



CHAPTER
3

CHAPTER 3

A PATH TO GREATER ACCESS, MOBILITY & SUSTAINABILITY

CORE VISION

Rooted in the 2008 and 2012 RTP/SCS plans, Connect SoCal's "Core Vision" centers on maintaining and better managing the transportation network we have for moving people and goods, while expanding mobility choices by locating housing, jobs and transit closer together and increasing investment in transit and complete streets. Examples of SCAG's Core Vision are embedded throughout this chapter in blue highlight boxes, and include progress made since the 2016 RTP/SCS. These highlights are presented alongside the narrative, which provides a more comprehensive overview of strategies planned to advance the region's core vision for mobility and sustainability. The Core Vision includes:



SUSTAINABLE DEVELOPMENT



SYSTEM PRESERVATION & RESILIENCE



DEMAND & SYSTEM MANAGEMENT



TRANSIT BACKBONE



COMPLETE STREETS



GOODS MOVEMENT

There is no one-size-fits-all solution for regional challenges. Instead, we must explore an integrated web of creative strategies to achieve the goals of Connect SoCal. In this chapter we will lay out clear policy guidance, action-oriented strategies and pragmatic tools that can be utilized to achieve a coordinated and balanced regional transportation system. This chapter also describes strategies to integrate the region's Forecasted Development Pattern with the transportation network to demonstrate reductions in greenhouse gas (GHG) emissions.

OUR VISION FOR A CONNECTED REGION

As the region's population increases, ages and diversifies, it is crucial that land use decisions and transportation investments made at the federal, state, regional and local levels are coordinated to be able to achieve Connect SoCal's regional goals. Developing compact centers with a robust mix of land uses, a range of building types and connected public spaces can strengthen the fabric of communities. Targeting rideshare and transportation demand management strategies near employment centers can reduce travel costs and improve air quality. Thoughtfully locating freight delivery facilities and logistics centers can reduce truck travel and the impact of goods movement on communities. While coordinating land-use and transportation strategies makes sense and can yield beneficial outcomes, implementation is difficult in a region where authority is divided among myriad agencies. This plan is not designed to dictate or supersede local actions and policies, but rather to lay out a path to achieving regional goals set by the Regional Council.

Our vision for the region incorporates a range of best practices for increasing transportation choices, reducing dependence on personal automobiles, further improving air quality and encouraging growth in walkable, mixed-use communities with ready access to transit infrastructure and employment. More and varied housing types and employment opportunities would be located in and near job centers, transit stations and walkable neighborhoods where goods and services are easily accessible via shorter trips. To support shorter trips, people would have the choice of using neighborhood bike networks, car share or micro-mobility services like shared bicycles or scooters. For longer commutes, people would have expanded regional transit services and more employer incentives to carpool or vanpool. Other longer trips

would be supported by on-demand services such as microtransit, carshare and citywide partnerships with ride hailing services. For those that choose to drive, hotspots of congestion would be less difficult to navigate due to cordon pricing, and using an electric vehicle will be easier thanks to an expanded regional charging network.

There are certainly inherent constraints to expansive regional growth, and areas that are susceptible to natural hazards and a changing climate must be recognized. Connect SoCal therefore emphasizes options that conserve important farmland, resource areas and habitat corridors, and de-prioritizes growth on lands that are vulnerable to wildfire, flooding and near term sea-level rise.

OUR APPROACH

Connect SoCal addresses regional challenges in several ways. A key, formative step is to develop a Regional Growth Forecast in collaboration with local jurisdictions, which helps SCAG identify opportunities and barriers to development. The plan forecasts the number of people, households and jobs (at the jurisdictional level) expected throughout SCAG's 191 cities and in unincorporated areas by 2045. This forecast helps the region understand in a very general sense where we expect growth and allows us to focus attention on areas experiencing change and increases in transportation needs. For additional details on growth forecast methodology, refer to the Demographics and Growth Forecast Technical Report.

The Regional Growth Forecast is then complemented by a set of strategies to guide integrated land use development decisions and transportation investments to achieve regional goals, called the Connect SoCal Growth Vision. The resulting Forecasted Development Pattern includes strategies to prioritize areas for new development, like near destinations and mobility options, and places enhanced conservation value on resource areas, key farm lands and areas vulnerable to natural hazards. However, Connect SoCal does not dictate or supersede local policies, actions or strategies – applying the Forecasted Development Pattern at the local level is the authority and responsibility of towns, cities and counties. The regional Forecasted Development Pattern identifies areas sufficient to house the region's population, including all economic segments of the population, through 2045. It takes into account

KEY CONNECTIONS

In this chapter, we also describe Connect SoCal's "Key Connections" in yellow highlight boxes. Key Connections augment the Core Vision of the plan to address trends and emerging challenges while "closing the gap" between what can be accomplished through intensification of core planning strategies alone, and what must be done to meet increasingly aggressive greenhouse gas reduction goals. These Key Connections lie at the intersection of land use, transportation and innovation, aiming to coalesce policy discussions and advance promising strategies for leveraging new technologies and partnerships to accelerate progress on regional planning goals. The Key Connections include:



SMART CITIES & JOB CENTERS



HOUSING SUPPORTIVE INFRASTRUCTURE



GO ZONES



ACCELERATED ELECTRIFICATION



SHARED MOBILITY & MOBILITY AS A SERVICE



CORE VISION SUSTAINABLE DEVELOPMENT

Through our continuing efforts to better align transportation investments and land use decisions, we strive to improve mobility and reduce greenhouse gases by bringing housing, jobs and transit closer together.

PROGRESS SINCE 2016

From 2008 to 2016, 71 percent of the region's household growth and 75 percent of the region's job growth occurred in Connect SoCal's priority growth areas. During this same period, only 11 percent of the region's household growth and 5 percent of the job growth occurred on constrained areas like prime farmland, and in areas vulnerable to rising seas.

PLANNING FOR 2045

From 2016 to 2045, 64 percent of new households and 74 percent of new jobs will occur in priority growth areas. During this same period, roughly 10 percent of new households and 9 percent of new jobs will occur in constrained areas.

SCAG's Sustainable Communities Program supports planning in local jurisdictions to advance the regional Growth Vision. In addition, new regional data tools, like the Regional Data Platform, will help local jurisdictions identify areas well suited for infill and redevelopment as well as natural and farm lands to be preserved. Studies and partnerships will also be pursued to establish a Regional Advanced Mitigation Program (RAMP), a strategic habitat and agricultural land conservation-planning program that identifies mitigation solutions for infrastructure projects early in the planning process.

net migration into the region, population growth, household formation and employment growth. Moreover, Connect SoCal identifies areas within the region sufficient to house near-term and long-term growth and support a diverse economy and workforce. For additional details on the Growth Vision and Forecasted Development Pattern, see the Sustainable Communities Strategy Technical Report.

Key investments are coupled with our Forecasted Development Pattern to optimize the regional transportation system and accommodate the increased service and infrastructure demands posed by land-use changes. Connect SoCal's transportation investments are financially constrained to reflect core and reasonably available revenues and are progressively integrated with projected land use patterns and coordinated across transportation modes to advance plan goals.

By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels). Moreover, this integration can yield tangible outcomes that make our everyday travel needs easier when compared to a future without the plan — for example, the combined work trips made by carpooling, active transportation, and public transit increases by 3 percent and travel delay reduces by 26 percent per capita.

SUSTAINABLE COMMUNITIES STRATEGY

As part of the state's mandate to reduce per-capita GHG emissions from automobiles and light trucks, Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporate best practices for achieving the state-mandated reductions in GHG emissions at the regional level through reduced per-capita vehicle miles traveled (VMT).

These strategies identify how the SCAG region can implement Connect SoCal and achieve related GHG reductions. It is important to note that SCAG does not have a direct role in implementing the Sustainable Communities Strategy

—neither through decisions about what type of development goes where, nor what transportation projects are ultimately built. However, SCAG works to support local jurisdictions and partnerships by identifying ways to implement the Sustainable Communities Strategy (SCS) in a way that fits the vision and needs of each local community. Additionally, SCAG serves as a leader as well as a hub to convene stakeholders and to find ways to collaborate on broader regional initiatives. See the Sustainable Communities Strategy Technical Report for more details on GHG reduction and implementation of the SCS.

The following strategies are intended to be supportive of implementing the regional Sustainable Communities Strategy. Several are directly tied to supporting related GHG reductions while others support the broader goals of Connect SoCal:

Focus Growth Near Destinations & Mobility Options

- Emphasize land use patterns that facilitate multimodal access to work, educational and other destinations
- Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets
- Plan for growth near transit investments and support implementation of first/last mile strategies
- Promote the redevelopment of underperforming retail developments and other outmoded nonresidential uses
- Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods
- Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed uses or locating and orienting close to existing destinations)
- Identify ways to “right size” parking requirements and promote alternative parking strategies (e.g. shared parking or smart parking)

Promote Diverse Housing Choices

- Preserve and rehabilitate affordable housing and prevent displacement
- Identify funding opportunities for new workforce and affordable housing development

- Create incentives and reduce regulatory barriers for building context-sensitive accessory dwelling units to increase housing supply
- Provide support to local jurisdictions to streamline and lessen barriers to housing development that supports reduction of greenhouse gas emissions

Leverage Technology Innovations

- Promote low emission technologies such as neighborhood electric vehicles, shared rides hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space
- Improve access to services through technology—such as telework and telemedicine as well as other incentives such as a “mobility wallet,” an app-based system for storing transit and other multi-modal payments
- Identify ways to incorporate “micro-power grids” in communities, for example solar energy, hydrogen fuel cell power storage and power generation

Support Implementation of Sustainability Policies

- Pursue funding opportunities to support local sustainable development implementation projects that reduce greenhouse gas emissions
- Support statewide legislation that reduces barriers to new construction and that incentivizes development near transit corridors and stations
- Support local jurisdictions in the establishment of Enhanced Infrastructure Financing Districts (EIFDs), Community Revitalization and Investment Authorities (CRIAs), or other tax increment or value capture tools to finance sustainable infrastructure and development projects, including parks and open space
- Work with local jurisdictions/communities to identify opportunities and assess barriers to implement sustainability strategies
- Enhance partnerships with other planning organizations to promote resources and best practices in the SCAG region
- Continue to support long range planning efforts by local jurisdictions
- Provide educational opportunities to local decisions makers and staff on new tools, best practices and policies related to implementing the Sustainable Communities Strategy

Promote a Green Region

- Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards
- Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration
- Integrate local food production into the regional landscape
- Promote more resource efficient development focused on conservation, recycling and reclamation
- Preserve, enhance and restore regional wildlife connectivity
- Reduce consumption of resource areas, including agricultural land
- Identify ways to improve access to public park space

LAND USE TOOLS

CENTER FOCUSED PLACEMAKING

Creating dynamic, connected built environments that support multimodal mobility, reduced reliance on single-occupancy vehicles, and reduced GHG emissions is critical throughout the region. Center focused placemaking is an approach that supports attractive and functional places for Southern California residents to live, work and play, in urban, suburban and rural settings. Although center focused placemaking can be applied in a wide range of settings, priority must be placed, however, on urban and suburban infill, in existing/planned service areas and, for unincorporated county growth, within the planning boundary known as “Spheres of Influence” (SOI) where applicable and feasible.

Successful centers are typically human-scale, compact and pedestrian-oriented with a variety of housing types and ranges of affordability. For example, transit-oriented development (TOD) in Transit Priority Areas (TPAs) and high quality transit areas (HQTAs) within centers and nodes along corridors can play a pivotal role in supporting compact development that is less reliant on single-occupancy vehicles. Elements of center-focused placemaking can be implemented when transit service is neither existing nor planned. Center-focused placemaking includes smart locations and linkages, neighborhood

patterns and design and green infrastructure and buildings. Some key elements are specified the Sustainable Communities Strategy Technical Report.

PRIORITY GROWTH AREAS

Priority Growth Areas (PGAs) follow the principles of center focused placemaking and are locations where many Connect SoCal strategies can be fully realized. Connect SoCal's PGAs—Job Centers, TPAs, HQTAs, Neighborhood Mobility Areas (NMAs), Livable Corridors and Spheres of Influence (SOIs)—account for only 4 percent of region's total land area, but implementation of SCAG's recommended growth strategies will help these areas accommodate 64 percent of forecasted household growth and 74 percent of forecasted employment growth between 2016 and 2045. This more compact form of regional development, if fully realized, can reduce travel distances, increase mobility options, improve access to workplaces, and conserve the region's resource areas.

Jurisdictions should continue to be sensitive to the possibility of gentrification and employ strategies to mitigate negative community impacts – particularly in PGAs. Although the region will see benefits from infill development, communities are encouraged to actively acknowledge and plan for potential impacts including displacement. Production and preservation of permanent affordable housing to complement infill strategies is essential to achieving equitable outcomes.

Exhibits for priority growth areas and growth constraints, spheres of influence, job centers, transit priority areas, high quality transit areas, and neighborhood mobility areas can be found at the end of this chapter (**EXHIBIT 3.4-3.10**). Following is a description of Connect SoCal's PGAs and their associated strategies.

JOB CENTERS

Job Centers are where regional strategies that support economic prosperity can be deployed in catalytic ways. Job Centers have been identified in all six counties in the SCAG region and represent areas that have a significantly higher employment density than surrounding areas. Employment growth and residential growth are prioritized in existing Job Centers in order to leverage existing density and infrastructure. However, it is recognized that capacity

for infrastructure or services may need to be evaluated before residential or employment population is increased in a given area. By encouraging regional growth and employing transportation strategies in the 70+ Job Centers throughout the region, Connect SoCal seeks to reinforce regional economic prosperity. SCAG's methodology to identify Job Centers is not all-inclusive and additional potential centers can be identified.

Job Centers represent areas with local employment peaks rather than simply places with the most jobs. Identified Job Centers are present in over 60 percent of the region's cities and contain about one-third of Southern California's jobs – but only cover less than 1 percent of the region's land area. These Job Centers range in size from over 250,000 jobs in the region's most urbanized areas, to roughly 1,500 jobs in rural areas – all with employment densities far higher than neighboring areas. When growth is concentrated in Job Centers, the length of vehicle trips for residents can be reduced.

TRANSIT PRIORITY AREAS

Transit Priority Areas (TPAs) are Priority Growth Areas that are within one half mile of existing or planned 'major' transit stops in the region. A 'major' transit stop is defined as a site containing an existing or planned rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. TPAs are where TOD can be realized – where people can live, work and play in higher density, compact communities with ready access to a multitude of safe and convenient transportation alternatives.

Focusing regional growth in areas with planned or existing transit stops is key to achieving equity, economic, and environmental goals. Infill within TPAs can reinforce the assets of existing communities, efficiently leveraging existing infrastructure and potentially lessening impacts on natural and working lands. Growth within TPAs supports Connect SoCal's strategies for preserving natural lands and farmlands and alleviates development pressure in sensitive resource areas by promoting compact, focused infill development in established communities with access to high-quality transportation. Although TPAs comprise less than 1 percent of Southern California's land area, around 30 percent of new households are projected to occur within these transit rich areas.

HIGH QUALITY TRANSIT AREAS

High Quality Transit Areas (HQTAs) are corridor-focused Priority Growth Areas within one half mile of an existing or planned fixed guideway transit stop or a bus transit corridor where buses pick up passengers at a frequency of every 15 minutes (or less) during peak commuting hours. Freeway transit corridors with no bus stops on the freeway alignment do not have a directly associated HQTA. Like Transit Priority Areas, HQTAs are places where vibrant TOD can be realized and are a cornerstone of land use planning best practice in the SCAG region.

HQTAs represent under 3 percent of the region's acreage but are projected to be home to over 51 percent of new households between 2016 and 2045. Infrastructure investments that support walkable, compact communities that integrate land use and transportation planning for a better functioning built environment are essential within HQTAs. Active transportation and new developments should be context-sensitive, responding to the existing physical conditions of the surrounding area. Sensitively designed TODs can preserve existing development patterns and neighborhood character while providing a balance of modal and housing choices.

NEIGHBORHOOD MOBILITY AREAS

Neighborhood mobility area (NMAs) focus on creating, improving, restoring and enhancing safe and convenient connections to schools, shopping, services, places of worship, parks, greenways and other destinations. NMAs are Priority Growth Areas with robust residential to non-residential land use connections, high roadway intersection densities and low-to-moderate traffic speeds. NMAs can encourage safer, multimodal, short trips in existing and planned neighborhoods and reduce reliance on single occupancy vehicles. NMAs support the principles of center focused placemaking. Fundamental to neighborhood scale mobility in urban, suburban and rural settings is encouraging "walkability," active transportation and short, shared vehicular trips on a connected network through increased density, mixed land uses, neighborhood design, enhanced destination accessibility and reduced distance to transit.

From 2016 to 2045, nearly 29 percent of new households are projected to be located in NMAs. Although 38 percent of all trips made in the SCAG region are three miles or less, more than 78 percent of these short trips are made

by driving. Improving public health and reducing per-capita VMT, and GHG reductions relies on our region's ability to support safe and convenient short trips at the neighborhood scale—by foot, bicycle, micro-mobility devices and slow speed electric vehicles such as e-bikes, scooters, and neighborhood electric vehicles. Adopting and implementing Complete Streets policies supports safer neighborhood mobility and connected, economically dynamic communities. Targeting future growth in these areas has inherent benefits to Southern California residents – providing access to “walkable” and destination-rich neighborhoods to more people in the future.

LIVABLE CORRIDORS

The Livable Corridor strategy encourages local jurisdictions to plan and zone for increased density at nodes along key corridors, and to “redevelop” single-story under-performing retail with well-designed, higher density housing and employment centers. Growth at strategic nodes along key corridors, many of which are within HQTAs, will make transit a more convenient and viable option. The Livable Corridors strategy is comprised of three components that will encourage context sensitive density, improve retail performance, combat disinvestment, and improve fiscal outcomes for local communities:

- **Transit improvements:** Some corridors have been identified as candidates for on-street, dedicated lane Bus Rapid Transit (BRT) or semi-dedicated “BRT-lite” transit. Other corridors have the potential to support features that improve the user experience and bus performance, including enhanced bus shelters, real-time travel information, off-bus ticketing, all-door boarding and longer distances between stops to increase speeds.
- **Active transportation improvements:** Increased investments in Complete Streets within Livable Corridors and intersecting arterials are essential to support safe bicycling and walking. Investments should include protected lanes to encourage safe bicycling and lower speed mobility, improved pedestrian access and bicycle and micro-mobility parking.
- **Land use policies:** Mixed-use retail centers at key nodes along Livable Corridors are essential, as is increasing neighborhood-oriented retail at intersections, and flexible zoning that allows for the replacement of under-performing auto-oriented retail.

