made, questions to ask include:

- Are there parts of the network that serve more disadvantaged or low-income communities, and are there unserved communities with high demographic stress indicators?
- What types of mobility challenges or barriers exist for potential riders?
- How are these areas impacted by delay and unreliability as compared to other places?
- What are the travel time savings for riders who rely on transit compared to the driving population?
- How much will proposed improvements increase access to jobs and other opportunities for disadvantaged populations? In addition to assessing the benefits, any changes to transit service must be examined for potentially negative equity impacts.

Chapter 3 explores existing conditions and demographic data across the SCAG region to answer these questions at a regionwide level. Questions of equity should be considered throughout the planning, design, and implementation process.

HOW TO IMPLEMENT TRANSIT PRIORITY TREATMENTS IN THE SCAG REGION

UNDERSTANDING BENEFITS AND CHALLENGES OF TRANSIT PRIORITY

Most counties in the region are not new to the concept of transit priority treatments, and have had prior discussions about transit priority, in particular, TSP. Los Angeles Metro's Bus Rapid Transit Vision and Principles Study provided a methodology for selecting BRT corridors that has been leveraged by local agencies across the region. SCAG counties who have implemented transit priority experience benefits such as:

- Increased ridership, changed travel habits, and improved convenience.
- Improved travel times for riders and drivers.
- High impacts at a relatively low cost

SCAG counties see challenges of transit priority, including the following:

- Resistance from community members to removing parking or potentially slowing vehicular traffic.
- Justifying the financial investment.
- Coordination across jurisdictions.
- Community opposition related to the Regional Housing Needs Assessment (RHNA)

INTERAGENCY AND INTERDEPARTMENTAL COORDINATION

Transit priority treatments and rapid transit corridor projects often require coordination between the transit operator, local, regional, and/or State transportation stakeholders who control operations and maintenance of or have jurisdictional authority of roadways proposed for bus service.

- **Strong leadership** from the State and regional levels is essential to the successful implementation of bus lanes and transit priority treatments on intercity and intercounty routes that may be high performing candidates for speed and reliability improvements. Setting enabling policy, funding eligibility, project prioritization, authorizations for use, designation or preservation of transit-only ROWs at the top levels of government ensures that projects are appropriately funded, prioritized, and coordinated.
- **Regional authorities** (e.g., county and regional transportation/transit authorities (subregional) metropolitan planning organizations (MPO), associations and councils of governments) may have vital roles to play in project development and implementation, including emergency responsibilities and protocols, even though they may not have jurisdictional control over roadways or a direct role in service operations. Authorities provide spaces for facilitation and collate local Capital Improvement Program (CIP) and information regularly for the Transportation Improvement Program/State Transportation Improvement Program (TIP/STIP), identifying and coordinating potentially complementary transit investments with stakeholder agencies and municipalities. They also may coordinate agreements between partner and cooperating stakeholders in support of grant applications, as well as facilitate joint purchasing and procurement of professional services, materials, or other equipment.
- **Local coordination** between potentially affected transit agency and municipal stakeholders at the interdepartmental and agency levels may include, but is not limited to, capital planning and projects, information technology, service operations, traffic and transportation, public works, economic development, etc. Local leadership should establish transit as a priority among internal departments that traditionally focus on construction and maintenance of transportation infrastructure. They should acknowledge the contextual expertise of transit and traffic professionals while developing data-driven decision-making thresholds and processes to implement transit priority treatments, while mitigating potential impacts to auto traffic, to the extent that it is practical and wanted. They should consider their own lessons learned from implementation of other multimodal and complete streets improvements, and identify opportunities for local contribution of matching funds or capital improvements to pedestrian and multimodal network enhancements to transit station area connectivity, as well as potential joint purchase, shared use, and municipal maintenance agreements. In addition, after bus lanes are implemented, cooperation with local traffic control and law enforcement authorities is necessary to ensure they are used correctly.

3.0 EXPLORING THE REGION TODAY

To identify where the SCAG region could benefit from additional transit priority treatments, a review of regional existing conditions was conducted, guided by these key questions:

- Where has the region invested in transit priority?
- What agencies are already planning for future improvements?
- What new parts of the region might benefit from treatments based on demographic trends and travel activity?

Transit priority treatments are often less capital-intensive than designing transit services in separated lanes. They are often not as thoroughly documented in stand-alone plans and policies. More than 30 plans were reviewed to identify the existing conditions in the SCAG region (Appendix D). These included Regional Long-Range Plans, Transit Agency Strategic and Mobility Plans, Active Transportation Plans, and Climate Action Plans.

EXISTING PRIORITY TREATMENTS

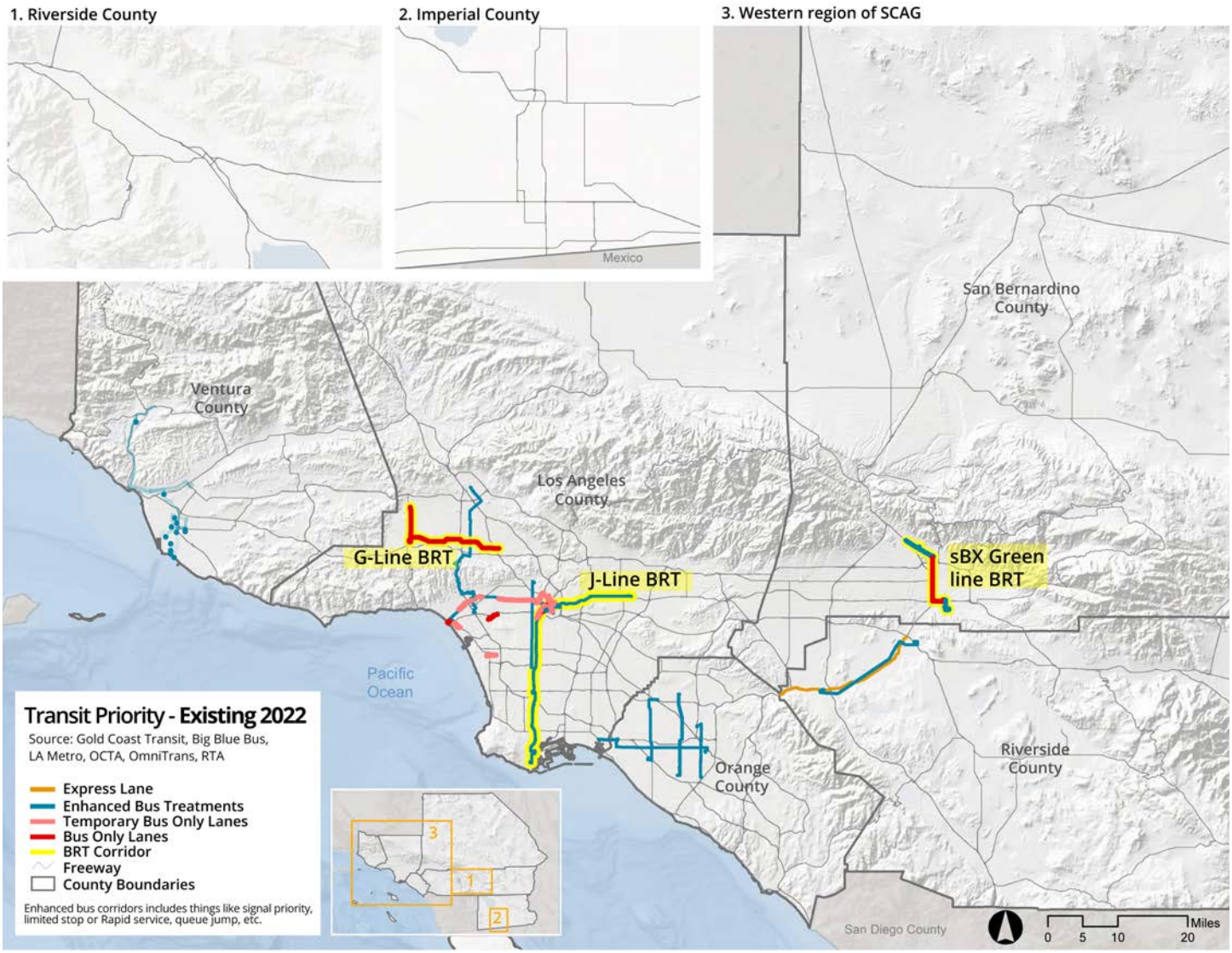
About 1.5 percent of route miles in the SCAG region have dedicated transit priority treatments, mostly in the form of all-day or peak-only bus lanes (Table 3). Of the 23,000 centerline miles of roadway in the SCAG region, approximately 29 centerline miles have bus-only lanes at all hours, and 20 additional miles have bus lanes during peak hours only. There are about 245 centerline miles of enhanced transit corridors (including BRT, express lanes, and signal priority corridors).

TABLE 3. EXISTING TRANSIT PRIORITY TREATMENTS IN THE SCAG REGION

County	Project Name	Organization	Treatment Type
Los Angeles	J (Silver) Line BRT	LA Metro	Express Lane, Arterial Bus Lane
	G (Orange) BRT Line	LA Metro	Arterial BRT
	Culver and Washington Blvd Mobility Lanes	Culver City	Bus and Bike Lanes
	Grand Av & Olive St	LA Metro & LADOT	Bus Priority Lane
	Wilshire Blvd—Centinela to Federal Ave; Crenshaw Blvd to Wester Ave	LA Metro & Santa Monica	Peak-Hour Bus Lane
	Alvarado St	LA Metro & LADOT	Peak-Hour Bus Lane
	N. Spring Street	LADOT	Bus-Only Lanes Eastbound (EB) (Part of J Line)
	Figueroa St & Flower St (includes signal queue jumper)	LA Metro & LADOT	Peak-Hour Bus Lane
	5th & 6th St	LA Metro & LADOT	Peak-Hour Bus Lane
	Aliso St	LA Metro & LADOT	Peak-Hour Bus Lane, Curb treatments
	98th Street—Vicksburg Ave to Western	LADOT/Big Blue Bus	Peak-Hour Bus Lanes
	Sunset/Chavez between Dodger Stadium and Union Station	LADOT	Game Day Bus Lanes
	Lincoln Blvd Bus-Only lanes	Big Blue Bus	Bus Only Lane
	Santa Monica Blvd—Ocean Ave to 5th Street Westbound (WB)	Big Blue Bus	Bus Only Lane
	Broadway—5th Street to Ocean Ave EB	Big Blue Bus	Bus Only Lane
	Sunset/Woodburn and Santa Monica/Overland	LADOT	Queue jump lanes
	LA Metro Rapid	LA Metro	Limited stop service
	I10 and I-110 Express Lanes (Part of J (Silver) Line)	LA Metro	Express Lanes
Orange	Bravo Service (Beach, Harbor, Main Westminster/17th)	OCTA	Limited stop service
	SR 91 Express Lane	OCTA	Express Lane
Riverside	RapidLink	Riverside Transportation Authority (RTA)	Limited stop service
San Bernardino	sbX Green Line	Omnitrans	Arterial BRT
Ventura	GoVC Bus Pass	Ventura County Transportation Commission (VCTC)	Stop amenity/fare payment
	Right-Turn Only Lanes	Gold Coast Transit	Queue jump lanes

Most existing transit priority lanes in the SCAG region are located in Los Angeles County with one dedicated BRT corridor located in San Bernardino County (Figure 2.). Some of the bus-only lanes, shown in red, are temporal in nature, and only apply during peak-hour times. As Table 3 notes, there also are temporary bus-only lanes in Los Angeles County, as well as TSP treatments throughout the SCAG region.

FIGURE 2. TRANSIT PRIORITY TREATMENTS



TREATMENTS IN DEVELOPMENT

Planned transit priority treatments in the SCAG region are shown in Table 4. Many are plans to operate buses on freeways or implement BRT corridors. Of note, Los Angeles Metro has committed funds to create 80 new lane-miles of bus-only lanes in the next four years, but corridors have not yet been identified. These projects will mainly be located on Los Angeles Metro Tier 1 corridors (bus routes where Los Angeles Metro will provide 10-minute or better headways through their NextGen update). Los Angeles Metro also has identified an expansion to their ExpressLanes program of freeway high-occupancy-toll (HOT) lanes, as well as piloting higher occupancy rates on HOT lanes; both of which can offer further opportunity for transit priority.

TABLE 4. PLANNED OR IN DEVELOPMENT TRANSIT PRIORITY PROJECTS IN THE SCAG REGION

County	Project Name	Agency	Treatment Type
Imperial	State Highway 111 (Imperial Ave)	Imperial Valley Association of Governments (IVAG)	Express Lane
Los Angeles	Noho to Pasadena Transit Corridor	LA Metro	Arterial BRT
	Transit Priority Corridor	Foothill Transit	Transit Signal Priority
	La Brea Ave	LA Metro & LADOT	Peak-Hour Bus Lane
	Lincoln Blvd (Dewey Ave to Venice Blvd) Lincoln Blvd BRT (Pico Blvd to Sepulveda Blvd)	Caltrans/LADOT/Big Blue Bus	Peak-Hour Bus Lane
	Santa Monica Blvd Centinela Ave to 405 Hwy	Caltrans/LADOT	Peak-Hour Bus Lanes
	Queue jumper at 5th/Flower	LADOT	Queue Jump
	BRT Candidates: Atlantic Blvd (East Los Angeles Gold Line terminus to Downtown Long Beach) Broadway (Little Tokyo Gold Line Station to Imperial Highway) Cesar Chavez/Sunset (Atlantic Blvd via Vermont/Los Feliz/Central to Broadway) La Cienega (Santa Monica Blvd via Obama/Jefferson to Slauson) Venice Blvd Vermont Transit Corridor (Sunset Blvd. to 120th St.)	LA Metro	Arterial BRT
	I-10 Express Lane	LA Metro	Express Lane
	I-405 Express Lane (Los Angeles County Section)	LA Metro	Express Lane
	I-605 Express Lane (Los Angeles County Section)	LA Metro	Express Lane
	SR 91 Express Lane	LA Metro	Express Lane
Orange County	I-5 BRT	OCTA	Express Lane*
	SR 55 BRT	OCTA	Express Lane*
	I-405 Express Lane (Orange County Section)	OCTA	Express Lane
	Lincoln Ave/La Palma	OCTA	Limited Stop
	Chapman Ave BRAVO	OCTA	Limited stop
	Main Street BRAVO	OCTA	Limited stop
	McFadden Blvd Bolsa Ave BRAVO	OCTA	Limited stop
	Beach Blvd Extension	OCTA	Limited stop
	Westminster Ave 17th St Bristol St HCT	OCTA	High Capacity Transit
	State College Blvd Rapid Bus	OCTA	High Capacity Transit
	Harbor Blvd Extension	OCTA	High Capacity Transit
Riverside	Highway 111 TSP	CVAG	Transit Signal Priority
	I-215 Express Lane	RCTC	Express Lane
	SR 60 Express Lane	RCTC	Express Lane
	I-15 Express Lane	RCTC	Express Lane
San Bernardino	West Valley Connector	Omnitrans	Arterial BRT
	I-10 Express Lane	SBCTA	Express Lane
	I-15 Express Lane	SBCTA	Express Lane
Ventura	U.S. 101 Express Bus Lanes	VCTC	Express Lane
	Oxnard Blvd Transit Signal Priority	VCTC	Transit Signal Priority

*Freeway BRT

POLICIES GOVERNING TREATMENTS

Federal, state, and local policies guide everything from how to plan, design, and fund transit priority treatments to dictating rules for how to build, operate, and maintain them after implementation. A variety of policies, primarily at the State level, was identified both in the plan review and through additional research into governing standards for priority treatments in the SCAG region.

TRANSIT POLICIES

These policies define considerations that should be addressed when planning for priority treatments. They acknowledge the connection between transit improvements, capital investments, and environmental objectives.

- **California Senate Bill 375 (2008).** The greenhouse gas reduction bill law integrates regional land use, housing and transportation to create sustainable communities, often in the form of Transit Oriented Developments (TOD). Omnitrans uses this as part of their justification for transit priority lanes.
- **California Senate Bill 743 (2013).** The law breaks with past policy and national practice; traffic congestion is no longer considered a potentially significant environmental impact under California Environmental Quality Act (CEQA). Instead, it uses Vehicle Miles Traveled (VMT) to measure impact and encourages investment in projects that reduce VMT and shift travel away from single occupancy vehicles. Measures for mitigating congestion (e.g., widening roads, adding turn lanes, and making similar investments in the transportation network) are replaced with measures that mitigate additional driving, such as increasing transit options and potentially even priority transit treatments.
- **City of Santa Monica Municipal Code 3.12.675.** Transit Lanes (2018). Authorizes the Parking and Traffic Engineers to designate specific lanes for use by public transit buses only on Santa Monica Boulevard and Broadway between Ocean Avenue and Fifth Street.
- **California Senate Bill 288 (2020).** The law streamlines the CEQA requirements for transportation projects that:
  - Institute or increase new BRT, bus, or light-rail services on public rail or highway ROW.
  - Designate and convert general purpose lanes, HOT lanes, HOV lanes, or highway shoulders.
  - Improve customer information and wayfinding or include pedestrian and bicycle facilities.
  - Include Zero Emission vehicle fueling or charging facilities.
  - Reduce minimum parking requirements.

Of note, projects over $100 million require equity analysis and community engagement. Through the Governor's approval of California Senate Bill 922 in September 2022, this exemption was extended through January 1, 2030. This extension also revises the original law to repeal the requirement that exempted projects be located in urbanized areas, revises the definition of transit prioritization projects, and adds anti-displacement strategies for certain projects located in areas at risk of residential displacement.

TRANSIT OPERATIONS POLICIES

Statewide rulemaking has given local authorities more control over transit lane enforcement, which can help to improve the overall effectiveness of the treatment.

- **California Senate Bill 998 (2016).** This law amends California Vehicle Code to prohibit a person from operating a motor vehicle from stopping, parking, or leaving a vehicle standing on a portion of the highway designated for the exclusive use of public transit buses. It also requires public transit agencies to place and maintain signs and traffic control devices indicating where these designated highway segments are located.
- **California Assembly Bill 917 (2021).** This law allows any public transit operator in the State (until January 1, 2027) to enforce parking violations in specified transit-only traffic lanes through the use of video imaging, and to install automated forward-facing parking control devices on city-owned public transit vehicles for this purpose. The law also allows enforcement of parking violations occurring at transit stops.
- **Caltrans Transit Bus-on-Shoulder Pilot Program Guidance (2022).** This pilot program provides guidance for all partners in the implementation of a Transit Bus on Shoulder (TBOS) pilot program. The purpose of the guidance is to ensure consistent development and implementation of TBOS in California. It specifies operating practices and policies to adhere to infrastructure design guidelines, development and approval processes, and implementation and evaluation steps.

HOUSING COORDINATION POLICIES

It is critical to recognize the intersection of housing, land use, and transportation as key to an integrated set of policies that improve livability for all people across the region. A range of policies addresses the nexus of housing and transportation investment. Many of the State Senate bills require local municipalities to offer a housing density bonus near high quality transit service. This allows developers to build more units, or less parking, in certain areas to encourage development near transit-rich areas.

- **California Senate Bill 827 (2018).** This law requires a local government to grant transit-rich housing projects a density bonus. The law defines transit-rich housing projects as a residential development within one-half-mile radius of a major transit stop or one-quarter-mile radius of a stop on a high-quality bus corridor.
- **California Senate Bill 50 (2018; Amended 2020).** This law allows eligible multifamily development projects to submit to a streamlined ministerial approval process that is not subject to a conditional use permit. After January 1, 2023, the law also makes residential developments in counties with populations greater than 600,000 eligible for an equitable communities incentive. This incentive waives maximum controls on density and automobile parking requirements. Developments located within a one-half mile of a major transit stop qualify for additional waivers.

- **California Senate Bill 9 (2021).** This law effectively eliminates single-family zoning, making it possible to build denser, transit-supportive housing statewide. The law aims to make it easier to build housing throughout the State by eliminating discretionary review and hearings that are often used to prevent new development. Notably, it requires that any proposed housing development containing no more than two residential units in a single-family zone be considered ministerial (i.e., streamlined permitting process).
- **California Senate Bill 10 (2021).** The law allows for denser development near public transit corridors by enabling local governments to easily change their zoning rules and allows housing developments with up to 10 units in areas that are well served by transit.
- **California State Assembly Bill 2097 (2022).** This law eliminates parking mandates for homes and commercial buildings near transit, or in neighborhoods with low rates of auto use, making it much less expensive to build housing in these areas.

LOOKING TO THE FUTURE

The SCAG region is vast and encompasses urban, suburban, and rural areas. Because of the lack of existing treatments, there are many opportunities to implement new transit priority treatments, regardless of typology, to improve travel time speed and reliability for transit. To begin understanding where future transit priority treatments would benefit the region, the study team reviewed existing demographic, built environment, and travel data.

Demographic data included where people live and work (population and employment density); where equity-focused communities are located (based on race/ethnicity, median income, vehicle access, and SCAG's established Communities of Concern); and what challenges equity-focused communities face (consider the following indices: California Healthy Places Index, CalEnviroScreen 4.0, Protected Open Space Access, etc.).

Total travel data was derived from both the SCAG 2016 Travel Model and Streetlight data that captured travel activity units from 2019 to 2021. To simulate what travel activity might look like in 2045, SCAG model growth factors were applied to the Streetlight data to project future activity. Transit travel data was collected directly from the largest transit operators across the region from 2019, the last full year pre-pandemic.

Built environment data included existing land use, transit network routing, and bicycle networks. This section provides a summary of these findings and the data that was used in the screening and evaluation phases of the project.

WHERE WOULD TREATMENTS BENEFIT THE MOST PEOPLE?

WHERE PEOPLE LIVE

The most densely populated areas of the region are most likely to see the benefits of robust priority treatments like dedicated transit lanes.

The population density of the SCAG region is concentrated in Los Angeles County, where 53.7 percent of the entire SCAG region live, with a total population of over 10 million people.[6] Within Los Angeles County, population density is concentrated in and surrounding Downtown Los Angeles, the San Fernando Valley and San Gabriel Valley, and Long Beach, compared to the less-populated coastal areas of the County. The second most densely populated county, home to 16.8 percent of the SCAG region, is Orange County, containing over 3 million people. Population density in Orange County is concentrated near Anaheim, Santa Ana, and Irvine; and like Los Angeles County is less populated in coastal areas. The third most densely populated county is Riverside County, with 12.6 percent of the SCAG region and 2.4 million people. The fourth most populated county is San Bernardino County, with 11.4 percent of the entire SCAG region with a population just above 2 million. The fifth most populated county is Ventura County, containing 4.5 percent of the entire SCAG region with a population under 1 million people. The least populated county in the SCAG region is Imperial, with a total population just under 200,000 people.[7]

Race and ethnicity of the region should be considered when planning for transit priority treatments so that communities of color are not overlooked, especially in locations where other indicators, such as population and employment density, do not prioritize the area for consideration.

The SCAG region is mostly Hispanic/Latino (46.5 percent), followed by non-Hispanic White (31.4 percent), non-Hispanic Asian (12.8 percent), non-Hispanic Black (6.3 percent), and non-Hispanic Native American (0.2 percent) (Table 5). Within the SCAG region, race and ethnicity percentages vary between counties and even within corridors, but for the most part stay consistent with the regional race and ethnicity breakdowns. For all counties except Orange County, Hispanic/Latino is the largest racial/ethnic category, consistent with the whole SCAG region. Orange County's largest racial/ethnic group is non-Hispanic White.

TABLE 5. RACIAL/ETHNIC BREAKDOWN OF SCAG REGION

Category	Percent
Hispanic/Latino	46.5%
White*	31.4%
Asian*	12.8%
Black*	6.3%
Native American*	0.2%
Other[1]	2.8%

** Non-Hispanic.*

WHERE PEOPLE WORK

A major goal of public transit is to provide people with access to jobs and opportunities. Transit priority treatments can help ensure buses are reliable enough to get people to these opportunities. Employment density in the SCAG region currently is concentrated in Los Angeles County, which currently comprises 56.3 percent of all jobs in the SCAG region.[8] Additionally, in the areas of Los Angeles County with the highest employment density—specifically Downtown Los Angeles—the maximum number of people employed per acre is 883. Orange County has the second highest number of jobs in the SCAG region, comprising 20.4 percent of all jobs, with most of the County having an employment rate of 11 to 55 people per acre.

The most employment-dense areas of Orange County are Anaheim, Santa Ana, and Irvine. San Bernardino, Riverside, and Ventura are the third, fourth, and fifth most employment dense counties, which corresponds with the lower density of residents living in these areas.

Model data for 2045 projects that Los Angeles County will continue to have the highest employment density in the SCAG region, with employment increasing in the densest areas by 100 people per acre. The areas within Los Angeles County that are expected to see the most growth include Westwood and Downtown Los Angeles. Additionally, other areas that are expected to see employment density growth include Orange County, specifically near the John Wayne Airport and in Downtown Santa Ana.

Transit lanes are likely to have a higher impact in dense areas and corridors, such as Downtown Los Angeles and Orange County's Anaheim, Santa Ana, and Irvine, where many people travel to and from work, and employment density is highest. Other transit priority treatments may be beneficial in less dense employment corridors that still see congestion for at least part of the workday.

HOW PEOPLE TRAVEL

To examine overall travel demand, this study uses 'activity' from Streetlight Data shown at the Traffic Analysis Zone (TAZ) level. Streetlight uses smartphones and sensors to gather information on where people travel and translates this into a measure of 'activity'. While these do not represent individual trips, they provide an approximation of travel activity in any given area.

Travel volumes and patterns have changed in unexpected ways since before the COVID-19 pandemic, and will continue to do so. In fact, demand continues to evolve through the pandemic from its low point in March – May 2020. High densities of weekday activity (activity per square mile) in 2019 and 2021 generally follow the population and employment centers described above. These areas include Los Angeles County, where the City of Los Angeles (Downtown, Wilshire Corridor, Hollywood); Glendale; and Pasadena saw large trip activity. Orange County also had higher levels of activity near Disneyland and the City of Santa Ana.

Looking at commute activity as a percentage of total weekday origin activity that occurred in the AM Peak Period (6 a.m. – 9 a.m.) per TAZ in 2019 and 2021, areas with higher shares of AM Peak origins mostly correlate to areas with less population density and are likely more residential and suburban in nature. The share of AM Peak activity fell drastically across the region from 2019, and do not appear to have fully recovered in 2021.

Regardless of where existing transit ridership is strongest, high trip activity is a strong indicator of where transit priority treatments are likely to be most effective. Pockets of activity are concentrated in urban Los Angeles County, but every county in the region exhibits several strong travelsheds, indicating a high potential for well-utilized transit priority corridors. Overall, travel volumes today are nearly as strong as they were pre-pandemic, but there is a discernible weakening in peak period travel share now compared to 2021. This may affect local decision-making around peak period-only treatments. In some travel markets, providing more frequent and reliable service throughout the day may be more effective than concentrating on premium services during peak hours.

Total Travel Demand

To project 2045 travel patterns, the SCAG model growth between 2016 and 2045 was applied to the 2016 Streetlight data. Travel activity generally follows a similar pattern seen in previous years with some added activity around Ontario and in San Bernardino, while travel volume growth is forecasted to weaken across north Los Angeles County, Orange County, western Riverside County, and beyond. It is unknown how travel patterns will continue to shift post-pandemic, but based on recent trends, travel growth should be expected to stabilize long term.

Most corridors that already exhibit strong travel volumes today will only continue to grow into the future (central and south Los Angeles County, north Orange County, western San Bernardino and Riverside Counties, and the U.S. 101 corridor through Ventura County), meaning that transit priority treatments made today should be expected to continue to provide value well into the future.

Travel Corridor Delay

Congestion is one of the major reasons bus travel in the region is facing slower and less reliable travel times, leading to not only diminished customer experience, but also higher costs for operations. Transit priority treatments that allow buses to travel outside of the regular flow of traffic will be most impactful in corridors that are at or over capacity and can help avoid the increase in congestion.

SCAG's travel model was used to calculate delay in 2016 using maximum volume and capacity ratios for arterials in the region. Delay is concentrated in the Los Angeles basin—especially when there are few other parallel routes, for example, the Pacific Coast Highway, near the Cajon Pass, and the connection between Santa Clarita and Palmdale.

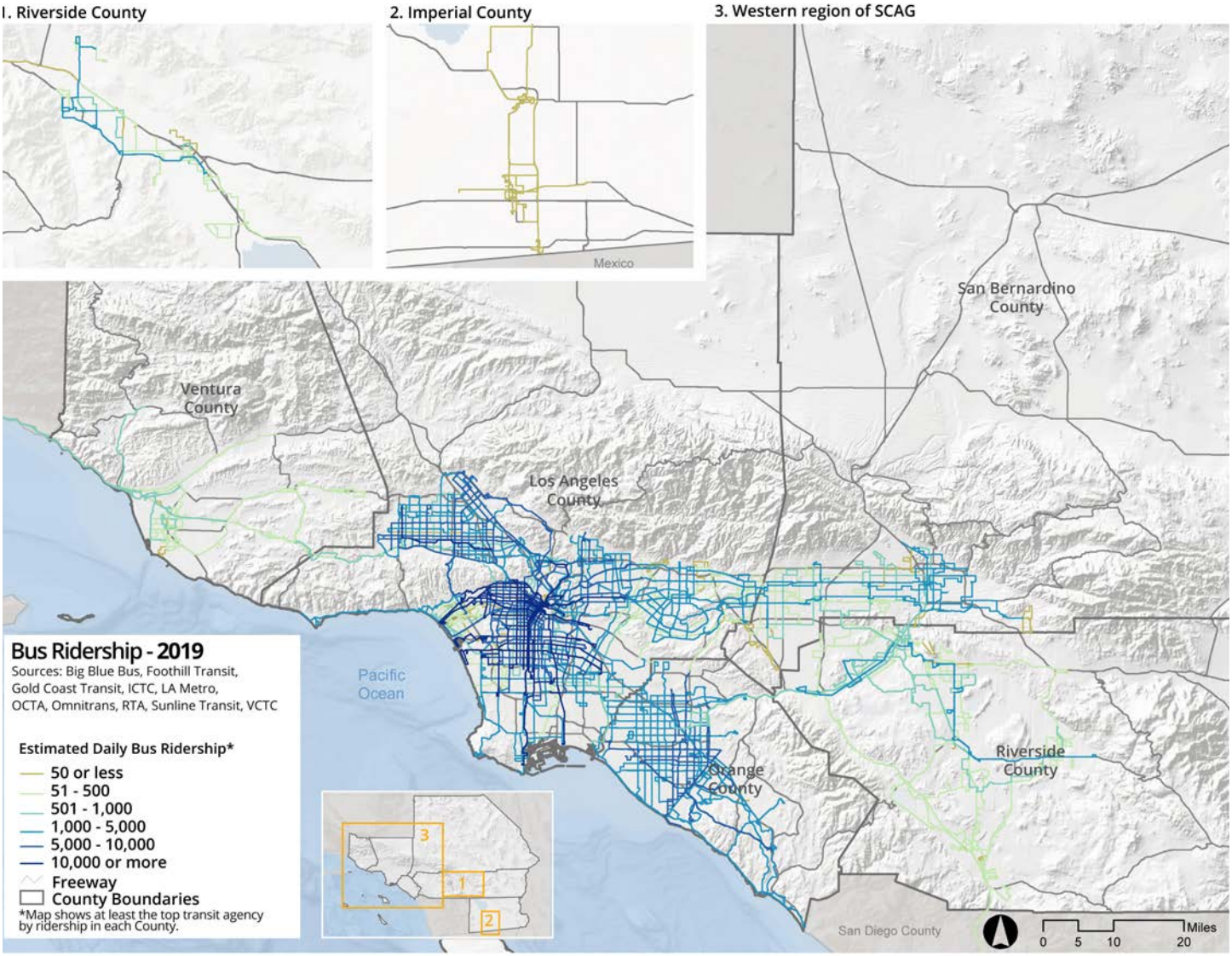
Delay was projected into 2045 by calculating maximum volume and capacity ratios for each corridor using the modeled growth. In this projected future, 18 percent of roadway segments are near or over capacity (compared to 15 percent in 2016). Congestion spreads to more areas with no parallel routes (for example, the pass between San Gorgonio Mountain and Mt San Jacinto), but also just to areas with lower population density; for example, the roadways connecting Corona to Temecula.

Bus Ridership Today

Most analyses of transit priority treatments start with an understanding of where bus ridership is strongest. This not only often tracks closely with congestion and speed and reliability issues, but also is an indicator of where the greatest benefits can be afforded immediately—to the people already riding the bus.

Pre-pandemic bus ridership provides a look at where the most daily bus trips typically occurred before COVID-19 disrupted commuting patterns. Looking at ridership data from at least the two largest operators with available 2019 line-level data in each county shows the majority of high volume transit routes (with 10,000 or more daily riders) are concentrated in Los Angeles County (Figure 3.).