SPHERES OF INFLUENCE

Local Agency Formation Commissions, or LAFCos, are given the authority to determine SOIs for all local governmental agencies, and each county in the SCAG region has an associated LAFCo. An SOI is a planning boundary outside of a local agency's legal boundary (such as the city limit line) that designates the agency's probable future boundary and service area. The intent of an SOI is to promote the efficient, effective and equitable delivery of local and regional services for existing and future residents and to encourage a collaborative process between agencies. A city will periodically annex parcels in an SOI into the city limits to include new developments or areas with infrastructure needs. Some factors considered in an SOI designation focus on current and future land uses and the need and capacity for services.

Decisions made by LAFCos in the SCAG region can support the implementation of Connect SoCal goals related to infill development, GHG emissions reductions, and climate change resilience. Connect SoCal encourages future unincorporated county growth be prioritized within existing SOIs to discourage urban sprawl and the premature conversion of agricultural and natural lands, support alignment of policies across jurisdictions, and rehabilitate and utilize existing infrastructure. This strategy promotes growth in an efficient manner that limits sprawl and “leapfrog” development and minimizes costs to taxpayers. As a result, 4 percent of the region's future household growth will be located in SOIs outside of incorporated city boundaries from 2016 to 2045.

GREEN REGION

A sustainable, “green” region requires that the built environment and natural resource areas coexist in a well-balanced land use pattern that encourages mutual co-benefits. The quality and range of conservation, natural and agricultural areas present in the region can be reinforced and enhanced by a range of regional and local tools.

Paired with PGAs, Connect SoCal's conservation strategies consider the economic and ecological benefits of preserving natural areas and farmlands, while also maximizing their potential for GHG reduction. New housing and employment development is emphasized in PGAs such as Job Centers, TPAs, HQTAs and NMAs, and away from natural and farm lands on the edges of urban and suburban areas, to incentivize infill development and the concentration

of varied land uses. This emphasis on concentrated, compact growth makes it easier to travel shorter distances, which reduces per-capita greenhouse gas emissions. In addition, natural areas and farmlands have the capacity to absorb and store atmospheric carbon dioxide, preventing additional contributions of GHG emissions. Finally, natural lands conservation is imperative to protect communities from major hazards caused or exacerbated by climate change, such as wildfires and flooding.

Connect SoCal's land use strategies deemphasize development on agricultural lands in unincorporated counties, and in areas subject to future two-foot sea level rise. To further prioritize natural habitat areas and avoid impacts to the environment, Connect SoCal seeks to avoid growth in wetlands, wildlife corridors, biodiverse areas, wildfire prone areas and floodplains. These strategies were identified with guidance from stakeholders in SCAG's Natural and Farm Lands Conservation Working Group as high priorities for conservation based on climate change vulnerability, water quality impacts, and decline of native species. In acknowledgement of this need for conservation and to address climate change's impacts, local and regional agencies throughout the region have worked to establish and/or implement a diverse set of policies, projects and plans to protect threatened natural areas and farmlands. See the Natural and Farm Lands Conservation Technical Report for successful examples and see the Sustainable Communities Strategy Technical Report for more detail on the use of these as land use strategies.

TRANSFER OF DEVELOPMENT RIGHTS

Transfer of Development Rights (TDR) is a market-based planning tool to support growth in locally identified "receiving districts" in lieu of growth in identified "sending districts." Receiving districts typically exhibit future infrastructure capacity to absorb development impacts, whereas sending districts often contain fragile habitats, productive agricultural lands, or other unique community features that a jurisdiction may seek to preserve. TDR can be an effective tool to achieve regional growth outcomes and conservation objectives by augmenting and leveraging available public funds and programs, providing permanent protections for important resources, and focusing development in areas that already have infrastructure capacity.

URBAN GREENING

Urban Greening is a multi-benefit land use strategy that improves the relationship between the built and natural environment. Greening can support reduction in GHG emissions by sequestering carbon and reduce VMT by making the environment more appealing for people who are bicycling and walking. Benefits within urban, suburban and rural settings include:

- Improved traffic calming and safety
- Increased active transportation
- Cooler street surfaces and communities
- Increased trail and greenway connectivity
- Improved water quality, groundwater recharge and watershed health
- Reduced urban runoff
- Reduced energy consumption and costs
- Expanded urban forest
- Provision of wildlife habitat and increased biodiversity
- Expanded recreation opportunities and beautification

Urban greening improvements are critical components of Complete Streets and offer a sustainable approach to transportation infrastructure implementation. Ultimately, urban greening can be applied at both the project and programmatic scale to achieve broader community benefits, and can help transform the built environment into enjoyable, healthy and connected places.

GREENBELTS & COMMUNITY SEPARATORS

Greenbelts and community separators can serve as contiguous areas between jurisdictions that support projected regional growth, promote land conservation, and avert unchecked urbanization. These areas can include farmland, floodplains, unique habitats, scenic corridors, viewsheds, or other resources considered valuable to communities. Incorporating greenbelts and community separators into planning initiatives can achieve regional benefits, such as reducing VMT, preserving contiguous spaces for active transportation, restoring severed wildlife corridors, preserving agrarian economies, and reducing costs for infrastructure maintenance. The use of TDR can also help identify and prioritize candidate areas for greenbelts and community separators.



KEY CONNECTIONS

HOUSING SUPPORTIVE

INFRASTRUCTURE

BUILDING FOUNDATIONS FOR NEW HOUSING

The extraordinary cost of producing housing is a significant barrier to growth throughout Southern California, but also specifically, to achieving the level of infill and transit-oriented development anticipated in Connect SoCal. The Regional Housing Supportive Infrastructure strategy will help make it quicker for local jurisdictions to produce critically-needed housing. The costs of building parking, and sewer/water infrastructure through Development Fees can range from 10% to nearly 25% of construction costs. By implementing tax-increment finance districts, jurisdictions can plan and implement housing supportive infrastructure. With the increase in use of ridesourcing, right-sizing parking strategies, enabled by technology, can reduce the overall cost of housing construction in Connect SoCal's Priority Growth Areas.

PROMISING PRACTICES

Affordable Housing Sustainable Communities Program

Projects across Southern California's cities have successfully competed for funding offered through the Strategic Growth Council for construction of affordable housing and supporting infrastructure in areas that are well served by transit and offer promising opportunities for neighborhood scale mobility.

Metro Joint Development Program

LA Metro collaborates with developers to build affordable, transit-oriented housing on Metro-owned properties.

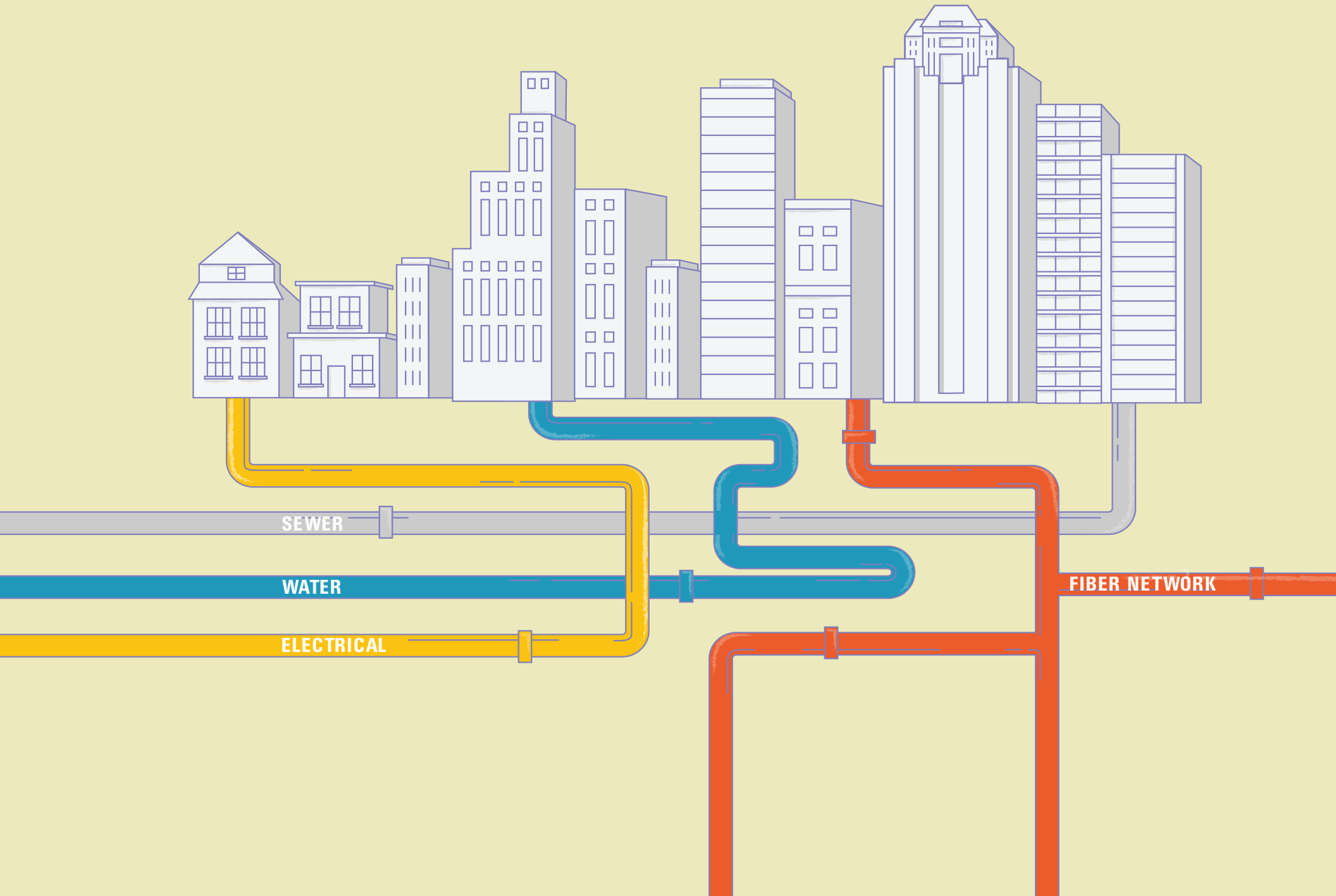
Placentia Enhanced Infrastructure Financing District (EIFD)

Placentia's EIFD will support the neighborhoods surrounding an upcoming Metrolink station by implementing streetscape, sewer and water infrastructure improvements through value capture – paving the way for economic development and reducing the cost of housing construction in this transit oriented locale.

PLANNING FOR 2045

Through legislative and planning efforts, SCAG will advance the vision for accelerated development within transit-oriented communities. Opportunities to be explored and advanced to realize this outcome include:

- **Local Financing Planning Support** – Expand activities to support local agencies in establishing self-help tax-increment financing districts.
- **Parking Requirements Reform** – Support local planning efforts to reduce or eliminate parking requirement to realize potential construction costs savings ranging from \$20,000 for surface parking, \$50,000 for garages and structures, and \$80,000 per space for underground spaces.
- **Local Government Planning Support Grants Program** – Leverage resources allocated to SCAG through AB 101 to support local activities that stimulate development near transit and in priority growth areas.



REGIONAL ADVANCE MITIGATION

To promote the conservation of natural and agricultural lands and restoration of habitats, Connect SoCal includes a new Regional Advance Mitigation Program (RAMP) initiative that will establish or supplement regional conservation and mitigation banks and other approaches to more effectively address impacts for projects that support reduction of per-capita vehicle miles traveled. The initiative will also support long term management and stewardship of mitigated properties.

Transportation, land use and other development projects and programs are often required to reduce their impacts on the environment through mitigation measures. Habitat preservation and restoration is a leading mitigation method, especially for significant transportation projects. Implementing agencies can directly preserve land through acquisitions or they can pay into “mitigation banks” (for wetlands) or “conservation banks” (for listed species) where a qualified land trust, joint powers authority, or governmental agency acquires and manages lands for conservation and restoration. Advance mitigation uses a science-based approach to anticipate and identify mitigation needs for multiple development projects, early in the planning process. By avoiding piecemeal mitigation for individual projects, and by doing so in advance of impacts, this method prioritizes sites with the highest ecological benefits and provide mitigation efficiencies to transportation, land use and other development projects. Advance mitigation can reduce project cost escalations and delays.

Regional advance mitigation planning takes this concept further and establishes inventories of anticipated impacts from transportation projects across the region and an assessment of the region’s sensitive habitats and the conservation actions needed to protect them. As ecological habitats and other conservation elements do not routinely line up with jurisdictional borders, designation of conservation sites can span multiple jurisdictions. In 2017, the California Department of Fish and Wildlife created the Regional Conservation Investment Strategy (RCIS) program to encourage regional approaches for advance mitigation and conservation. The program is a voluntary, non-regulatory conservation assessment and strategy to benefit species and habitats of concern and to provide a more efficient and effective approaches to mitigation and conservation. An RCIS can be used as the basis for advance mitigation and have the benefit of streamlining.

CLIMATE ADAPTATION & MITIGATION

Embedded in Connect SoCal’s growth and conservation strategies is an understanding that climate adaptation and mitigation is critical to supporting an integrated regional development pattern and transportation network. Climate change mitigation means reducing or sequestering GHGs, whereas adaptation is preparing for the known impacts of climate change. The greater the mitigation effort is in the near-term, the less adaptation will be needed in the long-term.

Climate change adaptation planning has become more pressing with each passing year, as the region experiences extreme climate-related events more frequently, such as the destruction of homes and infrastructure, travel congestion, air quality degradation from wildfires, inland flooding, mudslides from torrential rainstorms, coastal flooding from sea level rise, and urban heat island effects from unusually high temperatures. These events have become persistent reminders to local governments, residents, workers and businesses that systematic adaptation and resiliency planning must become a high priority. Since climate stressors also do not follow jurisdictional boundaries, effective management of and adaptation to risks posed by climate change will require cross-jurisdictional coordination and collaboration.

TRANSPORTATION STRATEGIES

The strategies for land use are integrated with transportation strategies to achieve Connect SoCal’s regional goals. Similar to the Growth Vision and Land Use Tools, the transportation strategies build on the Core Vision established during previous planning cycles and are augmented by Key Connection strategies. Progress made in accomplishing the Core Vision and work that lies ahead in realizing Key Connections are highlighted throughout this section. In addition, this section also describes the broader set of transportation strategies being pursued across the region to achieve a coordinated and balanced transportation system, highlighting areas where we’ve made significant progress and opportunities to expand activities to yield an even greater benefit.

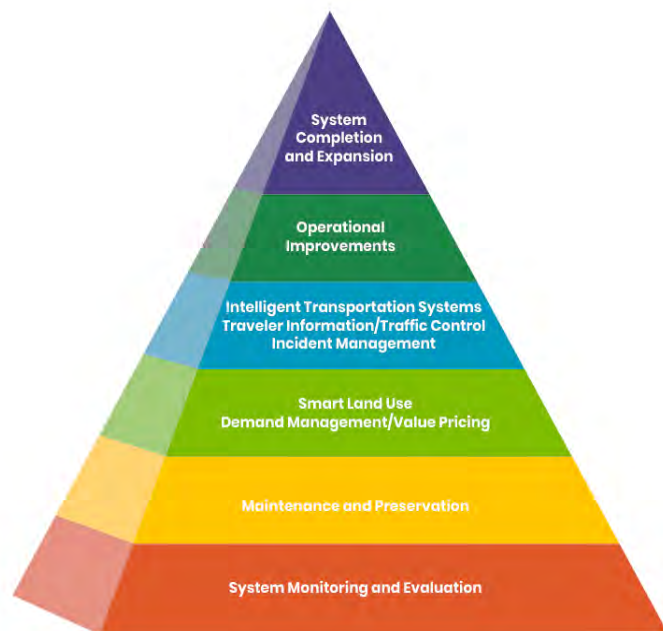
The transportation strategies described in this section are divided into two broad categories: Preserving and Optimizing our current and future system and Capital Improvements by mode for Completing Our System.

In all, Connect SoCal includes \$638.9 billion in transportation system investments through 2045.

PRESERVE & OPTIMIZE OUR CURRENT SYSTEM

Millions of residents rely on our regional transportation system every day. Preserving and maintaining our existing, aging infrastructure assets is fundamental to mitigate growing pressures on the overburdened transportation infrastructure. Consistent with the overarching guiding principles of the System Management Pyramid as depicted in **FIGURE 3.1**, a top priority is to maintain and preserve the transportation infrastructure through a “Fix it First” principle. Funding provided by Senate Bill 1 offers an opportunity to strategically reinvest in the transportation network to realize an improvement in the conditions of the existing system.

FIGURE 3.1 System Management Pyramid



Source: Caltrans

CORE VISION SYSTEM PRESERVATION & RESILIENCE



“Fix it First” has been a guiding principle for prioritizing transportation funding in the RTP for the last decade. The cost of rebuilding roadways is eight times more than preventative maintenance. Preservation of the transportation system can extend the pavement life in a cost effective manner and can also improve safety.

PROGRESS SINCE 2016

Passage of Senate Bill 1 (SB 1) in California in 2017 provides much needed infusion of funding to address these challenges. More specifically, SB 1 is expected to generate over \$52 billion statewide over the next 10 years dedicated primarily to Road Maintenance and Rehabilitation. Most of the new sources that make up SB 1 are indexed to California Consumer Price Index so that the funds keep pace with inflation moving forward. Many roadway improvement/rehabilitation projects, including bridge improvement have been programmed.

PLANNING FOR 2045

Given the magnitude of our need and to enhance resilience in light of climate change, Connect SoCal continues to prioritize funding for system preservation. The plan includes \$68 billion towards preservation, operation and resiliency needs of the state highway system, and \$47.5 billion towards preservation, operation and resiliency needs of the regionally significant local streets and roads.

SCAG will continue to collaborate with federal, state and local partners to monitor the conditions of transportation assets and pursue new research and partnerships to ensure plan resources are deployed to address the region’s greatest vulnerabilities.

A key strategy for system preservation is to include preventative maintenance of roadways as part of project costs and work plans. According to Caltrans' Automated Pavement Condition Survey Report, this strategy of prioritizing routine preventative maintenance to address surface damage on the system is significantly cheaper and more effective compared to major rehabilitation or reconstruction of a majorly damaged road. The timeframe to perform preventative maintenance can be days, while construction of a new roadway can take years, causing more increased inconvenience and congestion on the network as residents use alternate routes not built for such demand. Connect SoCal allocates approximately \$68 billion towards state highway over the plan period to ensure a well maintained and resilient system for generations to come.

MANAGE CONGESTION

Connect SoCal also seeks to optimize the existing transportation system to meet increased demand levels through the use of innovative strategies that leverage the existing transportation infrastructure. The following section discusses transportation strategies to help support preservation and optimization of infrastructure. Physical solutions can include reversible lanes and policy solutions can include congestion pricing concept along with other solutions.

CONGESTION MANAGEMENT PROCESS

The Congestion Management Process (CMP) aims to provide effective management of the regional transportation system through monitoring and maintenance, demand reduction, analysis of local land use decisions, operational management strategies and strategic capacity enhancements. Federal regulations require the development, establishment and implementation of a CMP. Consistent with federal requirements, SCAG implements, monitors and evaluates these actions as part of Connect SoCal. These eight actions are as follows:

- Develop Regional Objectives for Congestion Management
- Define CMP Network
- Develop Multimodal Performance
- Collect Data/Monitor System Performance
- Analyze Congestion Problems and Needs

- Identify and Assess Strategies
- Program and Implement Strategies
- Evaluate Strategy Effectiveness

The CMP requires that roadway projects that significantly increase the capacity for single-occupancy Vehicles (SOVs) be addressed through a CMP. It should provide appropriate analysis of reasonable, multimodal travel demand reduction and operational management strategies for the corridor. If alternative strategies are neither practical nor feasible, appropriate management strategies must be considered for roadway capacity improvement projects that would increase SOV capacity. For more details of this process are included in the 2019 FTIP.

CONGESTION PRICING

Consistent with the mobility pyramid, SCAG's planning efforts have focused on integrating pricing strategies to optimize operation, improve travel time reliability and offer travelers greater choices.

In 2013, SCAG conducted the Express Travel Choices Study, which reviewed a variety of congestion pricing options and their potential applicability to the SCAG region based on mobility, economic and equity impacts. Three promising strategies were identified as noted below, two of which were incorporated into the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

1. Develop a network of express lanes, that connects to existing express lanes in order to accommodate growing inter-county travel
2. Establish a mileage-based user fee to generate a funding source for aging infrastructure and construction of other travel options
3. Develop Cordon/Area Pricing which involves charging a variable or fixed fee to drive into or within a highly congested area

A cordon/area pricing strategy required additional analysis to identify the most promising geographic area and system design for initial testing. Accordingly, SCAG has been engaged in detailed analyses of this concept since the 2016 RTP/SCS.

SCAG examined the potential application of cordon/area pricing in Southern California through its Mobility Go Zone and Pricing Feasibility Study. The study

showed that a Westside Go Zone would reduce VMT by 21 percent and vehicle hours traveled (VHT) by 24 percent during peak travel times, saving \$4 million annually in reduced GHG emissions and generating a net average of \$69.2 million annually in revenues, which would go directly toward transportation improvements, pedestrian amenities and economic development.

SCAG also estimated a 22 percent reduction in single-occupancy vehicles entering the area and an increase in transit trips and bike/walk trips by nine and seven percent, respectively during peak periods. SCAG urged the creation of a pilot project to more deeply test the potential of Mobility Go Zones in reducing congestion and improving air quality.

Bolstered by recent decisions in New York City to move forward with implementing a congestion pricing program by 2021, further studies of cordon/area pricing along with other forms of congestion pricing, are being evaluated by major metropolitan areas throughout the country. Los Angeles is no exception with recent announcements by Metro to evaluate congestion pricing and other user fee strategies.

Connect SoCal assumes the implementation of a local road charge program in the form of mileage-based user fees regionally, which can be adjusted by time-of-day at major activity centers. For analysis, SCAG assumes congestion pricing (peak period charges) in parts of Los Angeles, along with increases in parking pricing at major job centers as a part of the regional job centers strategy.

Overall, the implementation of user-fees and pricing strategies can be structured to increase equity and mobility, and preserve the transportation system, while reducing environmental impacts. Additionally, California's and other states' road charge pilots to date have had high levels of participant satisfaction- even on the issue of user privacy, and surveys show that support for such fees has been steadily increasing.

Because mileage-based user fees are directly linked to system usage, they can more easily address the actual cost of driving and direct funding towards repair and maintenance of the system in accordance with usage, regardless of fuel purchases. Using differential pricing, fees can be balanced to compensate for the lost revenue from alternative fuel penetration and increasing fuel efficiency, while still providing incentives that encourage the adoption of cleaner vehicles,

CORE VISION DEMAND & SYSTEM MANAGEMENT



Better managing the existing transportation system through demand management strategies and Intelligent Transportation Systems (ITS) yields significant mobility benefits in a cost-effective manner.

PROGRESS SINCE 2016

The I-210 Integrated Corridor Management Pilot, a first of its kind in Southern California, integrates management and operation of the freeway with nearby arterials and local transit using real-time monitoring of travel conditions, and improved corridor-wide collaboration to re-direct vehicles during congestion causing incidents.

The California Road Charge Pilot Program is a statewide effort to test the functionality, complexity and feasibility of a road charge system for transportation funding. The pilot demonstrated the feasibility for a variety of technologies to facilitate mileage reporting methods and data collection. Coupled with carefully designed incentives, a road charge is a powerful tool for reducing congestion and supporting our sustainability goals.

In 2018, the Metro board signaled a major change in direction for the former I-710 North capacity project by approving an alternative that focuses on TDM/TSM strategies in this corridor.

PLANNING FOR 2045

Connect SoCal increases investment and strengthens policy levers to optimize system performance while realizing greenhouse gas reduction, quickly and efficiently.

New strategies resulting from SCAG's TDM Strategic Plan provide an objectives-driven, performance-based process to identify and promote TDM strategies and programs across the region. SCAG will pursue implementation of these strategies in coordination with regional and local partners.

SCAG will pursue research and planning as autonomous vehicles emerge in the market, transforming system management opportunities.



KEY CONNECTIONS GO ZONES

CLAIMING BACK TIME FROM YOUR COMMUTE

Go Zones are geographic areas where a suite of mobility service options are provided together with incentives to reduce dependency on personal automobiles. This expanded mobility ecosystem can include increased transit, bike share, enhanced active transportation infrastructure and incentives—such as a fee on solo driving during peak traffic periods. Incentives would encourage the use of shared modes or shift less time sensitive trips to off-peak times. Revenues collected from the fee would be used to fund local transportation improvements and support sustainability goals by contributing to reductions in GHG emissions. Go Zones can be designed with policies and discounts that address equity concerns and promote mobility options for commuters of various income levels.

PROMISING PRACTICES

100 Hours

Public engagement campaign to turn traffic hot spots into models of mobility

SCAG Mobility Go Zone & Pricing Feasibility Study

The Mobility Go Zone & Pricing Feasibility Study evaluates congestion pricing and the range of impacts on traffic volumes, transit ridership, air quality and availability of funds for transportation programs.

Evaluating parts of the Cities of Los Angeles and Santa Monica, the study estimates a 21% to 22% decrease in VMT and 24% decrease in VHT within the study area during peak periods. Transit usage and bicycling/walking trips increase by 9% and 7%, respectively. Annual average net revenue of \$69.2 million would be generated to offer additional resources for local reinvestment.

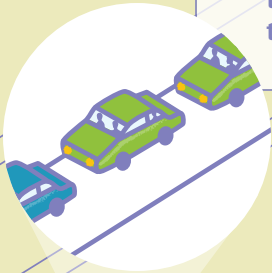
PLANNING FOR 2045

To foster adoption of Go Zones envisioned by Connect SoCal, SCAG will pursue research and partnerships, including:

- **SCAG Mobility Innovations & Incentives Pilot Program** – design and conduct pilot tests to further assess equity impacts and likely changes in travel behavior
- **Joint MPO Road Usage Charge & Incentive Program Pilot Tests** – develop and test a common core road usage charge and incentive pilot
- **Metro Traffic Reduction Study** – SCAG will partner with Metro to analyze and identify a place or places where congestion pricing can be tested along with a package of mobility improvements

GO ZONE
CARS \$2.00-\$4.00
6:00 AM - 9:00 AM
CARPOOLS FREE

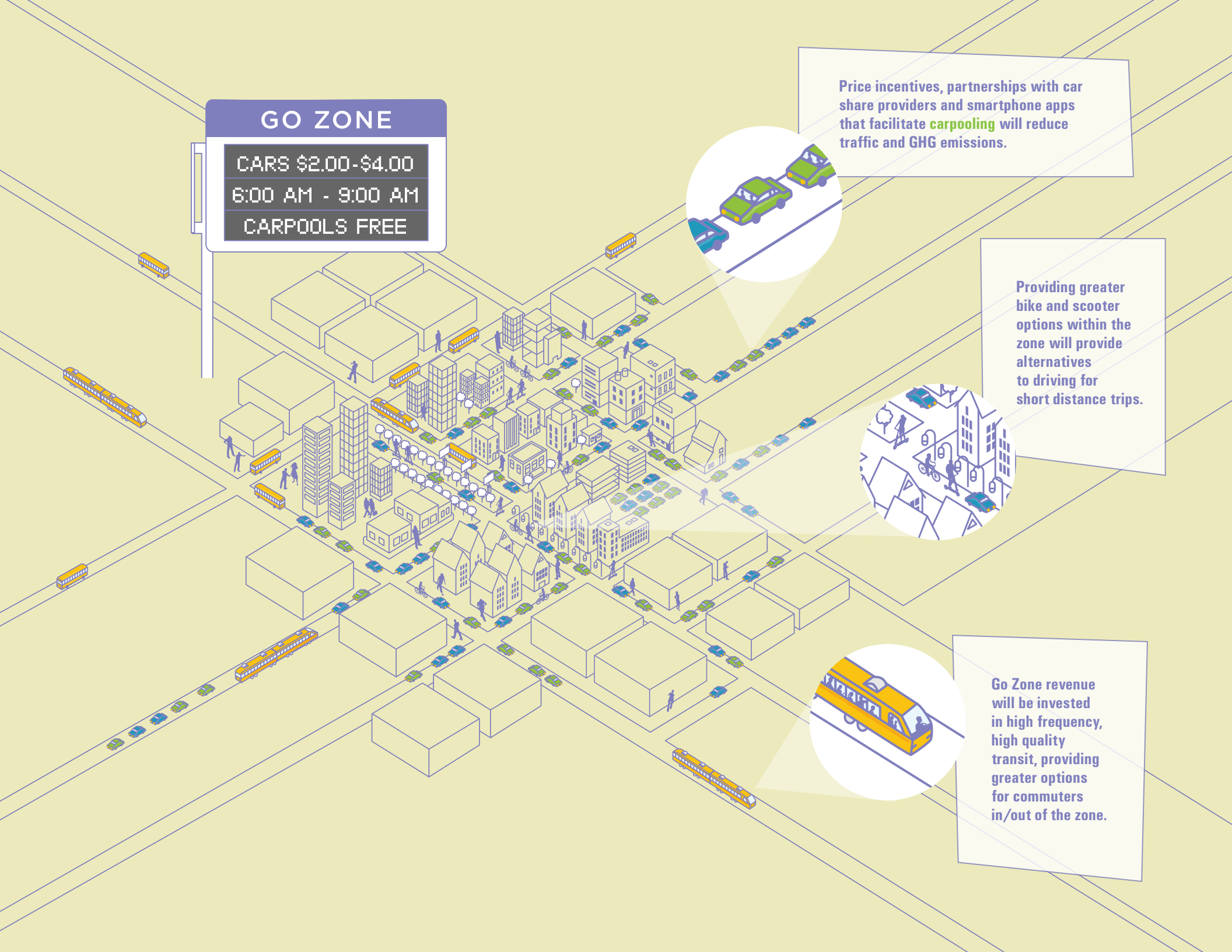
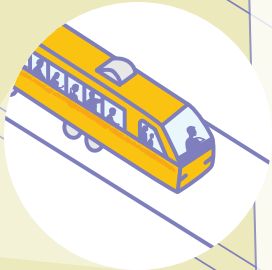
Price incentives, partnerships with car share providers and smartphone apps that facilitate **carpooling** will reduce traffic and GHG emissions.



Providing greater bike and scooter options within the zone will provide alternatives to driving for short distance trips.



Go Zone revenue will be invested in high frequency, high quality transit, providing greater options for commuters in/out of the zone.



and protecting user privacy. Additionally, differential pricing can be structured to encourage the use of more sustainable modes of transportation.

A mileage-based system can also assuage environmental justice concerns inherent in the regressive gas tax. Environmental justice was a focus of the California Road Charge Pilot Program, and 73 percent of participants reported that they thought user fees were fairer than a gas tax. Looking forward, alternative fuel technologies are likely to remain expensive compared to conventional vehicles, and it is likely that low-income residents will be paying a higher proportion of transportation taxes through continued purchase of gasoline. Linking fees more directly with system usage would reduce the burden on disadvantaged residents and could even be structured to enhance overall mobility.

TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a set of strategies that aims to reduce the demand for roadway travel, particularly from SOVs. TDM investments can reduce congestion and shift trips from SOVs to other modes in ways that often cost significantly less than roadway or transit capital expansion projects. TDM strategies add transportation choices that improve sustainability, public health and the quality of life by reducing congestion, air pollution and GHG emissions. When transit ridership, carpooling, bicycling and walking increase, the efficiency of the entire transportation system improves, bringing many benefits to the region. These benefits can justify relatively modest public expenditures on effectively implemented TDM programs. Connect SoCal allocates \$7.3 billion through 2045 to implement TDM strategies throughout the region. There are three primary goals of this program:

- Reduce the number of SOV trips and per capita VMT through ridesharing (which includes carpooling and vanpooling) and providing first/last mile services to and from transit
- Redistribute or eliminate vehicle trips during peak demand periods by supporting telecommuting and alternative work schedules
- Reduce the number of SOV trips through use of other modes such as transit, rail, bicycling, and walking, or other micro-mobility modes

In 2018, SCAG initiated a study to develop a TDM Strategic Plan to identify ways in which SCAG and its regional partners can expand the effectiveness and use of TDM strategies to achieve regional goals. The resulting recommendations

address knowledge sharing, policy and regulation, partnership, and TDM programming and performance measurement, and are included in more detail in the Congestion Management Technical Report and the TDM Strategic Plan.

TRANSPORTATION SYSTEMS MANAGEMENT

Transportation Systems Management (TSM) employs a series of techniques designed to maximize the capacity and efficiency of the existing transportation system. Effective TSM strategies reduce traffic congestion, improve air quality and reduce or eliminate the need to construct new and expensive transportation infrastructure. Many TSM strategies seek to optimize the operation of the existing transportation system through use of Intelligent Transportation Systems (ITS). For example, advanced technologies can anticipate changing traffic conditions and inform drivers about driving conditions on a real-time basis so that drivers can make more informed decisions. SCAG recently updated the Regional ITS Architecture which identifies a significant number of planned ITS projects, including those related to connected vehicle applications, transit signal priority, emergency response, express lanes and goods movement.

Examples of TSM strategies include Corridor System Management Plans (CSMPs) and system management initiatives (e.g., variable speed limits, signal synchronization, ramp metering, etc.), High Occupancy Toll (HOT) lanes, collision avoidance systems, universal transit fare cards and improved data collection.

COMPLETING OUR SYSTEM

Strategies for improving and expanding the many modes of transportation that make up the regional network must be integrated closely with our strategies for how we use land. The success of transit, passenger rail, walking, bicycling and other forms of active transportation, our highways and arterials, the efficient movement of goods and our regional airport system all depend on a close relationship with how our region uses land and how we grow. This is particularly true when it comes to improving and building a transit system that can best serve people in communities throughout our region. It is the first transportation category for which numerous strategies are reviewed.

TRANSIT

The Southern California vision for transportation and transit was developed via a cooperative, comprehensive and continuing process where local agencies work with their county transportation commission and with SCAG to identify a program of projects that will deliver a local vision of increased mobility and accessibility, and support Connect SoCal goals including congestion reduction and sustainability. Transit serves as both a key component of local, regional and state efforts to combat climate change and reduce congestion, and as a critical social service. It is a way of providing mobility for individuals who cannot provide it for themselves, especially those who do not have access to automobiles, are very poor, recent immigrants, and the elderly and disabled. It also can provide an alternative to SOVs and could serve as the backbone of a multimodal transportation system with an integrated trip planning and payment system, as part of the MaaS concept.

Since 1991, the region has spent over \$77 billion on transit (in 2016 dollars). This trend is expected to continue, as the combined costs for transit capital projects and operations and maintenance (O&M) total nearly half of the investments in Connect SoCal. The plan includes significant investment across all transit modes, with \$66.8 billion toward transit capital projects and \$173.9 billion for transit O&M. **TABLE 3.1** displays selected major transit capital projects included in Connect SoCal, while the map in **EXHIBIT 3.1** displays the 2045 plan transit network.

When these planned transit projects are completed, the region will have a greatly expanded urban rail network, including multiple Metro Rail extensions and the first urban rail services in Orange County (OC Streetcar) and San Bernardino County (Redlands Rail/Arrow). New bus rapid transit and rapid bus routes will be implemented across Los Angeles, Orange, Riverside and San Bernardino Counties. Riverside County will extend Metrolink to San Jacinto/Hemet and San Bernardino County will connect via Metrolink to Ontario International Airport.

Other ongoing regional efforts may result in changes to the transit investments in Connect SoCal. SCAG will monitor these efforts and adjust Connect SoCal accordingly through a future amendment, if needed. These efforts include Metro's Twenty-Eight by '28 Initiative, which seeks to complete 28 major projects approved by the Metro Board by the 2028 Summer Olympic and Paralympic

CORE VISION TRANSIT BACKBONE



Expanding the transit network and fostering development in transit-oriented communities is central to the region's plan for meeting mobility and sustainability goals while continuing to grow the regional economy.

PROGRESS SINCE 2016

Major urban rail projects under construction:

- Metro Rail Regional Connector and Crenshaw/LAX lines
- OC Streetcar
- Arrow / Redlands Rail

Metrolink achieved record ridership levels in fiscal year 2018–2019, almost 12 million annual boardings.

Regional agencies have committed to major bus system redesigns including OC Bus 360 and the Metro NextGen Bus Study.

Microtransit pilots and partnerships with Transportation Network Companies are being implemented to provide additional options connecting to fixed route transit and rail.

PLANNING FOR 2045

Connect SoCal builds upon extensive local investment in the transit and rail network by increasing resources for frequent and reliable bus service and closing gaps in the fixed guideway system.

Regional collaboration to implement Metrolink's Southern California Optimized Rail Expansion (SCORE) and complete the Link Union Station (LinkUS) to transform Los Angeles Union Station from a "stub-end" station, to a "run-through" will reduce rail travel times across the system and allow one-seat rides to many more destinations.