FIGURE 3. BUS RIDERSHIP 2019



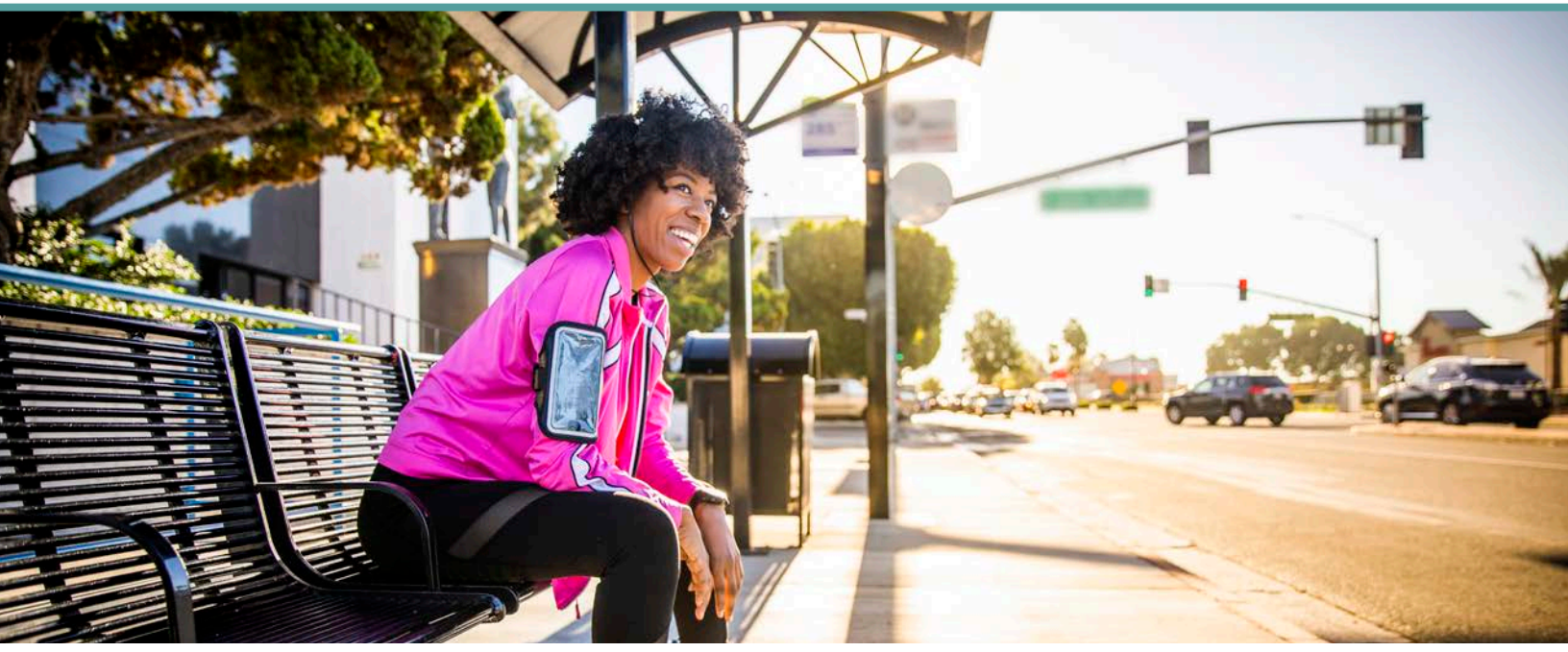
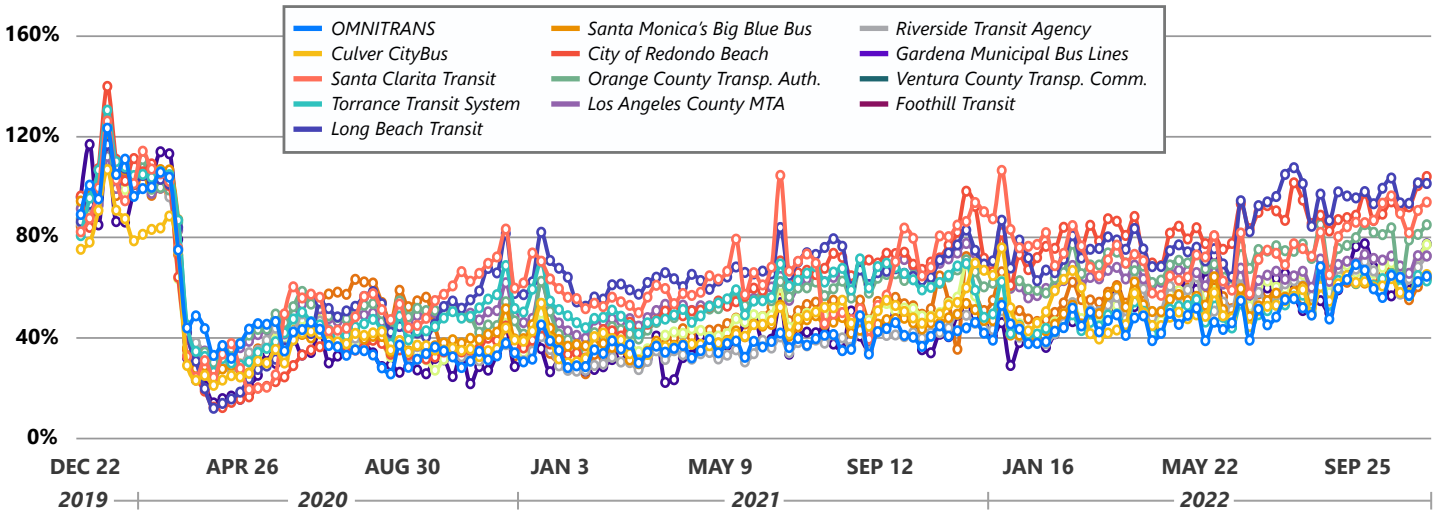


FIGURE 4. SCAG REGION TRANSIT RIDERSHIP TRENDS, 2019-2022



Source: APTA Ridership Trends powered by Transit, https://transitapp.com/APTA.

As has been widely reported, the pandemic disrupted transit ridership more severely than any other major travel mode. Across the SCAG region, ridership across most providers dipped to 30 to 40 percent of pre pandemic levels in March 2020. Since then, riders have slowly returned to transit, though in late 2021, most operators were still experiencing rider levels at 40 to 60 percent of what they were at the end of 2019. SCAG reviewed data in June 2022, and the region's bus ridership levels were still 27 percent below what they were pre pandemic. It also appears bus ridership has recovered more than rail ridership (which dropped 37 percent on Los Angeles Metro from June 2019 to June 2022; bus ridership was only down 26 percent over the same period).

The American Public Transportation Association (APTA) Ridership Trends Tracker, powered by data provided by Transit app, documents these trends on a weekly basis since December 2019 (Figure 4.). The percentages displayed represent the percent difference between actual pre pandemic ridership and estimated ridership for a given period during the pandemic. Estimated ridership values for each week are extrapolated values from the most recent quarterly actual ridership figures reported by transit agencies and modeled based on measures of Transit app weekly usage. These estimates do not represent actual reported ridership counts from agencies.

The geographic distribution of these ridership changes over time was derived from Streetlight activity data. The highest density zones in the pre-pandemic map are generally clustered around existing transit service and where total activity is highest, including the City of Los Angeles and Long Beach. When looking at 2020 conditions, bus activity fell everywhere, except in the downtown core of Los Angeles, with the San Fernando Valley of Los Angeles County and Orange County experiencing some of the largest declines.

With overall travel resuming to near normal levels, and the associated return of congestion, making improvements to the bus travel time can help induce a faster return to transit as the pandemic wanes.

Bus Ridership Tomorrow

Justifiable bus ridership projections at a route level are not available for the SCAG region, but SCAG models projected bus ridership by transit mode through the long-range planning process (most recently completed in 2020 and notably based on analysis performed prior to COVID-19). Daily transit ridership growth estimates from the model runs are shown in Table 6. There are two versions of the model: the Baseline Scenario (BS), or growth without any intervention, and Planned Scenario (PL) which imagines how growth would happen if all of the plans in Connect SoCal 2020 were implemented. In both scenarios, transit ridership in total would increase (46 to 143 percent) and bus ridership by similar gains (34 to 108 percent).

It remains to be seen whether transit ridership recovery accelerates rapidly after the largest pandemic waves recede, or whether travel patterns and commuting behaviors have shifted so radically as to result in only modest increases in transit ridership in the long term. Either way, trends indicate that a steady growth in bus ridership will continue, and that the riding population will increasingly be those who rely on transit to move, strengthening the case for priority treatments in support of both mobility and equity goals.

TABLE 6. PROJECTED TRANSIT RIDERSHIP BASELINE AND PLANNED SCENARIOS

Transit Mode	% Growth (2016 to 2045BL)	% Growth (2016 to 2045PL)
Commuter Rail	49%	251%
Urban Rail	106%	299%
Local/Rapid Bus	34%	108%
Express Bus	2%	10%
Total	46%	143%

Source: SCAG 2020 RTP/SCS.

WHERE WOULD TREATMENTS BENEFIT TRAVEL FOR EQUITY-FOCUSED COMMUNITIES?

SCAG COMMUNITIES OF CONCERN

Communities of Concern include communities that are in the upper third (top 33.33 percent) of the SCAG region for both percentages of households in poverty and minority population. Communities of Concern are in each county within the SCAG region. Prioritizing transit services that benefit Communities of Concern is a valuable goal, as these communities already face undue challenges.

SCAG Communities of Concern include communities in Imperial County, where they are concentrated in the Imperial Valley near El Centro, Calexico, Heber, and Brawley. They are concentrated in Downtown Los Angeles and east of Lancaster in Los Angeles County. In Orange County, Communities of Concern are concentrated in Santa Ana. In San Bernardino County, they are concentrated in the Cities of San Bernardino, Pomona, and Adelanto. In Riverside County, they are concentrated near the Cities of Perris and Corona, and in the Coachella Valley and the northeast side of the Salton Sea. Ventura County has only one area designated as a Community of Concern in El Rio, an unincorporated rural town northeast of Oxnard. These people and places already face challenges regarding low vehicle access and low median incomes, and dedicated transit lanes in these areas have the potential to increase equity outcomes for these already disadvantaged communities.

MEDIAN INCOME

The current average median household income in the SCAG region is $59,058. The highest incomes in the SCAG region are concentrated in the coastal areas of Los Angeles County and the southern portions of Ventura and Orange Counties. Imperial County has the lowest incomes, with zero percent of the County falling into the highest income category. Higher incomes of San Bernardino County are located near the corner of the County that borders Los Angeles, Orange, and Riverside Counties; whereas, lower incomes are dispersed throughout the rest of the County. Riverside County sees some similarities to San Bernardino County, where higher incomes are concentrated near bordering counties, and lower incomes are more dispersed.

Projection data for median household income indicates a rise in income for many of the areas that currently have median incomes in the lower categories. For example, areas of Riverside County that have median incomes in the lowest category move up to the middle-income category. In Imperial County, projection data also indicates a rise in median income for some of the areas that currently have median incomes in the lowest categories. For example, the Salton Sea area is projected to see an increase in median income from the lowest income quartile to the second-lowest income quartile, and the areas west of Highway 86 and south of Highway 78 also are expected to move up from the lower income categories to the middle-income category. Imperial remains the County with the lowest overall median household income, with no areas of the County in the top income category.

The projected rise in median income comes with the possibility that a smaller proportion of the population would be transit dependent in the future, which may have implications for transit ridership per capita. However, given the fact that dedicated lanes improve speed and reliability, riders may be incentivized to ride transit, even as income levels rise and transit dependency decreases.

VEHICLE ACCESS

For the entire SCAG region, on average, only 7.5 percent of households lack access to a vehicle (American Community Survey 2019 five-year estimates). Vehicle access data suggests that improving transit priority would be beneficial in Downtown Los Angeles, where in some areas up to 84 percent of households lack vehicle access. Other areas with low vehicle access include Barstow in San Bernardino County, as well as in the communities east of Highway 111 and north of Highway 78 in Imperial County. The entire Riverside County, on the contrary, has only 0 to 4 percent of households who lack access to a vehicle.

When comparing median income data with vehicle access data, specifically in Los Angeles County, the areas with higher median incomes also are the areas with greater vehicle access, and the areas with low median incomes are the areas with less vehicle access. Priority treatments can provide the greatest benefit to riders where vehicle access and median income is lowest, such as the areas of and surrounding Downtown Los Angeles. Other areas to consider for treatments based on having both low vehicle access and low median income include Barstow and Victorville in San Bernardino County, as well as the area east of Highway 111 and north of Highway 78 in Imperial County, on the eastern side of the Salton Sea. In both cases, treatments should be applied not only where limited vehicle households are, but also to help people living there access where they need and want to go.

HEATHY PLACES INDEX

The California Healthy Places Index (HPI) combines 25 community characteristics into an overall score for each census tract, and ranks scores based on percentiles. The 25 characteristics include indicators ranging from economic, education, transportation, social, neighborhood, environmental, housing, and healthcare access. Higher scores indicate healthier places, while lower scores indicate less healthy places.

Transit priority treatments provide significant benefits in communities whose scores fall within the lowest HPI percentiles, where access to better transit options could help alleviate some of the challenges faced by providing better access to employment, education, and healthcare destinations, and create safer communities both from an environmental and travel conflict perspective.

San Bernardino County has large areas with scores in the lowest percentiles, specifically in Barstow, near Helendale, and areas east and west of Highway 395 above Highway 18, and in the areas surrounding the City of San Bernardino. Ventura County has very few census tracts with scores ranking in the lowest percentiles, and the census tracts that do have low scores are near and around Oxnard. As expected, Los Angeles County's low-ranking scores overlap with where many of the SCAG Communities of Concern are located in South Los Angeles, East Los Angeles, areas of both the San Gabriel and San Fernando Valleys, and east of Lancaster. In Riverside County, some of the lowest ranking HPI scores are in or near the Morongo Reservation, Jurupa Valley and Riverside, the Salton Sea, Edgemont, and Perris. In Orange County, low-ranking HPI areas are near Anaheim and Fullerton, Westminster, and Santa Ana. Imperial County is the only County in the SCAG region that does not have census tracts with HPI scores ranking in the highest percentile.

CALENVIROSCREEN 4.0

CalEnviroScreen 4.0 data combines indicators to identify pollution-burdened communities. Lower CalEnviroScreen scores indicate that a community has less pollution, and high scores indicate that a community suffers from more pollution. CalEnviroScreen 4.0 data closely resembles HPI data, where communities with the lowest ranking HPI scores resemble communities with the highest CalEnviroScreen 4.0 scores. For example, Los Angeles County has the highest CalEnviroScreen 4.0 scores in the same area where HPI scores are lowest, in South Los Angeles, East Los Angeles, areas of both the San Gabriel and San Fernando Valleys, and east of Lancaster.

Transit priority treatments provide significant benefits in communities whose scores fall within the highest CalEnviroScreen 4.0 percentiles, where transit speed and reliability improvements have been shown to contribute to lower emissions from both reductions in auto travel and less idling and congestion for transit vehicles.

PROTECTED OPEN SPACE ACCESS

The SCAG region does not lack open space; however, access to open space for SCAG communities is uneven. Data from the Trust for Public Land indicates that both communities of color and low-income communities have access to 44 percent less park acreage than white neighborhoods, and that the parks that are in these communities serve 5 times as many people as parks in predominantly white neighborhoods.[9] Areas within the region with the least access to open space areas are similar to the areas with high population and high employment density, such as areas in and surrounding Downtown Los Angeles and northern areas of Orange County.

Transit priority treatments options could help people, especially disadvantaged populations, to access open space. This includes areas where vehicle access and access to open space is low, like in the northeastern corner of Los Angeles County, Victorville in San Bernardino County, as well as the urban areas of Los Angeles County in and surrounding Downtown Los Angeles, and South Los Angeles.

WHERE WOULD TREATMENTS FIT WELL INTO THE BUILT ENVIRONMENT?

LAND USE

Residential, Commercial, Services, and Office are the prevailing land use classifications for both Los Angeles and Orange Counties, as well as in the western areas of Riverside and San Bernardino Counties. Colleges, Universities, and Healthcare land use designations are most predominant in Los Angeles County and are dispersed throughout the County. In Ventura, San Bernardino, Riverside, and Imperial Counties, Residential and Commercial, Services, and Office land use classifications are generally concentrated around the existing freeways, especially where freeways intersect with each other.

Transit priority treatments show the greatest benefits and success in areas with a high concentration of Residential and Commercial, Services, and Office land use classifications. These areas include large portions of Los Angeles and Orange Counties, as well as areas in the other SCAG counties that are located near freeways and freeway intersections.

TRANSIT NETWORK

The transit network in the SCAG region consists of a mixture of regional rail, commuter/urban rail, and bus service. Together, the more than 100 transit operators in the SCAG region serve approximately 33,485 miles of bus routes, 65 percent of which are contained entirely inside of Los Angeles County. The Los Angeles County network remains relatively dense as it extends south and north into Orange and Riverside Counties, and into areas such as Victor Valley, the Coachella Valley, and the North County of Los Angeles. Many of the agencies serving these areas, particularly the larger ones in denser population centers, have integrated transit priority into their transportation networks. There are three Bus Rapid Transit (BRT) corridors operating in the region, Los Angeles Metro's G-line (Orange) and J-line (Silver), and Omnitrans sbX Green Line. Together, these services provide around 73 center-line miles of BRT service.

The current bus network represents the universe of potential transit priority routes and segments. Transit priority treatments have the potential to enhance the existing transit network in the region and can help fill gaps in service

BICYCLE NETWORK

Supportive infrastructure such as bikeways can enhance the effectiveness of transit priority treatments. There are approximately 5,074 miles of bikeway (3,860 excluding Class III Bike Routes) in the SCAG region today and almost 10,000 miles (6,631 excluding Class III Bike Routes) planned for the future. In addition to the existing bikeways, this report also looks at a 3-mile bike catchment area around existing high-quality transit stops (a well-serviced transit stop or corridor with 15-minute or less service frequency during peak hours). This is the official bicycle catchment according to the Federal Transit Administration (FTA) given that bicyclists are generally willing to bike at least 15 minutes to reach a public transportation stop or station and travel an average of 10 miles per hour. The 3-mile bike catchment area extends across much of southern Los Angeles County and into the densest areas of San Bernardino, Ventura, and Orange Counties. In some areas such as Santa Monica and Santa Ana, the catchment includes dense bikeway networks, while the catchment area in much of San Bernardino and Northern Los Angeles County lacks bikeway infrastructure.

Transit priority treatments should include bicycle supportive infrastructure like secure bike parking at transit stations and bike racks onboard vehicles. In addition, transit agencies should work with cities to identify transit priority treatments that work with the existing planned bike network. Coordination between transit agencies and municipalities also could lead to project delivery alignment and cost-savings during paving updates. SCAG's Transit Priority Best Practices document has additional information about how to optimize bus and bike lanes and avoid situations where both bike riders and bus operators feel uncomfortable in the lanes from a safety standpoint.

WHAT OPPORTUNITIES AND OBSTACLES FOR TREATMENTS EXIST?

Opportunities in the SCAG region are in those communities where demographic, land use, and travel conditions create desirable environments for transit priority treatments. More specifically, opportunities are places where congestion has been identified now and, in the future, where communities of interest and equity-focused communities are traveling, and where growth and housing are projected. By implementing transit priority treatments, the region has the opportunity to improve accessibility in communities with equity concerns; reduce congestion and the associated negative impacts to air quality, health, and the environment; and more generally improve the attractiveness and competitiveness of transit.

Challenges in the SCAG region are both political and technical in nature. Those that are political relate to the difficulty of implementing transit supportive policies and infrastructure in municipalities with several right-of-way owners managing the streets and multiple transit agencies operating on them. Transit priority treatments that enhance the speed and reliability of essential transit services often require cross-jurisdictional coordination to serve the riders who rely on transit the most. A related challenge is articulating the value of transit priority treatments as a benefit to the community at large, rather than representing a tradeoff between transit riders and auto travelers. Other political challenges come from potential community opposition to high-quality transit investments that may increase housing densification in a neighborhood or take away parking.

Technical challenges refer to the ones of reshaping the built environment to accommodate transit priority. Implementing transit priority within the existing streetscape presents challenges, such as freeway overpasses, long blocks, and restricted pedestrian right-of-way. At the same time, the limited right-of-way is valuable, and there are various priorities for remaking that space, some of which compete with transit priority lanes and treatments. Potential transit priority corridors will need to be evaluated with this in mind, such as if the geometric roadway design can accommodate a bus lane, or if a signaling network can be upgraded to accommodate transit signal priority.

4.0 DEVELOPING A REGIONAL VISION FOR PRIORITY TREATMENTS

As described in the previous chapter, there are many places in the SCAG region where transit priority treatments could enhance mobility and access. But where should they be implemented? SCAG and its partners applied industry best practices to the analysis of corridors across the region to determine where existing conditions and future growth patterns could support transit priority treatments ranging from discrete intersection-level treatments to expansive applications like BRT or freeway bus lanes. The methodology builds on the work of many transit agencies and transportation planners across the region who have already been planning and implementing transit priority treatments in their communities.

ENGAGING REGIONAL STAKEHOLDERS

SCAG convened a Regional Transit Lanes TAC comprising 58 representatives from transit operators, transportation planning agencies, COGs, CTCs, cities, and community-based organizations (CBO) across the SCAG region (Appendix C). In addition to providing accurate information on existing plans, they also provided local knowledge about potential corridors, local priorities, and existing conditions.

The TAC met throughout the project (Table 7) to explore best practices, review existing conditions and future forecasts, and develop and discuss the methodology for screening, evaluating, and prioritizing the potential transit priority treatments. The TAC confirmed the methodology, including the goals and criteria used to screen and evaluate the potential corridors. Their participation and feedback were greatly appreciated and helped to generate a regional vision driven by local technical leaders.

TABLE 7. TAC MEETING SERIES

	TAC 1 November 2021	TAC 2 January 2022	TAC 3 April 2022	TAC 4 August 2022
Discussion Topics	• Reviewed best practices and peer cases • Identified discovery interview • Identified additional interview or data needs	• Reviewed existing conditions and future forecasts • Selected corridor screening list • Discussed screening goals, criteria, and methodology	• Discussed screening results • Selected evaluation corridors • Discussed evaluation methodology	• Discussed evaluation results • Discussed implementation planning • Discussed final report format and roll out

GOALS AND CRITERIA FOR PRIORITY CORRIDORS

The TAC and the study team worked together to create a set of prioritized goals for transit priority corridors in the region (Table 8). These goals were used to identify, screen, and evaluate roadways in the SCAG region to see where transit priority treatments would have the most impact. The TAC identified Goal Areas 1 and 2 as essential to priority treatments implementations to maximize mobility through speed and reliability improvements to the transit network. Goal Areas 3 through 6 were considered to be ideal outcomes of the most well-designed priority treatments.

TABLE 8. GOALS FOR TRANSIT PRIORITY CORRIDORS

Goal Areas	Goal Considerations
*Transit Priority Treatments should **always**:*	
1. Improve transportation system performance	Will this corridor improve transit speed and reliability while minimizing traffic and safety impacts to improve regional connectivity?
2. Increase people throughput and attract riders	Is this corridor located where people live and work? Are people using it to travel and take transit today? Where will these be implemented in the future?
*Transit Priority Treatments should **ideally**:*	
3. Improve access for equity-focused communities	Where are equity-focused communities located, and where are the destinations that they need to get to?
4. Promote local plans and priorities	What corridors are already aligned with local priorities, existing plans, and studies? Where is it financially feasible to install treatments?
5. Integrate with the built environment	Is the corridor close to transit supportive land uses and TOD? Is it technically feasible to install a treatment on this roadway? Is it located near existing and planned active transportation networks?
6. Improve climate and health outcomes	Will this corridor help reduce GHG and other emissions? Will it help create healthy places?

Within each of these six goal areas, the TAC identified key criteria that would be useful for determining whether that goal might be realized in a given corridor (Table 9).

TABLE 9. CRITERIA FOR TRANSIT PRIORITY CORRIDOR SCREENING AND EVALUATION

Goal Area	Criteria
1. Improve transportation system performance	• Transit speed and reliability potential • Minimizing traffic and safety impacts • Promotes regional connectivity
2. Increase people throughput and attract riders	• Population and employment density • Travel markets/trip intensity • Transit ridership
3. Improve access for equity-focused communities	• Equity populations (race (non-white)) • Equity populations (income) • Proximity to schools and civic institutions
4. Promote local plans and priorities	• Identified plans and studies • Financial feasibility • Jurisdictional feasibility
5. Integrate with the built environment	• Transit supportive land use and TOD • Supportive first/last mile and bike network • Technical feasibility
6. Improve climate and health outcomes	• GHG and other emissions impacts • Benefits to healthy places

In the screening and evaluation stages, the study team then assigned quantifiable metrics that correlated to each criterion and weighted each based on its relative contribution to a given goal.

TABLE 10. CORRIDOR SCREENING MAXIMUM POINTS

Goal Area (Max Points)	Criteria	Metric	Points
1. Improve transportation system performance (35)	Transit speed and reliability potential	Existing and future congested peak speed ratios	15
	Minimize traffic and safety impacts	Existing and future peak volume/capacity ratios	15
	Regional connectivity	Proximate high-quality transit connections	5
2. Increase people throughput and attract riders (30)	Population and employment density	Existing and future population and employment density	10
	Travel markets/trip intensity	Existing and future trip origins and destinations	10
	Transit ridership	Existing and potential future transit ridership	10

CORRIDOR SCREENING AND EVALUATION

A two-stage process was used to arrive at a set of corridors considered most promising to study further for transit priority treatments. The first stage, **Corridor Identification and Screening**, considered the universe of corridors within the SCAG region and from the over 15,000 miles of feasible roadways, narrowed down to just over 300 corridors that could be candidates for priority treatments. Then 75 of these corridors, as determined by potential performance and TAC feedback, were promoted to a second stage **Corridor Evaluation** process that simulated a priority treatment on the corridor to assess likely performance.

STAGE 1: CORRIDOR IDENTIFICATION AND SCREENING

The first step in the corridor identification and screening process was creating a universe of potential roadways where transit priority treatments would be geometrically feasible. This universe of roadways included arterial roadways, where a lane-treatment could be applied (these included arterial streets with more than one lane of traffic in each direction); arterials where transit-only lane would not be feasible, but other treatments like TSP could be used; and freeway links where express lanes and bus-on-shoulder treatments could be considered. Over 15,000 miles of roadway were considered feasible.

This universe of roadways was then screened against the questions posed in Goal Areas 1 and 2 (shown in Table 8).

To answer these questions, the study team assessed 11 distinct metrics with points assigned based on the relative priority of each goal area and criterion to the overall potential success of a future priority treatment, as determined by the TAC (Table 10).

Based on this screening, the top 10 percent of corridors (313) were advanced to the TAC for review and promotion to the Stage 2 analysis. Corridors were split into 2 categories—those scoring highest (top 5 percent of screening) were considered **definite** to be evaluated in Stage 2; and those scoring almost as well (the remaining top 10 percent corridors) were labeled **potential** corridors to be considered further. TAC members had the chance to elevate potential corridors to the definite list and vice versa with the goal of advancing around 100 corridors to the Stage 2 evaluation.

The screened corridor network underwent an equity pre-check using CalEnviroScreen 4.0 disadvantaged community data. This equity screen showed if the corridors fell in or near an equity-focused community in order to assess whether equity-focused communities had reasonable access to at least one if not multiple corridors advancing to evaluation. Appendix B details the final list of 185 potential corridors identified through the screening process to evaluate further for transit priority treatments. Any of these corridors would justifiably merit further study toward the benefits of transit priority treatments in the future.

STAGE 2: CORRIDOR EVALUATION

The second stage of the process involved evaluating the 75 net new corridors advanced by the TAC from screening to forecast how much benefit transit priority treatments would likely provide in each corridor. Existing priority corridors and corridors already in the planning process were held separately since they already have been designated as areas with transit priority by local stakeholders.

Each new corridor was assigned a treatment type based on the physical attributes of the corridor. For most arterial corridors with more than one travel lane in each direction, a **dedicated lane treatment** was simulated to replace an existing general purpose lane. For arterial corridors with only one lane in each direction or geometric or demographic conditions that did not favor a lane treatment, **intersection treatments** like TSP and/or queue jumps were assigned. For multilane highway corridors, an Express Lanes-style **freeway lane treatment** was simulated.

In reality, additional corridor features, such as stop amenities or headway improvements, would be part of a transit priority treatment; however, in order to focus the impact of the primary treatment in each corridor, additional corridor improvements were not simulated for the evaluation.

Each corridor was then evaluated against the established goals and criteria identified by the TAC. Table 11 shows the evaluation data and weighting methodology by goal area. The SCAG regional travel model was used to forecast the potential impact of the modified corridor to travel behavior in the corridor. A travel model uses information about roadway and transit networks, along with land use and socioeconomic data, to forecast travel in support of evaluation of proposed transportation projects. Four key outputs were derived from these model runs to test the potential effect of transit priority treatment within each corridor:

1. Change in transit peak travel delay.
2. Change in overall peak volume/capacity ratio.
3. Change in transit ridership.
4. Change in VMT.

The model output data was combined with the remaining 13 metrics, 11 of which used Geographic Information Systems (GIS) to calculate location-specific metrics about the corridors. The last two metrics, for financial feasibility and plan alignment, were more qualitative in nature, and derived from best practices and review of existing plans and policies analyses, respectively.

TABLE 11. EVALUATION DATA AND WEIGHTING METHODOLOGY

Goal Area (Max Points)	Criteria	Data (Source)	Points
1. Improve transportation system performance (35)	Transit speed and reliability potential	Change in transit peak travel delay (model data)	14
	Minimizing traffic and safety impacts	Change in overall peak volume/capacity ratio (model data)	14
	Regional connectivity	Proximate high-capacity transit connections (GIS)	7
2. Increase people throughput and attract riders (30)	Population and employment density	Existing & future population and employment density and activity units (GIS)	8
	Travel markets/trip intensity	Existing and future trip origins and destinations (GIS—from Streetlight one activity per square mile)	8
	Transit ridership	Change in existing and future transit ridership (model data)	14
3. Improve access for equity-focused communities (15)	Race (non-white)	CalEnviroScreen non-white population (GIS)	5
	Income	CalEnviroScreen income (GIS)	5
	Proximity to schools and civic institutions	Proximate features (GIS)	5
4. Promote land plans and priorities (15)	Financial feasibility	Treatment cost/benefit, by treatment type and corridor length (qualitative)	5
	Identified plans and studies	Project identified as planned by stakeholders (qualitative)	5
	Jurisdictional feasibility	Number of jurisdictions (GIS)	5
5. Integrate with the built environment (15)	Transit supportive land use and TOD	Multifamily land use (GIS)	5
	Supportive first/last mile and bike network	Bike facilities (GIS)	5
	Technical feasibility	Based on treatment and roadway facility type (GIS)	5
6. Improve climate and health outcomes (10)	GHG and other emissions impacts	Change in VMT (model data)	5
	Benefits to healthy places	CalEnviroScreen composite score (GIS—Percentile)	5

After each treatment corridor was simulated in the travel model and scored across all metrics, three tiers of performance were identified based on natural breaks in the scoring data. Tier 1 corridors scored the highest in the evaluation, followed by Tier 2 and Tier 3. Any corridor advancing to the evaluation stage represents an excellent opportunity to study transit priority treatments in more detail; the purpose of tiering the final scores is simply a means to prioritize focus and expected benefits in areas with limited resources for further study.

FINAL CORRIDORS AND TRANSIT PRIORITY NETWORK VISION

The final existing and proposed corridors span the SCAG region (Figure 5). There are 21 Tier 1 corridors (Table 12), 30 Tier 2 corridors (Table 13) and 24 Tier 3 corridors (Table 14). If implemented, they would expand SCAG's regional transit priority network by 1,240 centerline miles. The results of the evaluation were presented to the TAC for review and feedback. Members were able to comment on corridor characteristics and specify if any corridor was of particular importance or priority (or not) to those in their jurisdiction. Through this process, the TAC identified 8 additional corridors to be added (Table 15), which appear on the map, but are not tiered as they did not go through the evaluation process.