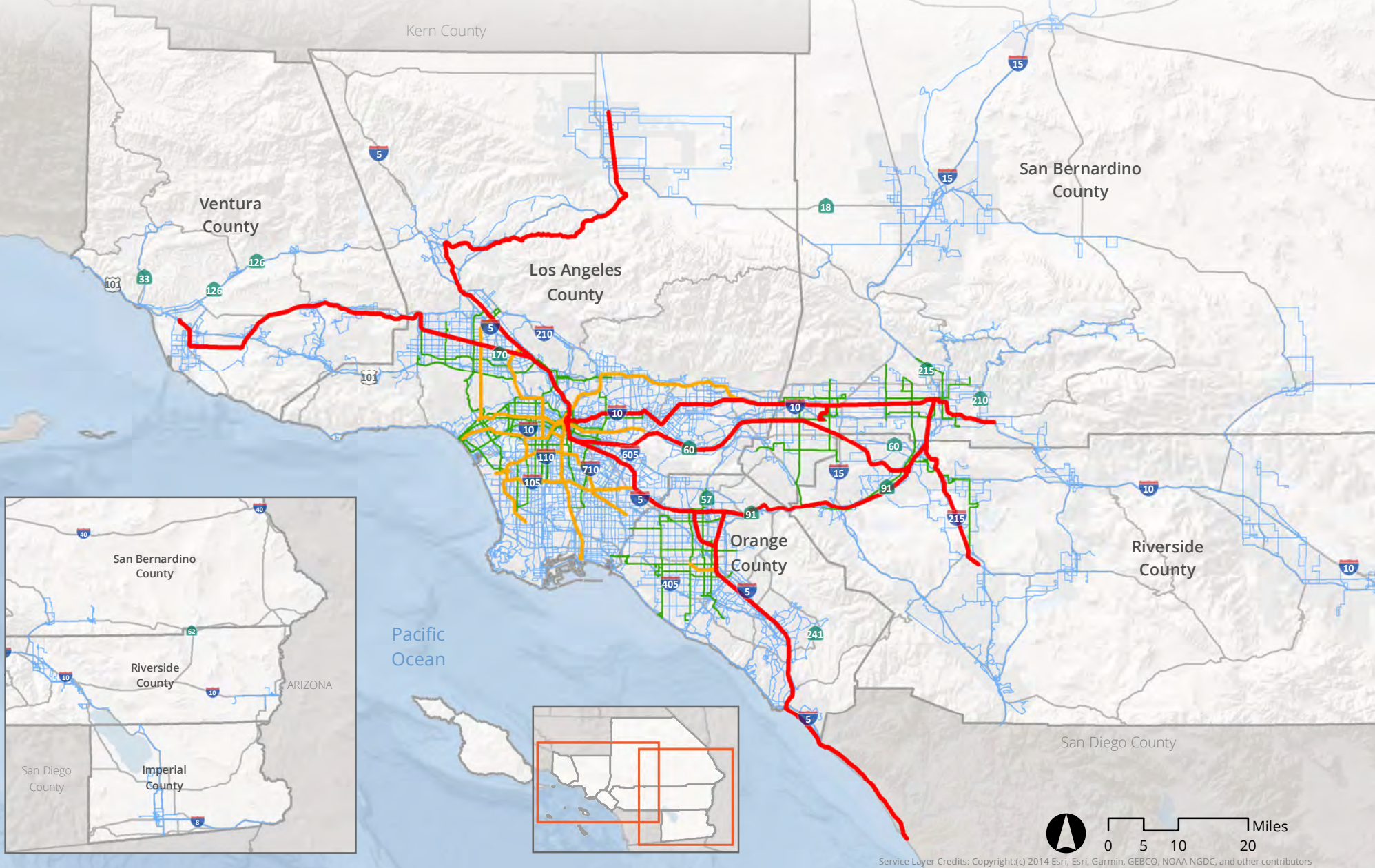
SCAG-supported plans and pilot projects to address first-last mile challenges will be essential to improving the transit experience and expanding access to jobs and destinations.

TABLE 3.1 Selected Transit Capital Projects

County	Project
Los Angeles	Airport Metro Connector
Los Angeles	BRT Connector – Orange/Red Line to Gold Line
Los Angeles	Crenshaw/LAX Transit Corridor
Los Angeles	Historic Los Angeles Streetcar
Los Angeles	East San Fernando Valley Transit Corridor
Los Angeles	Gold Line Eastside Extension Phase 2 to South El Monte
Los Angeles	Gold Line Foothill Extension – Azusa to Claremont
Los Angeles	Green Line Extension to Torrance
Los Angeles	LAX Automated People Mover
Los Angeles	North San Fernando Valley Transit Corridor
Los Angeles	Orange Line BRT Improvements
Los Angeles	Purple Line Westside Subway Extension to La Cienega, Century City, Westwood
Los Angeles	Regional Connector
Los Angeles	Sepulveda Pass Transit Corridor (Phase 2)
Los Angeles	Vermont Transit Corridor
Los Angeles	West Santa Ana Branch Transit Corridor
Los Angeles	Green Line Extension to Norwalk/Santa Fe Springs Metrolink Station
Los Angeles	Red Line Extension to Hollywood Burbank Airport
Los Angeles	Slauson Light Rail – Crenshaw/LAX Transit Corridor to Blue Line
Orange	OC Streetcar
Orange	OC Transit Vision
Riverside	Coachella Valley Quick Bus
Riverside	Rapid Commuter Corridor from Perris to San Jacinto
Riverside	RapidLink Service – Riverside, Moreno Valley, Perris
San Bernardino	Redlands Passenger Rail
San Bernardino	West Valley Connector Phase 1
San Bernardino	Gold Line Extension to Montclair
San Bernardino	Passenger Rail Service from San Bernardino Metrolink Line to Ontario Airport

Source: SCAG

EXHIBIT 3.1 2045 Plan Transit Network



↗ Metrolink (2045)
 ↘ Urban Rail (2045)
 ↗ Rapid Bus and Bus Rapid Transit (2045)
 ↘ Bus Routes (2045)

Note: Planned project alignments shown on this map are not intended to represent preferred alternatives where local planning and environmental processes are still ongoing. Maps provided in future updates to Connect SoCal will reflect locally preferred alternatives, once they are formally adopted by the local lead agency.

Source: SCAG, 2019

Games. Additionally, Metro's NextGen Bus Study seeks to redesign the bus network to be more relevant and attractive to the residents of Los Angeles County. Finally, the California Air Resources Board (ARB) Innovative Clean Transit Rule requires that transit agencies convert to Zero Emissions Bus Fleets with bus rollout plans due from larger transit operators in June 2020.

Transit agencies are also piloting improvements using emerging technologies and innovations. Metro is in the process of upgrading its TAP card program regional system and unified payment across multi-modal programs. Metro's TAP system now integrates transit and bike share, with the potential for future integration of Express Lanes and electric vehicle car share, forming the foundation for a regional MaaS system. The system also allows for providing incentives and cross-program discounts. At the state level, the California State Transportation Agency is leading an initiative called the California Integrated Travel Project (Cal-ITP) to facilitate multimodal trip planning and payment to support state goals of increasing transit ridership, reaching environmental targets, lowering costs, creating efficiencies, improving customer experience and promoting equity. Current efforts focus on incentivizing statewide trip planning and fare payment standards and other integrated travel improvements over time. A future phase will involve a multi-agency pilot of integrated travel planning and fare payment.

In the SCAG region, several operators are piloting microtransit services, which typically involve smaller vehicles, flexible routing, on-demand dispatch and public-private partnerships. Research has shown that microtransit services are not very productive, carrying on average three to five passenger trips per vehicle per hour. Microtransit therefore may be best suited to serve lower-demand areas, acting as part of an array of services that include fixed route transit, TNCs, and other shared mobility services. Agencies conducting microtransit pilots in the SCAG region include OCTA (OC Flex), the City of Los Angeles Department of Transportation (LANow), LA Metro (Mobility on Demand pilot with Via), and Anaheim Transit Network (Free Ride Around the Neighborhood). Data and results from these pilot projects will inform future planning for microtransit in the region.

Over the last 10 years, one of the leading new mobility practices has been ridesourcing. This practice marries the taxi model with mobile and GPS applications to provide on-demand point-to-point service. Use of these TNC services, particularly those offered by Uber and Lyft, has grown exponentially

and as the TNC business model evolves, the impacts will be felt across Southern California. One of the ways that transit providers or local jurisdictions are responding to that growth is by partnering with Uber, Lyft, and other companies to provide first/last mile services or replace low performing bus routes. Examples within the SCAG region include Go Monrovia, a partnership between the City of Monrovia and Lyft that provides subsidized rides including discounted rides to/from the Foothill Gold Line station, and a partnership between the City of San Clemente and Lyft in South Orange County in an area where OCTA discontinued two bus routes.

With respect to connected and automated vehicle applications, a new generation of transit navigation aids is emerging. Many private and public sector parties are currently testing automated passenger vehicles and trucks, and the capabilities range from driver assist to fully automated operations. Automated transit systems are still in the research phase and are supported by the FTA's Office of Research, Demonstration and Innovation and a five-year Strategic Transit Automation Research Plan. Automated services may be tested in closed environments such as university and hospital campuses through the horizon of Connect SoCal and may enter into service in open environments before 2045. SCAG's recently updated Regional ITS Architecture identifies planned projects such as connected vehicle applications, integrated corridor management and transit signal priority expansion.

PASSENGER RAIL

The 2020 Connect SoCal vision for passenger rail in the SCAG region consists of four main elements:

Grow Ridership: Although ridership on commuter and intercity rail services has steadily grown over the last two decades, there is still tremendous potential to significantly increase ridership in the region.

Provide More Frequent and New Services: Providing more frequent rail service will attract new riders to passenger rail. Currently, commuter rail service in Southern California is much less frequent than commuter rail services elsewhere in the nation. There are also several unserved passenger rail markets that would greatly benefit from the establishment of new rail service.

Improve Connectivity: While progress has been made in connecting passenger rail services to other existing transit in our region, more needs to be done to coordinate schedules and connections. Also, more progress must be made in first/last mile connections to rail stations, and station area planning and transit oriented development.

Secure Funding: New funding opportunities have been created since the 2016 Connect SoCal, such as the first dedicated source for rail operations at the state level. However, passenger rail funding in the region is still incremental in nature and to grow ridership via increased service levels, more long-term state and federal financing needs to be identified.

Several strategies in Connect SoCal are designed to increase rail ridership in our region by making rail travel more attractive as an alternative to commuting alone by car. These strategies address three distinct rail markets and the carriers can serve multiple travel markets:

- Metrolink – Commuter Rail
- Amtrak – Intercity Rail
- California High-Speed Rail and Southern California to Las Vegas – Interregional Rail

First, the Metrolink Southern California Optimized Rail Expansion (SCORE) program expands the capacity of the commuter rail system to ensure more regular and frequent service throughout the entire day. Capital investments for SCORE include construction of:

- Construction of additional tracks (e.g., sidings, double track, triple track and quadruple track segments)
- Improved signaling
- Expanded and lower emissions fleets
- Upgraded and enlarged maintenance facilities
- Grade crossing treatments and separations
- Fencing and safety features
- Features to support readiness for quiet zones
- Required asset rehabilitation to sustain capacity

SCORE includes the Link Union Station (Link US) project, which will transform the region’s largest multi-modal transportation hub at Los Angeles Union Station by extending rail tracks over the US-101 freeway. With Link US,

SCORE will greatly improve regional rail by providing through service at Union Station, reducing rail travel times in our region and allowing “one-seat ride” opportunities to many more destinations.

Second, the Los Angeles-San Diego-San Luis Obispo (LOSSAN) Rail Corridor Strategic Implementation Plan lays out a long-range vision for customer and capital improvements that increase the speed and quality of service. The latest LOSSAN Rail Corridor Agency Business Plan (FY 2018–19 to FY 2019–20) highlights several significant strategies for improvement such as train monitoring, train and connecting bus schedule adjustments, improved connectivity with local transit services, equipment and crew utilization, response to service disruptions and service planning. The LOSSAN plan calls for improvements along the corridor to provide more service, including 13 daily round trips between Los Angeles and San Diego, six round trips between Goleta and Los Angeles and three round trips between San Luis Obispo and Los Angeles.

Third, voters approved in 2008 the Proposition 1A bond measure providing \$9.95 billion for the California High-Speed Rail project. Phase 1 will connect San Francisco to Los Angeles and Anaheim at speeds of up to 220 miles per hour, completing the trip within two hours and forty minutes. Segments in the SCAG region connect the Central Valley to Palmdale, Hollywood Burbank Airport, Los Angeles Union Station, and Anaheim. As described in the 2018 Business Plan and 2020 Draft Business Plan, Phase 1 will begin service in 2033.

In 2012, the Regional Council entered into a memorandum of understanding (MOU) with the California High-Speed Rail Authority (CHSRA), Metrolink, San Diego Association of Governments (SANDAG), Metro, Riverside County Transportation Commission (RCTC), and the City of Anaheim to include Phase 1 in the 2012 RTP/SCS and commit \$500 million in Prop. 1A funds to early investments in Southern California’s existing passenger rail system. The funding agreement for the Rosecrans/Marquardt grade separation project to receive \$76.7 million in Prop. 1A funds was executed in 2018. In September 2019, the CHSRA, Metro and the California State Transportation Agency (CalSTA) executed an MOU which established a commitment for these agencies to work together cooperatively to execute a full funding agreement for the remaining \$423.3 million for the LINK US project.

Finally, the Southern California to Las Vegas high-speed rail project was environmentally cleared under XpressWest and the Federal Railroad Administration (FRA) issued a record of decision on July 8, 2011. XpressWest is now in the process of planning, constructing and operating this service, which is expected to be privately financed.

ACTIVE TRANSPORTATION

With its temperate climate and wide array of stunning natural and built environments, the SCAG region holds great potential for active transportation initiatives. Walking (inclusive of people using personal mobility devices) and bicycling are accessible forms of transportation for people of all ages, abilities and socioeconomic backgrounds. Communities that are built to support walking and bicycling trips tend to be healthier and are safer for people using all modes of transportation. Likewise, the implementation of infrastructure and development of plans and programs increases the number of people walking and bicycling and decreases the number of people driving. This will improve health outcomes and reduce GHG emissions in the region.

Connect SoCal is expected to increase the number of daily active transportation trips by more than two million, increasing the mode share from 7.8 percent in 2016 to 10 percent by 2045. In order to achieve these outcomes, planned future investments are nearly doubled from \$12.9 billion in the 2016 RTP/SCS to \$22.5 billion in Connect SoCal. The active transportation investments in Connect SoCal are allocated across a range of active transportation strategies that address planning, policy making and implementation for both short and regional trips. Additionally, they are designed to improve environmental justice outcomes and enhance the safety and comfort of people walking and bicycling.

Since the adoption of the 2016 RTP/SCS planning efforts throughout the region have expanded significantly. Nearly 80 percent of the cities in the SCAG region now have completed some sort of active transportation plan, bringing the regional total to more than 300 pedestrian, bicycle and safe routes to schools plans. This is a 40 percent increase from 2016. Likewise, every county in the SCAG region now has a county-wide pedestrian, bicycle and/or active transportation plan (ATP) or is in the process of completing one. Some of these include the Imperial County Active Transportation Plan (2019) and Pedestrian Master Plan currently in progress, the Los Angeles County Active Transportation Strategic Plan (2016), Orange County's OC Active (2018), the Western Riverside

Council of Governments Active Transportation Plan, the San Bernardino Non-Motorized Transportation Plan (2018) and the Ventura County Regional Bikeway Wayfinding Plan (2017). Through Connect SoCal, SCAG's Sustainable Communities Program and other statewide funding sources, additional planning funding will be available to continue this progress and to plan for more active communities across the region.

In addition to development of a robust set of plans, the region has seen significant positive changes to our built environment as active transportation projects have been implemented. Almost 500 bikeway miles have been built in the region since the 2016 RTP/SCS. These efforts are dispersed across the region, with a focus on projects that improve active transportation mode share and safety for disadvantaged communities. SCAG has worked closely with impacted communities and partnered with community-based organizations to ensure that plans and projects are designed to best address the issues that people walking and bicycling in each community face. Some noteworthy active transportation projects initiated or implemented since 2016 include:

Coachella Valley Link: A multi-use trail in the Coachella Valley which is expected to facilitate more than 3 million active transportation trips per year by 2035.

El Centro 8th Street ATP Project: The El Centro 8th Street ATP-funded project is significant in part due to the positive impact of a Go Human demonstration project. The partnership allowed the City to showcase potential improvements and solicit community feedback and support, which helped see the project to implementation.

Venice Boulevard Great Streets: Mar Vista's Venice Boulevard Great Streets project enhanced pedestrian and bicycle safety, and promoted place-making through community art installations. The one-year evaluation report highlights how infrastructure investments, such as new signalized crossing locations and protected bike lanes, resulted in an 11 percent increase of active transportation users, a 75 percent reduction of collisions at its busiest intersection and a decrease in bicyclist injuries, all while supporting the same traffic volumes and promoting a vibrant downtown core.

Connect SoCal includes a wide variety of infrastructure projects that will support short and regional active transportation trips. These strategies will

reduce automobile vehicle miles traveled by increasing the number of trips accomplished by walking, bicycling and the use of micro-mobility devices. These strategies include building physical infrastructure such as local and regional bikeways, sidewalk and safe routes to schools pedestrian improvements, regional greenways and first-last mile connections to transit. In addition to reducing vehicle miles traveled, these strategies will improve air quality and public health by reducing emissions and increasing levels of physical activity. Finally, they will have a positive economic impact on the region by reducing transportation and healthcare costs.

Since the 2016 RTP/SCS there has been a significant change in technology and the way that it influences travel behavior. The growth in popularity of micro-mobility in the past few years necessitated the inclusion of strategies in Connect SoCal to address shared mobility infrastructure and regulation frameworks to ensure that new technologies can be used safely and responsibly. These strategies range from incentives for the purchase of e-bikes, to the distribution of private micro-mobility devices that help ensure access for low-income communities. While it is expected that many of these devices will be provided through the private sector, they will still use public streets and will likely increase demand for separated facilities that are safe for all ages and abilities. Local jurisdictions will likely be tasked with the regulation of these devices and will need to manage the locations where they will be stored and where they can be ridden.

New technology also has the potential to provide local partners with more and better travel behavior data. SCAG and member jurisdictions should support the procurement and development of new data sources for active transportation. This will include the collection of pedestrian, bicycle and micro-mobility volume data, as well as the integration of large data sets. Local cities, county agencies, public health departments and other stakeholders will all benefit from better data sets that provide information on traffic stress, accurate collision rates and information on the types of people using these modes. In addition, zoning codes and general plan elements should be updated when appropriate to support short trips and end-of-trip facilities such as bicycle parking.

Recent developments regarding micro-mobility and personal e-bikes and scooters have shown that new shared mobility benefits from the same programmatic and infrastructure improvements as traditional active transportation. Complete streets, which are planned, designed, operated and

CORE VISION COMPLETE STREETS



Creating “complete streets” that are safe and inviting to all roadway users is critical to increasing mobility choices, reducing traffic fatalities and serious injuries and meeting greenhouse gas reduction targets.

PROGRESS SINCE 2016

In December 2018, the City of Santa Ana opened its first protected bikeway, or cycletrack. The project, funded by OC Go (Orange County Measure M), features a 6-foot wide bikeway protected from vehicle traffic by a landscaped median. About 55 percent of the surrounding community doesn’t have access to a car. Santa Ana has been awarded about \$45 million in grant funding for projects like this one that improve safety for people walking and biking.