FIGURE 5. NETWORK OF TRANSIT PRIORITY CORRIDORS

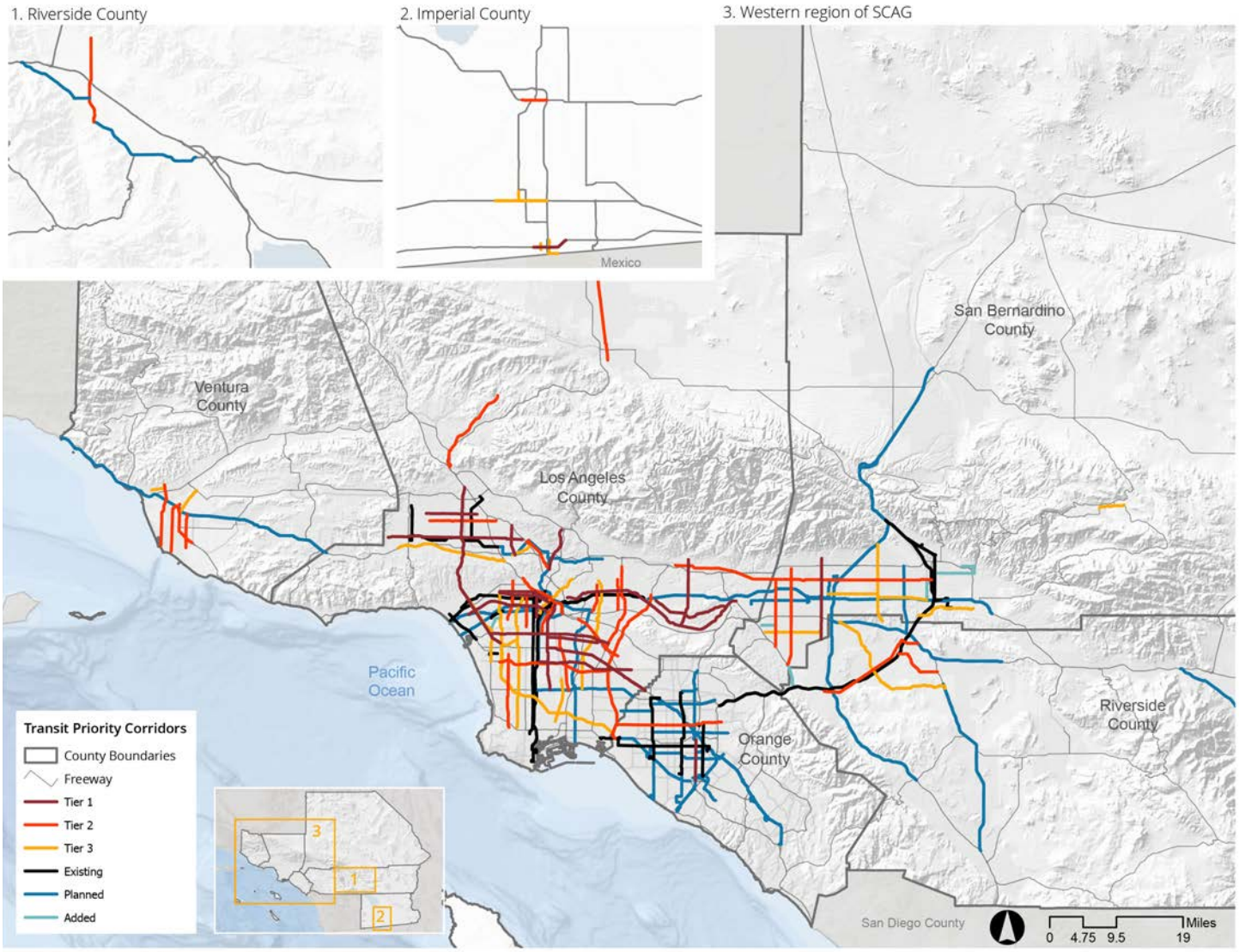


TABLE 12. TIER 1 CORRIDORS

County	Corridor	Extent	Direction	Subregion	Type
Imperial (1)	SR 98—E Cole Blvd	City of Calexico	EW	IVAG	TSP
Los Angeles (17)	Amar Rd	Baldwin Park Blvd—Valley Blvd	EW	SCVCOG	TSP
	Azusa Ave	E Sierra Madre Ave—Valley Blvd	NS	SGVCOG	TSP
	Beverly Blvd	N Crescent Heights Blvd—N Toluca St	EW	Central LA	TSP
	Central Ave	SR 91 Express Lanes—E 1st Street	NS	Central LA	TSP
	E Gage Ave	S Central Ave to E Slauson Ave	EW	GCCOG	TSP
	E Imperial Hwy	S Broadway Ave to Carmenita Rd	EW	GCCOG	Bus Lane
	Firestone Blvd	Central Ave to Orange County Line	EW and SW/NE	GCCOG	TSP
	Glendale Blvd—N Verdugo	Honolulu Ave/Verdugo Blvd—San Fernando Rd	NS	AVCJPA	TSP
	I-405 HOV Seg 1 (SFVCOG)	I-5N to Orange County Line	NW/SE	SFVCOG	Express Lane
	N Hollywood Way	Golden State Fwy—Ventura Fwy	NS	AVCJPA	TSP
	Nordhoff St	Tampa Ave—Osborne St	EW	SFVCOG	Bus Lane
	S Hoover St	Wilshire Blvd to W Jefferson Blvd	NS	Central LA	TSP
	Slauson Ave	Sepulveda—Rosemead Blvd	EW	GCCOG	TSP
	Valley Blvd	N Mission Rd—SR 71	EW	SGVCOG	TSP
	Victory Blvd	Valley Circle Blvd—N Victory Blvd	EW	SFVCOG	Bus Lane
	W 3rd St	La Cienega Blvd to S Flower St	EW	Central LA	TSP
	W Pico Blvd	Gateway Blvd to S Figueroa St	EW	Multiple	TSP
Orange (1)	Bristol Street	Memory Lane to Anton Blvd	NS	OCCOG	TSP
Riverside (0)	No Tier 1 Corridors				
San Bernardino (2)	Haven Ave	Chaffey College to Bellegrave Ave	NS	SBCOG	TSP/Bus Lane
	Highway 62	Kickapoo Trail to Wilshire Ave	EW	SBCOG	TSP
Ventura (0)	No Tier 1 Corridors				

Please note corridor names replicate the nomenclature used by the SCAG regional travel model for consistency.

The scope of transit priority treatment on any specific corridor will be based on local planning process assessing feasibility of strategies.

TABLE 13. TIER 2 CORRIDORS

County	Corridor	Extent	Direction	Subregion	Type
Imperial (1)	SR 78/SR 86 (Brawley)	Highway 111—Main Street	EW	IVAG	TSP
Los Angeles (16)	Atlantic Blvd N	Main Street—W Riggin St/Avenida Cesar Chavez	NS	SGVCOG	Bus Lane
	Hawthorne Blvd	Century Blvd to Rolling Hills Rd	NE	SBCCOG	Bus Lane
	I 105 Express Lane	I-405 to I-605	EW	Multiple	Express Lane
	I-605 Express Lanes	I-10 to I-405	NS	Multiple	Express Lane
	La Brea Ave	Sunset Blvd—Coliseum St	NS	Central LA	Peak Hour Bus Lane
	Long Beach Blvd	Slauson—SR 91	NS	GCCOG	TSP
	Roscoe Blvd	Tampa Ave—Lankershim Blvd	EW	SFVCOG	Bus Lane
	Rosemead Blvd	I-5—Huntington Dr	NS	SGVCOG	TSP
	S San Pedro St	E 1st St to E Jefferson Blvd	NE/SW	Central LA	Bus Lane
	S Western Ave	Beverly Blvd St to W 38th Pl	NS	Central LA	Bus Lane
	San Fernando Road	Glendale Fwy—Metrolink Burbank	NW/SE	AVCJPA	TSP
	Sierra Hwy Lancaster-Palmdale	E Ave S—Ave A	NS	North LAC	TSP
	Sierra Hwy Santa Clarita	I-5—Davenport Rd	NE/SW	North LAC	TSP
	Telegraph Rd	S Downey Rd to Pioneer Blvd	NW/SE	GCCOG	Bus Lane
	U.S. 101 Express Lane	N Bronson Ave to U.S. 5	NW/SE	Central LA	Express Lane
	Walnut Grove Ave	E La Tunas Dr—San Gabriel Blvd	NS	SGVCOG	TSP
Orange (2)	Katella Ave	From 55 freeway to 605 freeway	EW	OCCOG	TSP
	I-605 Express Lanes	Orange County Section	NS	OCCOG	Express Lane
Riverside (3)	Alessandro Blvd	Victoria Ave—I-215	EW	WRCOG	TSP
	Gene Autry Trail/Palm Dr	Desert Hot Springs—Highway 111	NS	CVAG	TSP
	Old RapidLink BRT Riverside to Corona	Metrolink—UC Riverside not operating as of October 2022	EW	WRCOG	TSP
San Bernardino (4)	Central Ave	SR 71—Foothill Blvd	NS	SBCOG	TSP
	Euclid Ave	Foothill Blvd. to Corona	NS	SBCOG	TSP/Bus Lane
	Foothill Blvd East	Victoria Gardens to Highland	EW	SBCOG	TSP/Bus Lane
	Foothill Blvd West	Montclair Transit Center to Victoria Gardens	EW	SBCOG	TSP
Ventura (4)	Oxnard Blvd	City of Oxnard to S Pleasant Valley	NS + EW	VCOG	TSP
	Rose Ave	Lei/Sanford St—U.S. 101	NS	VCOG	Bus Lane
	Ventura Rd	101 to E Hueneme Rd	NS	VCOG	TSP
	Victoria Ave	Channel Islands Beach—Foothill Rd	NS	VCOG	TSP

Please note corridor names replicate the nomenclature used by the SCAG regional travel model for consistency.

The scope of transit priority treatment on any specific corridor will be based on local planning process assessing feasibility of strategies.

TABLE 14. TIER 3 CORRIDORS

County	Corridor	Extent	Direction	Subregion	Type
Imperial (5)	2nd Street (Calexico)	SH 111—E Rivera Ave	EW	IVAG	TSP
	I-8 (El Centro)	Between Highway 111 and Forester Road—connector for transit	NS	IVAG	Bus on Freeway
	Imperial Ave (I-8)	W. Main Street—SR 114	EW	IVAG	Limited Stop
	Kloke Rd	Grant St—the Canal	NS	IVAG	TSP
	Rockwood Ave (Calexico)	2nd Street—E Cole Blvd	NS	IVAG	TSP
Los Angeles (10)	Alameda Street	E 37th St to E Slauson Ave	NS	GCCOG	Bus Lane
	W Alameda Ave	Riverside Drive—Glendale Rd	EW	AVCJPA	TSP
	Crenshaw Blvd	W 80th St to Amsler St	NE	SBCCOG	Bus Lane
	E Florence Ave	W Blvd to N La Brea Ave	NE/SW	SBCCOG	Bus Lane
	Garfield Ave	SR 91 Express Lane—E Alhambra Rd	NS	GCCOG	Bus Lane
	I-405 HOV Seg 2 (Central LA)	I-5N to Orange County Line	NW/SE	Multiple	Express Lane
	SR 110	I-5 Interchange to I-10 Interchange	NE/SW	Central LA	TSP
	S La Cienega Blvd	Wilshire Blvd to E El Segundo Blvd	NS	WCCOG	TSP
	Sepulveda Blvd	Venice Blvd to W Centinela Ave	NW/SE	WCCOG	Bus Lane
	Ventura Blvd	LA County Line—Burbank	EW	SFVCOG	Bus Lane
Riverside (1)	Van Buren Blvd	Jurupa Rd—Wood Rd	EW	WRCOG	TSP
San Bernardino (6)	Barton Rd	S La Cadena Dr to S San Mateo St	EW	SBCOG	TSP
	Big Bear Blvd	Through the City of Big Bear—Village/ Pine to Stanfield Cutoff	EW	SBCOG	TSP
	Edison Ave	SR 71 to Haven Avenue	EW	SBCOG	TSP
	San Bernardino Ave	Milliken Ave to Sierra Ave	EW	SBCOG	TSP
	Sierra Ave	Armstrong Rd to I-15	NS	SBCOG	TSP
	Valley Blvd	Kaiser Fontana to San Bernardino Transit	EW	SBCOG	TSP
Ventura (2)	Telegraph Rd	Victoria to Mills	EW	VCOG	Bus Lane
	Vineyard Ave	N Oxnard Blvd—Los Angeles Ave	NS	VCOG	Bus Lane

Please note corridor names replicate the nomenclature used by the SCAG regional travel model for consistency.

The scope of transit priority treatment on any specific corridor will be based on local planning process assessing feasibility of strategies.

TABLE 15. CORRIDORS ADDED BY STAKEHOLDERS AFTER EVALUATION

County	Corridor	Extent	Direction	Subregion
Los Angeles (1)	Jefferson Blvd	Sepulveda—La Cienega Blvd	NS	WSCOG
San Bernardino (7)	N Mt. Vernon Ave	Valley Blvd to Rialto	NS	SBCOG
	Rialto	Mt Vernon to E Street	EW	SBCOG
	Baseline	E Street to Boulder	EW	SBCOG
	Boulder Ave	Baseline to Highland Ave	NS	SBCOG
	Highland Ave	Boulder Ave to Victoria	EW	SBCOG
	SR 71	Euclid Ave to Metrolink West Corona Station	NS	SBCOG
	Riverside Ave	N Riverside to Riverside Metrolink Station	NS	SBCOG

Please note corridor names replicate the nomenclature used by the SCAG regional travel model for consistency.

The scope of transit priority treatment on any specific corridor will be based on local planning process assessing feasibility of strategies.

TABLE 16. EXISTING OR PLANNED CORRIDORS

County	Corridor	Extent	Type	Existing or Planned
Imperial	SH 111 (Imperial Ave)	Imperial County	Express Lane	Planned
Los Angeles	5th Street	Downtown LA	Peak Hour Bus Lane	Existing
	6th Street	Downtown LA	Peak Hour Bus Lane	Existing
	98th Street	S Sepulveda Blvd to Bellanca Ave	Bus Lane	Existing
	Aliso Street	Downtown LA	Peak Hour Bus Lane	Existing
	Alvarado Street	Downtown LA	Peak Hour Bus Lane	Existing
	Broadway BRT	Little Tokyo Gold Line to Imperial Hwy (5th Street to Ocean Ave EB)	BRT	Planned
	Culver Blvd	Venice Blvd—Dunquesne Ave	Bus Lane	Existing
	Figueroa Bus Lane	Downtown LA	Bus Lane	Existing
	Flower Street	Downtown LA	Peak Hour Bus Lane	Existing
	G (Orange) Line	Lassen—Lankershim (Chatsworth—North Hollywood)	BRT	Existing
	Grand Ave	Downtown LA	Bus Lane	Existing
	I-10 Express Lane	I-605 to San Bern County Line	Express Lane	Planned
	I-405 Expresslane (Los Angeles)	I-5N to Orange County Line	Express Lane	Planned
	J Silver Line/I-10 and I-110 ExpressLanes	El Monte—Long Beach	Express Lane	Existing
	J Silver Line Seg 1/I-10	El Monte—Long Beach	BRT	Existing
	Lincoln Blvd	Dewey Ave to Venice Blvd	Bus Lane	Existing
	Lincoln Blvd BRT	Pico Blvd—Sepulveda Blvd	BRT	Planned
	LA Metro Rapid 754 Vermont	W 122nd St—Hollywood Blvd	Limited stop service	Existing
	LA Metro Rapid Van Nuys Blvd	Expo and Sepulveda—Vermont, then on Van Nuys to San Fernando Rd to Metrolink, Laurel Canyon Blvd—Victory Blvd	Limited stop service	Existing
	N Spring Street	Downtown LA	Bus Lane (EB)	Existing
	Noho Pasadena BRT	Olive/Glenoaks/Broadway/Colorado	BRT	Planned
	Olive Street	Downtown LA	Bus Lane	Existing
	Santa Monica Blvd	Ocean Ave to 5th Street WB	Bus Lane	Existing
	SR 91 Express Lanes	Orange County Line—Magnolia Ave	Express Lane	Planned
	Sunset/Chavez	Dodger Stadium to Union Station	Game Day Bus Lane	Existing
	Sunset-Glendale-Atlantic BRT	Atlantic Blvd via Vermont/Los Feliz/Central to Broadway	BRT	Planned
	Venice Blvd	Santa Monica—Downtown LA	BRT	Planned
	Vermont Transit Corridor	Sunset Blvd - 120 St.	TBD	Planned
	Washington/Culver Blvd	La Cienega Ave—Duquesne Ave.	Bus Lane	Existing
	Wilshire Blvd	Centinela to Federal Ave; Crenshaw Blvd to Western Ave, Valencia to 5th	Peak Hour Bus Lane	Existing

County	Corridor	Extent	Type	Existing or Planned
Orange	Beach Blvd Bravo	La Mirada Blvd—PCH	Limited Stop	Existing
	Harbor Blvd Bravo	E Chapman Ave—Newport Blvd	Limited Stop	Existing
	I-5 (Orange County)	Orange County Section	Express Lane	Planned
	SR 55 (Orange County)	Orange County Section	Express Lane	Planned
	Westminster/17th Bravo	Beach, Harbor	Limited Stop	Existing
	I-405 ExpressLane (Orange County)	Los Angeles County Line to SR 73	Express Lane	Planned
	SR 91 ExpressLane (Orange County)	SR 55 to Riverside County	Express Lane	Existing
	Main St. Bravo Route 533	Katella to MacArthur	Limited Stop	Existing
	Lincoln Ave/La Palma	Norwalk Blvd to MetroLink Anaheim Canyon Station	Limited Stop	Planned
	Chapman Ave BRAVO	Beach Blvd to N Hewers St	Limited stop	Planned
	Main Street BRAVO	S Bear St to MetroLink Anaheim Station	Limited stop	Planned
	McFadden Blvd Bolsa Ave BRAVO	Golden West College (Center Ave) to Bryan Ave	Limited stop	Planned
	Beach Blvd Extension	Magnolia Ave to 1st Street	Limited stop	Planned
	Westminster Ave 17th St Bristol St HCT	Golden West College (Center Ave) to University of California Irvine (E Peltason Dr)	High Capacity Transit	Planned
	State College Blvd Rapid Bus	Brea Mall to W Santa Ana Blvd	High Capacity Transit	Planned
	Harbor Blvd Extension	Cal State University Fullerton (N Commonwealth Ave) to Meyer Pl	High Capacity Transit	Planned
Riverside	I-215 Express Lane	I-15 to Van Buren Blvd	Express Lane	Planned
	SH 111 TSP	Coachella to Palm Springs along Highway 111	TSP. Limited Stop Service	Planned
	SR 60 Express Lane	I-15 to Gilman Springs Rd	Express Lane	Planned
	I-15 Express Lane	San Bernardino County Line to SR 74	Express Lane	Planned
	SR 91 Express Lane (Riverside)	Orange County Line - Magnolia Ave	Express Lane	Existing
San Bernardino	I-10 Express Lane	LA County Line to Ford St	Express Lane	Planned
	SbX Green Line	California State University to Loma Linda University & Medical Center	BRT	Existing
	West Valley Connector	Pomona Transit Center to Rancho Cucamonga	BRT	Planned
	Chino Ave	East End Ave to Central Ave	BRT	Planned
	I-15 Express Lane	SR 18 to Riverside County Line	Express Lane	Planned
	I-215 HOV	County Lines	HOV Lane	Existing
Ventura	U.S. 101 Express Bus Lanes	Ventura County	Express Lane	Planned

5.0 TAKING NEXT STEPS FOR ACTION

Identifying corridors where transit priority treatments should operate is only the first step in making them a reality. SCAG recognizes that implementing transit priority treatments is complex. Creating a regionwide network of reliable and fast buses will take coordination between cities, counties, COGs, transit agencies, and Caltrans; and it will often require engaging with many different departments within these organizations.

SCAG undertook this study with the purpose of exploring where and how transit priority treatments could have a positive impact on the region. Working in partnership with county transportation commissions, local jurisdictions and relevant stakeholders, SCAG aspires to make this vision a reality. To advance the work that this study begins, SCAG recommends two key next steps, described in detail below:

1 ***DOCUMENT A REGIONAL VISION FOR TRANSIT PRIORITY:*** *SCAG will incorporate a regional transit priority network into the development of Connect SoCal 2024 and related regional planning efforts.*

2 ***ADVANCE CORRIDOR PROJECTS TO IMPLEMENTATION:*** *Regional partners can promote the corridors identified through this study into their local planning efforts, stakeholder discussions, and funding and grant opportunities.*

1. DOCUMENT A REGIONAL VISION FOR TRANSIT PRIORITY

SCAG currently is developing Connect SoCal 2024, the 2024–2050 RTP/SCS, the long-range plan, which emphasizes the development and preservation of the region's transportation system. For a transportation project to become eligible for Federal and State funding, it must be included in the financially constrained portion of the RTP. In addition, per State law, the Plan must include a Sustainable Communities Strategy (SCS) that demonstrates compliance with California Air Resources Board greenhouse gas (GHG) emission reduction targets from cars and light-duty trucks.

Improving the speed and reliability of public transit through transit priority treatments is a vital part of SCAG's long-range strategy to reduce GHG and move towards becoming a more sustainable region. This study, with the over 500 percent expansion of the regional transit priority network it imagines, helps inform the vision for transit in Connect SoCal. SCAG is working closely with the six-county transportation commissions in the region on identifying projects for inclusion in Connect SoCal, including potential transit priority treatments on the identified corridors, which are subject to available funding. Projects included in Connect SoCal must still undergo project-specific planning and development in accordance with State and Federal requirements.

Identification of corridors through this study may also provide the basis for inclusion in Federal Transportation Improvement Program (FTIP) updates and future Federal and State funding programs. Inclusion in regional plans and programs affords transit priority treatment projects the opportunity to compete for a wide range of grant opportunities (see more below). Further, the State of California has enacted several new laws and regulations in the last few years that ease requirements for dedicated lanes and priority treatments on both arterial roadways and freeways, making now the perfect opportunity for Southern California communities to advance local projects captured in a regional vision network.

2. ADVANCE CORRIDOR PROJECTS TO IMPLEMENTATION

Planning and implementing transit priority treatments can be complex. First, collaboration between infrastructure owners and transit operators at the outset is critical. Further, since transit priority treatments frequently consist of adapting the existing built environment, multiple stakeholder interests should be engaged early and often throughout the development process. And while many treatment types can be implemented cheaper, faster, and with fewer regulations than major infrastructure builds, transit priority treatment projects are not without cost and risk.

GETTING STARTED ON IMPLEMENTATION

For most operators in the SCAG region, incorporating priority treatments on the roadway can involve coordinating with multiple municipal governments and Caltrans—and often requires engaging with many different departments within these organizations. The following summarizes recommended next steps for local agencies to take in the planning, design, and implementation of transit priority corridors:

- **Provide valuable data for local stakeholders and partners.** Agencies should conduct upfront data-driven analyses and identification of operational hotspots or assessment of potential traffic benefits/impacts. Determine and agree upon acceptable benefits and tradeoffs in relation to transit performance goals versus traditional traffic operations, and build a common base of knowledge with local municipalities who are interested in transit priority, but uncertain on how to justify or under resourced.
- **Work across organizations and departments.** Do not be afraid of coordinating the details of transit stop improvements and priority treatments across organizational lines during the early design phase. Transit priority projects must also incorporate capital and technology operational standards that may challenge auto-oriented design and operations. Agencies may use potential design and traffic operations issues as opportunities to break down barriers through data sharing, conflict identification, and resolution.
- **Leverage design standards and pilots to expedite the process.** Develop design and procurement standards for common capital infrastructure and systems elements to expedite plan reviews, procurement, and implementation. Consolidate procurement of professional services and materials for design and construction under unified contracts structure, where appropriate, for consistent designs, materials, and competitive pricing.
- **Develop project design Quality Assurance/Quality Control (QA/QC) review** and decision-making processes that incorporate input and coordination among municipal departments, as well as appropriate peer staff within stakeholder agencies. Reviews should include compliance with supporting design guidelines and policies including, but not limited to, complete streets, bus stop design, BRT design, Manual on Uniformed Traffic Control Devices (MUTCD), transit-oriented corridors or development (TOC/TOD). Conduct internal and interagency debriefs following each phase of project development and implementation.
- **Align schedules of transit priority projects with planned implementation of complementary infrastructure and land use changes.** The extent to which transit priority projects are able to be extend multimodal connectivity and accessibility investments into the surrounding area is often limited. These investments contribute greatly to the service success and should be complementarily coordinated with the capital planning processes of local jurisdictions.
- **Use data to continuously improve.** Sharing before and after implementation data can build user confidence and make the case for continued investment in transit priority treatments. Collect information on current travel time delay or speed and reliability, as well as supporting equity analyses, to focus on access and availability of services to minoritized populations. After implementation, publish reports of delay hotspots, implementation benefits, challenges, community support, and compliance to inform future discussions.

DEFINING ROLES AND RESPONSIBILITIES

Defining clear roles and responsibilities will help ensure implementation moves forward smoothly. At their heart, implementing transit priority treatments represents a partnership between the jurisdictions that own and maintain the corridor infrastructure targeted for improvement, the transit providers that would operate service within the corridor, and the communities and stakeholders who would be directly affected by the treatment.

- **Infrastructure Agency.** Typically acts as the lead agency for the project. For arterial treatments, the infrastructure owner is most frequently the cities who own the streetscape infrastructure (roadway, curbs, signals, etc.), though the county or Caltrans may have ownership or operating authority over arterial features on which the treatment operate or intersect. For highway treatments, the infrastructure agency will almost always be Caltrans. Typical departments within the agency that might lead or support the project are Departments of Transportation (DOT), Bureaus of Traffic Engineering, or Department of Public Works. The infrastructure agency is frequently a key funding partner, but may not be the lead grantee for the project.
- **Transit Agency.** Typically acts as a key partner or leader throughout the project and commit additional funding and resources. Since many priority treatments are funded, in part, through grant awards deriving from the Federal Transit Administration (FTA) or state transit programs, the transit agency often plays an early role in conceptualizing the purpose and need for the project and leading on grant applications. Depending on the agency's capabilities, they often lead planning and design for the service aspects of the project, as well as assets the transit operator will own and operate (e.g., buses, stop features).
- **Supportive Agencies.** Other governmental authorities also may hold a direct or indirect interest in the project. For example, regulatory boards, COGs, cities, counties, and the State may control permitting, zoning, or other rights within the project area. Similarly, other transit agencies or local jurisdictions may be invited to partner in the project by offering mobility services or complementary features to the corridor improvement. Support agencies like SCAG, CTCs, and others may support through capital programming and funding access. Support agencies also may or may not provide direct funding support to the project.
- **Community and Stakeholder Groups.** These groups represent the interests of those directly and indirectly affected by the proposed improvement, such as transit riders or mobility advocates, business community supporters, residential community groups, and more. Community outreach should especially include any equity-focused communities that may be impacted, positively or negatively, by the transit priority treatments. Stakeholder groups may have conceptualized the improvement and promote it, or may have concerns about and needs from the project that should be addressed during the development process. In every case, these stakeholders should be openly and comprehensively engaged throughout the project lifecycle to reach a project responsive to the community and region's overarching goals.

IDENTIFYING FUNDING OPPORTUNITIES

Another major barrier for implementing transit priority treatments is funding. There are variety of traditional and innovative funding sources for priority treatments are available to California transit operators and municipalities, ranging from formula funding allocations to competitive grants. Table 17 provides a starting point for identifying funding.

FUNDING DEDICATED LANES AT THE SUB-REGIONAL LEVEL

On December 8th, 2022 the Westside Cities COG voted to allocate 62.5% (or approximately $100 million) of its $160 million Measure M Subregional Equity Program (SEP) funding to BRT and bus infrastructure improvements.

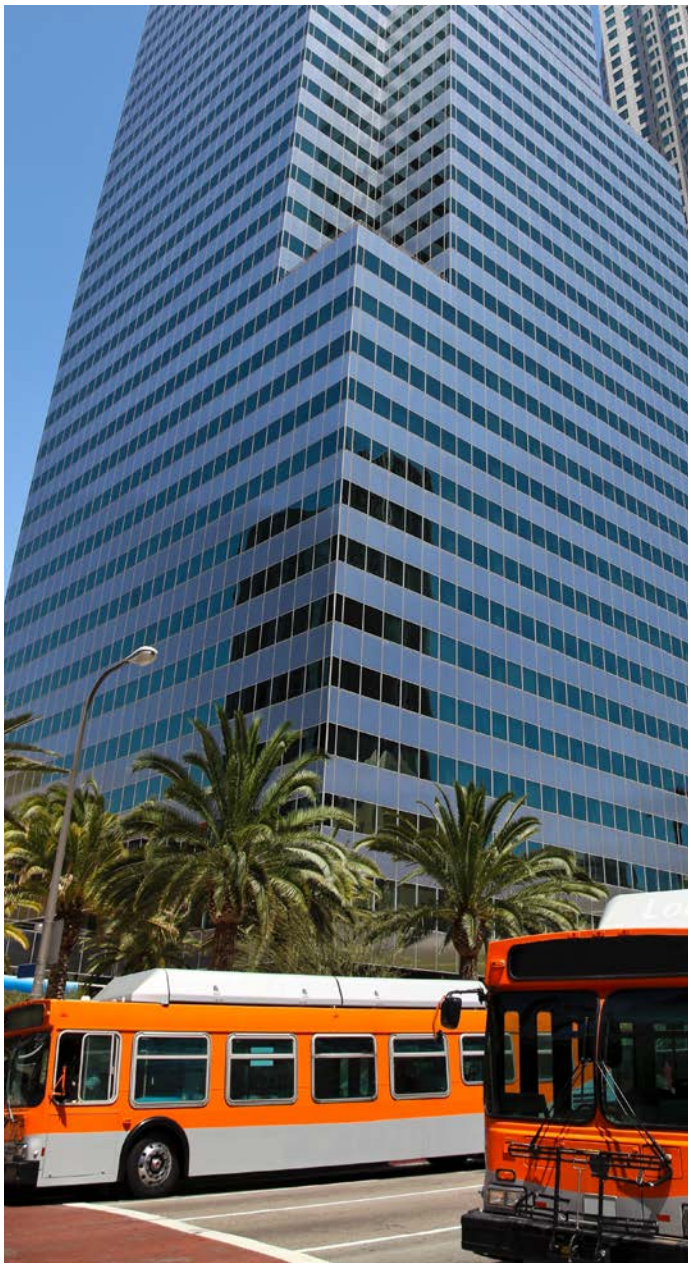


TABLE 17. FUNDING SOURCES FOR TRANSIT PRIORITY TREATMENTS

Funding Level	Funding Source	Details
Federal	2021 Infrastructure Bill; Bipartisan Infrastructure Law	The Infrastructure Investment and Jobs Act (IIJA)/Bipartisan Infrastructure Law (BIL) authorizes $1.2 trillion for transportation and infrastructure spending with $550 billion going toward new investments and programs. California will receive $9.5 billion in funding for public transit; the new BIL sets up several new funding programs for States and local municipalities and replaces the Fixing America's Surface Transportation (FAST) Act.
State	California's State Transit Assistance program	Allocates State funds to transit agencies annually.
	Transportation Development Act (TDA)	Provides funding for transit- and nontransit-related purposes that comply with regional transportation plans. There are two sources of funding Local Transportation Fund (LTF) and the State Transit Assistance (STA) fund
	California Senate Bill 1	Generates revenue to repair and maintain State highways, local roads, and support public transit and active transportation through taxes and fees (Including the Local Partnership Grant Program)
	California Cap and Trade program	Allocates 5% of funds to the Low Carbon Transit Operations Program (LCTOP) and 10% for the Transit and Intercity Rail Capital Program (TIRCP)
County	Sales tax measures	Examples include Los Angeles County's Prop A, Prop C, Measure R, and Measure M local return programs, which use a sales tax to fund countywide transit. Measure M earmarked $450 million for 3 future BRT corridors to add an additional 75 bus lane miles to LA Metro's network
City	General or special funds	Many cities earmark monies from their tax revenues or general funds for transit projects, including capital improvements.
All Levels	Grant Programs	Various Federal, State, and local agencies provide grant funding for transit projects. These sometimes require local matching funds. Examples include: Caltrans Sustainable Transportation Planning Grants. California Transportation Commission's Solutions for Congested Corridors Program (SCCP).

A FINAL NOTE: WHEN TRANSIT PRIORITY IS THE REGION'S PRIORITY

Transit ridership across the SCAG region has been declining since 2007.[10] This is in part because a majority of the region's built environment is designed to facilitate the movement of private vehicles. As previously mentioned, SCAG's report on *Falling Transit Ridership: California and Southern California* (2018) succinctly puts it, as long as driving in the SCAG region is the easiest way to get around, people will drive more and ride transit less. On top of this, the COVID-19 caused additional drops in transit ridership, and riders have not fully returned even as auto travel has returned to pre-pandemic levels.

However, Connect SoCal identifies transit as a core strategy for the region to meet regional and State climate goals around GHG emission reductions. Transit priority treatments, especially those that change the built environment to make it easier to access the world on a bus than in a car, are necessary.

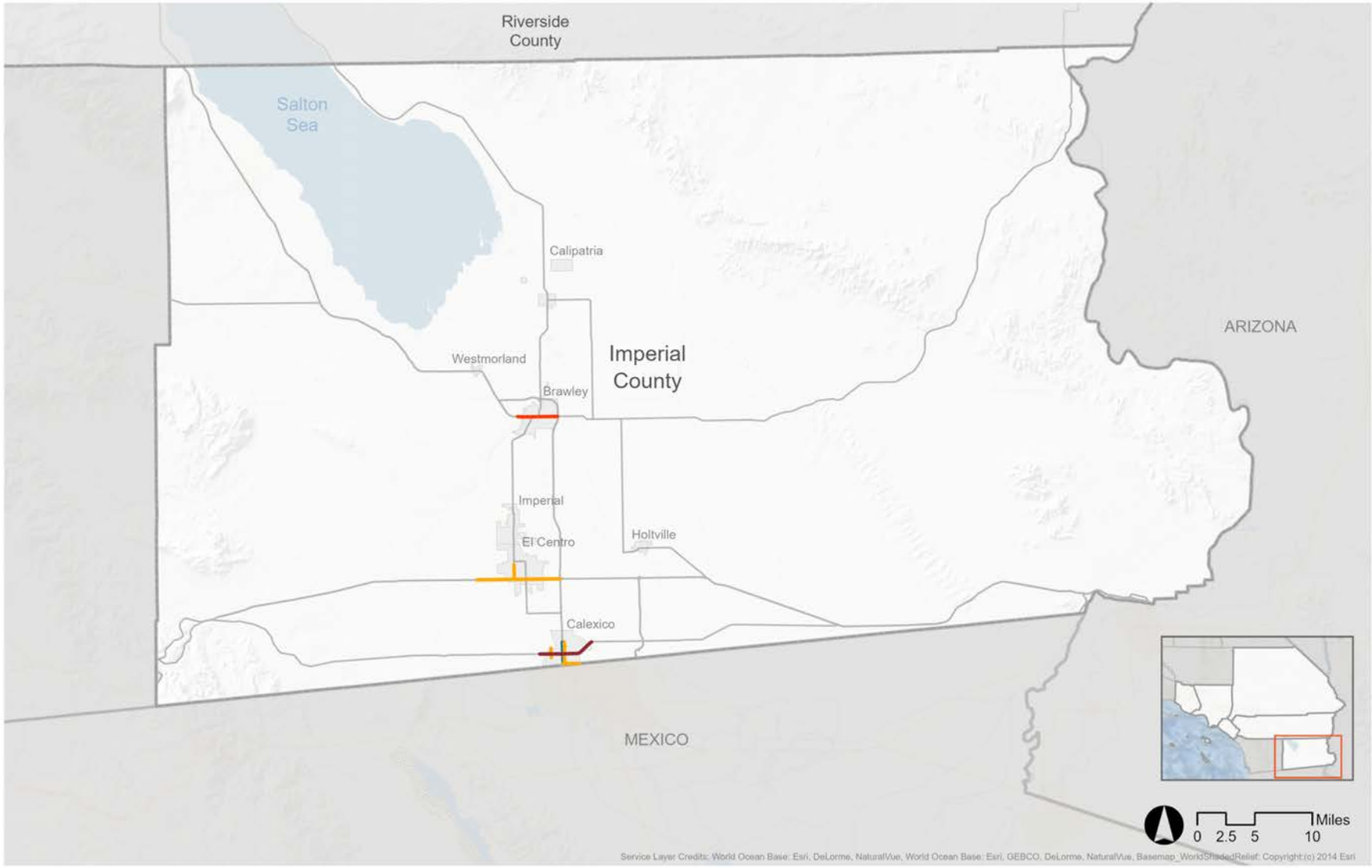
This report is meant to inspire jurisdictions across the region to explore transit priority treatments on the identified corridors. Though the list of potential corridors provided as part of the study is not prescriptive, it provides a six-county view of where treatments could improve mobility and access in the region. It is also meant to support local communities in the SCAG region as they embark on improving transit speed and reliability in their communities.

Filling in major transit gaps, improving first/last mile conditions, addressing transportation infrastructure connectivity, and increasing awareness of public transit options can combat auto dependency in the region. It also is a way to provide better and more equitable access to some of the region's biggest attractions and to outdoor recreational facilities like State parks and trails.

In short, transit priority treatments are a vital tool to provide quality service to existing riders, attract new riders, improve regional safety, and reach our ambitious equity and climate goals. Today, less than 2 percent of the roadways prioritize bus movements in any way. The opportunity to change the way people travel is vast. The faster transit agencies, cities, and municipal agencies act, the better chance the region has to reverse 15 years of falling transit ridership and usher in a new era where transit service, and the people who rely on it, are the priority .

APPENDIX A. MAPS OF TRANSIT PRIORITY CORRIDORS BY COUNTY

TRANSIT PRIORITY CORRIDORS: IMPERIAL COUNTY



County Boundaries City Boundaries Freeway

Existing Tier 1

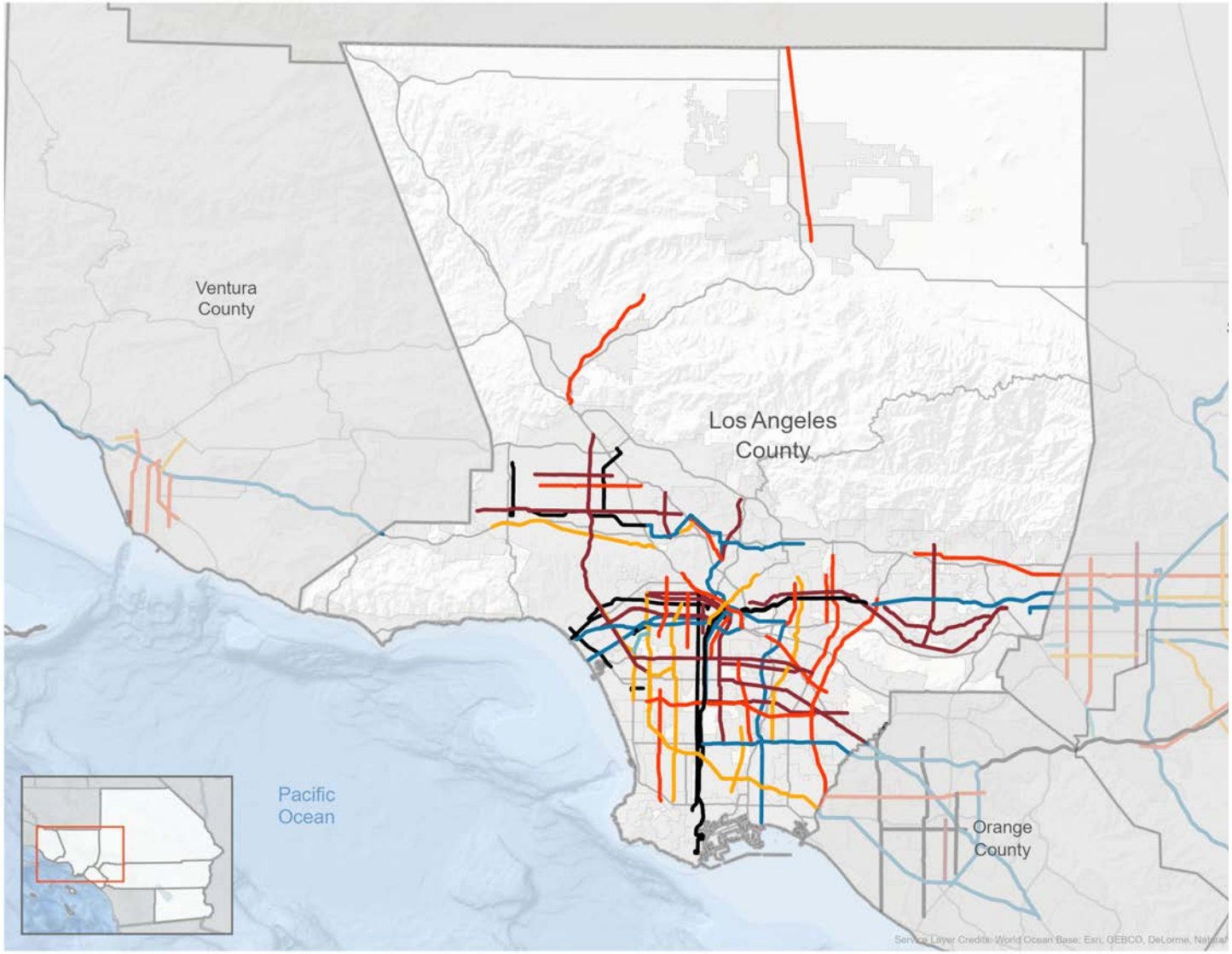
Planned Tier 2

Added Tier 3

Transit Priority Corridors: Imperial County

Source: SCAG, 2023

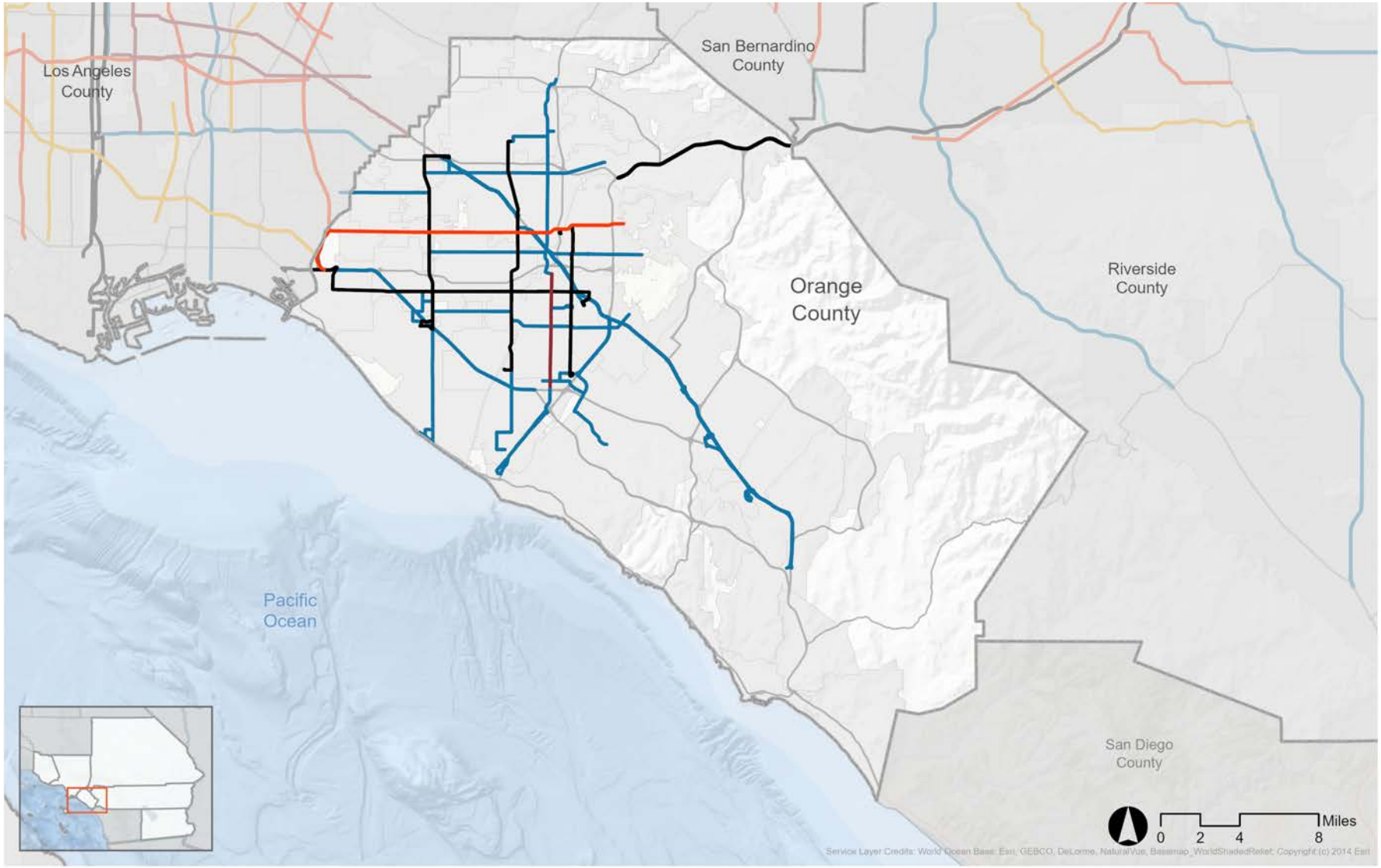
TRANSIT PRIORITY CORRIDORS: LOS ANGELES COUNTY



Transit Priority Corridors: Los Angeles County

Source: SCAG, 2023

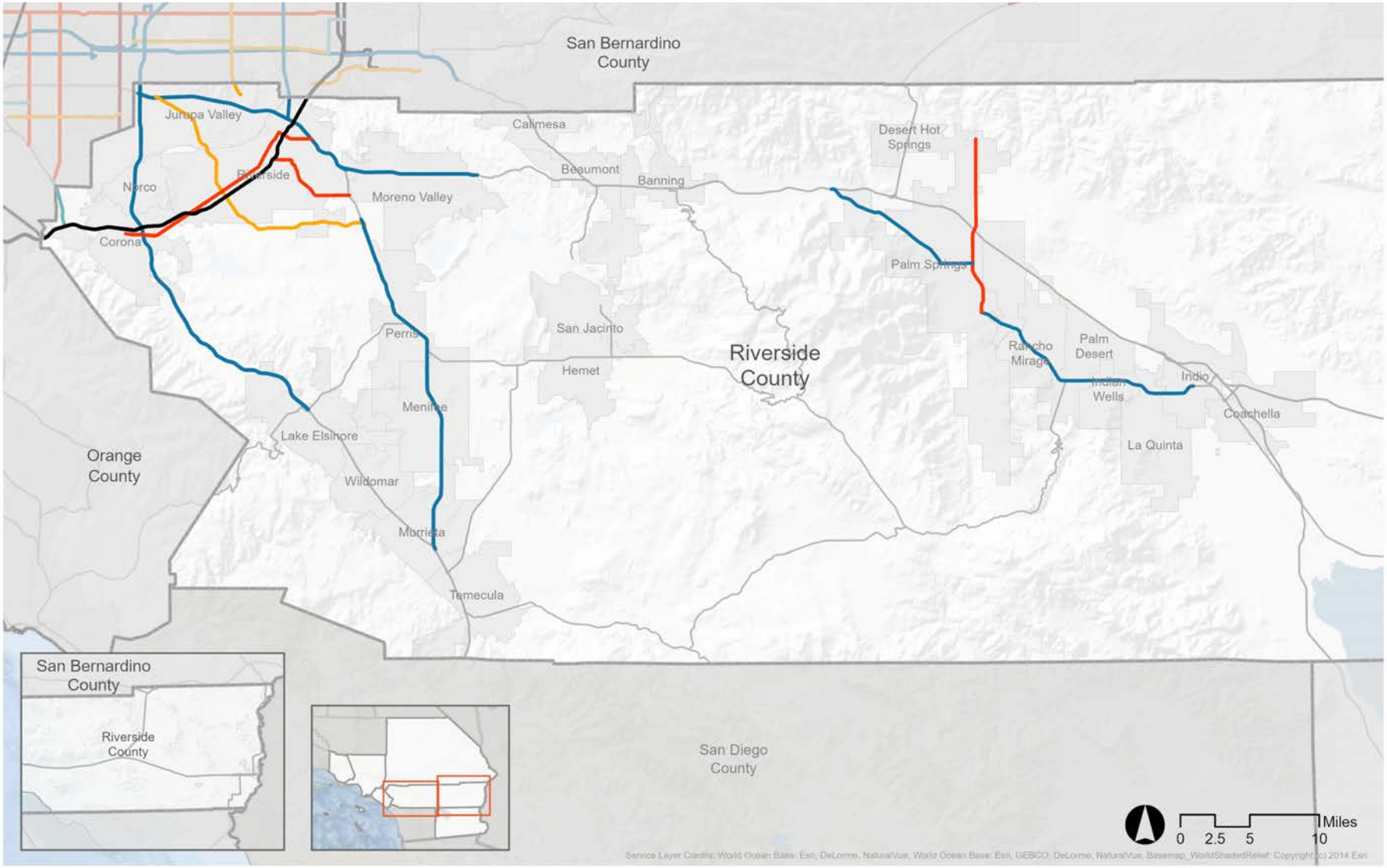
TRANSIT PRIORITY CORRIDORS: ORANGE COUNTY



Transit Priority Corridors: Orange County

Source: SCAG, 2023

TRANSIT PRIORITY CORRIDORS: RIVERSIDE COUNTY



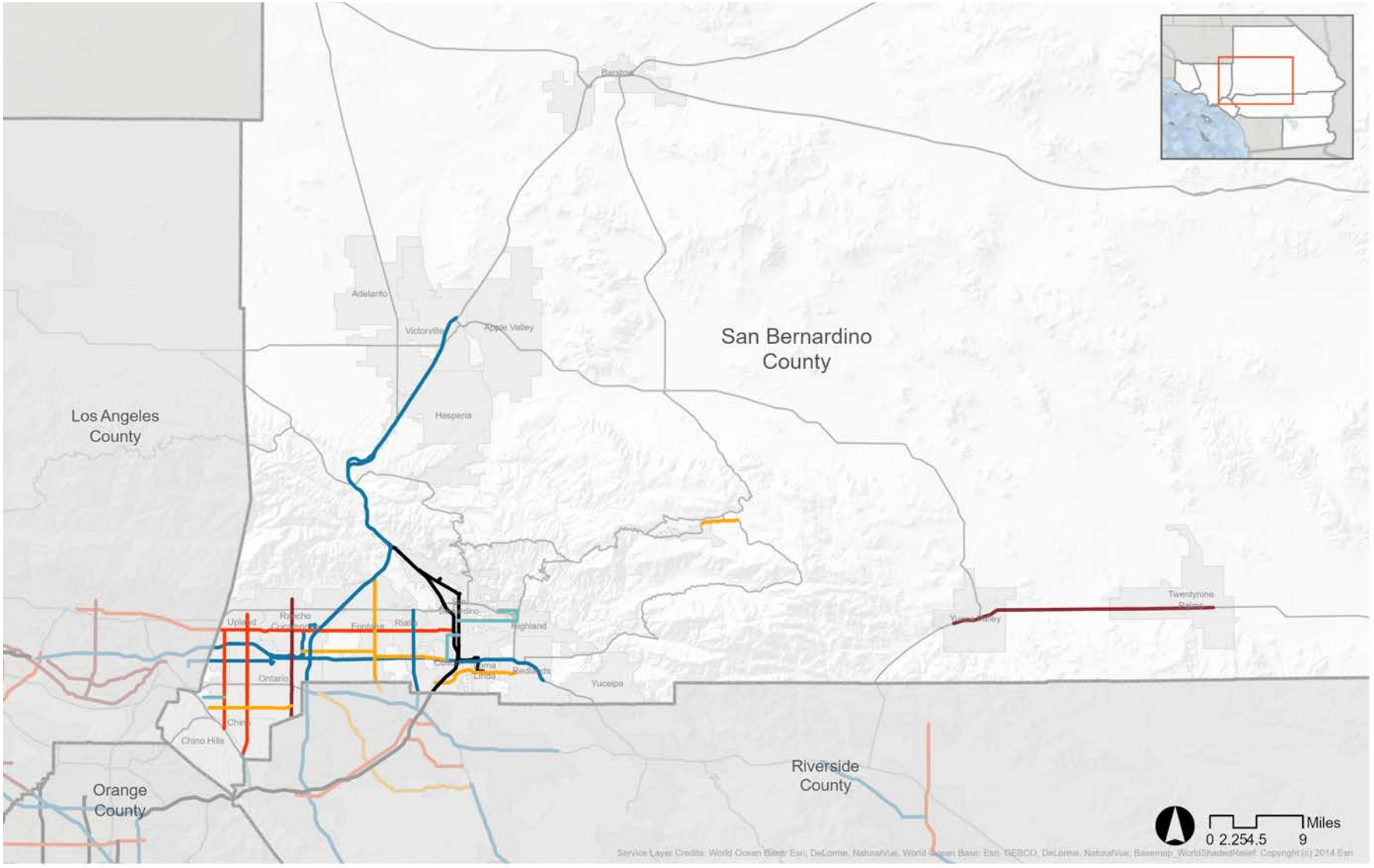
County Boundaries City Boundaries Freeway

Existing Tier 1
Planned Tier 2
Added Tier 3

Transit Priority Corridors: Riverside County

Source: SCAG, 2023

TRANSIT PRIORITY CORRIDORS: SAN BERNARDINO COUNTY



County Boundaries | City Boundaries | Freeway

Existing | Tier 1

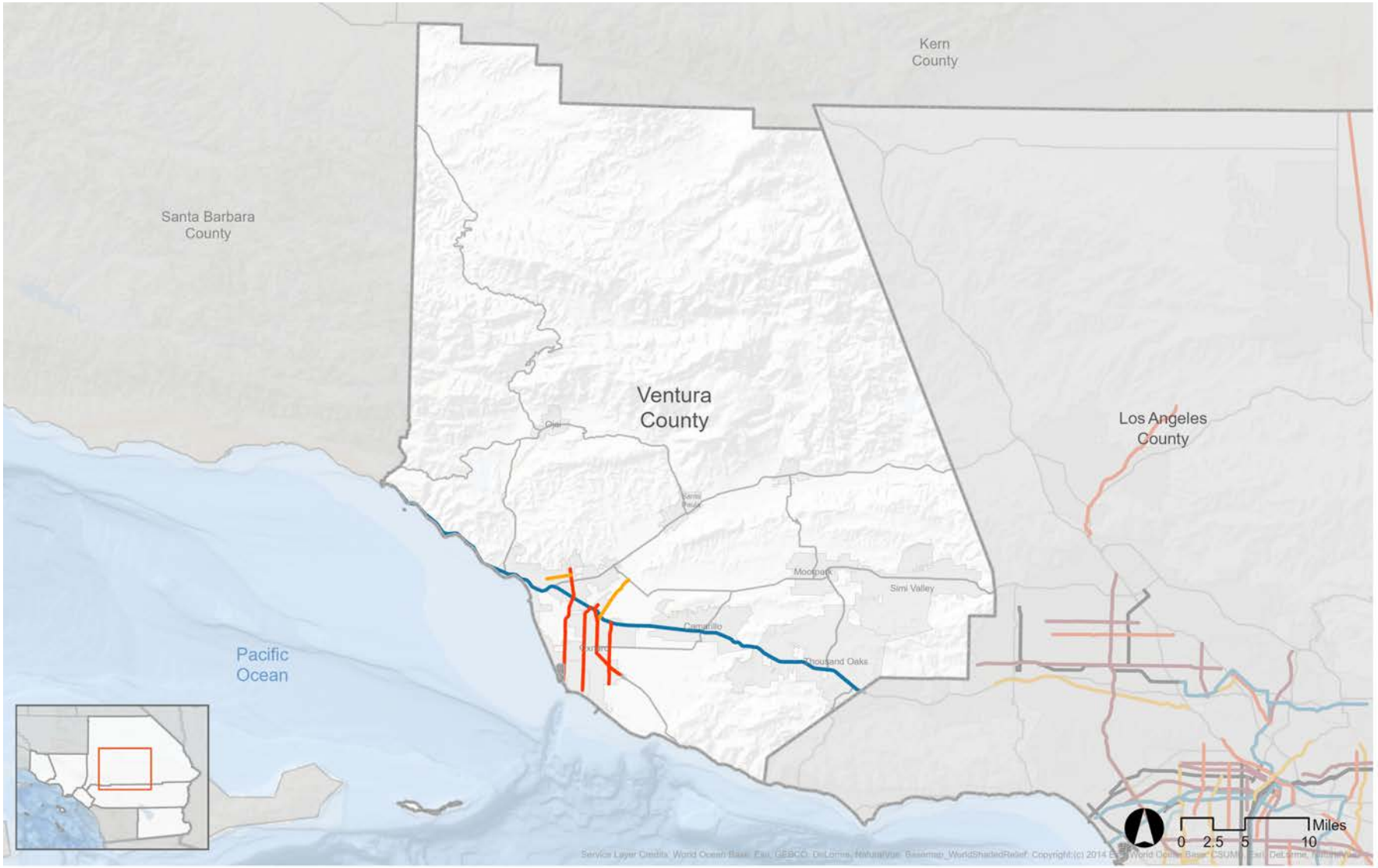
Planned | Tier 2

Added | Tier 3

Transit Priority Corridors: San Bernardino County

Source: SCAG. 2023

TRANSIT PRIORITY CORRIDORS: VENTURA COUNTY



Transit Priority Corridors: Ventura County

Source: SCAG, 2023

APPENDIX B. CORRIDOR SCREENING: POTENTIAL CORRIDORS

POTENTIAL CORRIDORS TO CONSIDER FOR TRANSIT PRIORITY IN FUTURE STUDIES

Potential Corridors	Subregion/COG
Imperial County	
S 8th t	IVAG
W Main St	IVAG
Grant St	IVAG
Encinas	IVAG
Dogwood	IVAG
Danenberg Dr	IVAG
Ross Ave	IVAG
4th Street/Hwy 86	IVAG
Hwy 86	IVAG
3rd Street	IVAG
Los Angeles County	
E 7th St	Multiple
E Washington Blvd	Multiple
S La Brea Ave	Multiple
S Normandie Ave	Multiple
W Olympic Bl	Multiple
Hooper Ave	Central LA
Maple Ave	Central LA
Melrose Ave	Central LA
S Broadway	Central LA
S Fairfax Ave	Central LA
S Main St	Central LA
S Union Ave	Central LA
Venice Blvd	Central LA
W 8th St	Central LA
W Jefferson Blvd	Central LA
W Sunset Blvd	Central LA
E Beverly Blvd	Central LA
E Olympic Blvd	GCCOG
N Long Beach Blvd	GCCOG
N Montebello Blvd	GCCOG
Paramount Blvd	GCCOG
Pioneer Blvd	GCCOG
Rosecrans Ave	GCCOG
S Downey Rd	GCCOG
S Eastern Ave	GCCOG
Santa Fe Ave	GCCOG
SR 60	GCCOG
SR 91	GCCOG
State St	GCCOG
W Anaheim St	GCCOG
Whittier Blvd	GCCOG
Artesia Blvd	SBCCOG
Centinela Ave	SBCCOG
E Florence Ave	SBCCOG
Inglewood Ave	SBCCOG

Potential Corridors	Subregion/COG
E Manchester Blvd	SBCCOG
Marine Ave	SBCCOG
Prairie Ave	SBCCOG
Redondo Beach Blvd	SBCCOG
S Inglewood Ave	SBCCOG
S Prairie Ave	SBCCOG
S Vermont Ave	SBCCOG
S Western Ave	SBCCOG
Torrance Blvd	SBCCOG
W 190th St	SBCCOG
W Arbor Vitae St	SBCCOG
W Artesia Blvd	SBCCOG
W Carson St	SBCCOG
W Century Blvd	SBCCOG
W El Segundo Blvd	SBCCOG
W Imperial Highway	SBCCOG
14th St	WCCOG
4th St	WCCOG
California Ave	WCCOG
Colorado Ave	WCCOG
Elevado Ave	WCCOG
Fountain Ave	WCCOG
Olympic Blvd	WCCOG
Bundy Ave	WCCOG
Pico Blvd	WCCOG
Westwood Blvd	WCCOG
4th Street (SM)	WCCOG
U.S. 101	Multiple
I-5	Multiple
Brand Blvd	AVCJPA
E Broadway	AVCJPA
E Wilson Ave	AVCJPA
N Buena Vista St	AVCJPA
N Central Ave	AVCJPA
SR 1 (PCH)	LVMCOG
Burbank Blvd	SFVCOG
Cahuenga Blvd	SFVCOG
Lankershim Blvd	SFVCOG
Laurel Canyon Blvd	SFVCOG
Moorpark St	SFVCOG
Osborne St	SFVCOG
Parthenia St	SFVCOG
Sepulveda Blvd	SFVCOG
Sherman Way	SFVCOG
Tujunga Ave	SFVCOG
Vanowen St	SFVCOG
Vineland Ave	SFVCOG

Potential Corridors	Subregion/COG
Woodman Ave	SFVCOG
Fair Oaks Ave	SGVCOG
Fremont Ave	SGVCOG
Fullerton Rd	SGVCOG
Garfield Ave	SGVCOG
N Peck Rd	SGVCOG
San Gabriel Blvd	SGVCOG
Ramona Blvd	SGVCOG
S Del Mar Ave	SGVCOG
S Fremont Ave	SGVCOG
S Los Robles Ave	SGVCOG
Santa Anita Ave	SGVCOG
I-210	SGVCOG
SR 60	SGVCOG
10th St West	NCTC
Bouquet Canyon Road	NCTC
Copper Hill Drive	NCTC
E Ave S	NCTC
E Palmdale Blvd	NCTC
Henry Mayo Dr	NCTC
Lyons Ave	NCTC
McBean Pkwy	NCTC
Newhall Ave	NCTC
Soledad Canyon Rd	NCTC
Whites Canyon Rd	NCTC
SH 138	NCTC
SH 126	NCTC
SR 14	NCTC
Orange County	
Alton Pky	OCCOG
Broadway	OCCOG
Macarthur Blvd	OCCOG
Magnolia St	OCCOG
Culver Dr	OCCOG
Euclid St	OCCOG
Jamboree Rd	OCCOG
N Grand Ave	OCCOG
Newport Blvd	OCCOG
S Main St	OCCOG
S State College Blvd	OCCOG
The City Dr S	OCCOG
Valley View St	OCCOG
W Imperial Hwy	OCCOG
I-405	OCCOG
SR 57	OCCOG
Riverside County	
Av 52	CVAG
E Palm Canyon Dr	CVAG
Fred Waring Dr	CVAG

Potential Corridors	Subregion/COG
Golf Center Pky	CVAG
Jackson St	CVAG
Monroe St	CVAG
Palm Springs Airport Access Rd	CVAG
S Indian Cyn Dr	CVAG
I-10	CVAG
SH 86	CVAG
Cajalco Rd	WRCOG
14th St	WRCOG
Arlington Ave	WRCOG
La Sierra Ave	WRCOG
Market St	WRCOG
Perris Blvd	WRCOG
Pigeon Pass Rd	WRCOG
Tyler St	WRCOG
W 6th St	WRCOG
Winchester Rd	WRCOG
I-10	WRCOG
Avenue 48 (Washington St—Highway 111/Dillon Rd)	WRCOG
Central Ave	WRCOG
RapidLink	WRCOG
San Bernardino County	
Chino Ave	SBCOG
E 4th St	SBCOG
N Waterman Ave	SBCOG
Orange St	SBCOG
S Waterman Ave	SBCOG
W Lugonia Ave	SBCOG
W Rialto Ave	SBCOG
I-210	SBCOG
SR 60	SBCOG
U.S. 395	SBCOG
Anderson St	SBCOG
Baseline Rd	SBCOG
Ventura County	
E 5th St	VCOG
E Gonzales Rd	VCOG
E Main St	VCOG
E Pleasant Valley Rd	VCOG
Los Angeles Ave	VCOG
S Victoria Ave	VCOG
Saviers Rd	VCOG
Saviers Road (Wooley Rd - Pleasant Valley)	VCOG
El Camino Real	VCOG
SR 118	VCOG
Hwy 34	VCOG
Lewis/Huenene Rd	VCOG
LA Ave and Cochran	VCOG
Thousand Oaks Blvd	VCOG

APPENDIX C. TECHNICAL ADVISORY COMMITTEE MEMBERS

TECHNICAL ADVISORY COMMITTEE MEMBERS

County	Organization	Type
Imperial	Imperial County Transportation Commission (ICTC)	CTC/Transit Operator
Los Angeles	Antelope Valley Transit Authority (AVTA)	Transit Operator
	Arroyo Verdugo Communities JPA (AVCJPA)	COG
	Big Blue Bus	City
	Culver City	City
	Foothill Transit	Transit Operator
	Gateway Cities Council of Governments (GCCOG)	COG
	Long Beach Transit	Transit Operator
	Los Angeles County Metropolitan Transit Authority (LA Metro)	CTC/Transit Operator
	Los Angeles Department of Transportation (LADOT)	COG/Transit Operator
	North County Transportation Coalition (NCTC)	COG
	San Fernando Valley COG (SFVCOG)	COG
	San Gabriel Valley COG (SGVCOG)	COG
	South Bay Cities Council of Governments (SBCCOG)	COG
	Westside Cities Council of Governments (WSCCOG)	COG
Orange	Orange County Council of Governments (OCCOG)	COG
	Orange County Transportation Authority (OCTA)	CTC/Transit Operator
Riverside	Coachella Valley Association of Governments (CVAG)	COG
	Riverside County Transportation Commission (RCTC)	CTC
	Riverside Transit Agency (RTA)	Transit Operator
	Sunline	Transit Operator
	Western Riverside Council of Governments (WRCOG)	COG
San Bernardino	Omnitrans	Transit Operator
	San Bernardino County Transportation Authority (SBCTA)	CTC
	Victor Valley Transit Authority (VVTA)	Transit Operator
Ventura	County of Ventura—Transportation	CTC
	Gold Coast Transit (GCT)	Transit Operator
	Ventura Council of Governments (VCOG)	COG
	Ventura County Transportation Commission (VCTC)	CTC

APPENDIX D. PLAN AND POLICY RESOURCES

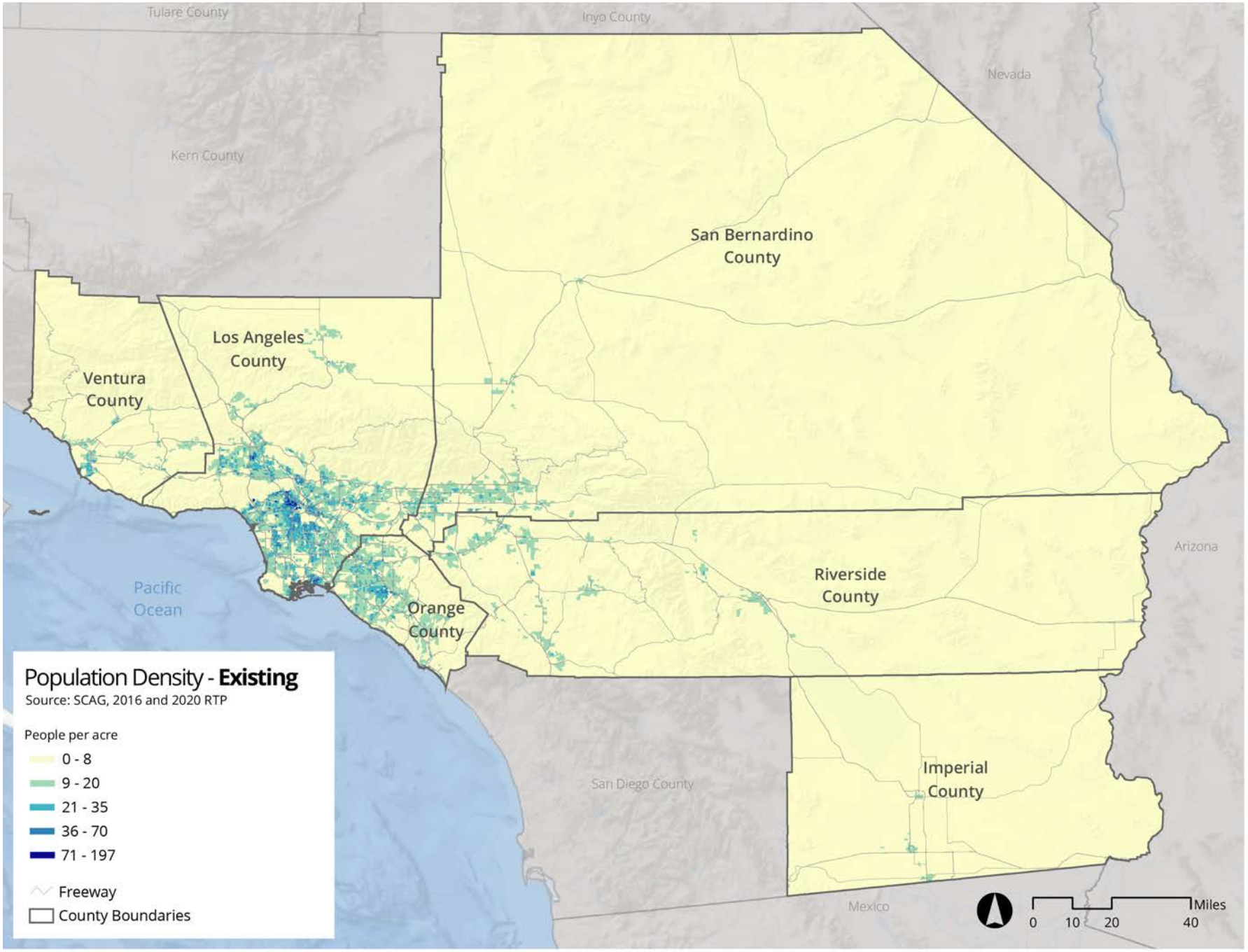
Over 30 local and regional plans and reports related to transit priority treatments were reviewed as part of this report.