In the City of Los Angeles, the Mobility Plan 2035 advances the complete streets concept beyond a single project by prioritizing multi-modal networks including a Bicycle Enhanced Network, Transit Enhanced Network, Vehicle Enhanced Network and Pedestrian Enhanced Districts.

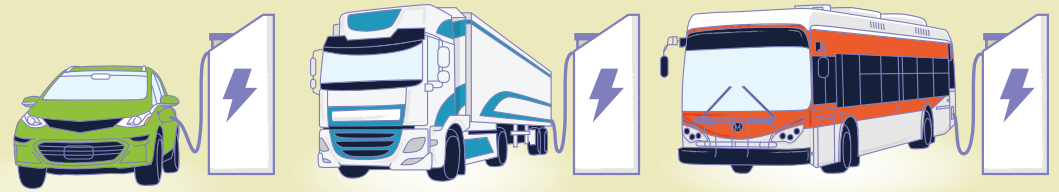
PLANNING FOR 2045

Connect SoCal invests in local streets and arterials and anticipates continued success in securing grant funds for regionally significant projects through programs like the California Active Transportation Program (ATP).

By expanding complete streets concepts to accommodate and optimize new technologies and micro-mobility devices, first-last mile connections to transit and curbside management strategies, the region will achieve even greater mode shift and reductions in VMT. SCAG champions Complete Streets policy implementation throughout the region with the Go Human campaign and a range of planning resources, including the Regional High Injury Network. Specific strategies and actions related to Complete Streets are detailed in the Active Transportation Technical Report.



KEY CONNECTIONS ACCELERATED ELECTRIFICATION



CLEAN VEHICLES, CLEANER AIR

The Accelerated Electrification strategy offers a holistic and coordinated approach to de-carbonizing or electrifying passenger vehicles, transit and goods movement vehicles. Through greater coordination and deeper collaboration, this strategy aims to go beyond benefits achieved through state mandates alone. In the light-duty sector, Connect SoCal plans for greater incentives to increase sales of electric vehicles and strategies to increase the availability of charging infrastructure. Electric vehicles (EVs) currently make up only seven percent of new car sales, but the growth is healthy: In 2013 EVs made up just 2.4 percent of all new car sales statewide. For transit, in 2018 the California Air Resources Board voted to mandate purchases of electric buses. We can facilitate that process by working with transit agencies to ensure adequate charging stations and electricity rates. In the goods movement sector, the goal is to achieve a zero-emissions system, fostering early adoption of near-zero-emissions technologies.

PROMISING PRACTICES

LACI- Los Angeles Cleantech Incubator

Public private partnership among local, regional, and state stakeholders to accelerate transportation electrification and zero emissions goods movement in SCAG region.

SCAG PEV Atlas & Clean Cities Coalition Outreach

Five Department of Energy certified coalitions advance alternative fuels and fuel technologies in the region by building partnerships, creating tools and disseminating resources from the National Laboratories. Successful coalition initiatives across the region include SCAG's Plug-in Electric Vehicle Atlas, the AltCar Expo, and the deployment of thousands of municipal alternative fuel vehicles.

Regional Transit Agency Electric Buses

Sunline Transit, Foothill Transit pioneered the purchase of hydrogen and battery electric busses

PLANNING FOR 2045

Connect SoCal aims to align and catalyze investments to decarbonize the transportation system. Opportunities to be explored and advanced through studies and regional planning include:

- **Regional EV Charging Station & Vehicle Rebate Programs**
Provides financial incentives for local communities to install charging stations & for individuals to purchase EVs
- **EV Charging Station Streamlining**
Working with member agencies to streamline the process of permitting and installing new charging stations.
- **Innovative Clean Transit Rule**
Facilitating the transition of transit fleets in the region to 100 percent electric vehicles.

maintained for safe, convenient, and comfortable travel and access for users of all ages and abilities, will support people who are walking, bicycling, and using micro-mobility devices. A variety of engagement strategies will need to be implemented alongside infrastructure components to support active transportation, in whatever form it takes. This engagement can take the form of Safe Routes to School programs designed to encourage students to walk and bicycle to school, SCAG's Go Human advertising campaigns to encourage the public to walk and bicycle more, or the demonstration of possible new infrastructure to get communities excited about changing their streets.

TRANSPORTATION SAFETY

Connect SoCal prioritizes the safety and mobility of the region's residents, including drivers and passengers, transit riders, pedestrians, and bicyclists. To adhere to MAP-21/FAST Act performance measures requirement, SCAG adopted its annual regional safety targets in February 2020. For the year 2020, SCAG is aiming to reduce fatalities by a minimum of 3.03 percent and serious injuries by a minimum of 1.5 percent. To enhance safety in the region, SCAG anticipates providing cities with resources to develop safety plans and help achieve the safety targets.

SCAG's safety strategies are largely grounded in the State's Strategic Highway Safety Plan (SHSP), which helps member agencies interested in pursuing safety initiatives and strategies at the local level. SCAG outlines detailed strategies and actions that local jurisdictions and county transportation commissions can undertake to enhance safety in our region in the Transportation Safety and Security Report. The strategies are supportive of the Strategic Highway Safety Plan and include:

1. Reduce Aggressive Driving and Speeding
2. Improve Safety for Aging Populations:
3. Improve Bicyclist Safety
4. Improve Commercial Vehicles Safety
5. Ensure Drivers are Licensed
6. Improve Emergency Response Services
7. Leverage Emerging Technologies
8. Reduce Impaired Driving Fatalities
9. Reduce Distracted Driving

10. Improve Safety at Intersections
11. Reduce the Occurrence of Lane Departure Fatalities
12. Improve Motorcycle Safety
13. Improve Occupant Protection by Increased Use of Seat Belts and Child Safety Seats
14. Improve Pedestrian Safety
15. Improve Work Zone Safety
16. Improve Safety for Young Drivers

To achieve regional safety targets SCAG will:

- Develop and maintain a High Injury Network (HIN) mapping tool to support planning efforts related to transportation safety by our local partners
- Work with local jurisdictions to provide active transportation safety education opportunities through its Go Human campaign
- Continue to represent Southern California on the California SHSP Steering Committee, the California Walk Bike Technical Advisory Committee, the Active Transportation Program Technical Advisory Committee and active transportation emphasis areas
- Support regional safety efforts including the development of Vision Zero policies and plans
- Support bicycle and pedestrian safety as part of SCAG's Sustainable Communities Program
- Analyze shared use of sidewalks between different modes (bicyclists, pedestrian's e-scooters) and the impacts on personal safety (e.g. dockless devices blocking foot traffic or other conflicts when riding near pedestrians)
- Advocate for funding strategies that reflect unique local needs

HIGHWAY & ARTERIAL NETWORK

Southern California's highway and arterial system functions as the backbone of the larger transportation network. Most trips in our region are still made on our highways and arterials. The network provides access to employment, health, social and educational services among others. Yet, expansion of our highways

and arterials has slowed down over the past decade. Building new roads is no longer accepted as the only solution to our congestion challenges, partly due to lack of funding and challenging environmental and community concerns. However, given that critical gaps and congestion choke points still exist in the system, improvements beyond those that are operational in nature still need to be considered. Connect SoCal includes capital improvements that will address the choke points and gaps in the system, to ensure the system is operating optimally and provides adequate and equitable access to opportunities.

SCAG works with partner implementing agencies to prioritize projects that preserve and optimize the existing highway and arterial network. A sample of major committed projects included in Connect SoCal are highlighted in **EXHIBIT 3.2** and **TABLE 3.2**. Projects include interchange improvements, auxiliary lanes, general purpose lanes, carpool lanes, toll lanes and Express/HOT lanes. The complete list of projects can be found in the Project List Technical Report. In addition to the financially constrained list (projects for which funds are identified in the plan) of projects, the Project List Technical Report also contains an unconstrained list of projects, also known as strategic projects, for illustrative purpose. Strategic projects are those projects that the region believes merits future consideration for inclusion in the financially constrained plan as the funding becomes available and the consensus for the projects are further developed through future studies.

Our region boasts one of the most comprehensive High Occupancy Vehicle (HOV) Lane systems in the nation. However, there are still gaps in the system that we must continue to close. As part of Connect SoCal, strategic HOV gap closures, direct highway-to-highway HOV connectors, and HOV direct access ramps need to be built to complete the system.

Our region's arterials and local road system accounts for more than 80 percent of the total road network and they carry a majority of overall traffic. A number of arterials run parallel to major highways and can provide alternatives to them. Beyond motor vehicles, our arterials serve transit and active transportation. As part of Complete Streets initiatives, improvements such as bicycle lanes, sidewalks, lighting, landscaping, and ADA compliant measures are shifting focus on arterials towards considering multiple users – while also providing a greater sense of place.

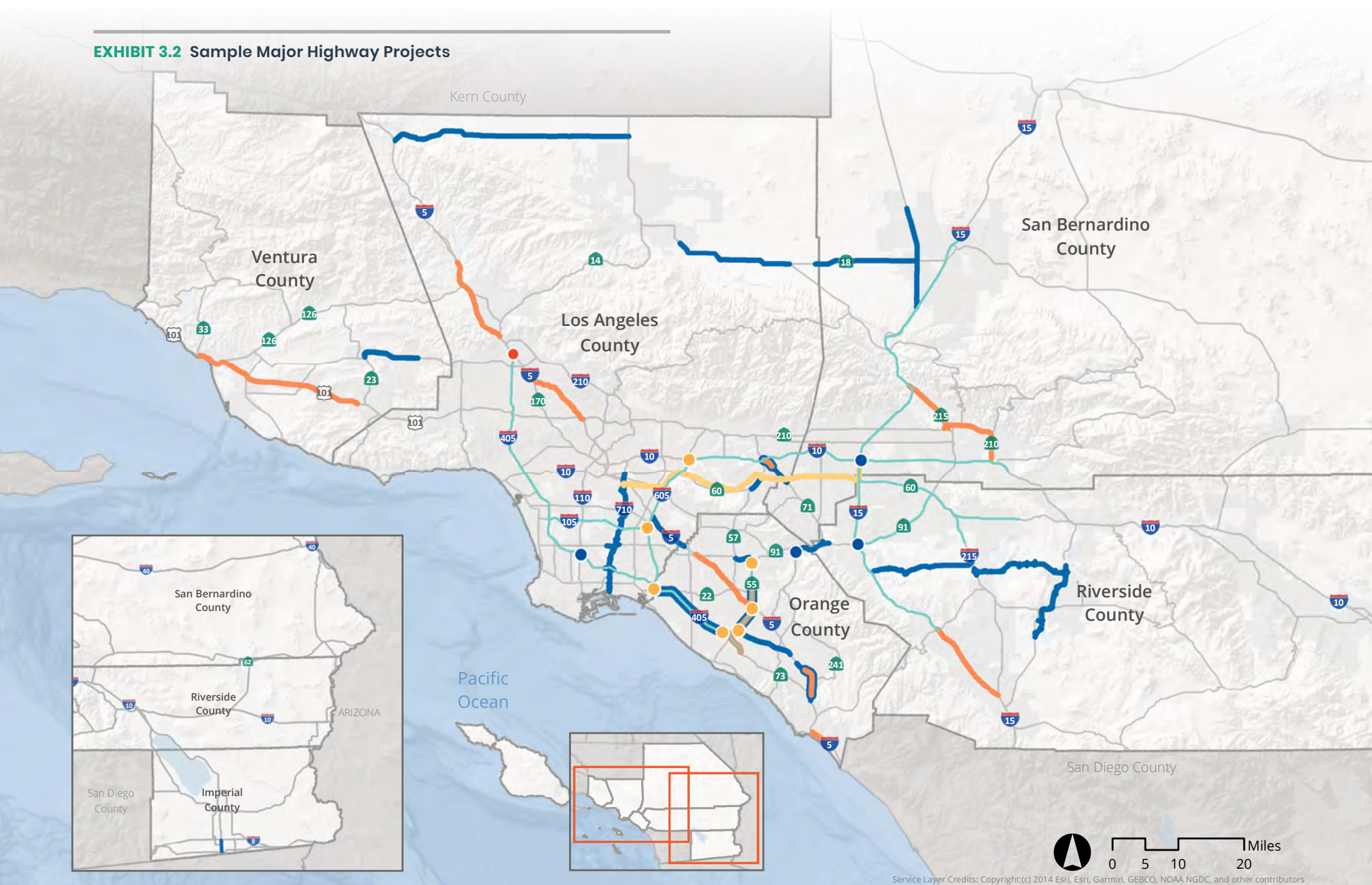
The Highway and Arterial improvements in Connect SoCal are guided by the following framework and guiding principles:

- Protect and preserve what we have first, supporting 'Fix it First' principle, including the consideration of life cycle costs beyond construction
- Support continued system preservation funding and augment as necessary
- Focus on achieving maximum productivity through strategic investments in system management and demand management
- Focus on adding capacity primarily (but not exclusively) to:
 - Close gaps in the system
 - Improve access where needed
- Support policies and system improvements that will encourage the seamless operation of our roadway network from a user perspective
- Consider safety in all roadway improvement projects
- Assure that any new roadway capacity project is developed with consideration and incorporation of congestion management strategies, including demand management measures, operational improvements, transit and ITS.
- Focus on addressing non-recurring congestion with new technology
- Implement Complete Streets consistent with California's Complete Streets Act

REGIONAL EXPRESS LANE NETWORK

Consistent with the system management pyramid, the regional express lane network integrates congestion pricing to optimize existing capacity on freeways and offer users greater travel time reliability and choices. Express lanes when appropriately priced to reflect demand can outperform non-priced lanes in terms of throughput, especially during congested periods. Express lanes operate on the principle of congestion pricing – when more vehicles are using those lanes, the price increases accordingly to manage congestion in the lanes. Express lanes and toll roads generate revenues that fund construction and operation of the facilities, and can relieve air pollution and GHG emissions associated with congestion.

EXHIBIT 3.2 Sample Major Highway Projects



- Planned HOV Connectors
- Planned HOT Direct Connector
- Planned HOV-to-HOT Direct Connector Conversion
- ▬ Planned Mixed Flow Lanes
- ▬ Planned HOV Lanes
- ▬ Planned Express Lanes
- ▬ Planned Freight Corridor

Source: SCAG, 2019

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TABLE 3.2 Sample Highway Projects

	County	Route	Description	Completion Year	Project Cost (\$1,000's)
MIXED-FLOW LANES	Imperial	SR-111	Widen and improve to six-lane freeway with interchanges at Heber, McCabe, and Jasper and overpass at Chick Rd.	2030	\$999,136
	Los Angeles	SR-57/SR-60	Route 57/60 Confluence Chokepoint Relief Program.	2026	\$300,000
	Los Angeles	I-710	Add one mixed-flow lane in each direction between Shoreline Dr and SR-91 and between I-105 and SR-60, plus add 2 truck lanes between Willow St and Del Amo Blvd.	2035	\$5,941,000
	Orange	SR-55	Add one mixed-flow lane in each direction and fix chokepoints from I-405 to I-5 and add one auxiliary lane in each direction between select on/off ramps and operational improvements through project limits.	2025	\$410,907
	Orange	SR-91	Add eastbound mixed-flow lane from SR-57 to SR-55, add one westbound mixed-flow lane from Kraemer to State College, improve interchanges and merging from Lakeview to Raymond, and auxiliary lanes in certain segments.	2030	\$456,190
	Orange	I-405	Add one mixed-flow lane in each direction from I-5 to SR-55 and southbound auxiliary lane from SR-133 to Irvine Center Drive.	2034	\$323,600
	Orange	I-405	Add one mixed-flow lane in each direction, convert existing HOV lane to HOT lane, add one additional HOT lane in each direction from SR-73 to I-605.	2026	\$1,900,000
	Ventura	SR-118	Add one lane each direction from RT-23 to Tapo Canyon Rd.	2031	\$216,463

TABLE 3.2 Sample Highway Projects - Continued

	County	Route	Description	Completion Year	Project Cost (\$1,000's)
EXPRESS LANES	Los Angeles	I-405	Add I-405 Express Lanes from I-105 to I-110.	2028	\$71,560
	Los Angeles	I-405	Add I-405 Express Lanes from I-110 to LA/Orange County Line.	2028	\$110,390
	Los Angeles	I-105	Add I-105 Express Lane from I-405 to Studebaker.	2027	\$520,900
	Los Angeles	I-405	Sepulveda Pass (Ph 1) ExpressLanes.	2027	\$260,000
	Los Angeles	I-10	Add I-10 Express Lanes from I-605 to LA/San Bernardino County Line.	2028	\$196,840
	Los Angeles	I-405	Add I-405 Express Lanes from I-10 to I-105.	2028	\$70,880
	Los Angeles	I-605	I-605 Express Lanes from I-105 to Orange County Line.	2031	\$100,850
	RIVERSIDE	I-15	Add two Express Lanes in each direction from Cajalco Rd to SR-74.	2027	\$544,000
	San Bernardino	I-15	Add two Express Lanes in each direction from I-215 to US-395	2040	\$687,994
	San Bernardino	I-15	Add one Express Lane in each direction from US-395 to High Desert Corridor (Segment 5)	2045	\$194,662
	San Bernardino	I-10	Implement 2 Express Lanes from I-10/I-15 interchange to California St. and 1 Express Lane from California St. to Ford St.	2024	\$1,214,607
	Los Angeles	SR-71	Add one HOV lane and one mixed-flow lane from Rt-10 to SB County Line.	2028	\$326,392
	Riverside	I-15	Add one HOV lane in each direction from SR-74 to I-15/I-215 interchange.	2039	\$375,664
	San Bernardino	I-215	Add one HOV lane in each direction from SR-210 to I-15.	2035	\$249,151
	Ventura	US-101	Add one HOV lane in each direction from LA/VEN County Line to SR-33.	2040	\$700,000

The regional express lane network included in Connect SoCal builds on the successful implementation of the I-10 and I-110 Express Lanes in Los Angeles County and the recent extension of the SR-91 Express Lanes between Orange and Riverside Counties. Additional efforts underway include planned express lanes on the I-105 in Los Angeles County, the I-15 in Riverside County, the I-15 and the I-10 in San Bernardino County and the I-405 in Orange County and Los Angeles County. **EXHIBIT 3.3** displays the segments in the proposed regional express lane network.

GOODS MOVEMENT

Global supply chains are interconnected, and changes in one area have subsequent and far-reaching ripple effects on transportation networks. This is especially true in the SCAG region, which serves as the premier trade gateway for the U.S.

Since the 2016 RTP/SCS, several new paradigms have emerged that are reshaping the way the region addresses goods movement issues. E-commerce has been a core driver affecting all aspects of regional goods movement by facilitating increased cargo volumes, fostering both the development and turnover of industrial establishments, changing consumer habits, causing shifts in labor forces, and paving the way for new technologies in logistics. The region is also positioning itself to address the challenges that will be brought by new technologies like automation and its corollary impacts on the regional goods movement workforce. Balancing traditional goods movement concerns and opportunities with emerging challenges, SCAG has developed key strategies to realize a regional vision that maintains regional economic competitiveness, promotes job creation and retention, increases freight mobility and safety, and mitigates environmental impacts. Specific details of goods movement challenges and strategies can be found in the Goods Movement Technical Report.

Infrastructure Investments to Improve Freight Mobility

Capturing the benefits that accompany goods movement means ensuring that regional businesses have access to and increased mobility on key goods movement corridors and networks. Improving efficiency on the transportation system will help contain the rising costs of goods and services that may be passed on to consumers. Connect SoCal identifies a significant number of infrastructure investments to assure that the region continues to be the leading

trade gateway in the U.S. It does this by supporting physical improvements in the marine terminals, highways, intermodal terminals, railroad mainlines, access routes, airports and international land border crossings that make up the goods movement network.

Last-Mile Freight

Last-mile delivery represents the final leg for goods to reach customers. These deliveries happen in complex environments, including high-density regional locations, involve sophisticated interactions among physical infrastructure and often compete for limited public space with other modes. Ensuring that freight is properly included in policy considerations and street design necessitates tailored and nuanced strategies involving multidisciplinary approaches as identified in Connect SoCal.

Workforce Development

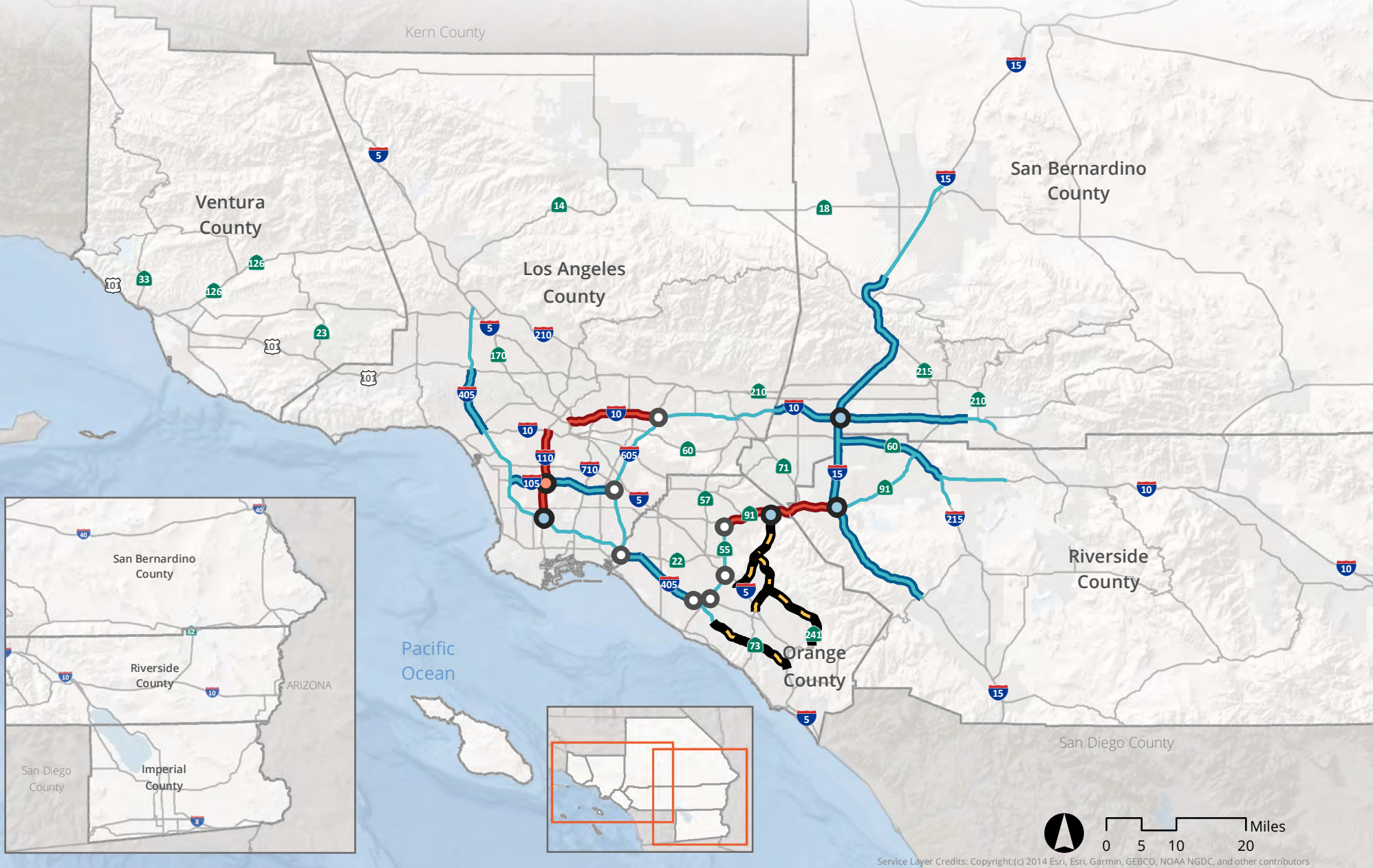
Changing supply chains, automation and new technologies, and increasingly competitive wages from other sectors, will place growing pressure on goods movement related businesses to find qualified workers without raising costs and ensure the availability of jobs that have traditionally provided well-paying jobs to lower-skilled workers. Connect SoCal supports regional programs that raise awareness of the issue, reposition the image of goods movement jobs to accurately reflect career mobility for goods movement jobs, promote increased participation by younger workers and improve access for workers.

Truck Bottleneck Relief Strategy

In 2016, California had the third-highest cost of truck congestion behind Texas and Florida at nearly \$5.1 billion and five of the top 100 truck bottlenecks in the nation. With driver wages and fuel costs representing more than 50 percent of total motor carrier costs, truck congestion has major impacts on the bottom line of the trucking industry. Truck bottlenecks are also emission “hot spots” that generally have significantly degraded localized air quality because of increased idling. Connect SoCal identifies 48 truck bottlenecks in the region and allocates an estimated \$5 billion toward strategies that relieve them, such as:

- Ramp metering
- Extending merging lanes
- Improving ramps and interchanges
- Adding auxiliary lanes

EXHIBIT 3.3 Planned Regional Express Lane Network



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-  Existing Express Lanes
-  Existing Toll Roads
-  Planned Express Lane Network
-  Planned Dual-Lane Segments
-  Existing Express Lane Direct Connector
-  Planned Express Lane Direct Connector
-  Planned HOV-to-Express Lane Direct Connector Conversion



CORE VISION GOODS MOVEMENT

The efficient movement of goods is critical to a strong economy and improves quality of life in the SCAG region by providing jobs and access to markets through trade. However, increased volumes of goods moving across the transportation system contribute to greater congestion, safety concerns and harmful emissions. It is critical to integrate land use decisions and technological advancements to minimize environmental and health impacts while fostering continued growth in trade and commerce.

PROGRESS SINCE 2016

Adoption of the Clean Air Action Plan Update in 2017. Since inception in 2006, the Ports have reduced air pollution from harbor trucks alone by more than 90 percent.

Selection of a Locally Preferred Alternative for the I-710 South Recirculated Draft EIR/Supplemental Draft EIS.

Twenty-five regional grade separations have been completed and opened to traffic, reducing delays and emissions from idling vehicles, and addressing noise and safety concerns.

Near completion of the Gerald Desmond Bridge (completion 2020).

Expansion of the international POE in Calexico.

PLANNING FOR 2045

Connect SoCal includes expanded railyards, additional mainline railroad tracks, grade separations, improved port terminals and truck bottleneck relief projects, including dedicated truck lanes.

Connect SoCal addresses drivers of change such as e-commerce, new technologies, shifts in trade policies, last-mile delivery and the move to a near-zero and zero-emissions system.

Industrial Warehouse & Distribution Centers

Southern California is home to the largest industrial warehouse cluster in the nation, with well over 1.2 billion square feet of industrial space. SCAG will continue efforts to provide the most updated data on industrial warehouse building square footage and conduct further analyses to better reflect changes in industrial land uses, truck industry service types, and equipment usage for truck terminals due to e-commerce. This includes consideration of new area sub-category classifications such as seaport and air cargo terminals, and rail intermodal and classification yards. By further understanding industrial facilities, SCAG will be more equipped to explore strategies that support the effective integration between goods movement needs and regional land use patterns.

Goods Movement Environmental Strategy

Much of the SCAG region (and nearly all of the urbanized area in the region) does not meet federal ozone and fine particulate air quality standards, and goods movement is a major source of greenhouse gas emissions. With growing demand to quickly deliver goods to consumers, the region will need to aggressively pursue the reduction of freight emissions that contributes to regional air pollution problems and localized “hot spots” that have adverse health impacts. Connect SoCal proposes an environmental strategy to address the air quality impacts of goods movement, while also allowing for the efficient and safe movement of goods throughout the region. A critical component of this strategy is the integration of advanced technologies that have benefits such as air quality improvements, energy security and economic growth opportunities. Connect SoCal articulates a process to accelerate the development and deployment of effective technologies, along with key action steps, to help the region reduce dangerous pollutants as much as possible. While this plan focuses on getting cleaner vehicles on the road quickly, this must be done with full life-cycle consideration of production, use and disposal impacts. This plan reaffirms zero and near-zero emission technologies as a priority, describes progress to date, and outlines a framework and key action steps to reach that goal. The process, framework, and action steps can be found in the Goods Movement Technical Report.

AVIATION

SCAG, by definition, is primarily a regional surface transportation planning agency. Therefore, SCAG is focused on air passenger and cargo activity from the perspective of how the traffic coming and going from the airports affects the region’s roads, highways, and transit systems, and how to improve ground transportation access to the airports. On a basic level, SCAG maintains an updated list of airport ground access improvements. However, SCAG has and will continue to play a role in terms of aviation systems research, planning and analysis, as well as encouraging collaboration and communication amongst the region’s aviation stakeholders.

In order to best plan for and assess the impacts of air passenger and cargo activity on the region’s surface transportation system, SCAG takes a comprehensive, collaborative and empirical analytical approach to regional transportation planning. **TABLE 3.3** summarizes passenger and air cargo demand in 2045 at each of the current and future commercial airports within the SCAG region. These forecasts were developed through a collaborative process working with each of the airports individually as well as collectively through the Aviation Technical Advisory committee (ATAC). The estimated future demand at each of the airports informs the transportation improvement needs.

Work with Airports & Transportation Agencies on Airport Ground Access Projects

The airports in the SCAG region are currently working with federal, state, and local transportation agencies, and private partners, to improve airport ground access and infrastructure. SCAG maintains an updated list of the various airport ground access improvement projects and works with the airports to assist with data collection and assist with agency coordination.

Currently, Los Angeles World Airports (LAWA) is completing the Landside Access Modernization Program (LAMP) project and is in the planning and environmental phases for the Airfield and Terminal Modernization (ATM) program. Both the LAMP and ATM projects address ground access and airport modernization at LAX. The LAMP project will include the Automated People Mover, two Intermodal Transportation Facilities, a Consolidated Rental Car Facility and a series of comprehensive roadway improvements designed to alleviate traffic congestion in and around the airport.

Hollywood Burbank Airport has recently completed transit and rail infrastructure projects to improve ground access, including the Regional Intermodal Transit Center (RITC), and is currently in the planning process for a new airport terminal. While Burbank is currently the only airport with direct rail access to the airport, the City of Ontario and the San Bernardino County Transportation Authority have formally initiated the planning process for new Metrolink connections to the Ontario International Airport.

TABLE 3.3 SCAG Region Airport Passenger Forecast for 2020–2045

Major SCAG Region Airports	2017 (Base Year) Actual Activity (in millions)	2045 (Horizon Year) Projection (in millions)
Total SCAG Region	110.17	197.14
Burbank	4.74	9
Imperial	0.012	0.3
Los Angeles	84.56	127
Long Beach	3.783	5.5
Ontario	4.552	33
Oxnard	0	0.3
Palmdale	0	1.82
Palm Springs	2.1	5
Riverside	0	0.61
San Bernardino	0	1.81
Orange County	10.423	12.5
So Cal Logistics	0	0.3

Source: The airport activity numbers for 2017 and the airport forecast numbers for 2045 were obtained from the airports.

Effective Analysis & Planning

Rigorous data collection, research and analysis is critical for effective regional planning, including planning for ground access to and from the region's airports. The ongoing development of the SCAG region's surface transportation system, especially as it relates to the airports in the face of growing air passenger and cargo demand, will require that all key partners maintain and have access to quality data on aviation passenger and cargo trends.

Much of that research and analysis will continue to be provided by the aviation and transportation stakeholders in the region in the form of data, activity reports, passenger surveys and other agency-initiated reports, studies and working groups. However, in addition to the agency-led efforts, the SCAG Aviation Program will begin designing and initiating studies (e.g. air passenger surveys, airline airport choice studies) that will help inform airport and transportation planners in the region. To this end, in order to ensure that there is not unnecessarily overlap and that the research represents the interests and goals of the aviation stakeholders, SCAG will continue a comprehensive and collaborative planning approach by working with the airports, transportation commissions and agencies, state agencies, federal agencies and other aviation and transportation stakeholders.

The data collection and analysis for the different research projects will be open, transparent and collaborative processes. At the core of the SCAG Aviation Program's efforts will be to continue to facilitate effective research, analysis, and planning through information sharing and open communication.

Ongoing Communication & Collaboration Between Airports, Transportation Agencies & Government

The SCAG Aviation Program will act as a facilitator of working relationships and discourse between aviation and transportation planning agencies and officials in the region. Although SCAG has no regulatory, planning, or operational authority over the airports, as a metropolitan planning organization, SCAG is encouraged by federal statute to consult and collaborate with transportation stakeholders, including airport officials. In an effort to encourage effective planning for the coming growth in air passenger and cargo demand, the SCAG Aviation Program has provided and will continue to provide a critical collaborative planning function. Whether it is through the ATAC, attendance at conferences and working group meetings, and meeting with airports and

government agencies, the SCAG Aviation Program will continue to play a critical role in building bridges and partnerships across the region.

TECHNOLOGICAL INNOVATIONS & EMERGING TECHNOLOGY

Emerging technologies in transportation and mobility are primarily developed and advanced by the private sector, and it is important that public agencies monitor the development of such innovations. Emerging technology in transportation and mobility are themes threaded throughout Connect SoCal. SCAG has completed wide-ranging analysis of recent and emerging technologies principally associated with light-duty vehicles that could potentially impact travel behavior and location choices in the region over the next 25 years. However, these new technologies will have diverse impacts, affecting everything from goods movement to transit.

Connect SoCal recognizes that many of these new technologies provide consumer solutions and have been embraced by the public as evidenced by the proliferation of smartphones, mobile banking, navigational apps and social networking. Emerging technology such as ride-hailing, carshare, e-bike and e-scooters provide more choices, including a range of affordable mobility options for travelers. Some niche ride-hailing companies also serve special markets such as children, healthcare transportation and concierge service for elderly customers. Improvements in regional mobility will therefore likely be derived from how technology is used, rather than from any individual technological development.

By providing more options for local and regional trips, emerging technologies may shift trips to less environmentally damaging modes, minimize negative environmental externalities associated with current vehicle use, increase system efficiency, improve safety, and reduce auto-related collisions and fatalities. Moreover, strategies to harness the benefits of emerging technologies to advance Connect SoCal goals are viewed through the lens of improving health, safety, and equity and mobility outcomes for all the region's residents.

To stay informed on emerging technologies as they develop, SCAG regularly communicates with institutions of higher learning, metropolitan planning organizations from around the country, county transportation commissions, local jurisdictions, economic development entities and chambers of commerce.

SCAG has prepared a set of recommended policies that are included in the Connect SoCal Emerging Technology Technical Report. Those policies represent examples that SCAG could help local jurisdictions to adopt. The policies would need to be studied and customized to fit local context. In addition to recommended policies, Connect SoCal proposes programs that encourage the deployment of selected technologies to improve mobility and reduce GHGs. These programs support the Key Connections strategies 'Accelerated Electrification' and 'Shared Mobility and Mobility as a Service (MaaS)'.

PROTECTING THE ENVIRONMENT

Integrating the many transportation and land use strategies discussed in this chapter will help protect the region's natural environment—in numerous ways. SCAG has been committed to this integration, as well as protecting the environment, for years. However, environmental protection is now a major requirement of Moving Ahead for Progress in the 21st Century Act (MAP-21/FAST Act). Pursuant to Section 23 U.S. Code Section 134, "a long-range transportation plan shall include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan." Connect SoCal also considers and is consistent with the provisions of the Fixing America's Surface Transportation Act (FAST Act). As part of the planning process, MPOs "shall consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation and historic preservation concerning the development of the transportation plan." They also must consider, if available, "state conservation plans or maps" and "inventories of natural or historic resources."

ENVIRONMENTAL MITIGATION PROGRAM

Connect SoCal includes an environmental mitigation program that links transportation planning to the environment. Building on its strong commitment to the environment as demonstrated in the previously conducted 2016 RTP/SCS, SCAG's mitigation program is intended to function as a resource for lead agencies to consider in identifying mitigation measures to reduce impacts anticipated to result from future projects as deemed applicable and feasible by such agencies. This mitigation discussion also utilizes documents created

by federal, state and local agencies to guide environmental planning for transportation projects.

Connect SoCal in some aspects acts as a "self-mitigating" plan in certain impact areas, in that its policies and strategies lead to improved environmental outcomes for air quality, GHG emissions, public health, congestion and other indicators, while accommodating existing and projected population growth, among other key environmental indicators compared to the No Project Alternative (Trend Scenario). Nevertheless, the implementation of plan programs, policies and strategies may lead to additional environmental impacts compared to existing conditions.

As a public agency in California, SCAG also fulfills mitigation requirements by preparing a Program Environmental Impact Report (PEIR), pursuant to the California Environmental Quality Act (CEQA). The PEIR evaluates potential environmental impacts of Connect SoCal when compared with existing conditions and proposes measures at the program level to mitigate impacts to the maximum extent feasible for those resource areas that would be affected by the plan.

MITIGATION MEASURES

SCAG is responsible for developing a plan to monitor mitigation activities to track progress on implementation of these measures at the regional level. SCAG's mitigation is consistent with the general role played by a metropolitan planning organization, including developing and sharing information, collaborating with partners and developing regional policies.

Senate Bill 375 states that nothing in a SCS supersedes the land use authority of cities and counties and that cities and counties are not required to change their land use policies and regulations, including their general plans, to be consistent with the SCS or an alternative planning strategy (Government Code Section 65080(b)(2)(K)). Cities and counties have plenary authority to regulate land use through their police powers granted by the California Constitution, art. XI, §7, and under several statutes, including the local planning law (Government Code Sections 65100-65763), the zoning law (Government Code Sections 65800-65912), and the Subdivision Map Act (Government Code Sections 66410-66499.37). SCAG has no concurrent authority/jurisdiction to implement mitigation related to land use plans and projects.