RELEVANT SCAG REGION TRANSPORTATION PLANS

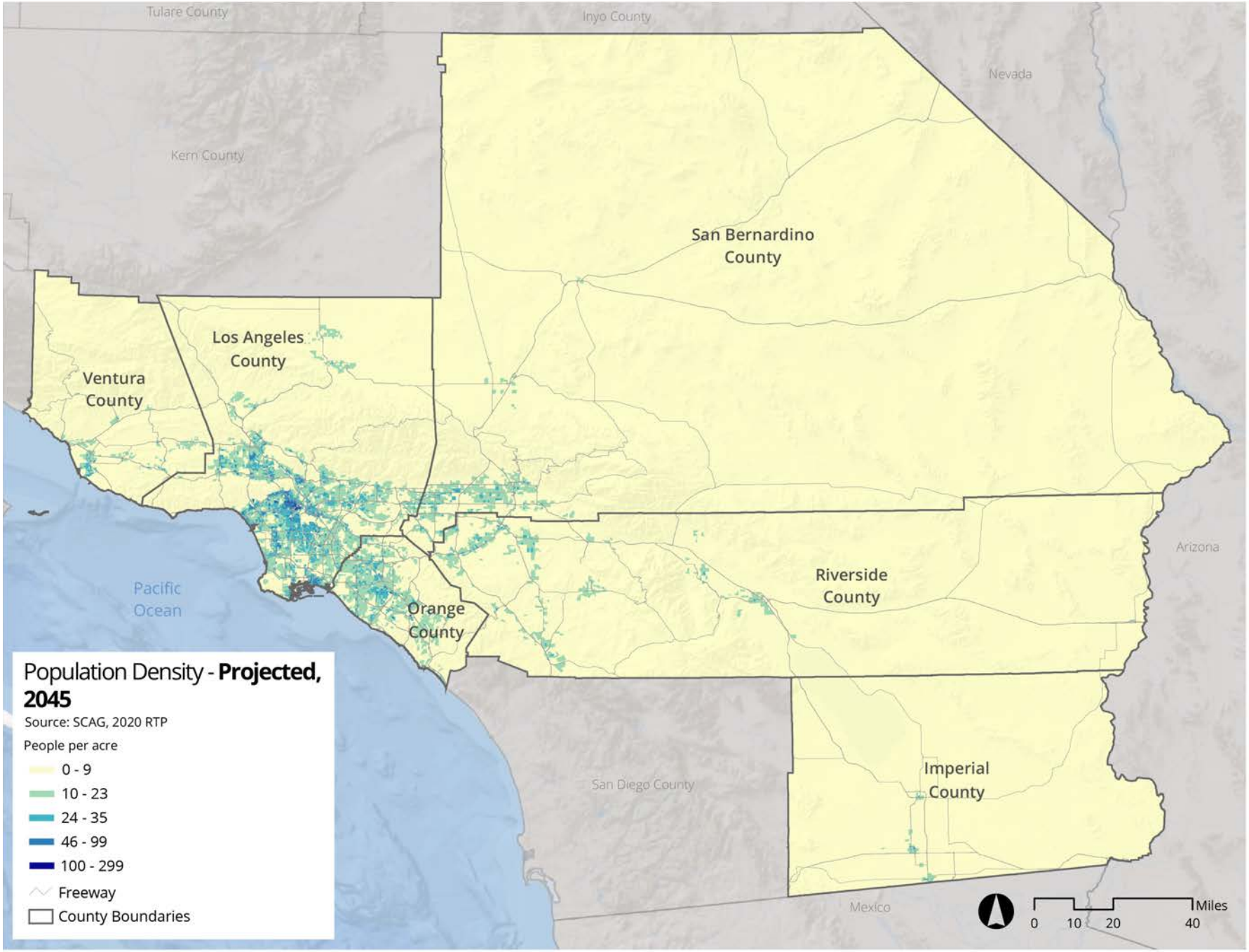
Geographic Region	#	Plan Name	Year	Lead Agency
SCAG Region	1	Connect SoCal: The 2020 – 2045 Regional Transportation Plan/ Sustainable Communities Strategy of the Southern California Association of Governments	2020	SCAG
	2	SCAG Connect SoCal Transit Technical Report	2020	SCAG
	3	Falling Transit Ridership: California and Southern California	2018	SCAG/UCLA ITS
Imperial County	4	Imperial County Active Transportation Plan	Underway	Imperial County
	5	Imperial Climate Action Plan	2021	Imperial County
LA County	6	LA Metro's Recovery Task Force Final Report	2021	LA Metro
	7	LADOT Strategic Plan Update 2021 – 2023	2021	LADOT
	8	A Budding model: Los Angeles' Flower Street Bus Lane	2021	Eno Center and LA Metro
	9	LA Metro NextGen Bus Plan	2020	LA Metro
	10	LA Metro's Long-Range Transportation Plan	2020	LA Metro
	11	LA Metro's Bus Rapid Transit Vision and Principles Study	2020	LA Metro
	12	San Gabriel Valley Transit Feasibility Study FAQ	2020	SGVCOG
	13	LA Metro Transit-to-Parks Strategic Plan	2019	LA Metro
	14	LADOT Mobility Plan 2035	2016	LADOT
	15	LA Metro Active Transportation Strategic Plan	2016	LA Metro
	16	LA County Climate Action Plan (mention other related plans within LA County)	2015	LA County
	17	LA Metro First/Last Mile Strategic Plan	2014	LA Metro
	18	LA Metro's Bus Rapid Transit and Street Design Improvement Study	2013	LA Metro
Orange County	19	OCTA 2028 Long-Range Transportation Plan	2018	OCTA
	20	OC Transit Vision	2018	OCTA
	21	OCTA Active Report (ATP)	2019	OCTA
	22	Making Better Connections Study	2022	OCTA
Riverside County	23	Riverside County Transportation Commission (RCTC) Long-Range Transportation Study	2019	RCTC
	24	Riverside County Climate Action Plan	2019	Riverside
	25	Western Riverside County Active Transportation Plan	2018	WRCOG
San Bernardino County	26	San Bernardino Pedestrian Points of Interest Plan	2018	SBCTA
	27	Omnitrans Strategic Plan	2017	Omnitrans
	28	San Bernardino Greenhouse Gas Reduction Plan	2011	San Bernardino
	29	San Bernardino County Long Range Transit Plan	2010	San Bernardino County
	30	Systemwide Transit Corridor Plan for the San Bernardino Valley (sbX Street Corridor BRT Project)	2010	OmniTrans
Ventura County	31	VCTC Fiscal Year 21 – 22 Transit Needs Assessment	2021	Ventura County Transportation Commission (VCTC)
	32	Ventura County Short-Range Transit Plan	2015	VCTC
	33	VCTC Intercity Five-Year Service Plan	2015	VCTC

APPENDIX F. EXISTING CONDITIONS MAPS

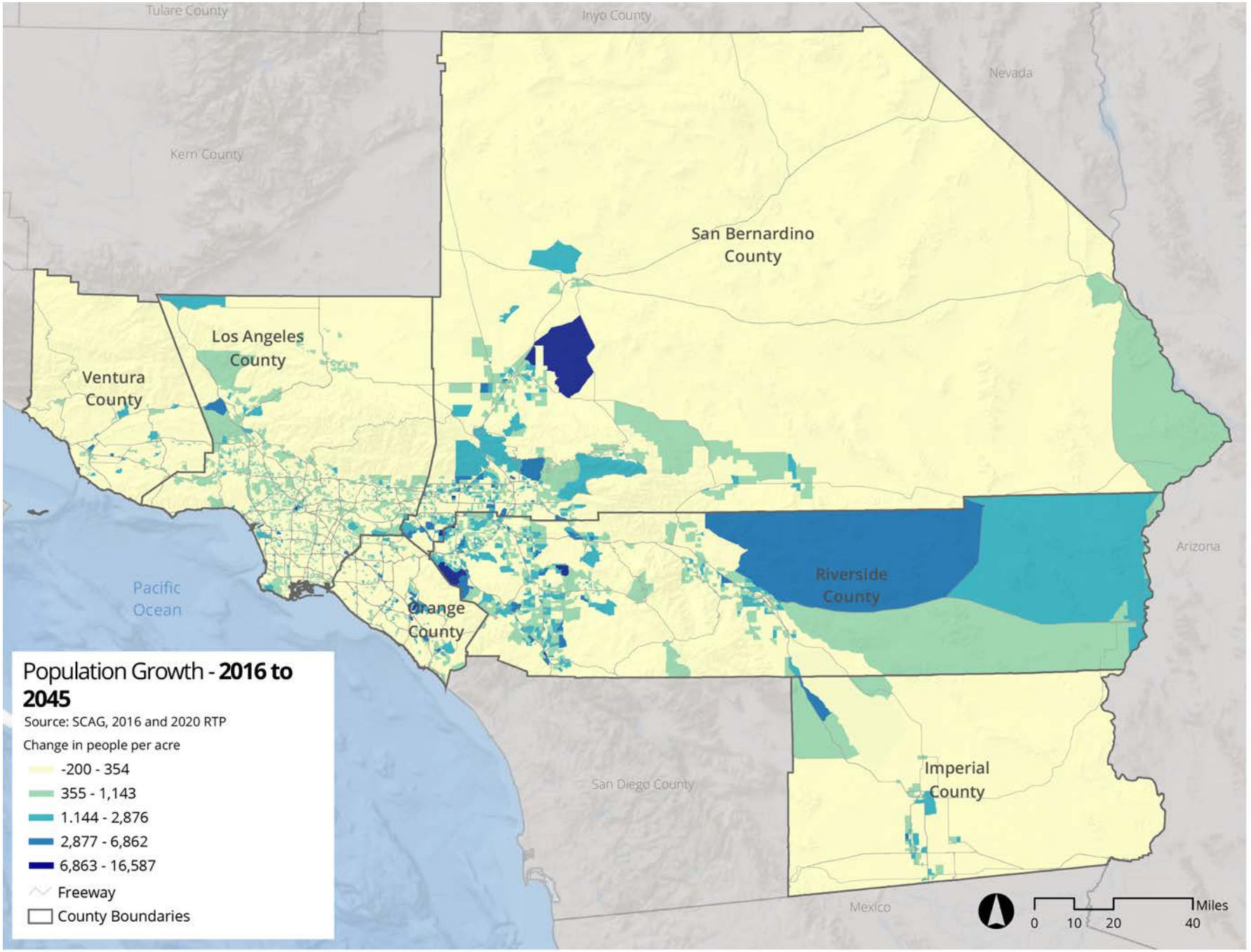
POPULATION DENSITY—EXISTING



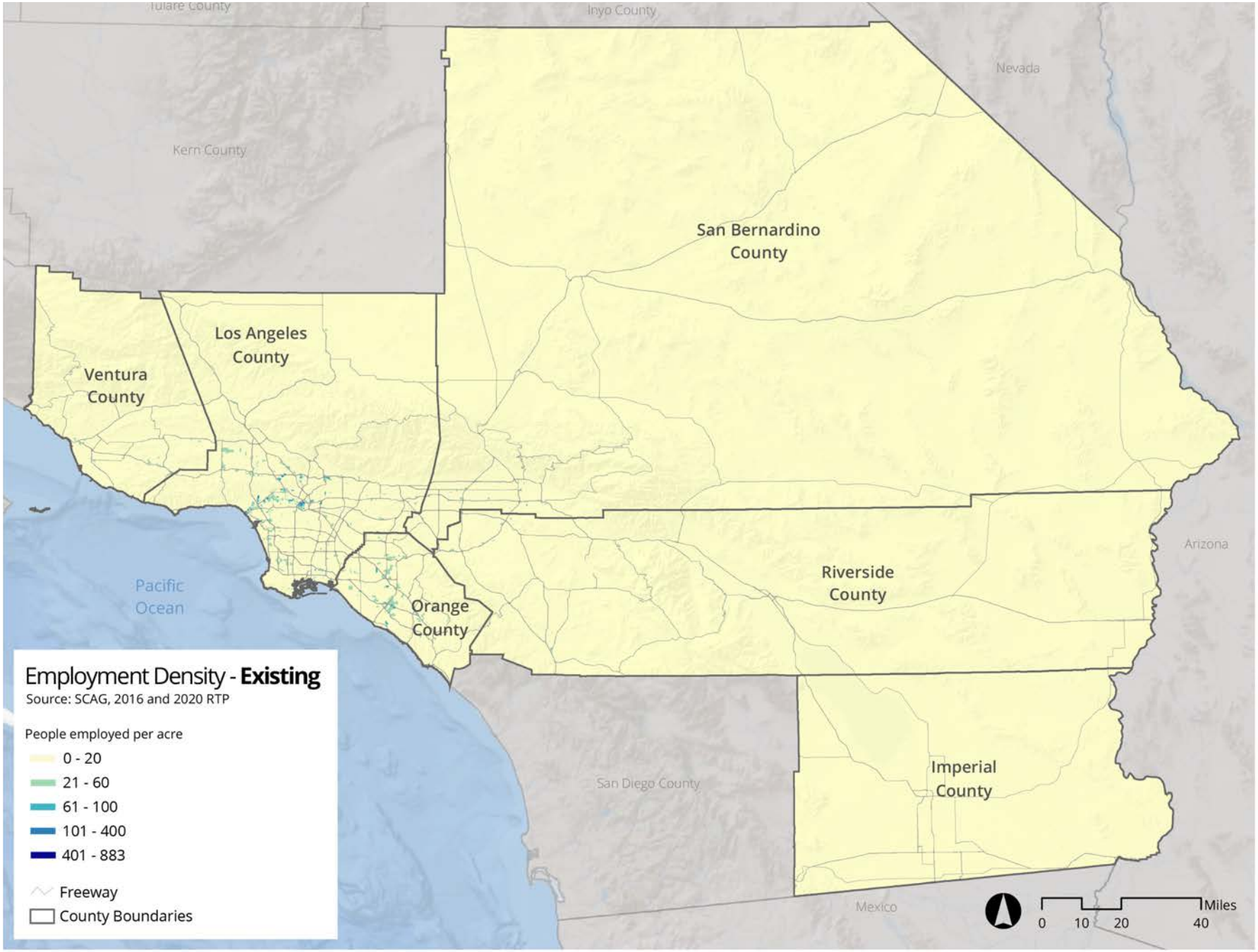
POPULATION DENSITY—PROJECTED 2045



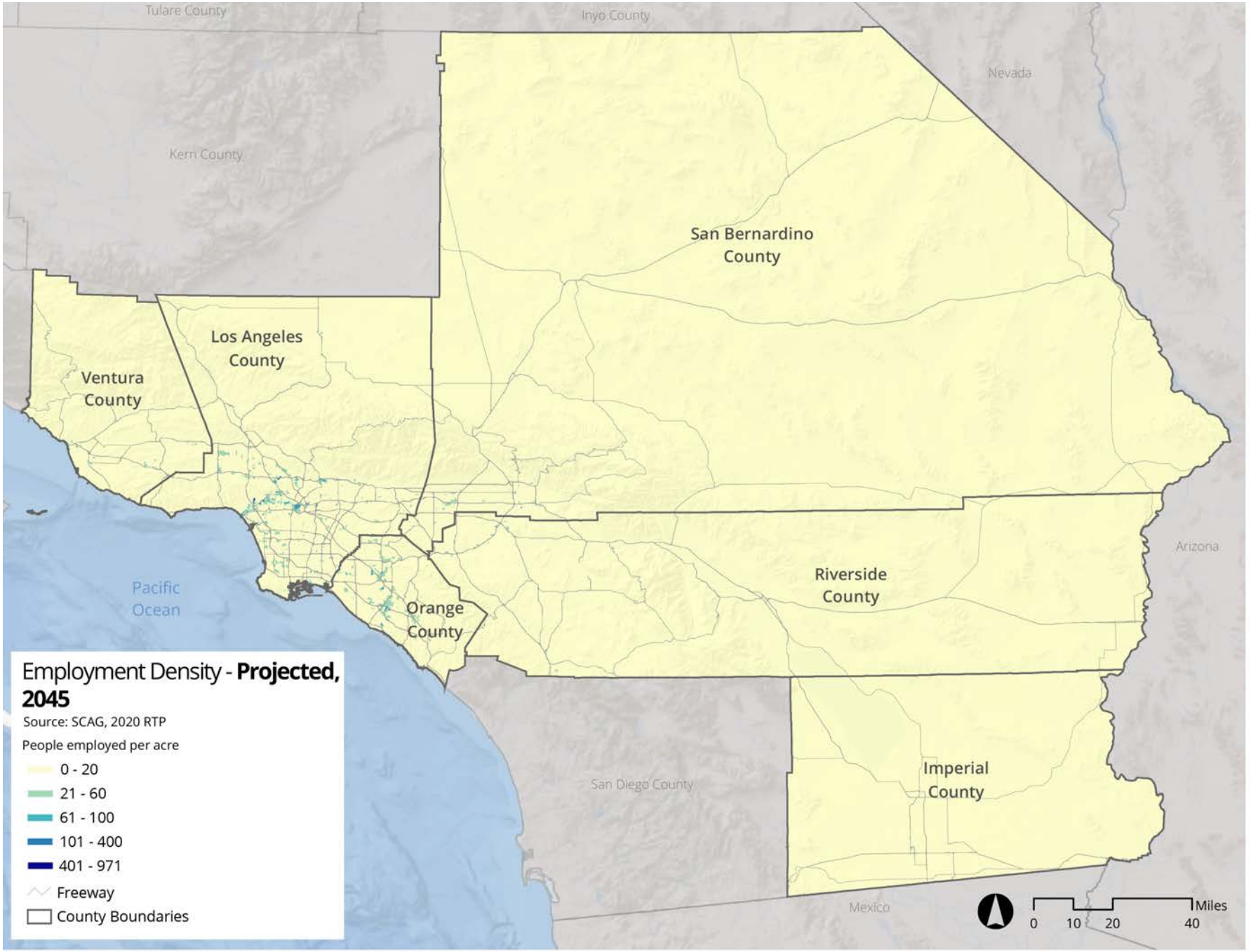
POPULATION GROWTH 2016 TO 2045



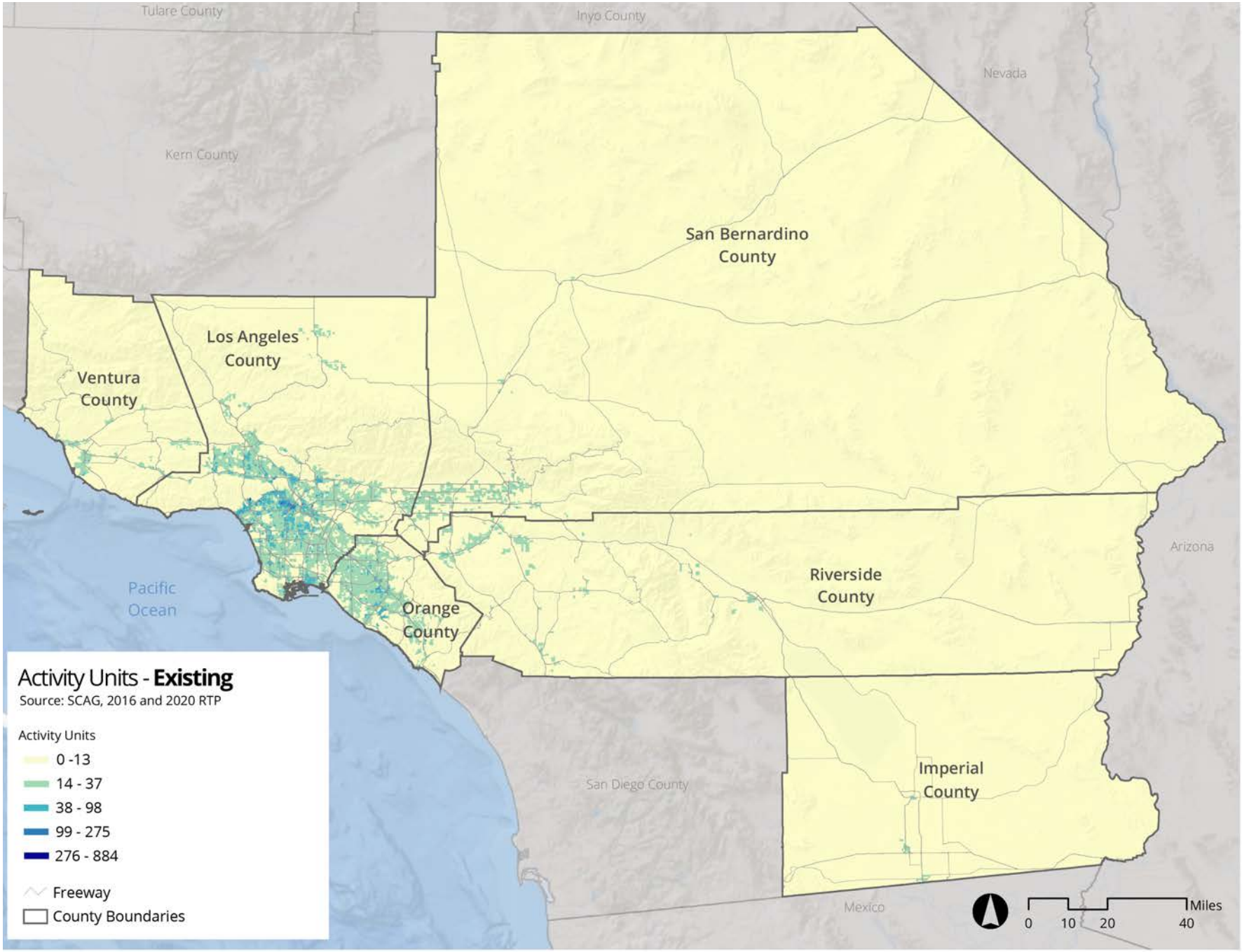
EMPLOYMENT DENSITY—EXISTING



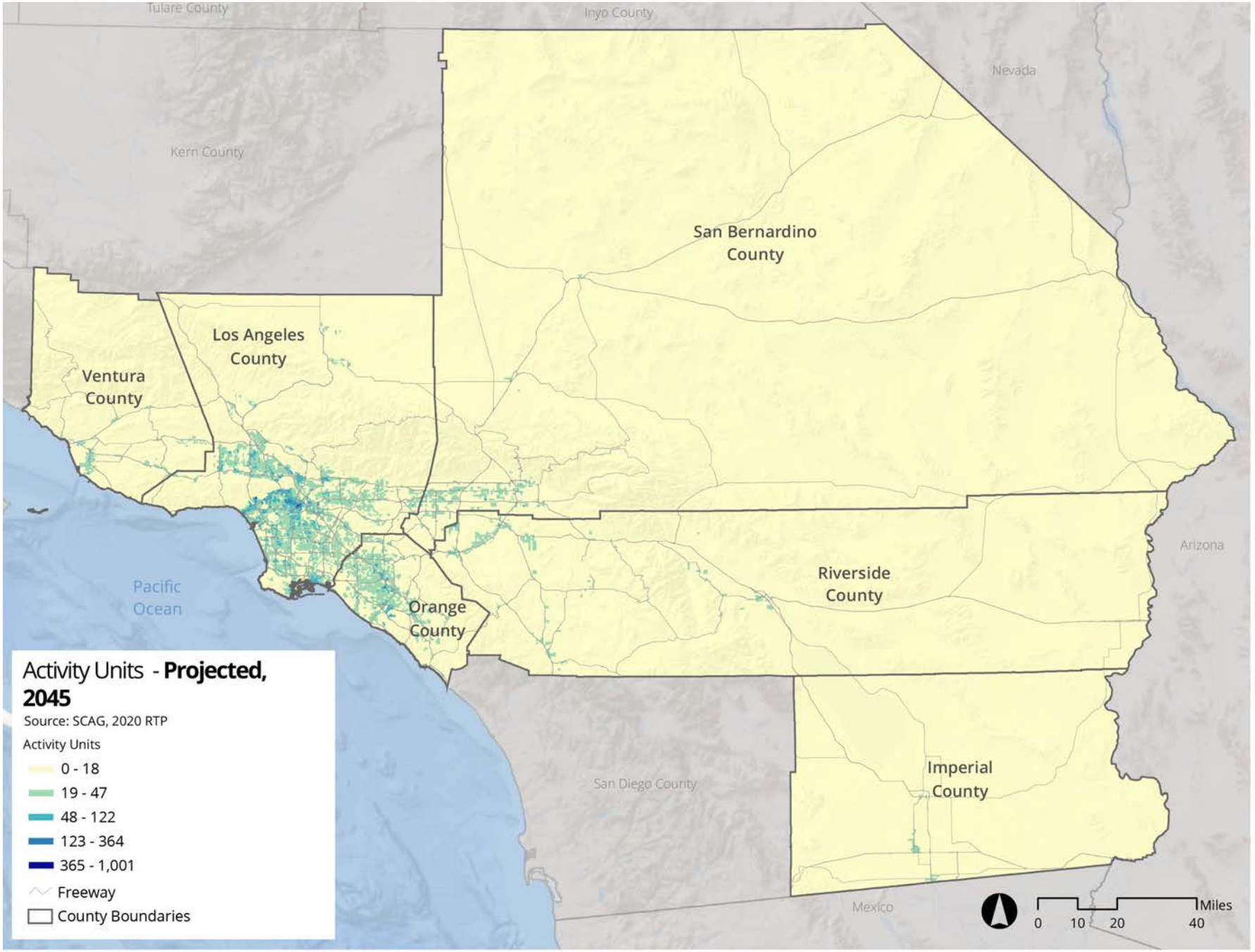
EMPLOYMENT DENSITY—PROJECTED, 2045



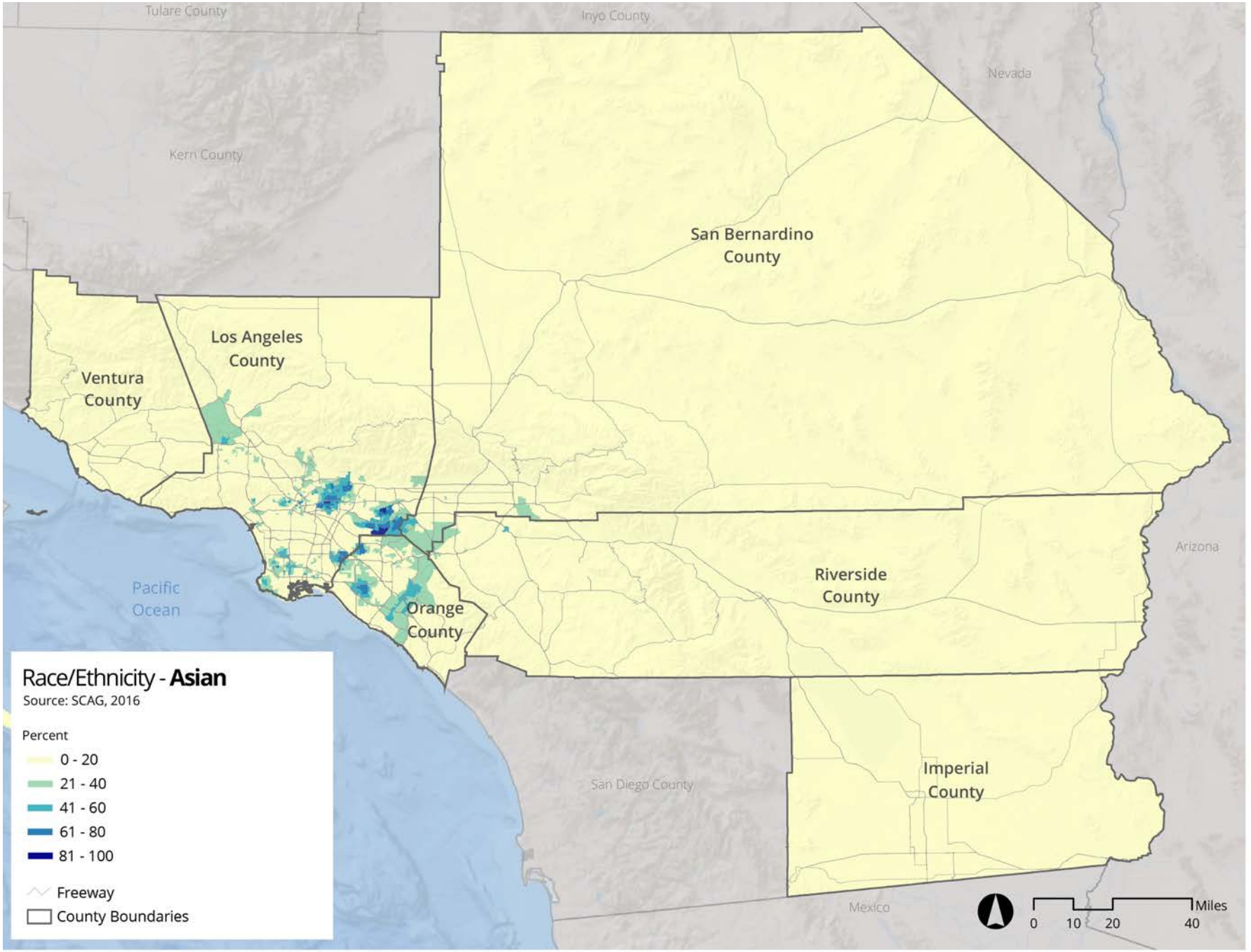
ACTIVITY UNITS—EXISTING



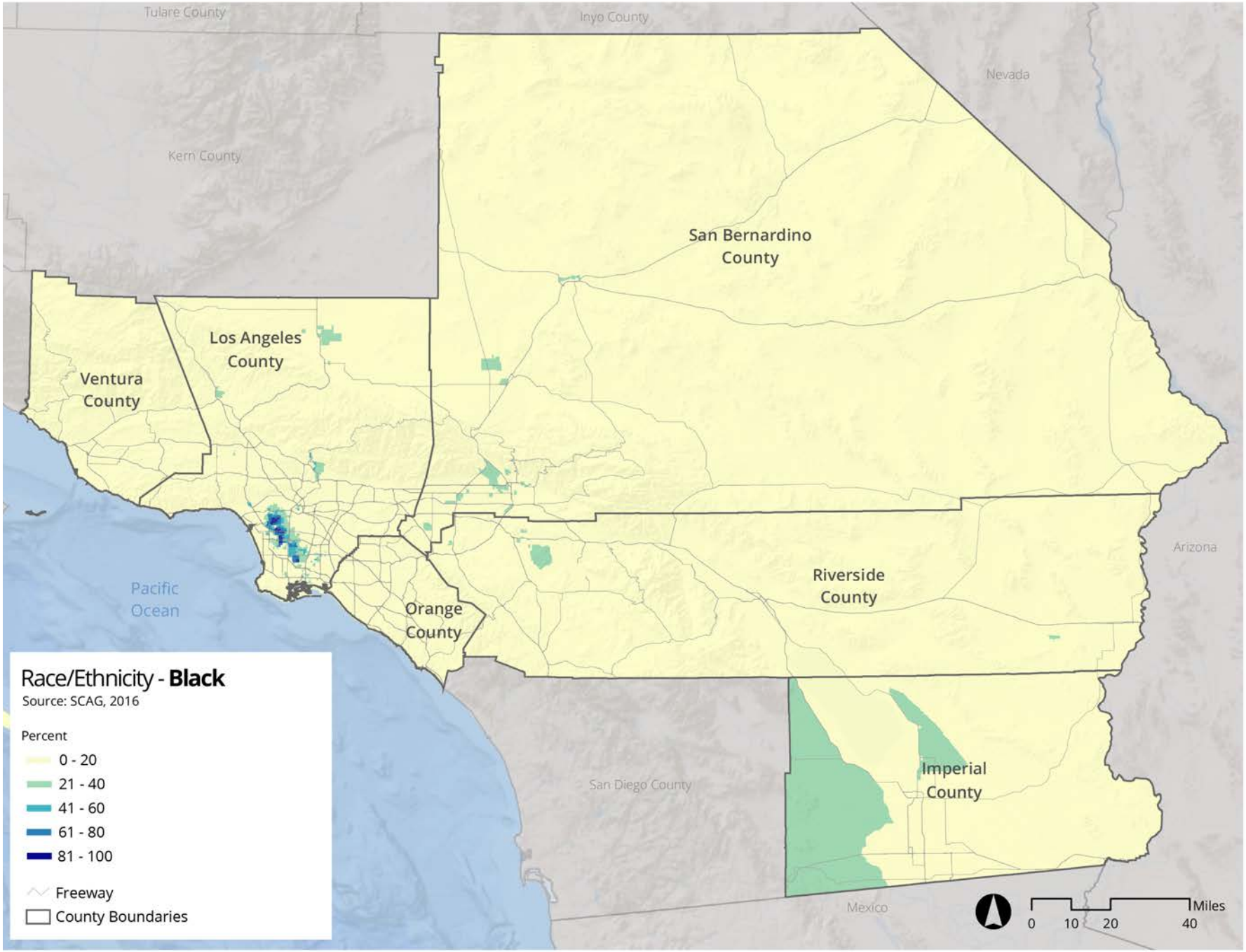
ACTIVITY UNITS—PROJECTED 2045



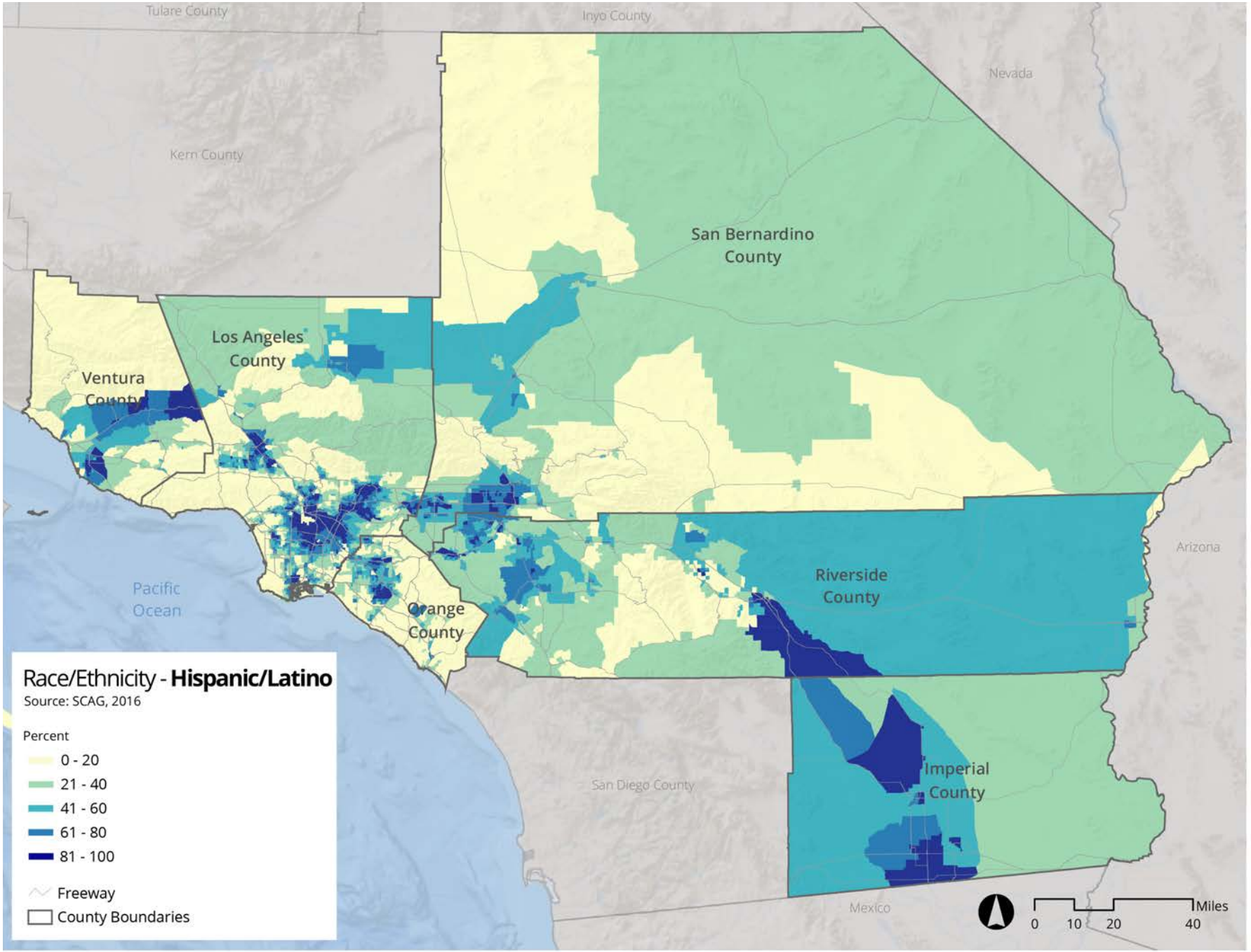
RACE/ETHNICITY—ASIAN



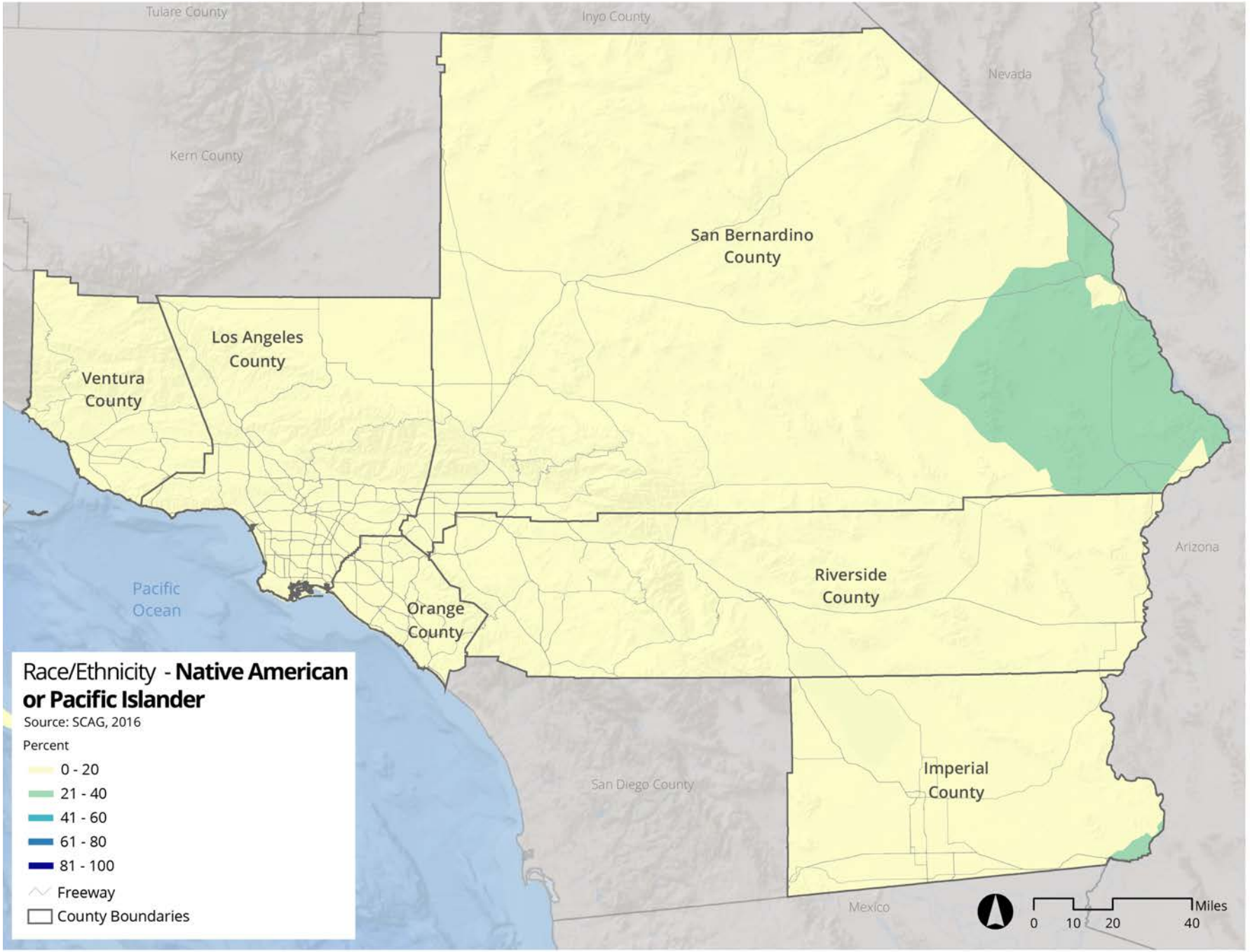
RACE/ETHNICITY—BLACK



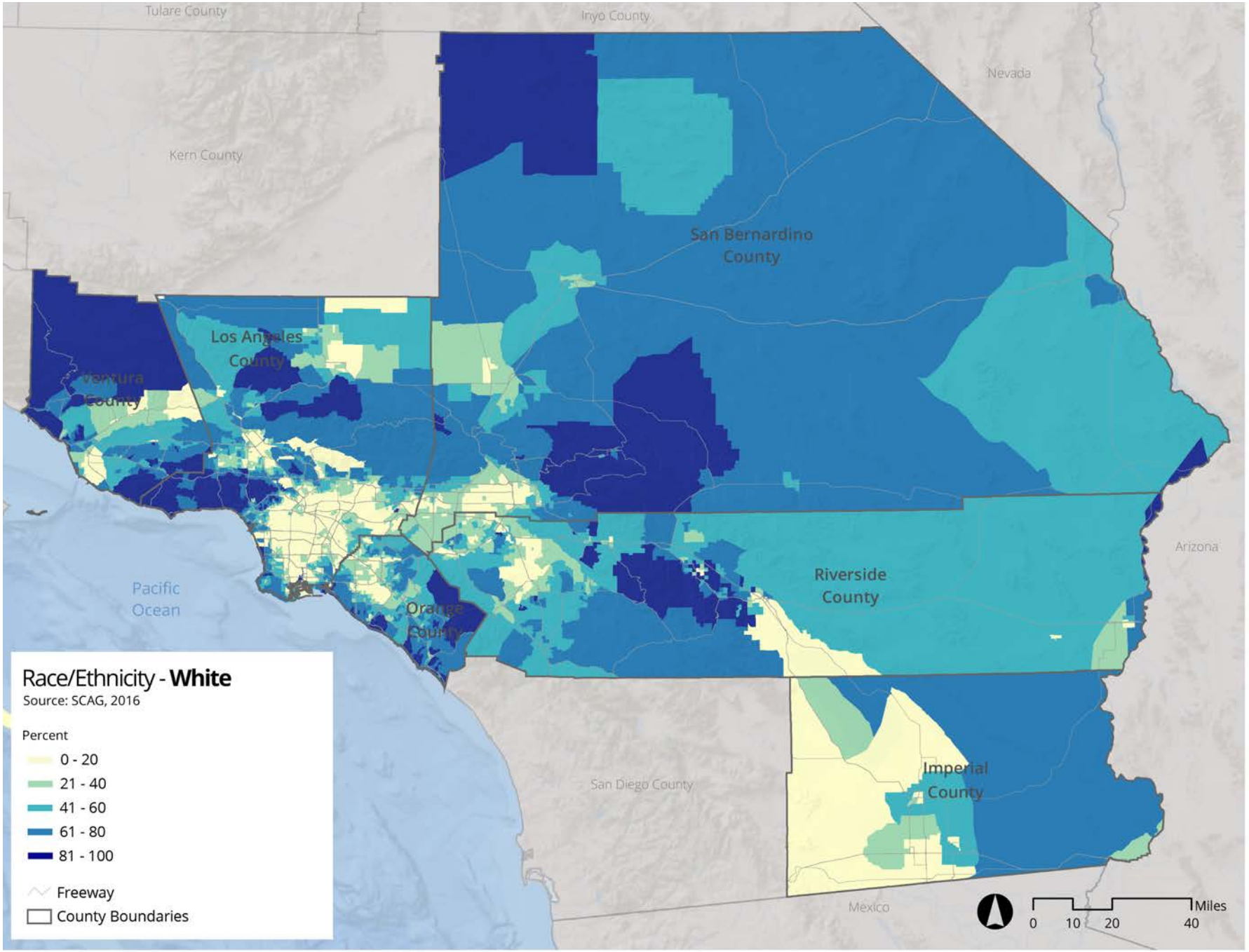
RACE/ETHNICITY—HISPANIC/LATINO



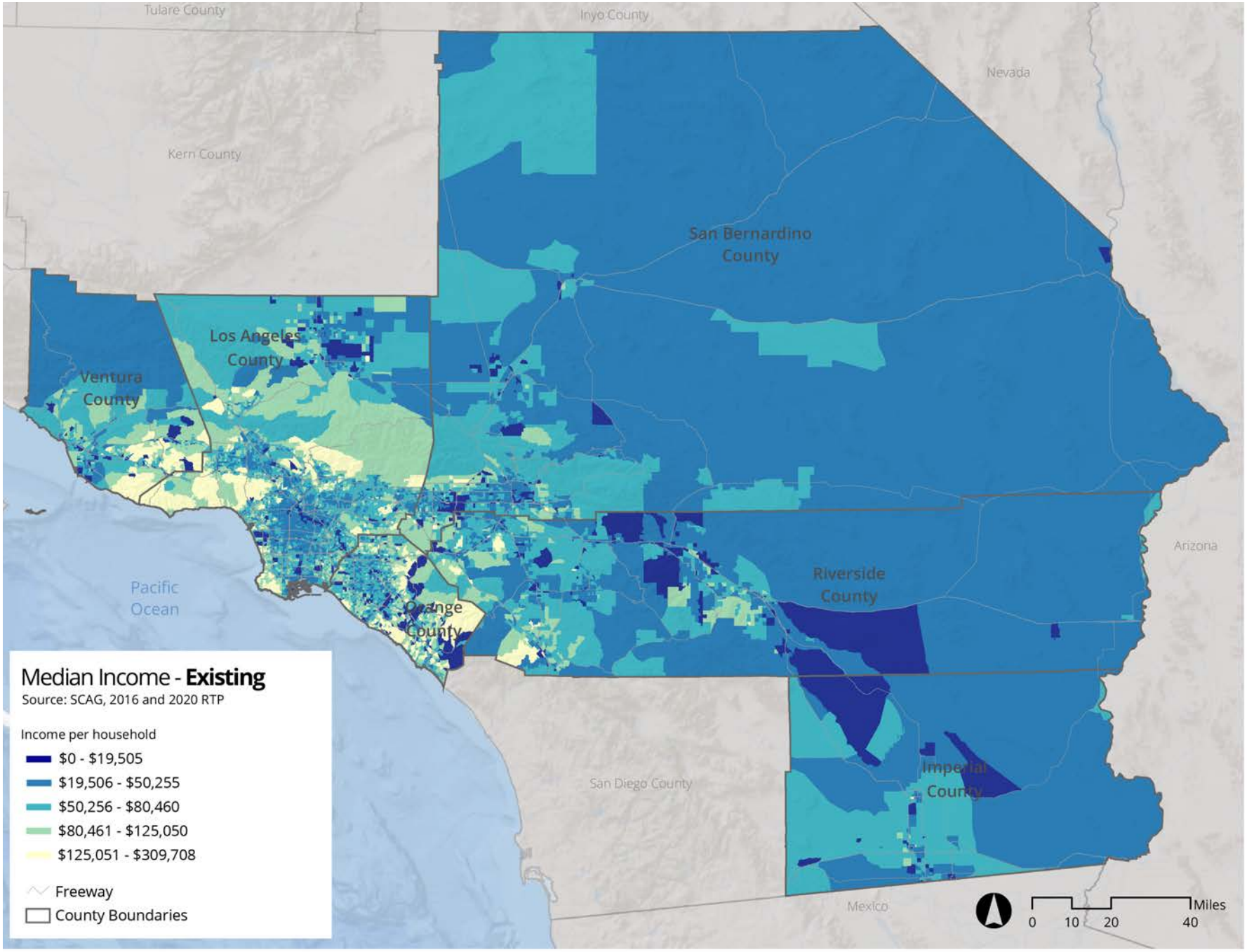
RACE/ETHNICITY—NATIVE AMERICAN OR PACIFIC ISLANDER



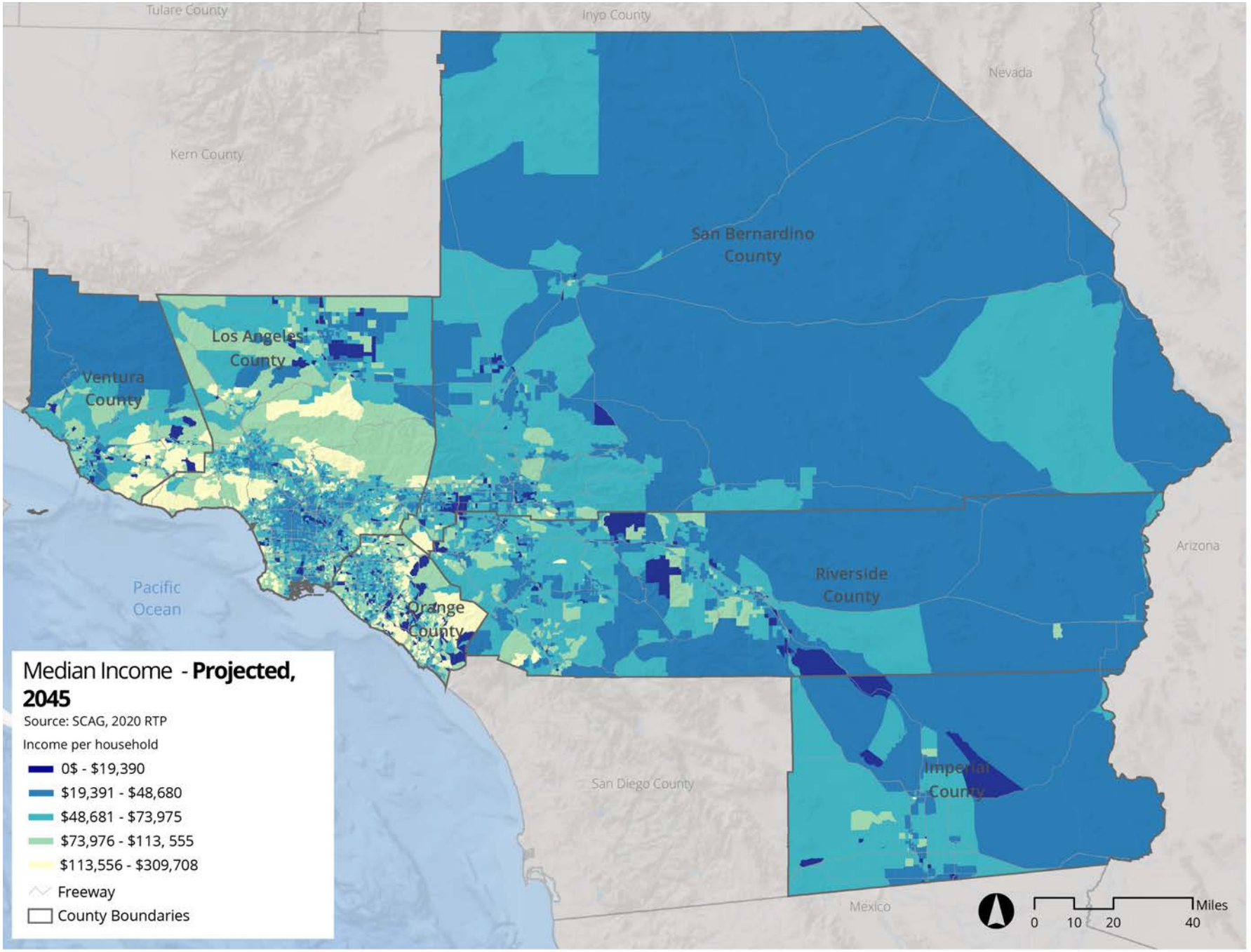
RACE/ETHNICITY—WHITE



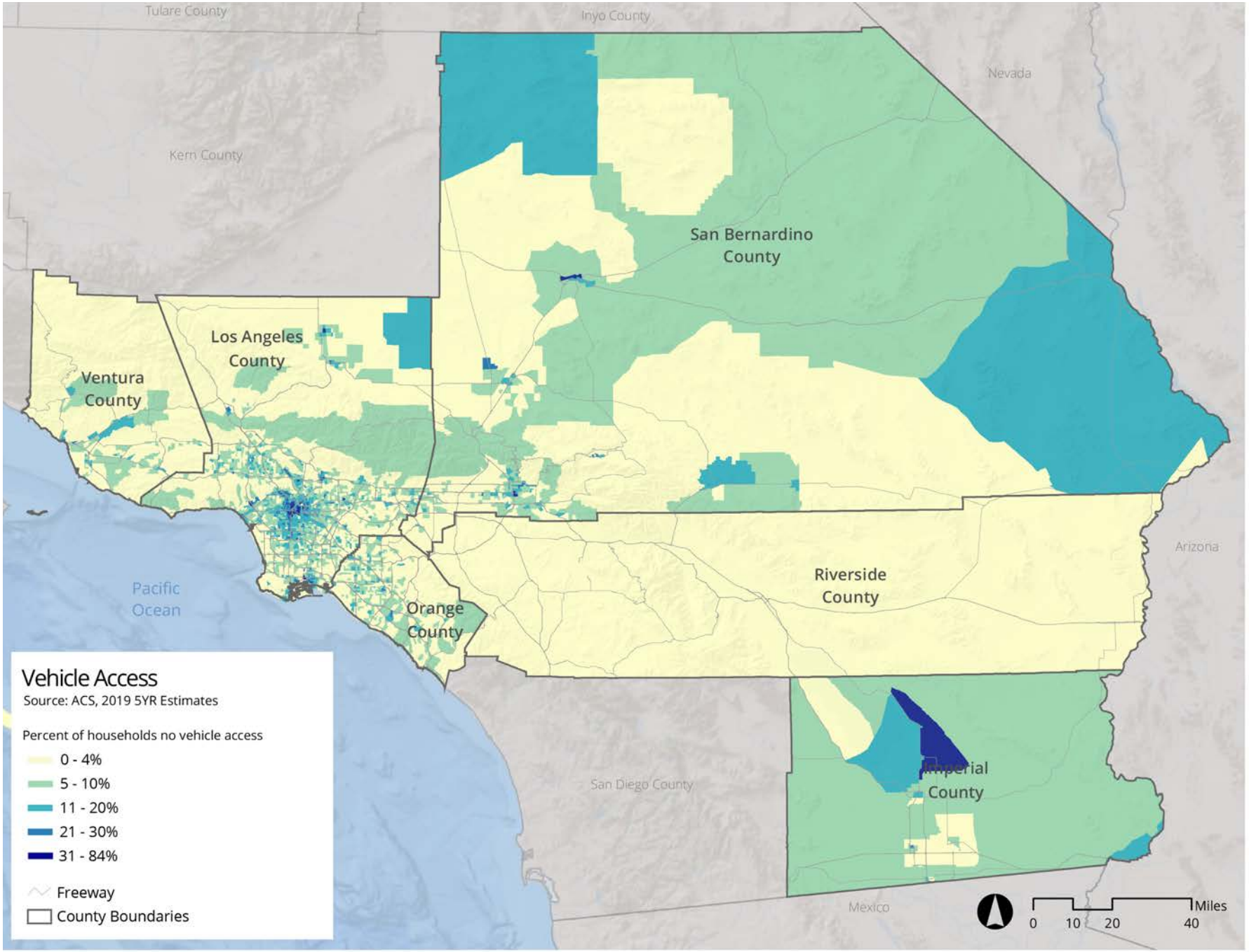
MEDIAN INCOME—EXISTING



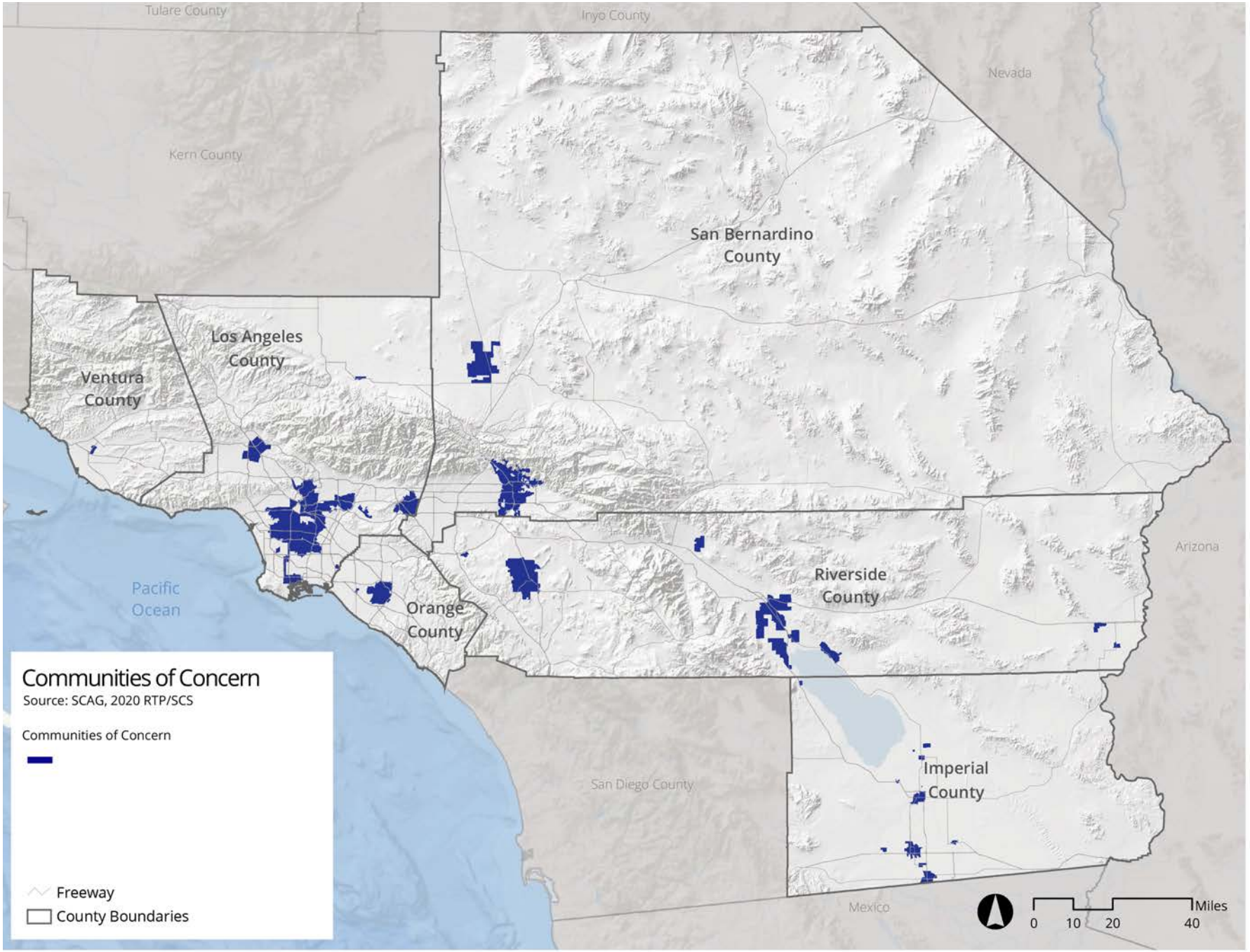
MEDIAN INCOME—PROJECTED, 2045