KEY CONNECTIONS

SMART CITIES & JOB CENTERS

BIG DATA & VIRTUAL INFRASTRUCTURE

Smart Cities connect people, vehicles and infrastructure, allowing them to communicate in “real-time” through regional telecommunications networks. The Smart Cities and Job Centers strategy aims to catalyze investments across sectors to make “virtual access” a cost-effective and reliable option for all types of trips, expanding the air quality, congestion and VMT reduction benefits the region already realizes through teleworking. While Smart Cities strategies can be deployed universally, virtual access is particularly beneficial in rural communities where destinations are far apart.

Connect SoCal specifically envisions intensified deployment in sub-regional job centers to encourage more growth of both jobs and housing in areas with already high employment density. The Smart Cities and Job Centers strategy enables this by using integrated information and communication technologies to improve the efficiency and performance of the transportation system. It incorporates transit demand management (TDM) measures that encourage carpooling and transit, and parking strategies that reduce the cost to build new employment facilities within job centers. Also, this strategy builds upon promising trends in “co-working” to promote alternatives for long-distance commuters who prefer not to telecommute. Strengthening these locally significant employment centers allows the region to capitalize on the economic and mobility benefits of compact development, where housing and jobs are closer together.

PROMISING PRACTICES

South Bay Fiber Network

Development of a regional broadband fiber-optic network to support improved management of transportation systems and transportation demand management.

SCAG Future Communities Pilot Program

Partnership with the Mobile Source Air Pollution Reduction Review Committee to provide local technical assistance grants supporting data and technology solutions to reduce VMT through enhanced city services and mobility programs.

PLANNING FOR 2045

To replace vehicle trips with virtual access and realize greenhouse gas reductions savings through the deployment of “smart” technologies, SCAG will continue to research and advance Smart Cities strategies including by:

- Seeking funding and partners to continue to the Future Communities Pilot Program.
- Expanding research on the Future of Work to increase understanding and advance strategies where technology can substitute for physical trips (via strategies like telecommuting, telemedicine, online learning, e-commerce, and e-government).
- Collaborating with the Inland Empire Regional Broadband Consortium, California Emerging Technology Fund, and others on a Transportation Broadband Strategies Study to help reduce VMT and greenhouse gas emissions.



TECHNOLOGY IS CHANGING THE FUTURE OF WORK (AND HELPING REDUCE VEHICLE TRIPS)



KEY CONNECTIONS

SHARED MOBILITY & MOBILITY AS A SERVICE

THE RIGHT TOOL FOR THE JOB

The future of transportation, like so many aspects of living in our region, will be shaped by technology and the ability to customize our choices. The rise of shared mobility and mobility as a service will allow residents to choose how to travel, depending on the time, distance or goal of their trip. “Shared mobility” refers to a broad range of transportation options, such as rental e-scooters and e-bikes, ridesourcing services like Uber and Lyft, and on-demand app-based transit connections provided by vans and shuttles. “Mobility as a service,” or MaaS, allows travelers to research and compare different transportation options from one screen and plan their trip accordingly. MaaS will also allow the traveler to book and pay for different segments of a multi-modal trip with one click. This will make it increasingly critical that dense urban areas manage their curb space smartly, in order to ensure safe access for low-speed modes, ridesourcing providers, parking and local deliveries.

PROMISING PRACTICES

TAP Card Integration

You can pay fares on 25 different regional transit systems with just one “Transit Access Pass” (TAP) card

Metro Bike Share / TAP Card Integration

Your TAP card gives you to access 1,500 bikes at over 150 stations across LA County

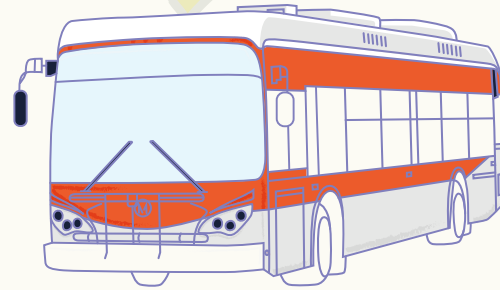
LA Metro Carsharing Integration

Dedicated carsharing spaces are available at 25 Metro stations in LA County

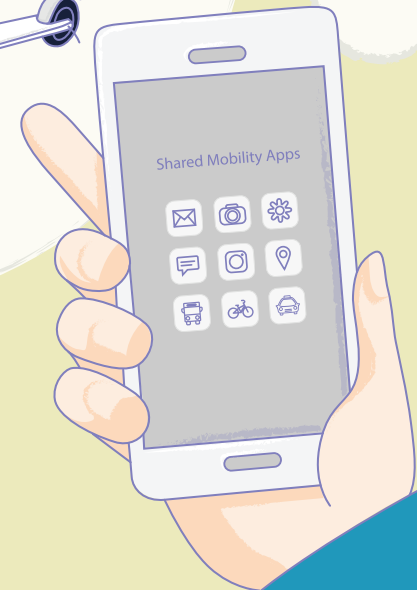
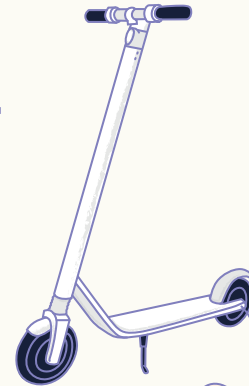
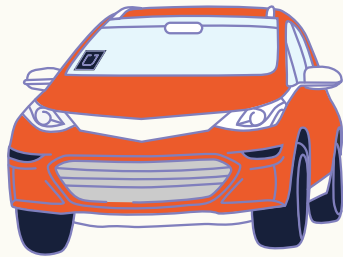
PLANNING FOR 2045

Through regional planning and collaboration, SCAG will advance the vision of shared and seamless travel through MaaS as an alternative to driving alone. Programs to be explored and advanced to realize this outcome through partnership and collaboration could include:

- **GoMonrovia** – City-subsidized ridesharing trips take residents to city’s downtown and Metro Gold Line station
- **California Integrated Travel Project (Cal-ITP)** – facilitate multi-modal trip planning and payment to support state goals of increasing transit ridership, reaching environmental targets, lowering costs, creating efficiencies, improving customer experience and promoting equity.
- **Micro-Mobility Pilot Programs** – Developing local regulations helps ensure safety, accessibility, access to data and accountability for new modes of travel
- **Regional Microtransit Pilot Projects** – Testing on-demand transit across the region: OCTA - OC Flex, LADOT - LANow, Anaheim Transit Network - Free Rides Around the Neighborhood, and Metro - Via.



**WHICH OPTION
WOULD WORK BEST
FOR ME TODAY?**



With respect to the transportation projects in Connect SoCal, these projects are to be implemented by Caltrans, county transportation commissions, local transit agencies, and local governments (i.e., cities and counties), and not SCAG. Transportation project implementation and land use development decisions are subject to their own environmental review process and are expected to implement project-specific mitigation measures to minimize environmental impacts, as SCAG has no authority/jurisdiction to require these agencies to implement projects nor their mitigation measures.

For the Connect SoCal PEIR, SCAG has taken a performance standards-based mitigation approach that includes:

- SCAG's program level mitigation measures
- Project-level mitigation measures which are within responsibility, authority, and/or jurisdiction of project-implementing agency or other public agency serving as lead agency under CEQA in subsequent project- and site- specific design, CEQA review, and decision-making processes, to meet the performance standards for each of the CEQA resource categories.

Program level mitigation measures have been identified and will be undertaken by SCAG, to offset any identified potentially significant adverse programmatic-level environmental effects. Such measures include public awareness and outreach, agency coordination and feasibility studies.

Project level mitigation measures have been identified that “can and should where applicable and feasible” be undertaken by lead agencies that implement transportation projects or projects influenced by land use development patterns. Such measures may include: local safety measures, transportation demand management system, compliance with air management district regulations and others.

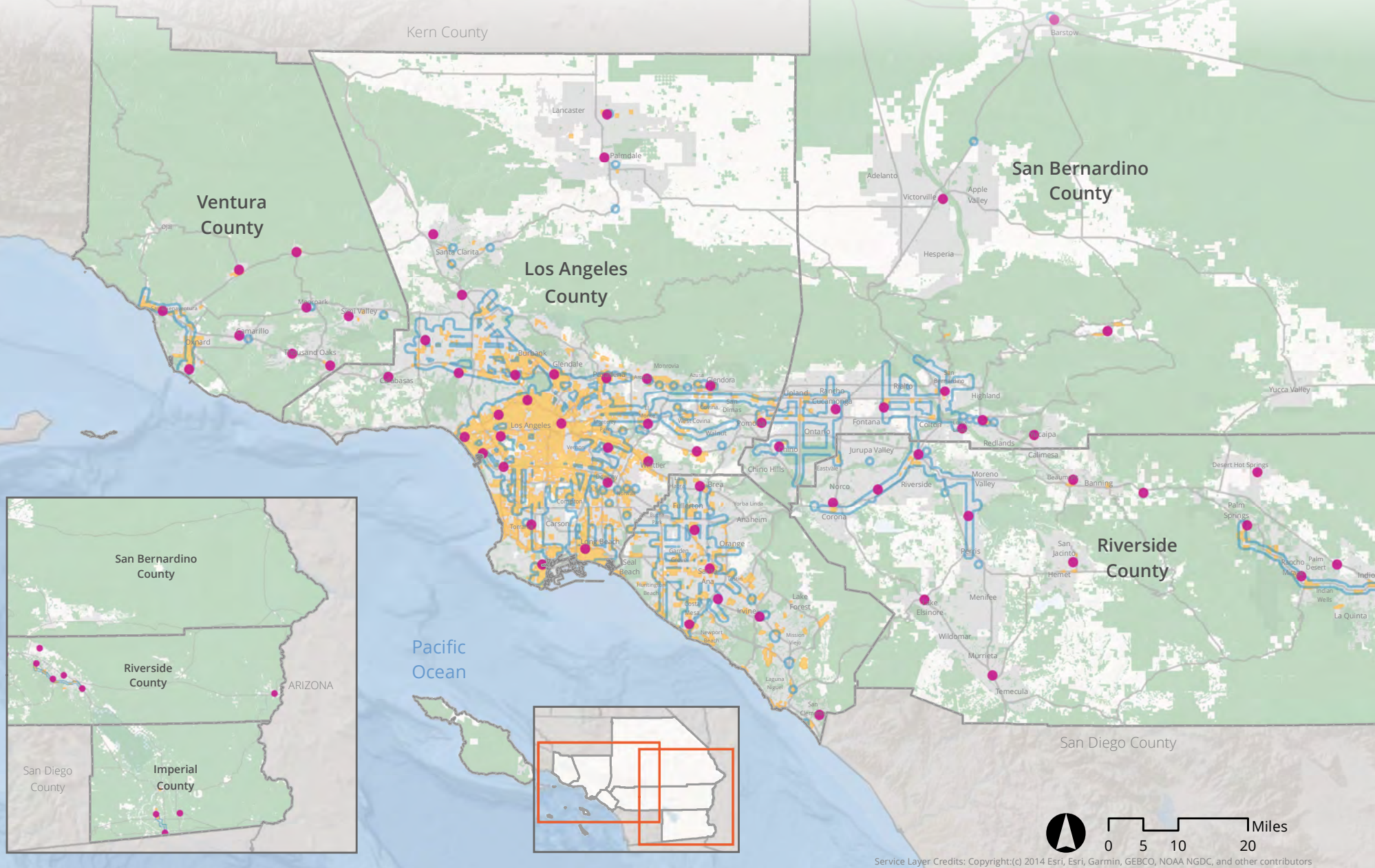
The Connect SoCal PEIR identifies program and project-level mitigation measures for the following resource categories:

- Aesthetics
- Agriculture and forestry resources
- Air quality; Biological resources
- Cultural resources
- Energy

- Geology and soils
- Greenhouse gas emissions and climate change
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Mineral resources
- Noise
- Population, housing and employment
- Public services
- Recreation
- Transportation, traffic and safety
- Tribal cultural resources
- Utilities and service systems
- Wildfire

For a complete list of mitigation measures and its approach, refer to the Connect SoCal PEIR located at the Connect SoCal website.

EXHIBIT 3.4 Priority Growth Areas & Growth Constraints



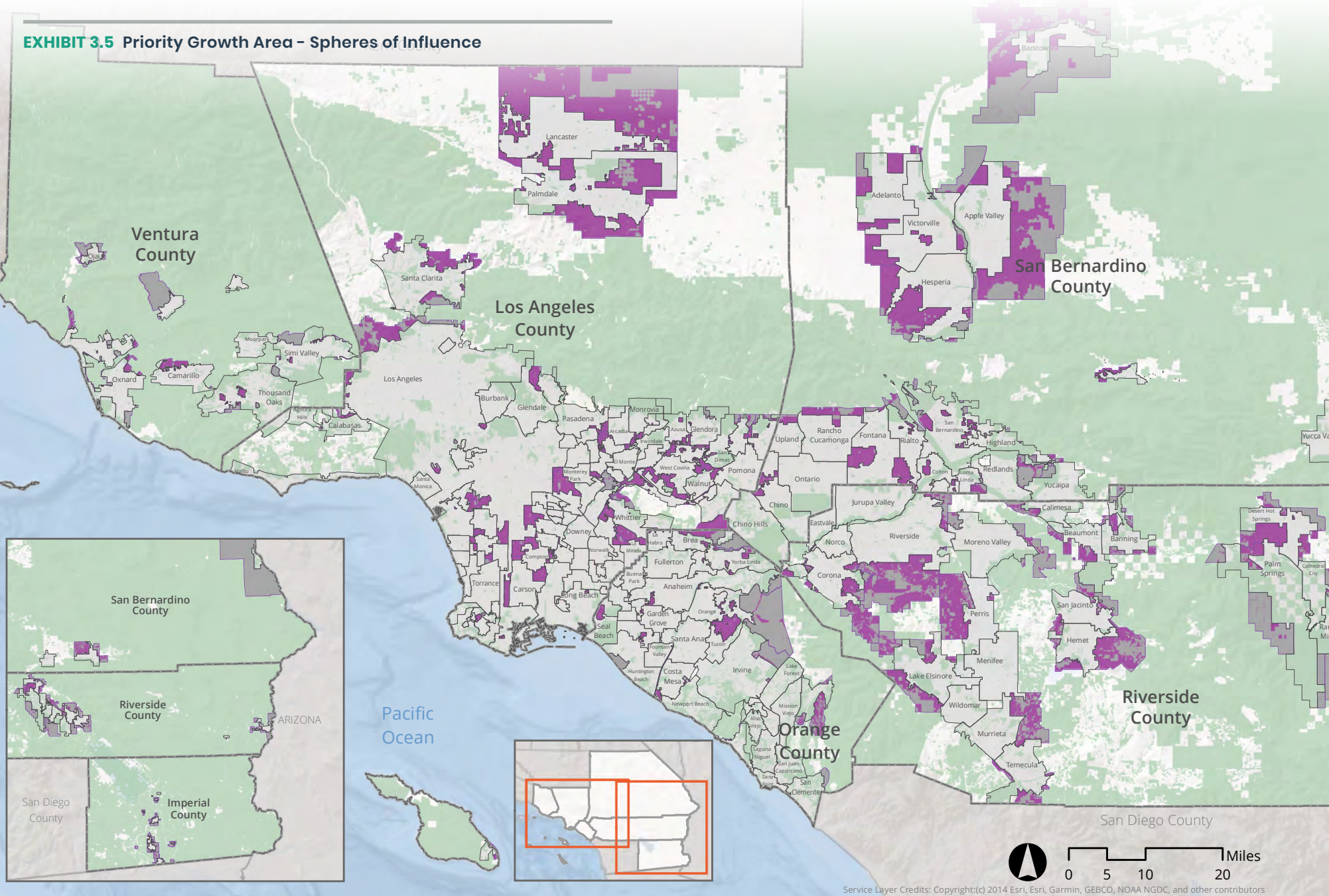
Priority Growth Areas vs. Regional Growth Constraints

- Job Center
- Neighborhood Mobility Areas
- High Quality Transit Area
- Regional Growth Constraints

Note: SCAG used locally informed data elements to determine Regional Growth Constraints including the absolute constraint areas shown in the map such as Tribal lands, Conserved Land and others. See the Sustainable Communities Strategy Technical Report for more details on these and the variable constraints used in plan development.

Source: CalBRACE, California Department of Conservation, CPAD, CCED, County Transportation Commissions, NOAA Coastal Services Center, SCAG, 2019

EXHIBIT 3.5 Priority Growth Area - Spheres of Influence

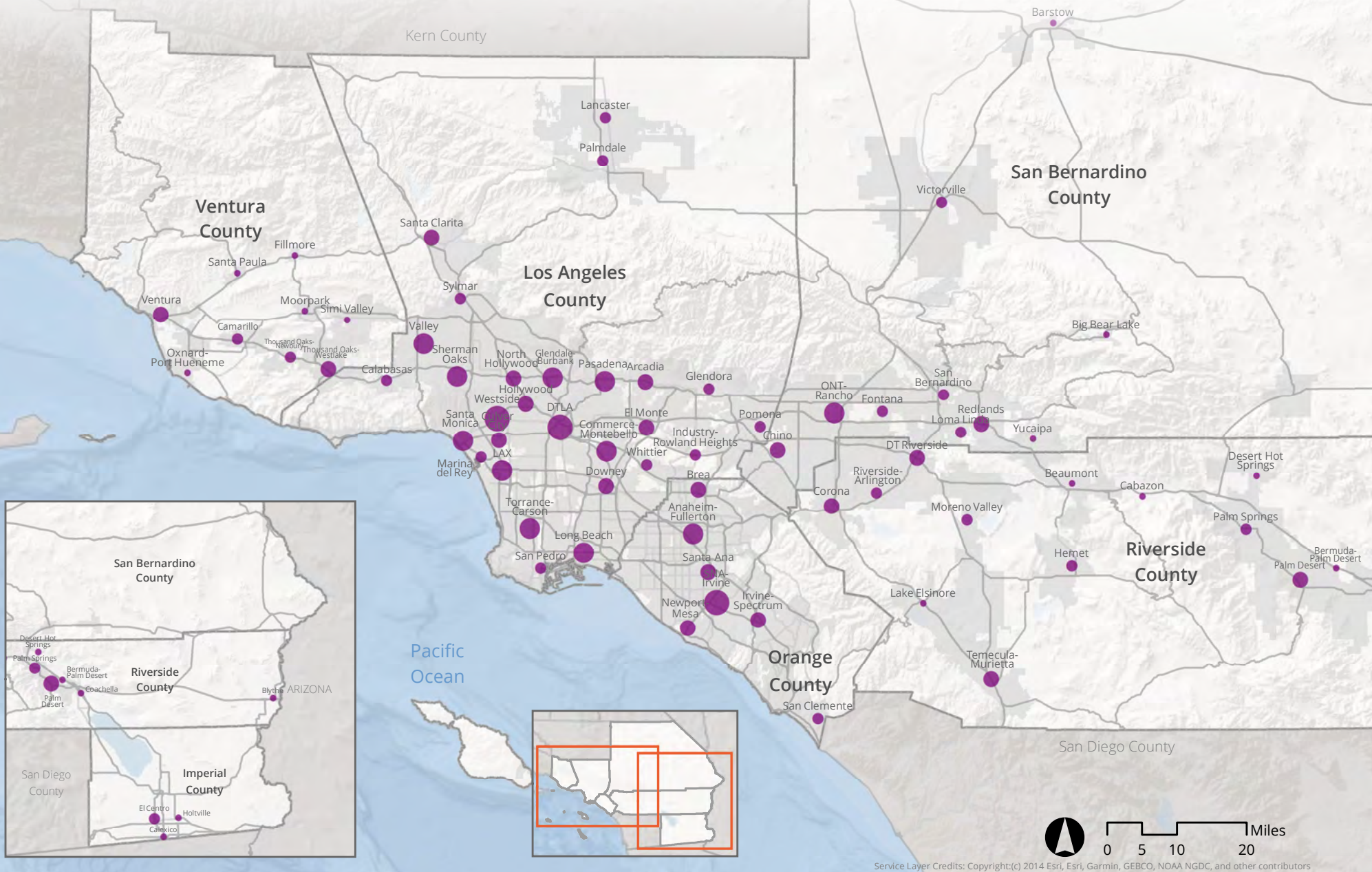


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- County Boundaries
- Sphere of Influence
- City Boundaries
- Regional Growth Constraints

Note: SCAG used locally informed data elements to determine Regional Growth Constraints including the absolute constraint areas shown in the map such as Tribal lands, Conserved Land and others. See the Sustainable Communities Strategy Technical Report for more details on these and the variable constraints used in plan development.