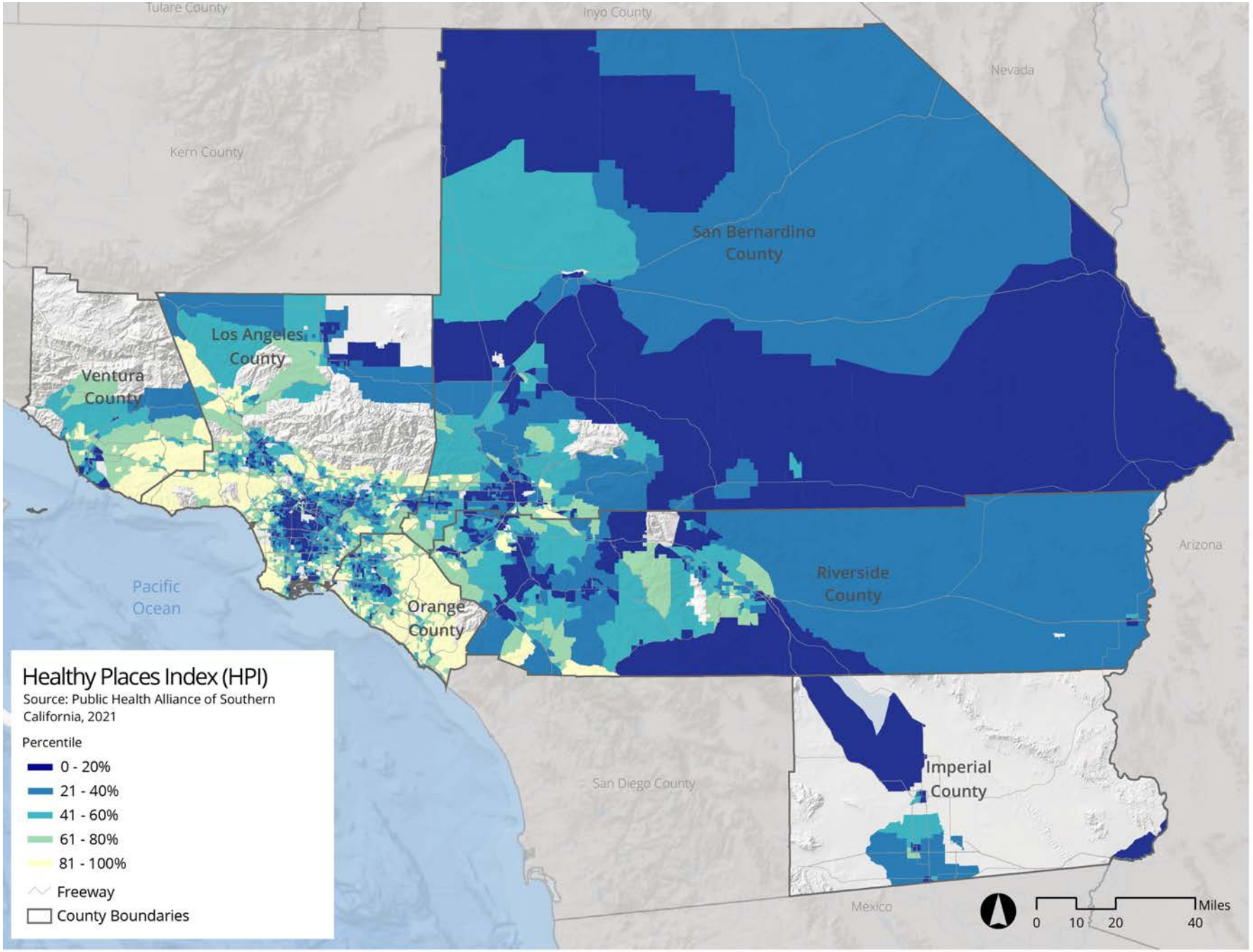
VEHICLE ACCESS



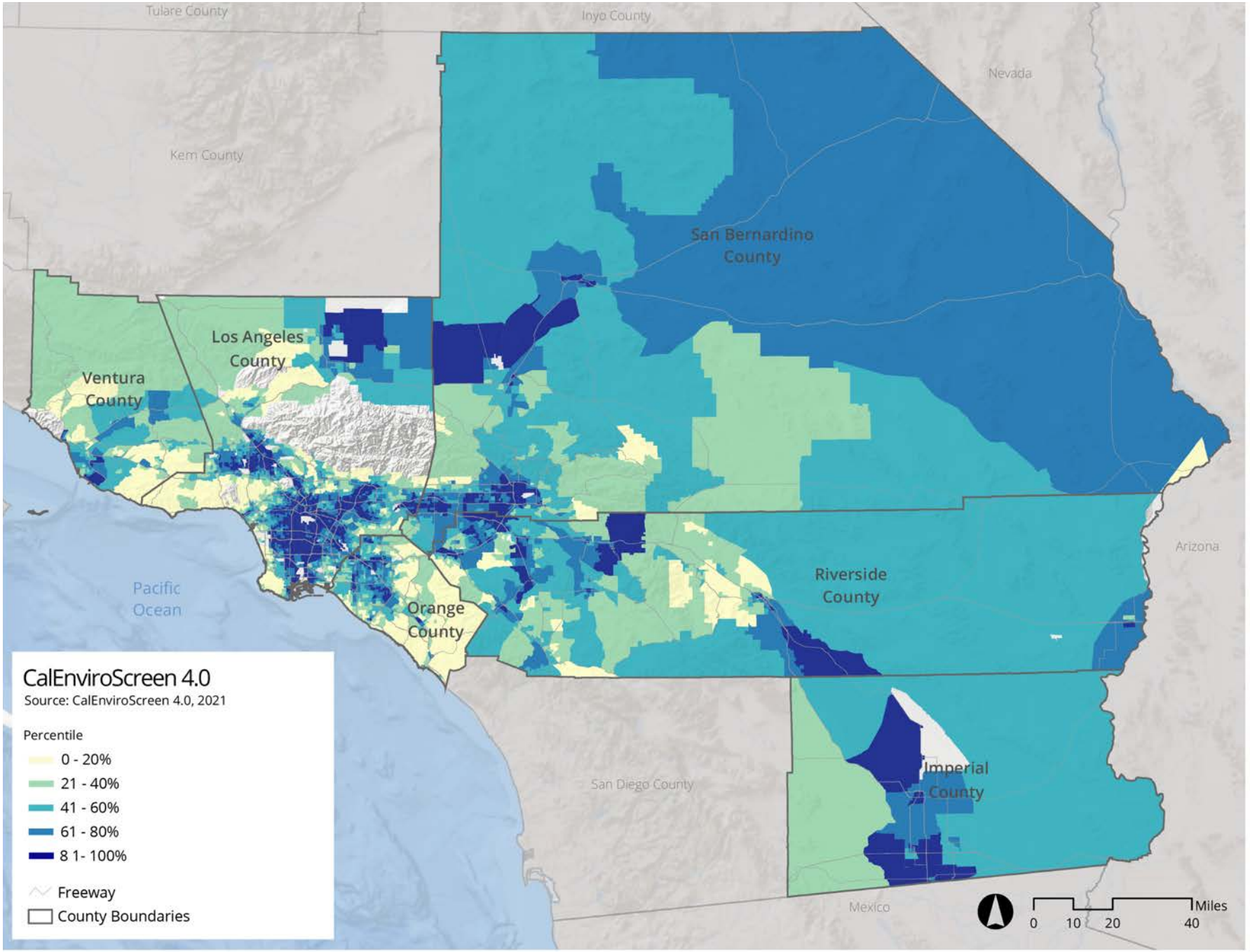
SCAG COMMUNITIES OF CONCERN



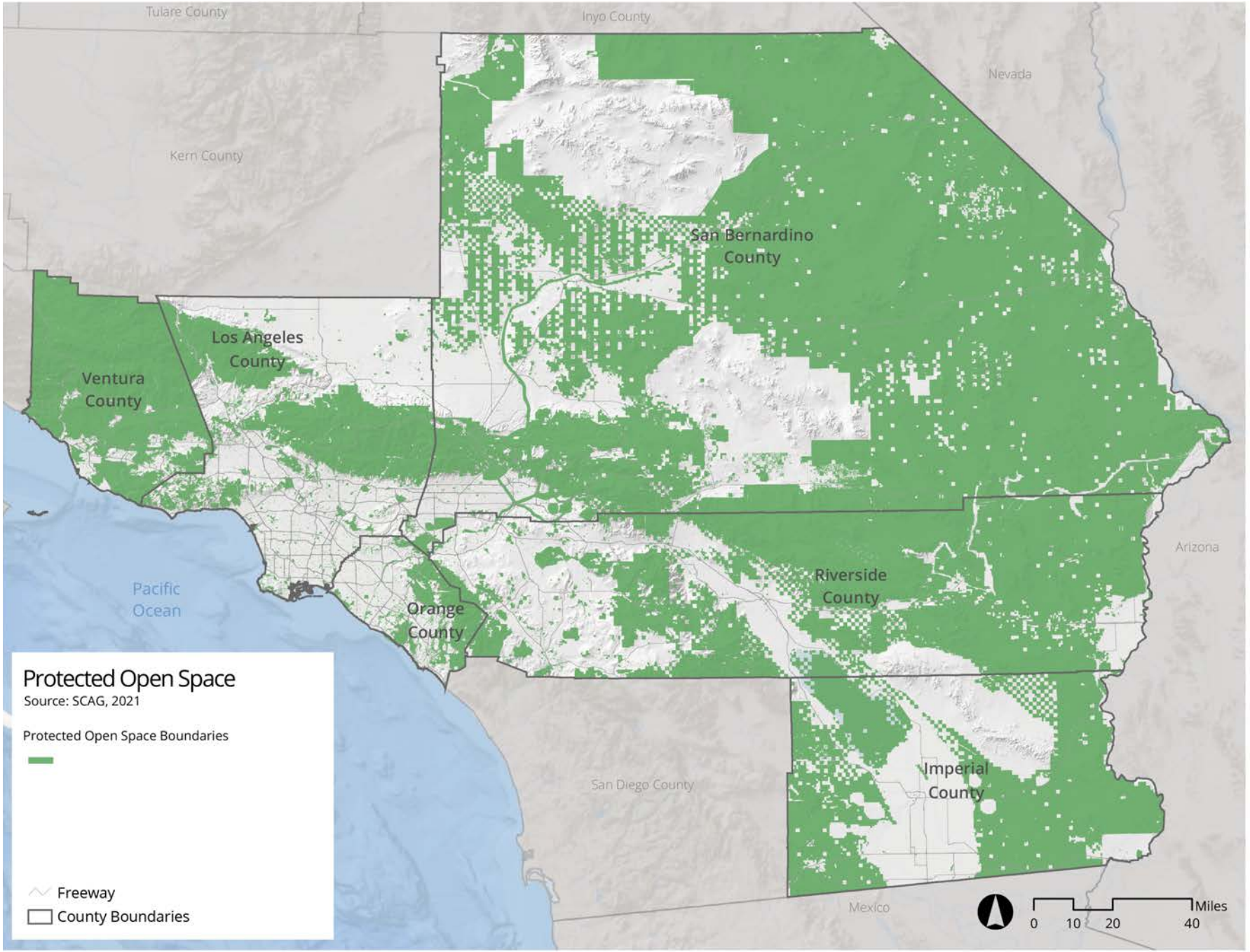
CALIFORNIA HEALTHY PLACES INDEX (HPI)



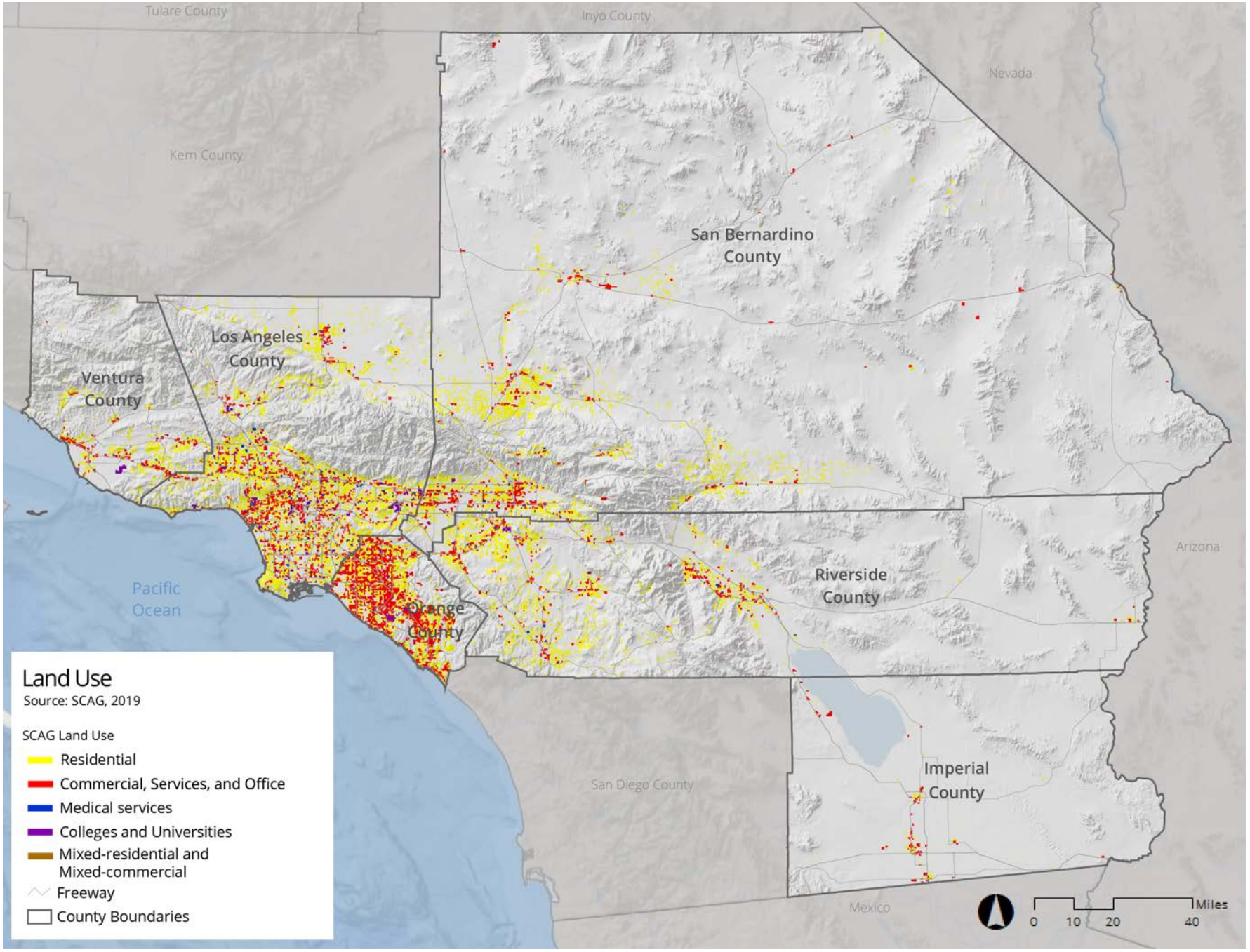
CALENVIROSCREEN 4.0



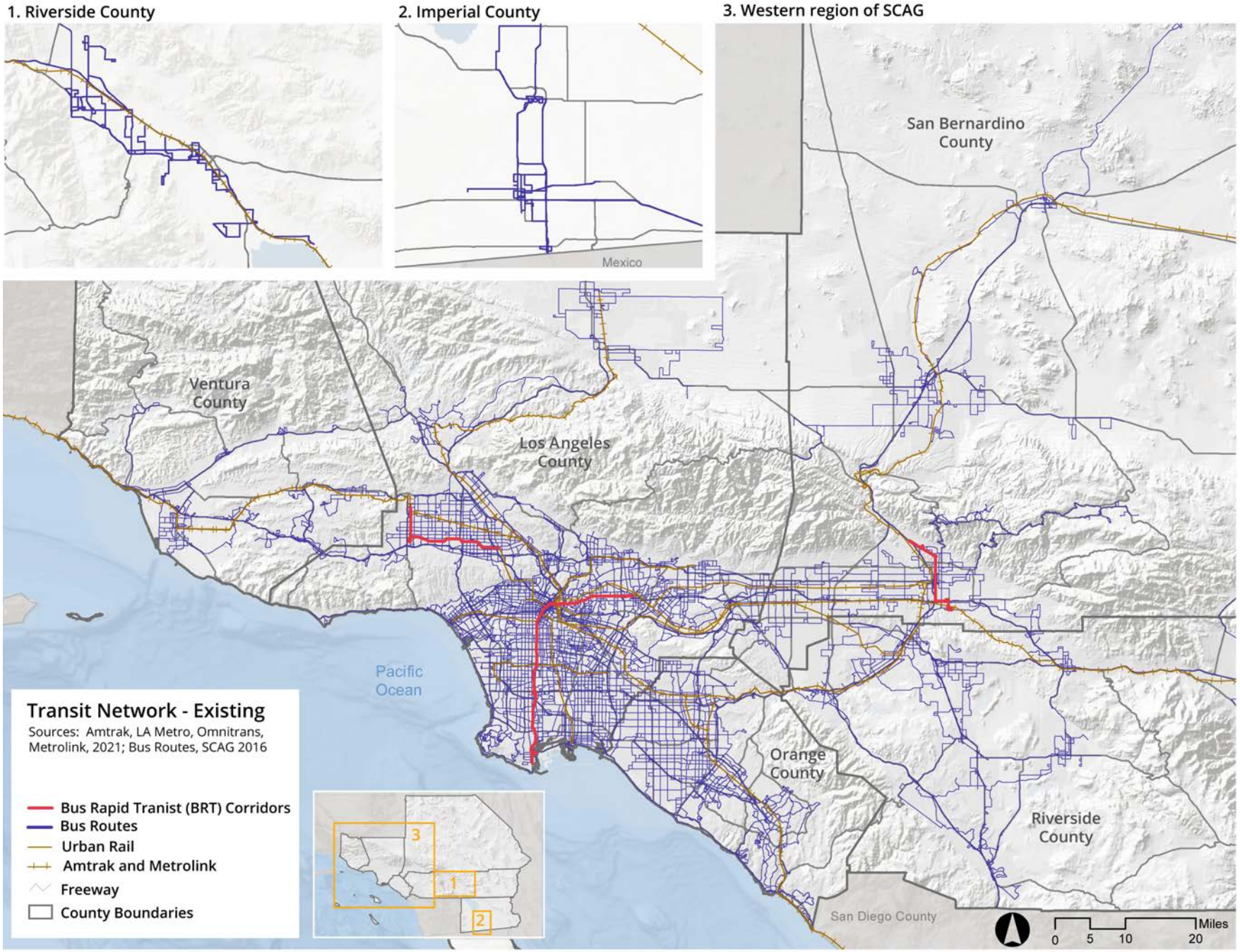
PROTECTED OPEN SPACE



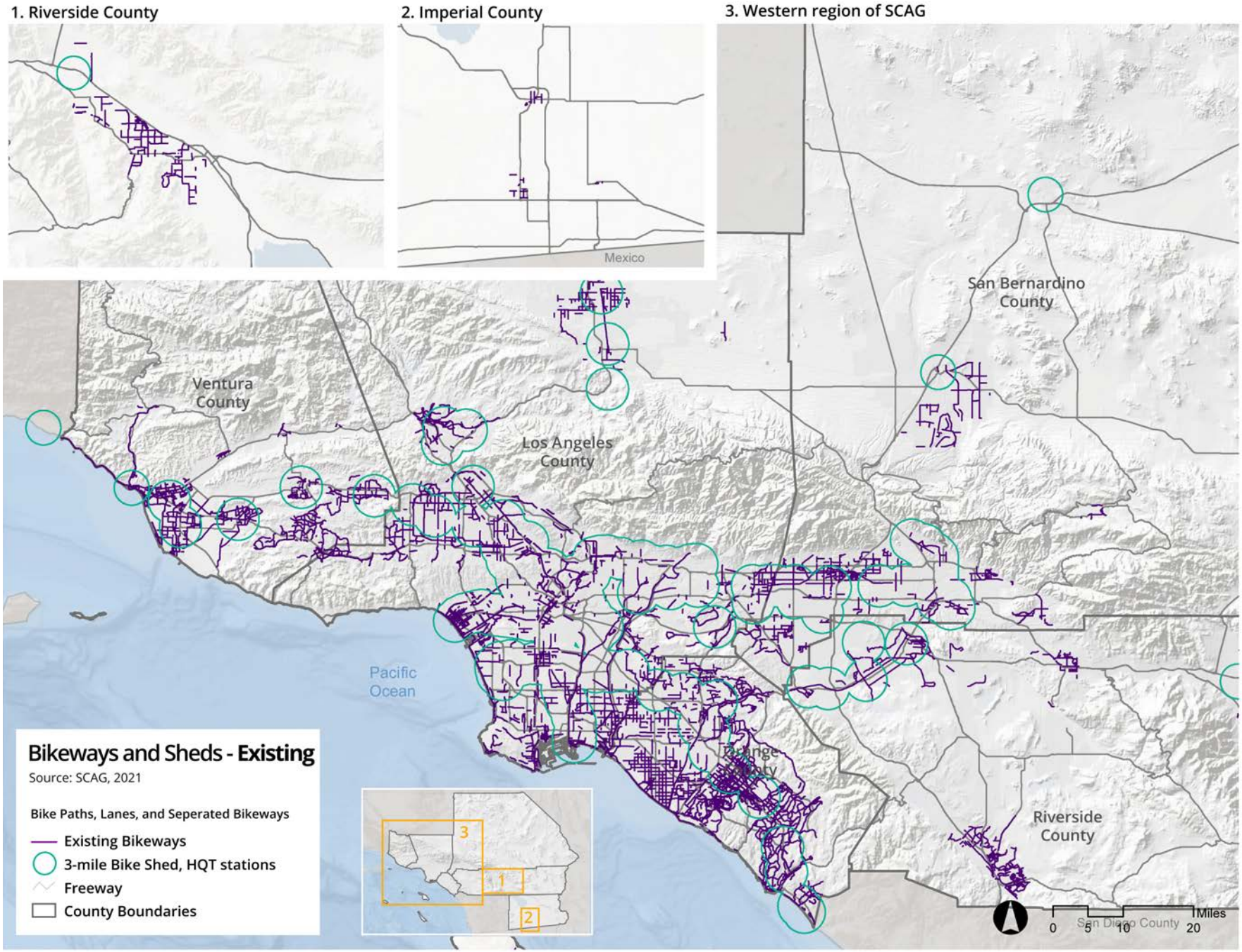
LAND USE


Tulare County
Inyo County
Nevada
Kern County
San Bernardino County
Los Angeles County
Ventura County
Pacific Ocean
Orange County
Riverside County
Arizona
San Diego County
Imperial County
Mexico
Land Use
Source: SCAG, 2019
SCAG Land Use
Residential
Commercial, Services, and Office
Medical services
Colleges and Universities
Mixed-residential and Mixed-commercial
Freeway
County Boundaries
0 10 20 40
Miles

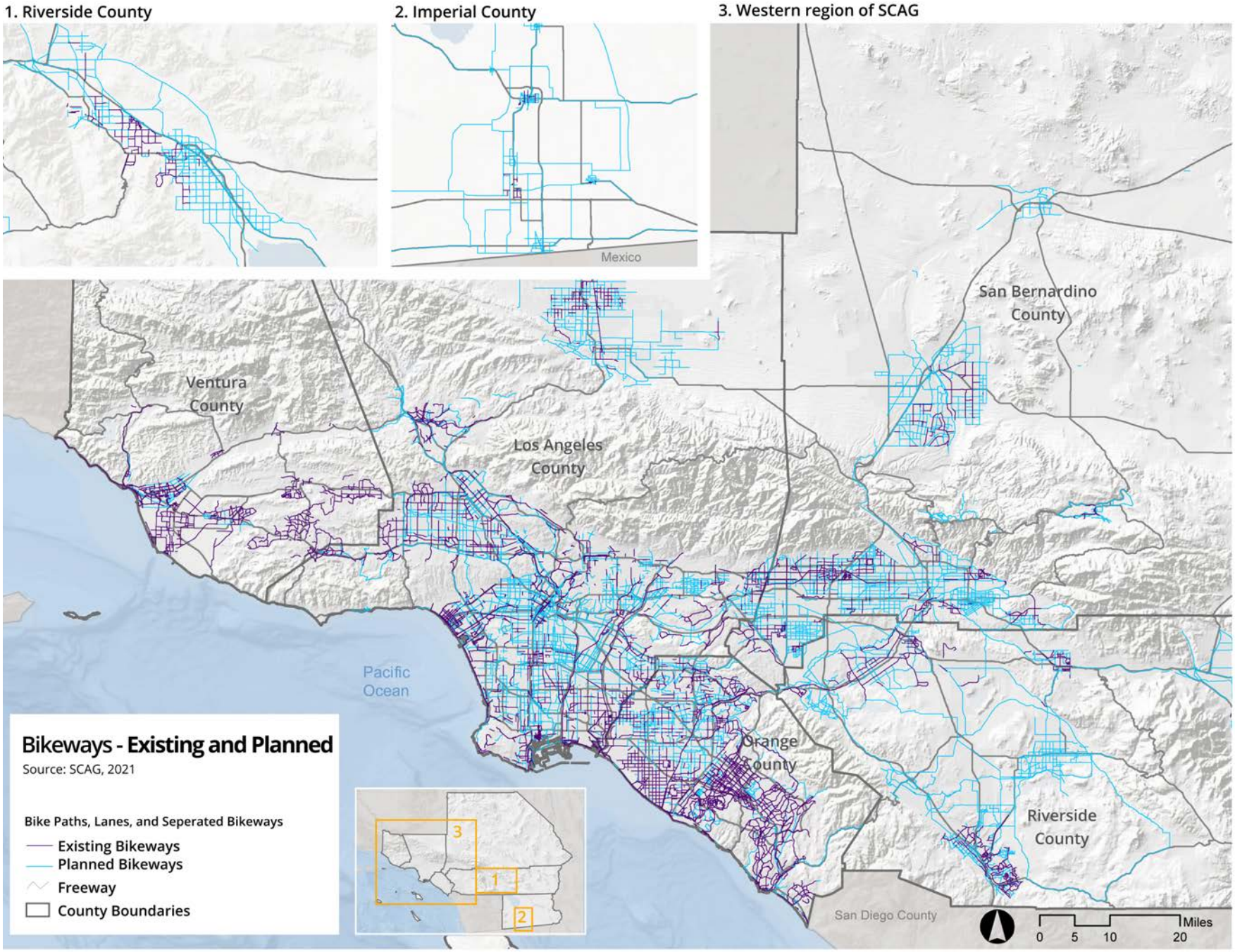
TRANSIT NETWORK



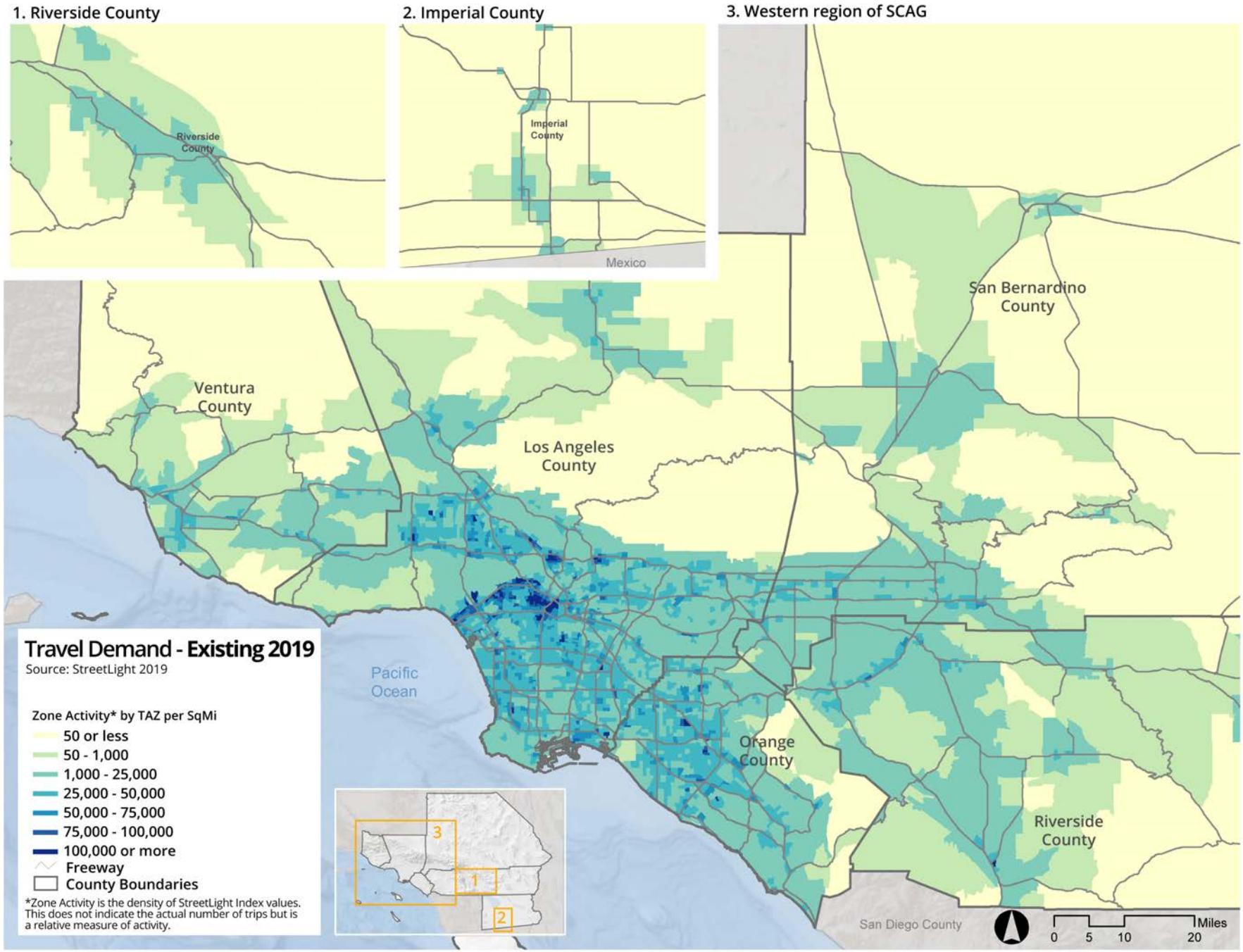
BIKEWAYS AND BIKE SHED—EXISTING



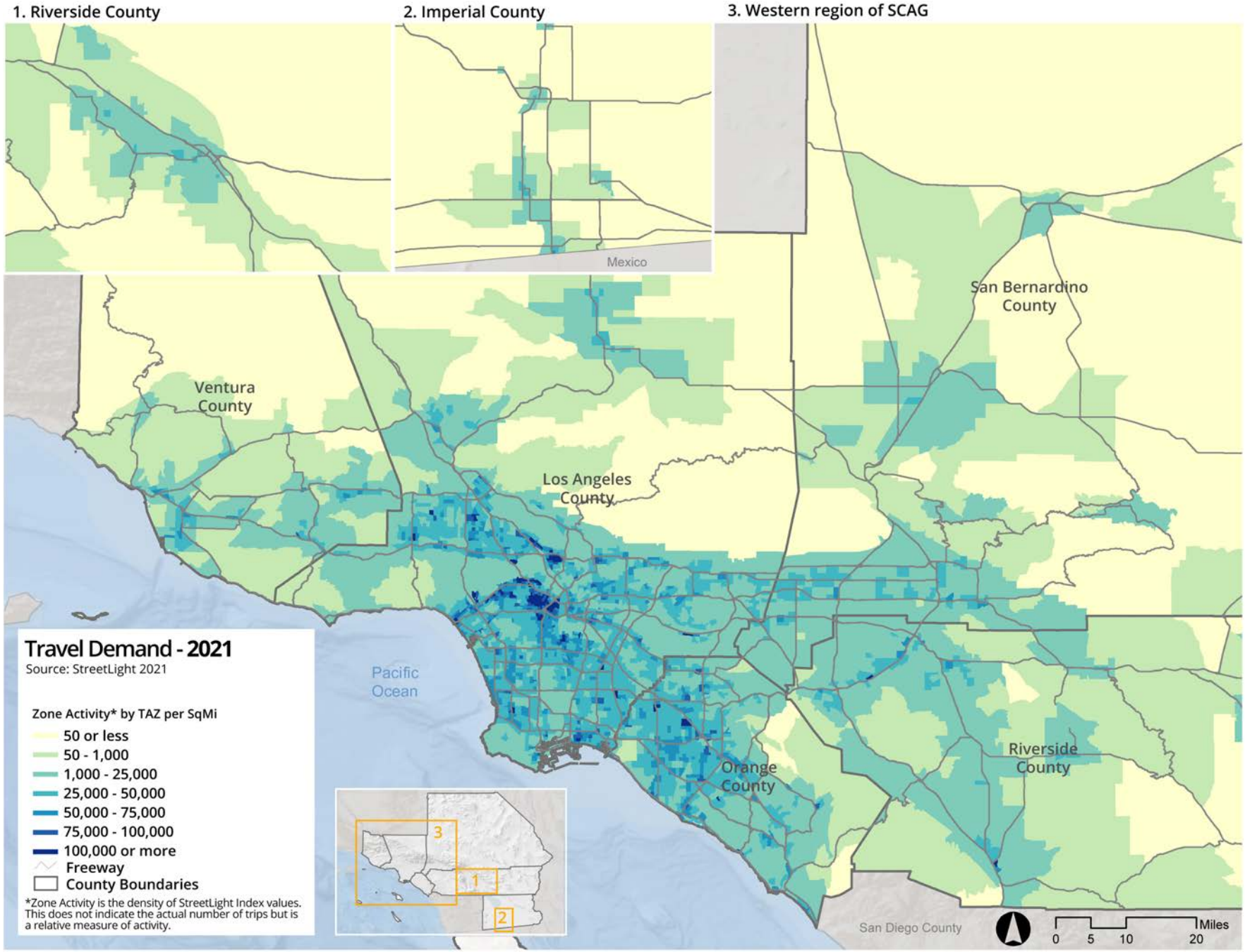
BIKEWAYS NETWORK—PLANNED



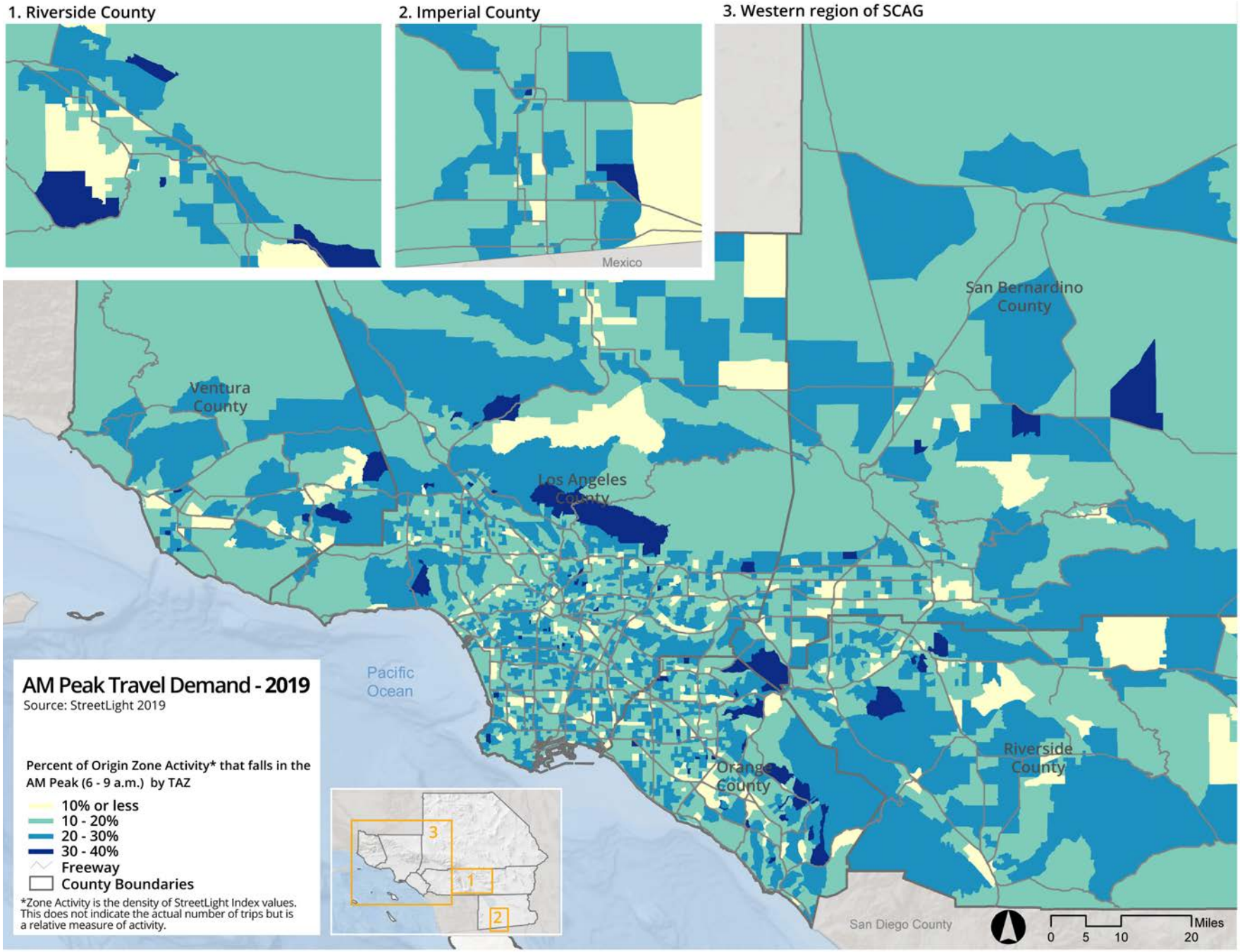
TRAVEL DEMAND—EXISTING (2019)



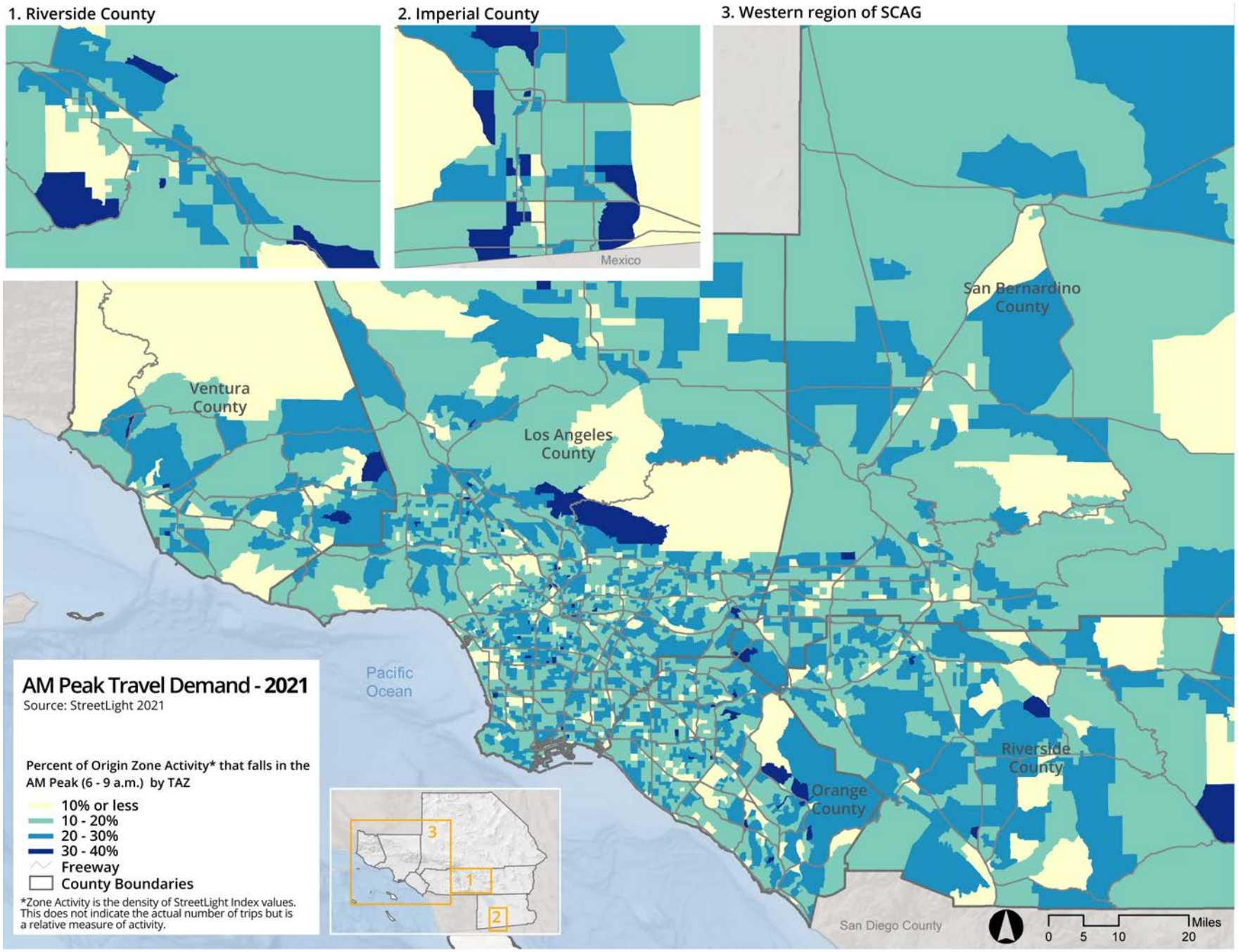
TRAVEL DEMAND—EXISTING (2021)



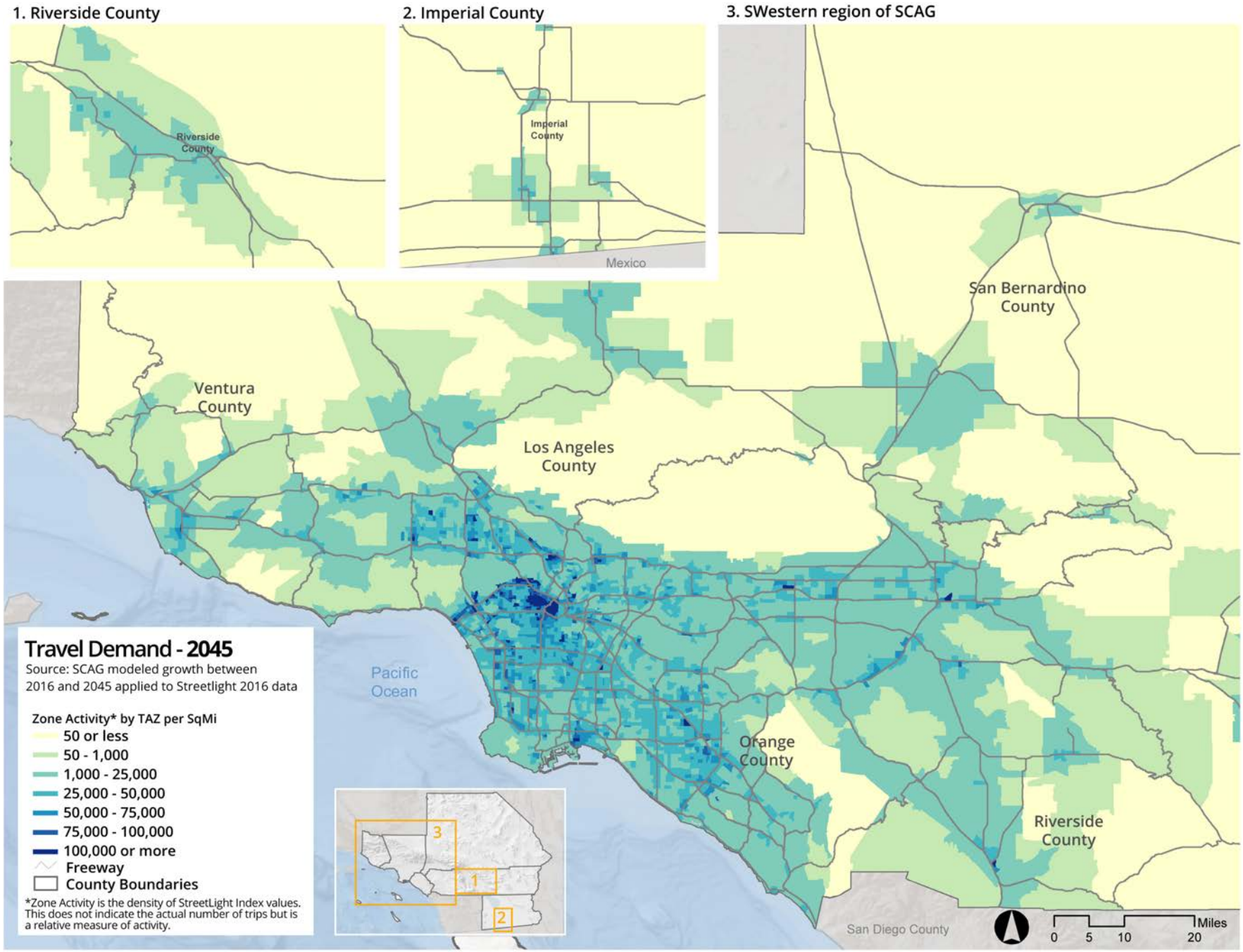
TRAVEL DEMAND—EXISTING AM PEAK (2019)



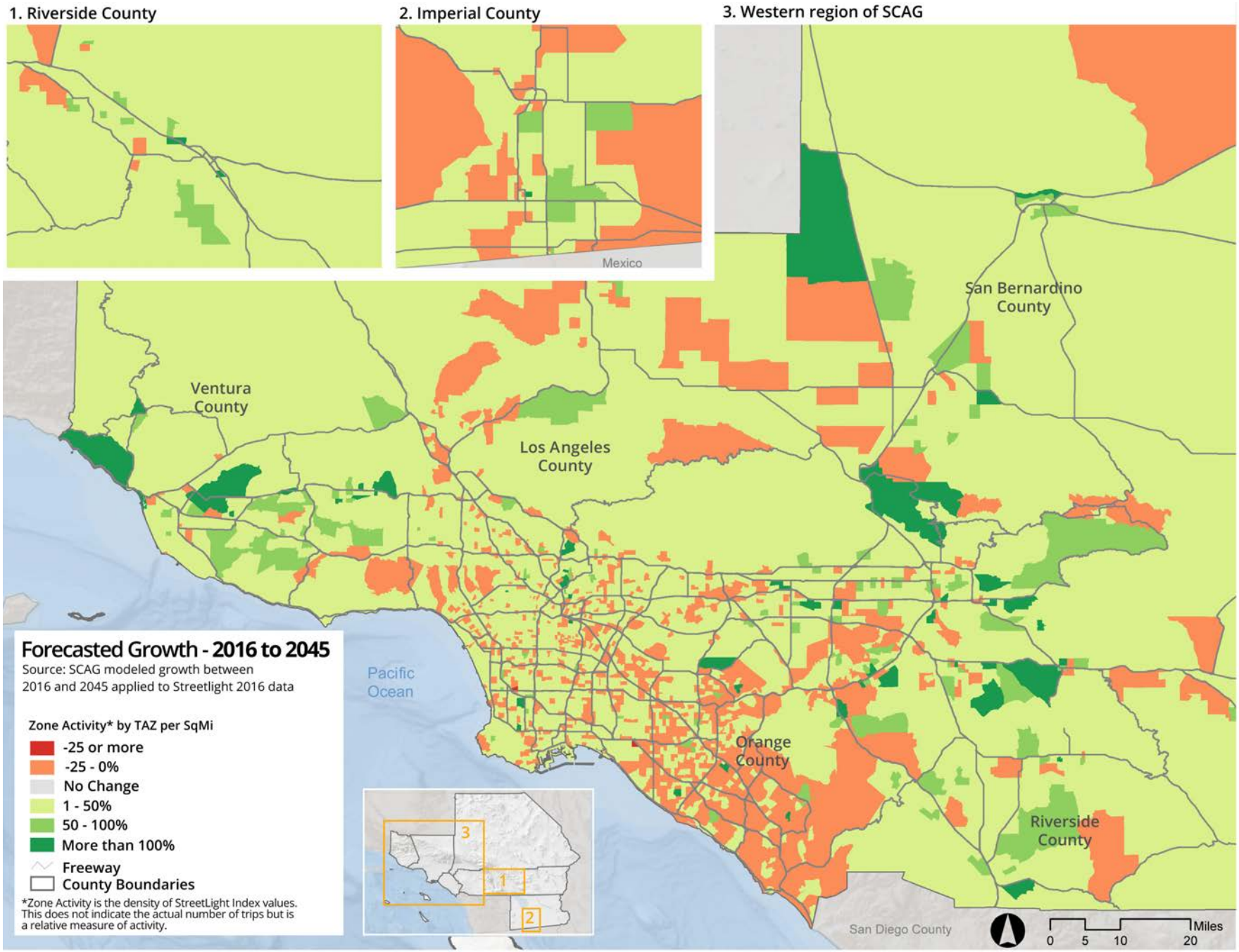
TRAVEL DEMAND—EXISTING AM PEAK (2021)



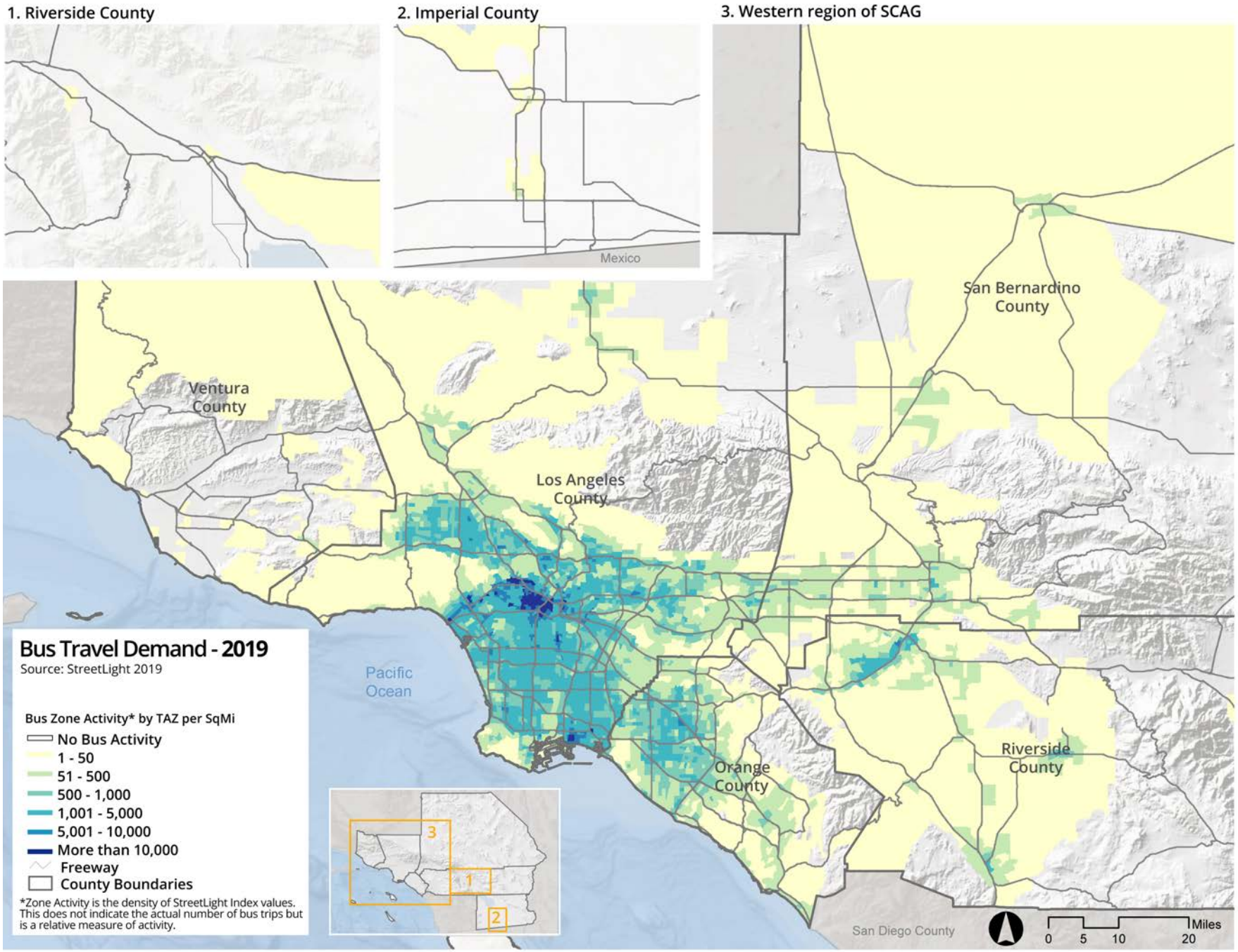
TRAVEL DEMAND—2045 FORECAST



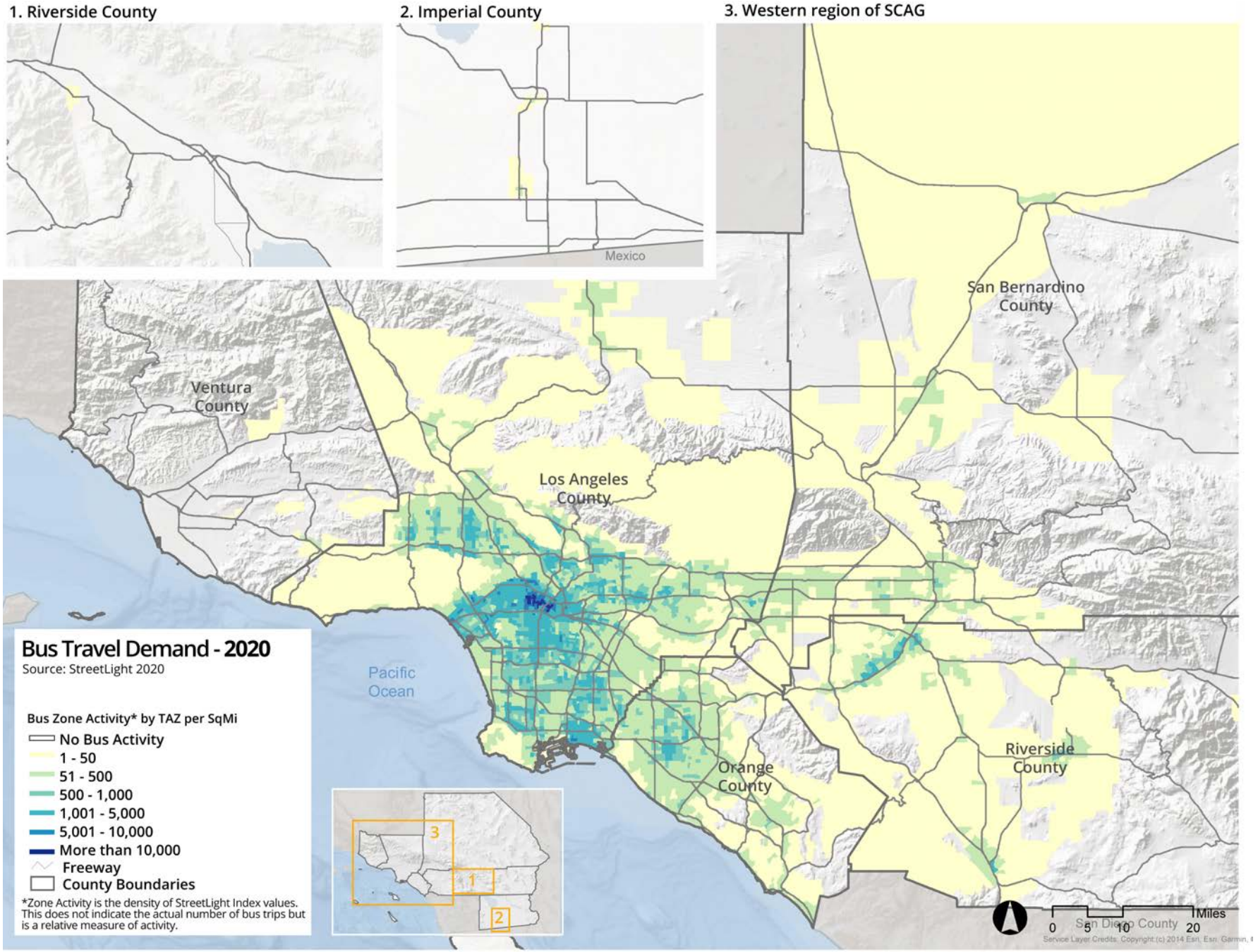
TRAVEL DEMAND GROWTH—2016 TO 2045



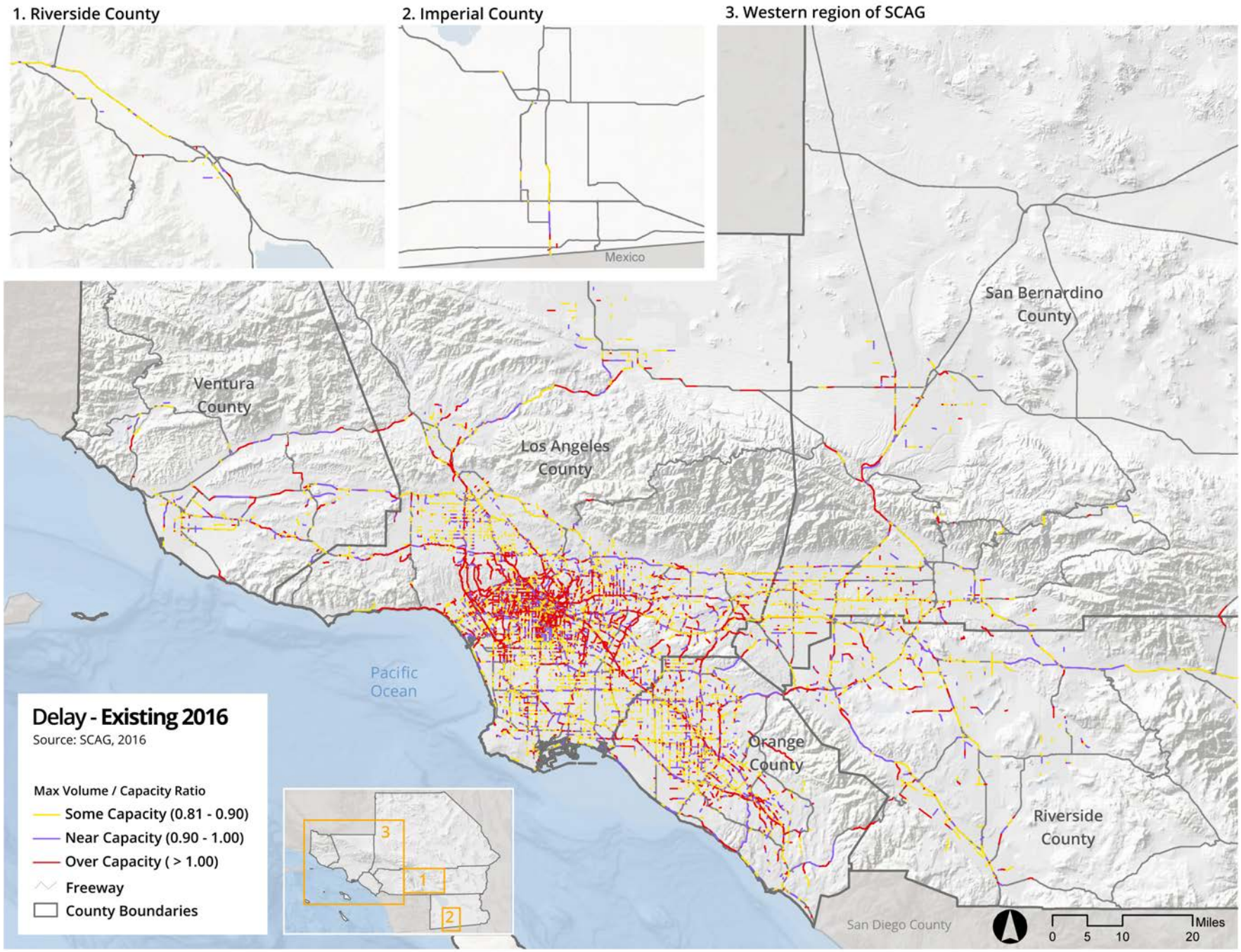
BUS TRAVEL DEMAND—EXISTING (2019)



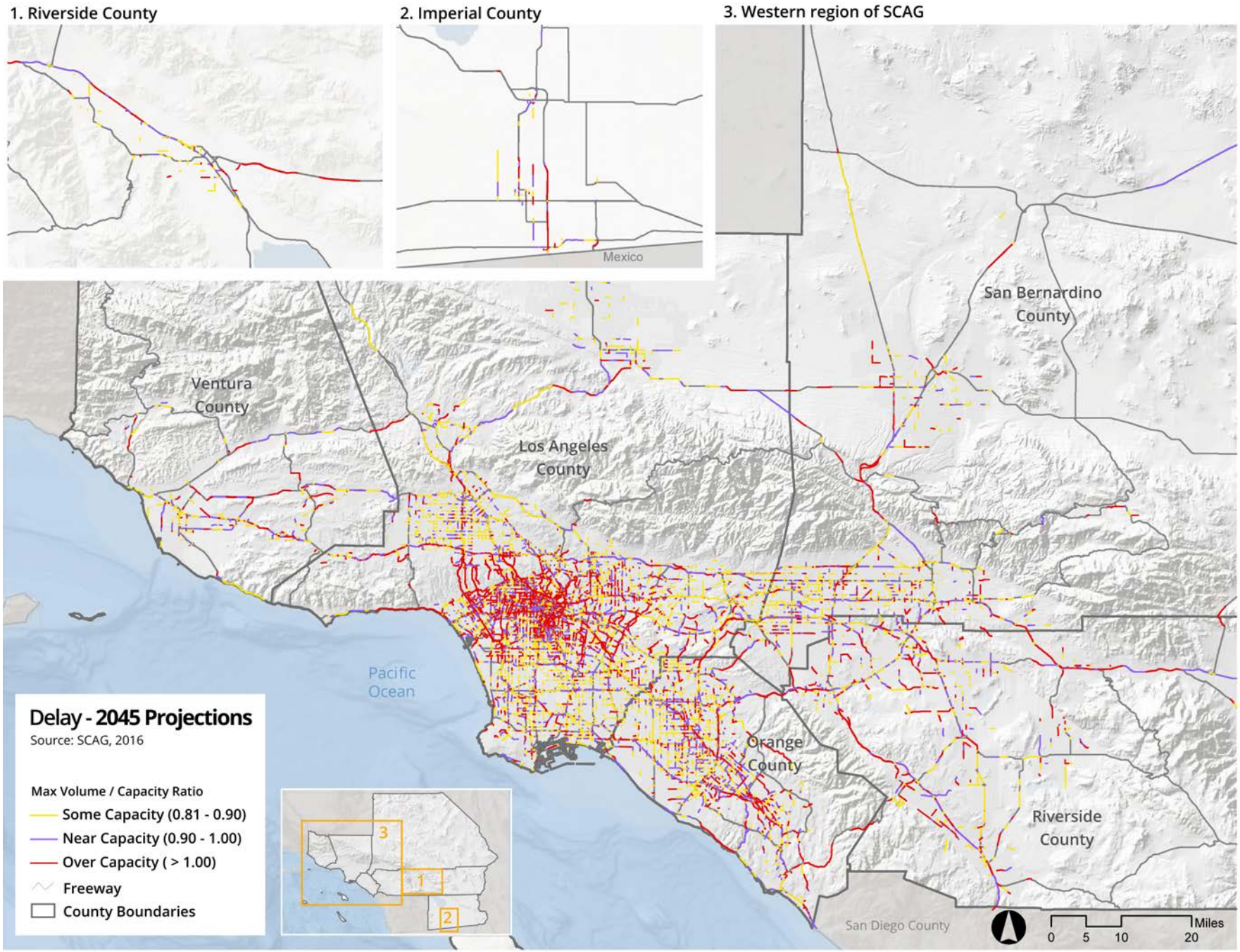
BUS TRAVEL DEMAND—EXISTING (2020)



DELAY IN 2016



DELAY—PROJECTED 2045



DEMOGRAPHIC AND LAND USE DATA

The predominant data source for the demographic and land use information comes from SCAG, unless otherwise noted, and individual sources can be found on each individual map. In most cases, the maps use Jenks natural breaks to determine interval categories. For the Race/Ethnicity, Healthy Places Index (HPI), and CalEnviroScreen 4.0 maps, equal intervals are used.

DEMOGRAPHIC AND LAND USE DATA

Map	Source	Elements
Population Density—Existing	SCAG, 2016 and 2020 RTP	Population/acres by Transportation Analysis Zones (TAZ)
Population Density—Projected, 2045	SCAG, 2020 RTP	Population/acres by TAZs
Population Growth—2016 to 2045	SCAG, 2020 RTP	Change in population 2016 to 2045/acres by TAZs
Employment Density—Existing	SCAG, 2016 and 2020 RTP	Employment/acres by TAZs
Employment Density—Projected, 2045	SCAG, 2020 RTP	Employment/acres by TAZs
Activity Units—Existing	SCAG, 2016 and 2020 RTP	Employment + population/acres by TAZs
Activity Units—Projected, 2045	SCAG, 2020 RTP	Employment + population/acres by TAZs
Race/Ethnicity	SCAG, 2016	Percent of population Asian, Black, Hispanic/Latino, Native American or Pacific Islander, White by Census Tract
Land Use	SCAG, 2019	Residential, Commercial, Services and Office, Medical Services, Colleges and Universities, Mixed-residential and Commercial by parcel
Median Income—Existing	SCAG, 2016 and 2020 RTP	Median Household Income by TAZs
Median Income—Projected, 2045	SCAG, 2020 RTP	Median Household Income by TAZs
Vehicle Access	ACS 2019 5YR Estimates	Percent of households with no vehicle access by Census Tract
Communities of Concern	SCAG, 2020 RTP/SCS	Areas in upper third (top 33.33%) in SCAG region for both percentages of households in poverty and minority population by Census Designated Places (CDP) and City of Los Angeles' Community Planning Areas (CPA)
CA Healthy Places Index (HPI)	Public Health Alliance of Southern California, 2021	Overall Score Percentile by Census Tract
CalEnviroScreen 4.0	CalEnviroScreen 4.0, 2021	Overall Score Percentile by Census Tract
Protected Open Space	SCAG, 2021	Boundaries of protected open space land. Includes small urban parks to large national forest or park lands.

TRAVEL DEMAND AND TRANSPORTATION SYSTEM DATA

The majority of data used to map travel demand and existing transportation system came from SCAG. SCAG Model data is from 2016, while the Streetlight data is from 2016 through 2021. Transit infrastructure comes from a variety of sources, including transit operators and SCAG. Ridership data was requested in December 2021 and represents daily ridership from 2019. The following table describes the data used in the maps.

TRAVEL DEMAND AND TRANSPORTATION SYSTEM DATA TABLE

Map	Source	Elements
Existing Transit Network	SCAG, 2016, Metro 2021, Amtrak 2021, Metrolink 2021, Omnitrans 2021	Metro Rail Lines (Metro), Metro BRT Lines, Omnitrans BRT Line, Bus Routes in the SCAG Region (SCAG model data), Amtrak rail, Metrolink rail.
Existing Active Transportation Network	SCAG 2021	Existing bikeways (SCAG) Bike shed, calculated by placing a 3-mile buffer around high quality transit stations.
Planned Active Transportation Network	SCAG 2021	Planned Bikeways (SCAG).
Existing Bus Ridership	From ICTC, Metro, Big Blue Bus, RTA, Sunline, VCTC, Gold Coast Transit, OCTA, Omnitrans	Pre-pandemic (2019) weekday daily ridership from at least two transit operators per county.
Travel Demand	Streetlight data travel demand model 2016, 2019, 2020, and 2021	Weekday activity all day origins by TAZ 2016, 2019, 2020, and 2021; weekday activity AM activity by TAZ 2019, 2020, and 2021; bus activity by TAZ 2019 and 2020.
Delay	SCAG 2016	Congestion on major arterials using the Vehicle Capacity Ratio from the SCAG model.

REFERENCES

1 Falling Transit Ridership: California and Southern California, Prepared for SCAG January 2018.

2 SCAG Transportation Safety Regional Existing Conditions 2021.

3 Falling Transit Ridership: California and Southern California, prepared for SCAG January 2018.

4 SCAG Transportation Safety Regional Existing Conditions 2021.

5 SCAG's Racial Equity Early Action Plan, May 2021: https://scag.ca.gov/sites/main/files/file-attachments/reeap_final.pdf?1620325603.

6 SCAG Local Profiles: U.S. Census American Community Survey, 2017; Nielsen Co.; California Department of Finance E-5, May 2018; CoreLogic/DataQuick; California Department of Education; and SCAG.

7 SCAG Local Profiles: U.S. Census American Community Survey, 2017; Nielsen Co.; California Department of Finance E 5, May 2018; CoreLogic/DataQuick; California Department of Education; and SCAG.

8 SCAG Local Profiles: U.S. Census American Community Survey, 2017; Nielsen Co.; California Department of Finance E 5, May 2018; CoreLogic/DataQuick; California Department of Education; and SCAG.

9 https://www.tpl.org/parks-and-an-equitable-recovery-parkscore-report.

10 Falling Transit Ridership: California and Southern California, prepared for SCAG January 2018.

MAIN OFFICE
900 Wilshire Blvd., Ste. 1700,
Los Angeles, CA 90017
Tel: (213) 236-1800

REGIONAL OFFICES

Imperial County
1503 North Imperial Ave., Ste. 104
El Centro, CA 92243
Tel: (213) 236-1967

Orange County
OCTA Building
600 South Main St., Ste. 741
Orange, CA 92868
Tel: (213) 236-1997

Riverside County
3403 10th St., Ste. 805
Riverside, CA 92501
Tel: (951) 784-1513

San Bernardino County
Santa Fe Depot
1170 West 3rd St., Ste. 140
San Bernardino, CA 92418
Tel: (213) 236-1925

Ventura County
4001 Mission Oaks Blvd., Ste. L
Ventura, CA 93012
Tel: (213) 236-1960

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