EXHIBIT 3.6 Priority Growth Area - Job Centers



SCAG Region Proposed 2020 RTP/SCS Job Centers (Total Employment)

- Less than 10,001 (17)
- 10,001 - 25,000 (22)
- 25,001 - 50,000 (19)
- 50,001 - 150,000 (11)
- More than 150,000 (3)

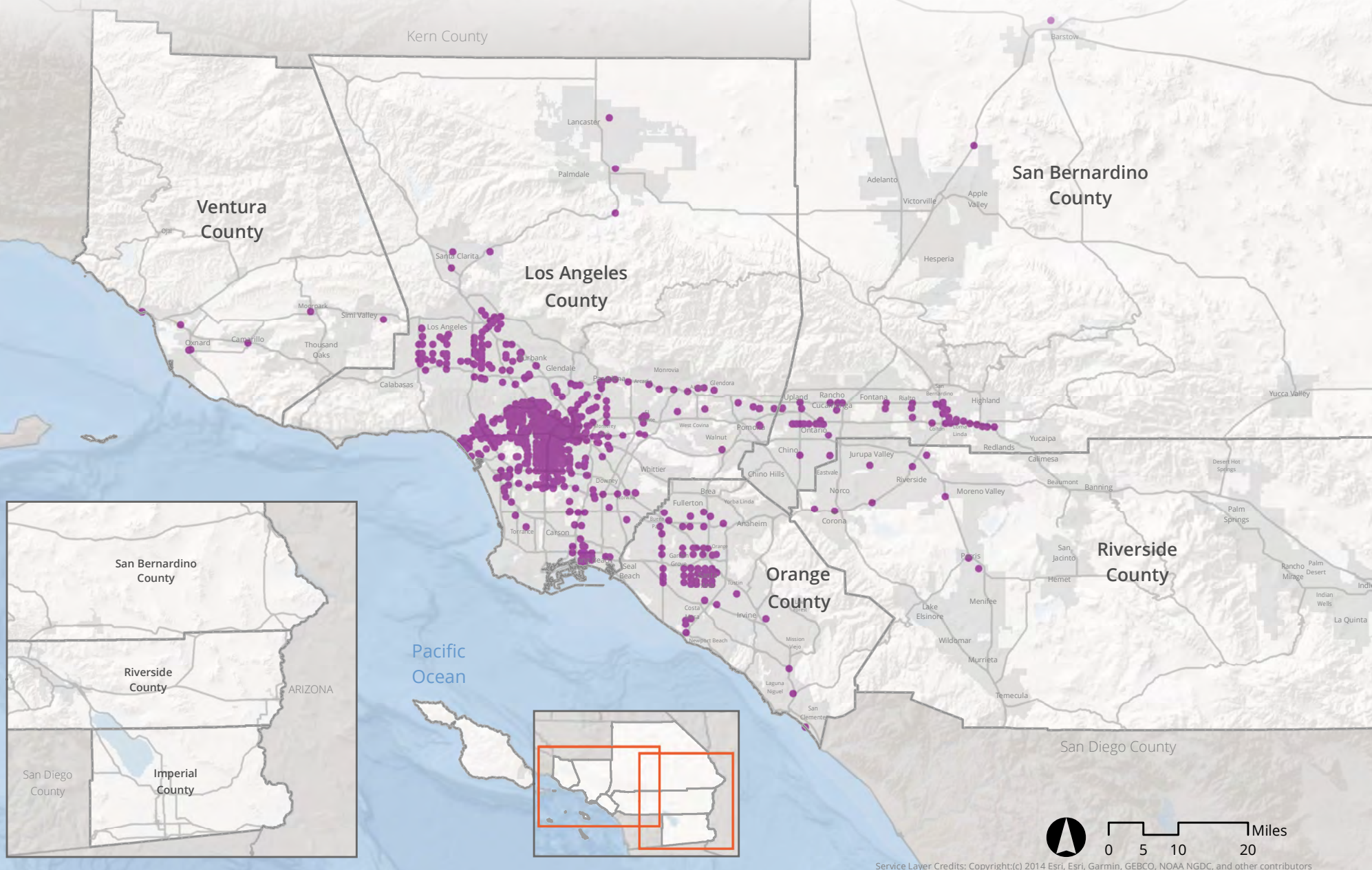
Source: SCAG, 2019

Notes:

- (1) Centers are areas with denser employment than their surroundings.
- (2) Dots represent the total employment in each center, not center boundaries.
- (3) Names are intended to be illustrative and may not reflect all the jurisdictions in which a center fully lies.

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EXHIBIT 3.7 Priority Growth Area – Transit Priority Areas



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

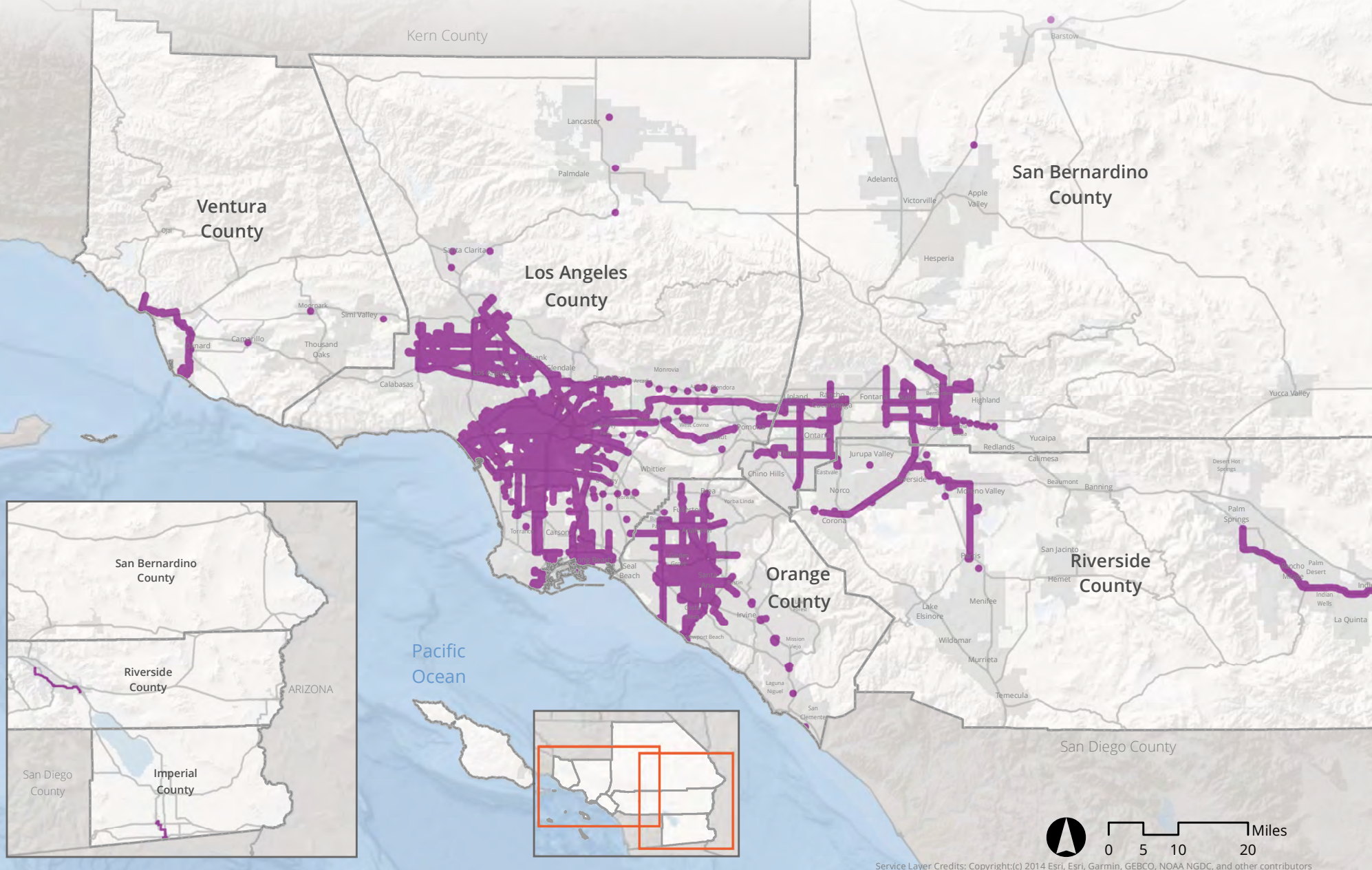
Transit Priority Areas (2045)

■ TPA

Note: Transit priority area (TPA) refers to an area within one-half mile of a major transit stop that is existing or planned. SCAG identifies major transit stops and transit priority areas using the methodology described in the Transit Technical Report. Major transit stops are extracted from 2045 plan year data of Connect SoCal.

Source: County Transportation Commissions, SCAG, 2019

EXHIBIT 3.8 Priority Growth Area - High Quality Transit Areas

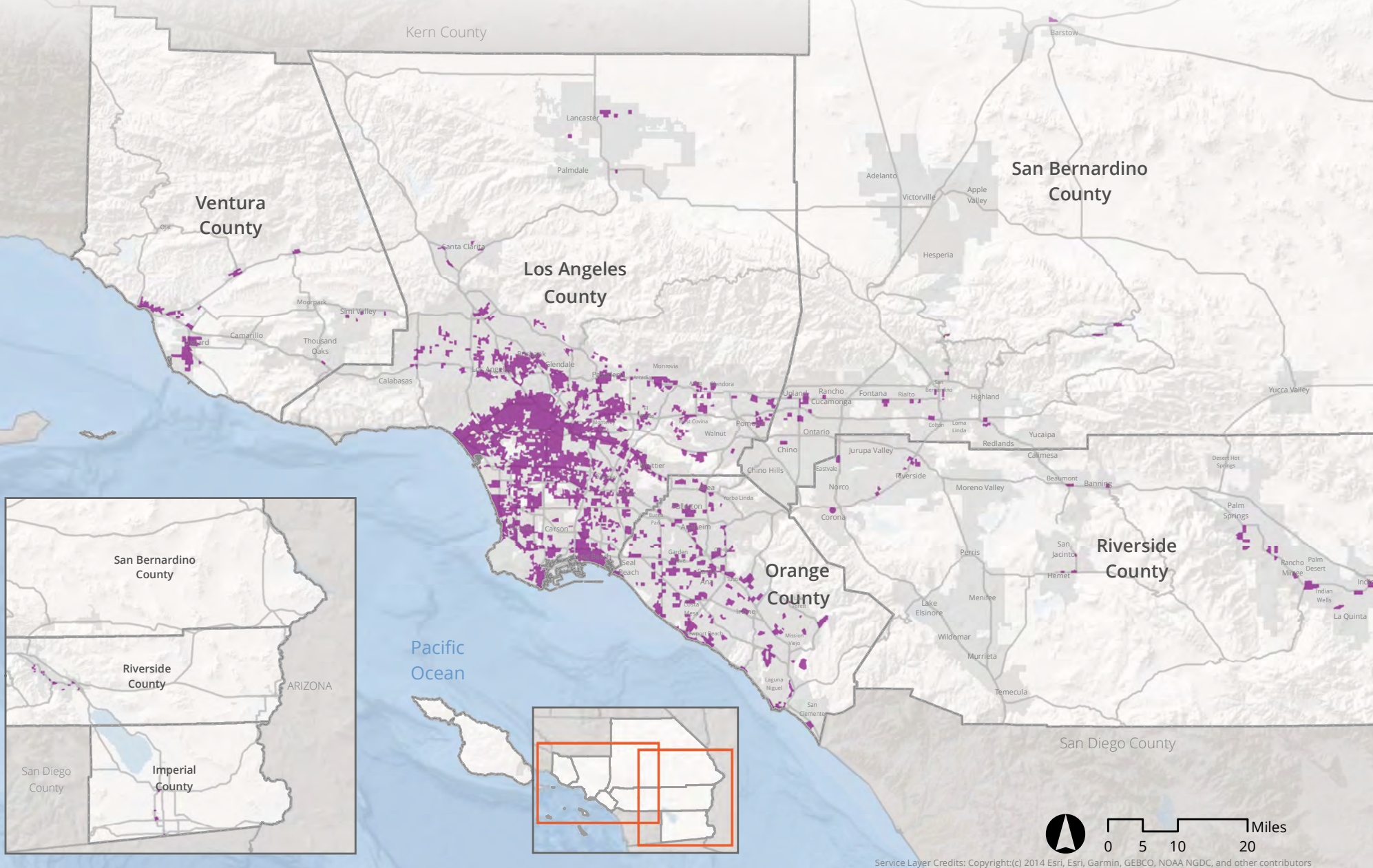


High Quality Transit Areas (2045)

■ HQTA

Note: SCAG's High Quality Transit Area (HQTAs) is within one-half mile from major transit stops and high quality transit corridors (HQTAs). SCAG identifies major transit stops and HQTAs using the methodology described in the Transit Technical Report. Major transit stops and HQTAs are extracted from 2045 plan year data of Connect SoCal.

EXHIBIT 3.9 Priority Growth Area – Neighborhood Mobility Areas



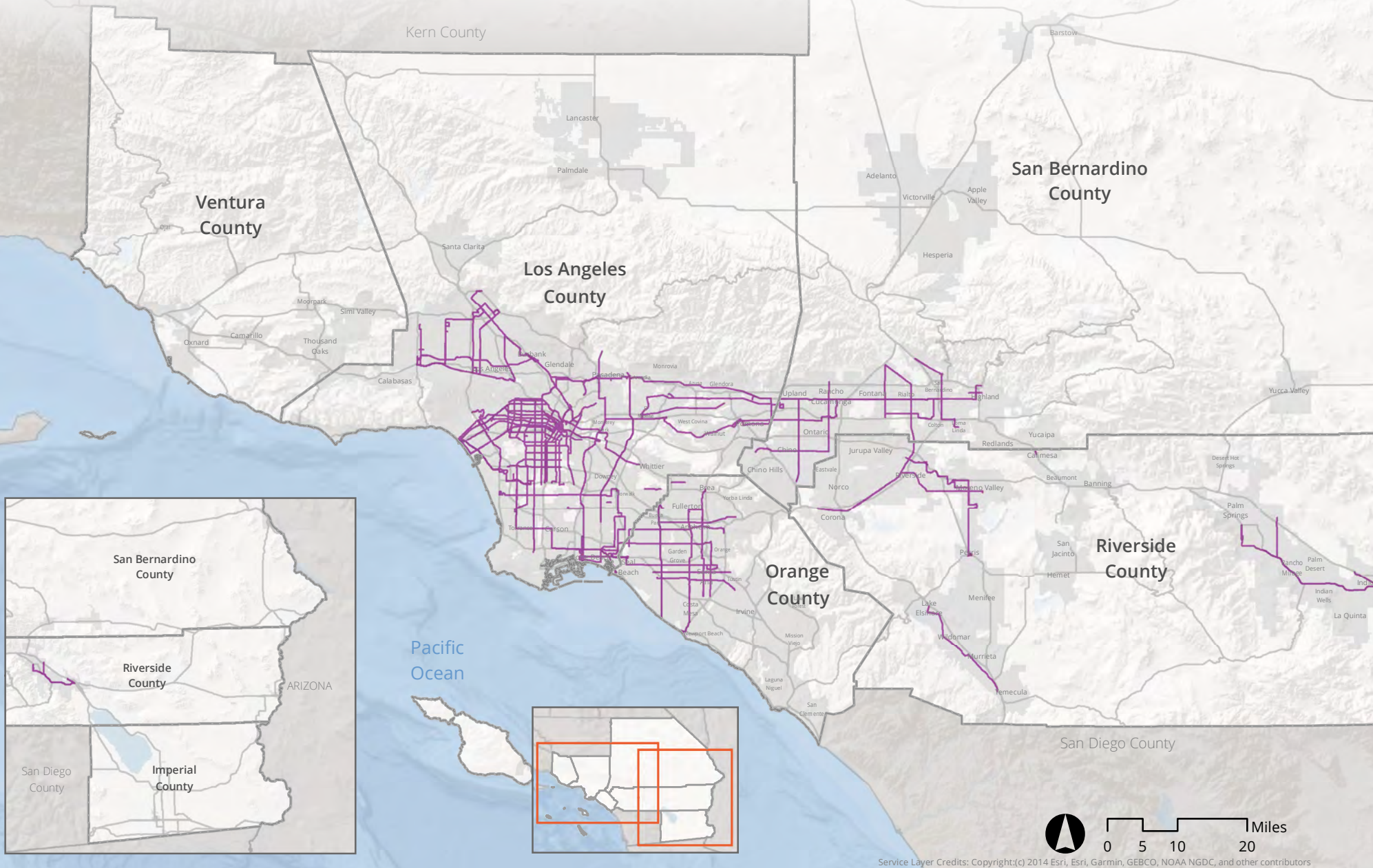
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Neighborhood Mobility Areas (NMA)

■ NMA

Note: Neighborhood Mobility Areas (NMA) were identified by analyzing and assigning z-scores four measures at the Tier 2 TAZ level, and subsequently summing the z-scores. TAZs that scored at the 80th percentile or higher for the composite score were considered NMAs.

EXHIBIT 3.10 Priority Growth Area - Livable Corridors



Livable Corridors

— Livable Corridors